

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

NOVEMBER 2020

A10 FOUNDATIONS
A20 BASEMENT CONSTRUCTION
B10 SUPERSTRUCTURE
B20 EXTERIOR ENCLOSURE
B30 ROOFING
C10 INTERIOR CONSTRUCTION
C20 STAIRS
C30 INTERIOR FINISHES
D10 CONVEYING
D20 PLUMBING
D30 HVAC
D40 FIRE PROTECTION
D50 ELECTRICAL
E10 EQUIPMENT
F10 SPECIAL CONSTRUCTION
R10 SUPERMARKET REFRIGERATION

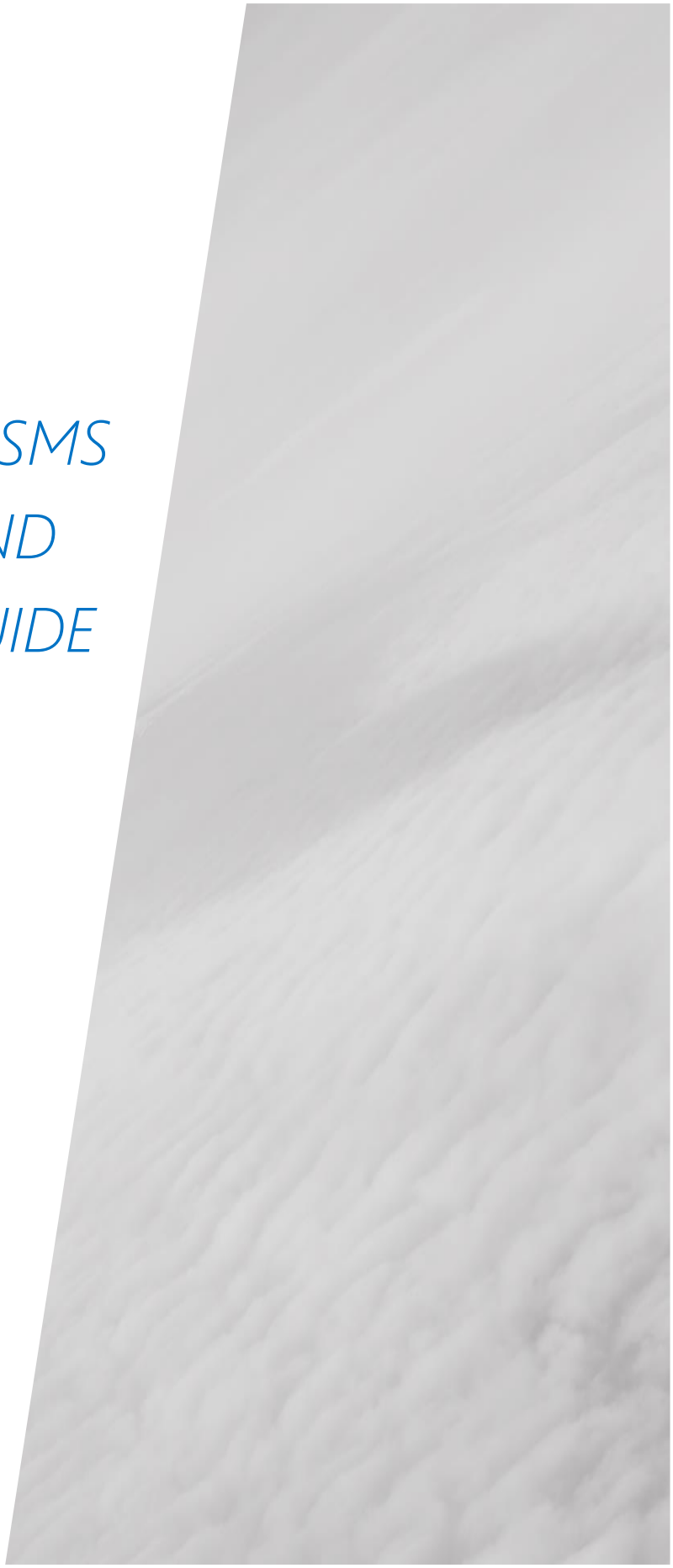
RS&H

Version & Revision Information

This document is based on the Army BUILDER™ SMS Inventory and Assessment Guide, Version June 29, 2017. New sections were developed and added for systems F10 Special Construction and R10 Supermarket Refrigeration. Minor additions and revisions were made to the sections for systems C10 Interior Construction and E10 Equipment.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

A10 FOUNDATIONS



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat A10 Foundations Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

A1010 - Standard Foundations: Includes spread and strip footings that support the building structure.

A1020 - Special Foundations: Includes piers, piles, and buttresses that support the building structure. These are typically found on larger buildings or where soil conditions are not favorable, such as coastal areas.

A1030 - Slab on Grade: The slab on grade (SOG) may also assist in supporting the building structure when designed for foundation support, often with a 'turn down' footing. This condition is typically found in smaller structures. The SOG may also serve as the interior finished floor surface when not covered, such as in a warehouse, or provide substrate for floor finishes (ceramic tile, wood, carpet).

Inspection

Foundation component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Most of the time the foundations are not visible. When foundations component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Foundations show slow rates of deterioration.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The assessor may observe conditions in the visible foundation major components such as cracking, displacement, or other damage. These conditions may also be visible in interior or exterior walls, and the floor. If observed, the assessor must consider the severity and density of these conditions to determine if the DCR rating should be adjusted.

When foundation component sections are visible, they should be assessed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

If a 2-floor, 10,000 SF (real property area) building is assessed and it is deemed to be within +/- 10% calculated, then the assessor should use SF/FLR (10,000/2), which in this case is 5,000 SF as the quantity for the SF of structural slab on grade (SOG).

If construction drawings or as-builts are available, look for date published to assist with determining age of materials.

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

In some cases, superstructure sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed. If they are not appropriate, the superstructure age must be estimated. The building occupants or other facilities staff may be able to provide some information.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When foundations are not visible, as-built drawings should be used to identify and quantify the foundation components. If as-built drawings are not available, the assessor may use experience to make an assumption for the foundation types and quantities based on similar construction of nearby buildings, consultation with local staff, and other reputable web based sources.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for Quality Control confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as slab quantity and pile counts are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate superstructure sections with a different age. A10 is a long life asset so sectioning should only occur for an addition if the original building is more than 25 years older than the addition.

Do not section foundations by cardinal direction.

If a section for an addition is added, it should be named 'ADDITION'.

In the case of superstructures, the assessor must use judgment in sectioning these components. Superstructure components should be sectioned in the manner they are generally managed. If there are no new superstructures, a separate section for a single new superstructure is not necessary. However, if there are two major types or ages of superstructures, then separate sectioning is required.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.

When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.
The section name field is always entered in all capital letters.

Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

B10 Superstructure is often not visible, which can lead to a variety of different inventory methods. See below for the steps to properly inventory the B10 Superstructure.

Step 1: Consider the size of the building.

Building Square Footage	B1010 Floor Construction	B1020 Roof Construction
1 SF - 1,000 SF	Not Inventoried	Inventory
1,001 SF - 5,000 SF	Assessor Judgment	Inventory
5,000 SF +	Assessor Judgment	Inventory

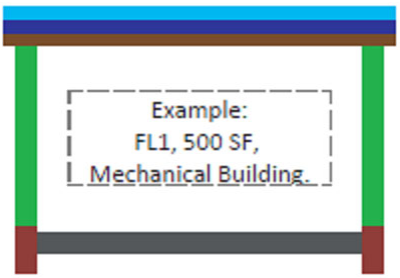
* B1010 captures the structural framing that supports the B1020 (roof) structural framing. B1010 will be present on multiple story buildings and buildings that have a mezzanine or deck area. Note: If there is an attic space, it may be necessary to have a B1010 on a single-story building. While not part of the living area of the building, there is structural support for this area that is not part of the B1020 structural framing.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Shingle	N/A
B102003 Roof Decks and Slabs	Wood	N/A
B102001 Roof Construction	General	N/A
B101003 Floor Decks and Slabs	Wood	ATTIC
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Built-Up	N/A
B102003 Roof Decks and Slabs	Concrete	N/A
B102001 Roof Construction	General	N/A
B201001 Exterior Enclosure	Concrete Block	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Strip Footing	N/A

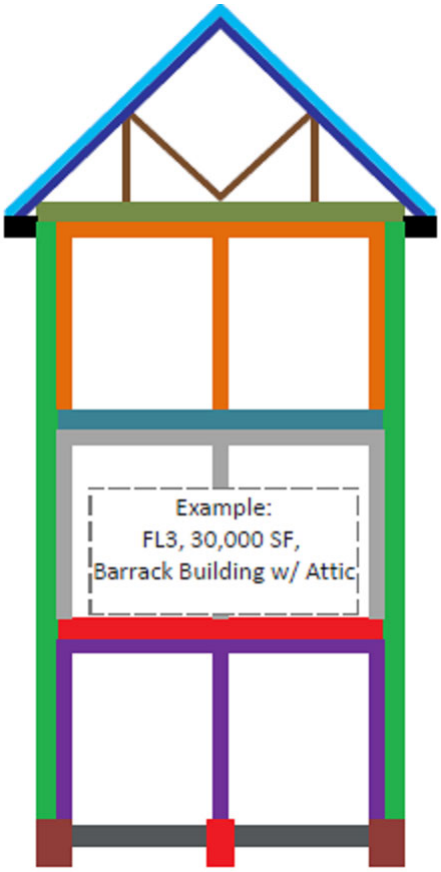


Note: The roof deck overhangs the building. There is no soffit material

Note: B102001 should be included even though structural members are not visible. There is reinforcing (rebar) in the concrete roof deck. A building will always have a B102001 component regardless of size.

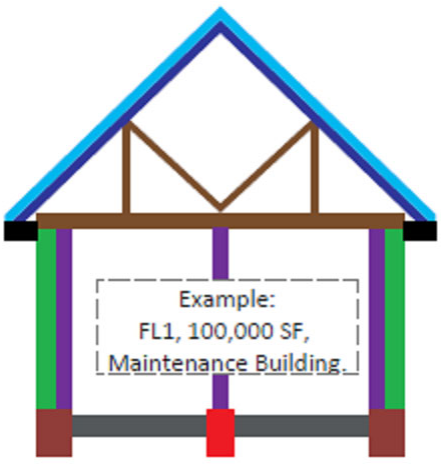
Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B1010003 Floor Decks and Slabs	Concrete	ATTIC
B101001 Floor Construction	General	FL3
B101003 Floor Decks and Slabs	Concrete	FL3
B101001 Floor Construction	General	FL2
B101003 Floor Decks and Slabs	Concrete	FL2
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	FL1
B201001 Exterior Enclosures	Tilt-Up-Panel	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) B10: Sectioned by floor. B20: Not sectioned by floor.
2) A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101002 Column Foundations	Spread Footing	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) Columns will have a column foundation (typically will be found) use 'A101002 - Spread Footing.'

A101001 WALL FOUNDATIONS - Foundation Wall



Typical Application and General Component Guidance:

This component is used to inventory foundation walls.

Lessons Learned/Business Rules/General Comments

Business Rule

Foundation walls are used when there is no A20 basement walls and there is an above grade section of the structural component in which the B10 and B20 components bear .

Lesson Learned

Foundation walls will bear on the strip footings for the buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Foundation Wall	Yes	No	No	No	No	100	SF

A101001 WALL FOUNDATIONS - Grade Beams



Typical Application and General Component Guidance:

This component is used to inventory the grade beams located on the interior of the building.

Lessons Learned/Business Rules/General Comments

Lesson Learned

The quantity of grade beams is often estimated based on engineering judgment. If the columns can be identified within the space then column grid lines can be seen to help with this estimation.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Grade Beams	Yes	No	No	No	Yes	100	LF

A101001 WALL FOUNDATIONS - Strip Footing

Typical Application and General Component Guidance:

This component is used to inventory the strip footing located on the exterior perimeter of the building.



Lessons Learned/Business Rules/General Comments

Business Rule

For consistency purposes, use strip footing even when there is some indication of the thickened slab or mat foundation unless foundation drawings are available that provide a definitive description of the foundation design.

If there is a notch in the building or a protrusion that is less than 5' in depth there, is no need to include this in the strip footing LF quantity total.

If there is an addition to a building, there will be a strip footing located on an interior (used to be exterior before addition) wall. This quantity of strip footing should be added to the total exterior strip footing LF.

Strip footings are typically measured as the exterior perimeter of the building. However, they can be measured by the length of the load bearing masonry/concrete walls as well.

Strip footings is the proper inventory for all buildings unless it can be determined that the structure is on pile supported grade beams.

Lesson Learned

In almost all cases, strip footings will be used for the foundation of a building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Strip Footing	Yes	No	No	No	No	150	LF

A101002 COLUMN FOUNDATIONS & PILE CAPS - General



Typical Application and General Component Guidance:

This component is used to inventory the concrete foundations and pile caps which are found typically in warehouses and maintenance buildings. An assessor can view the column bearing on the concrete pedestal.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Buildings such as warehouses and maintenance shops will have columns that are bearing on a column foundations (A101002). Assessor can count visible columns to approximate the EA inventory quantity.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

A101002 COLUMN FOUNDATIONS & PILE CAPS - Spread Footing



Typical Application and General Component Guidance:

This component is used to inventory spread footings. There would be a single spread footing under each column.

Lessons Learned/Business Rules/General Comments

Business Rule

Column footings are counted only when there is an isolated structural footing.

If a structural part of a column is less than nominal 4 inches in diameter/width, a column foundation should not be inventoried. These smaller posts typically bear on a SOG or thickened edge slab.

Lesson Learned

A very common use of this is canopies where one side is supported off the building and the other side is supported by posts. This will commonly be found on the entry way to a building.

When determining the size of a post, do not include any architectural trim or casing.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Spread Footing	Yes	No	No	No	No	150	EA

A103002 STRUCTURAL SLAB ON GRADE - General



Typical Application and General Component Guidance:

This component is used to inventory the structural slab on grade (SOG).

Lessons Learned/Business Rules/General Comments

Business Rule

An inventory comment should be provided if the Component Type/Section Name does not accurately/sufficiently describe the material/location of the component.

Buildings such as warehouse's or maintenance shops will typically have a visible SOG and an assessment can be provided.

Buildings that have been placed on a parking lot and it is obvious that the asphalt/concrete predates the construction of the building, will not have a SOG. Assessor should capture the LF of strip foundation or EA of column foundations.

Buildings with docks will have two SOGs. One will be sectioned N/A and represent the interior building SOG. One will be sectioned 'DOCK' and represent the dock SOG. The exterior SOG is subject to freeze/thaw and will degrade at a different rate.

Do not inventory sidewalks under A10.

When a SOG exists it is always entered under A1030 regardless of whether the slab is a foundation element. The SOG should not be entered under B1010, Floor Construction.

General

The material is almost always concrete.

Lesson Learned

Assessor will use 'A103001 Standard Slab on Grade - General,' which is out of scope. The correct component type is 'A103002 Structural Slab on Grade - General.'

If as-builts of the foundation have been provided, the assessor should use those for the quantity takeoffs of 'A10 Foundation' components.

The quantity is the total of all footings for the entire building. Note: An addition to the building requires a separate foundation section.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF

Complete Component Catalog Breakdown

A10 FOUNDATIONS

A101001 WALL FOUNDATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	100	LF
Other	No	No	No	No	No	100	LF
Unknown	No	No	No	No	No	100	LF
Foundation Wall	Yes	No	No	No	No	100	SF
Grade Beams	Yes	No	No	No	Yes	100	LF
Strip Footing	Yes	No	No	No	No	150	LF

A101002 COLUMN FOUNDATIONS & PILE CAPS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	No	No	No	No	No	50	EA
Unknown	No	No	No	No	No	50	EA
Column Pier	No	No	No	No	No	75	EA
Column Pier - Concrete	Yes	No	No	No	No	75	EA
Column Pier - Steel	Yes	No	No	No	No	70	EA
Column Pier - Wood	Yes	No	No	No	No	50	EA
Pile Cap	Yes	No	No	No	No	100	EA
Spread Footing	Yes	No	No	No	No	150	EA

A101003 DEWATERING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A101090 OTHER STANDARD FOUNDATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

Complete Component Catalog Breakdown

A10 FOUNDATIONS

A102001 PILE FOUNDATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	60	SF
Other	No	No	No	No	No	60	SF
Unknown	No	No	No	No	No	60	SF
CIP Concrete	Yes	No	No	No	No	150	EA
PC Concrete	Yes	No	No	No	No	60	EA
Steel H Section	Yes	No	No	No	No	100	EA
Steel Pipe	Yes	No	No	No	No	60	EA
Treated Wood	Yes	No	No	No	No	60	EA

A102002 CAISSONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A102003 UNDERPINNING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

A102004 DEWATERING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

Complete Component Catalog Breakdown

A10 FOUNDATIONS

A102005 RAFT FOUNDATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A102006 PRESSURE INJECTED GROUTING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A102090 OTHER SPECIAL FOUNDATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

A103001 STANDARD SLAB ON GRADE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	75	SF
Other	No	No	No	No	No	75	SF
Unknown	No	No	No	No	No	75	SF

A103002 STRUCTURAL SLAB ON GRADE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF
Other	Yes	No	Yes	Yes	No	75	SF
Unknown	No	No	No	No	No	75	SF

Complete Component Catalog Breakdown

A10 FOUNDATIONS

A103003 TRENCHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

A103004 PITS AND BASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

A103005 FOUNDATION DRAINAGE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

A103090 OTHER SLAB ON GRADE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

A20 BASEMENT CONSTRUCTION

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat A20 Basement Construction Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

A2010 - Basement Excavation: This element is an activity and is not used.

A2020 - Basement Walls: Includes any basement wall material or construction type, typically concrete or masonry (brick or concrete masonry unit).

Inspection

Basement construction component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. When basement construction component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The assessor may observe conditions in the visible basement major components such as cracking, displacement, or other damage. If observed, the assessor must consider the severity and density of these conditions to determine the DCR rating.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When Basement Construction is not visible, as-built drawings should be used to identify and quantify the components. If as-built drawings are not available, the assessor may use experience to make an assumption for the component types and quantities based on similar construction of nearby buildings, consultation with local staff, and other reputable online resources.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level.

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as basement walls are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

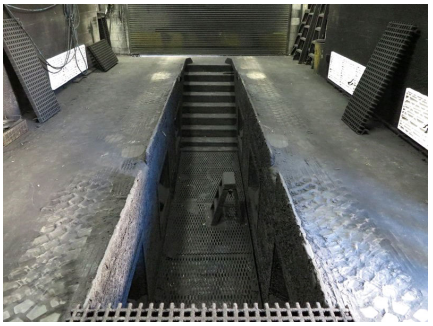
Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

A202001 BASEMENT WALL CONSTRUCTION - General

Typical Application and General Component Guidance:

This component is used to inventory walls that are below grade.



Lessons Learned/Business Rules/General Comments

Business Rule

Arch barrel structures typical of Quonset huts and earth covered magazines are covered under B1020 Roof Construction. End walls are covered under B2010 Exterior Walls. Do not use A2020 even though walls/roof can be below grade.

Basement walls that are partially (> 4 feet) above grade are counted as the appropriate Exterior Enclosure for the full height of the wall. Do not inventory these under A20 Basement.

Do not use BASEMENT for a section name in this case because inventory is entered as part of A2020 Basement Walls.

General

Brick is not listed in the Component Type Description so it would be classified as general.

Material is almost always brick, concrete block, or cast-in-place concrete.

Lesson Learned

Do not use an A10 or B20 wall construction component type to inventory basement walls. A20 should be used.

'General' component type is hardly ever used. Assessor should use 'Concrete Block' or Cast-In-Place (CIP) as the component type.

In certain areas of the country, there may be a steam distribution system. These will typically have wells below grade for the pipes to enter the building. These well/pit walls should be captured as an A20 component.

Maintenance garages will have pits where a vehicle can be driven over the pit and serviced from below. The wall of these maintenance pits should be captured as an A20 Basement Foundation component.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	100	SF

A201001 EXCAVATION FOR BASEMENTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SY
Other	No	No	No	No	No	20	SY
Unknown	No	No	No	No	No	20	SY

A201002 STRUCTURE BACKFILL & COMPACTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SY
Other	No	No	No	No	No	20	SY
Unknown	No	No	No	No	No	20	SY

A201003 SHORING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A201090 OTHER BASEMENT EXCAVATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

A202001 BASEMENT WALL CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	100	SF
Other	No	No	No	No	No	150	LF
Unknown	No	No	No	No	No	100	SF
CIP Concrete	No	No	No	No	No	150	LF
Concrete Block	No	No	No	No	No	150	LF
Wood	No	No	No	No	No	100	LF

A202002 MOISTURE PROTECTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A202003 BASEMENT WALL INSULATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

A202090 OTHER BASEMENT WALLS

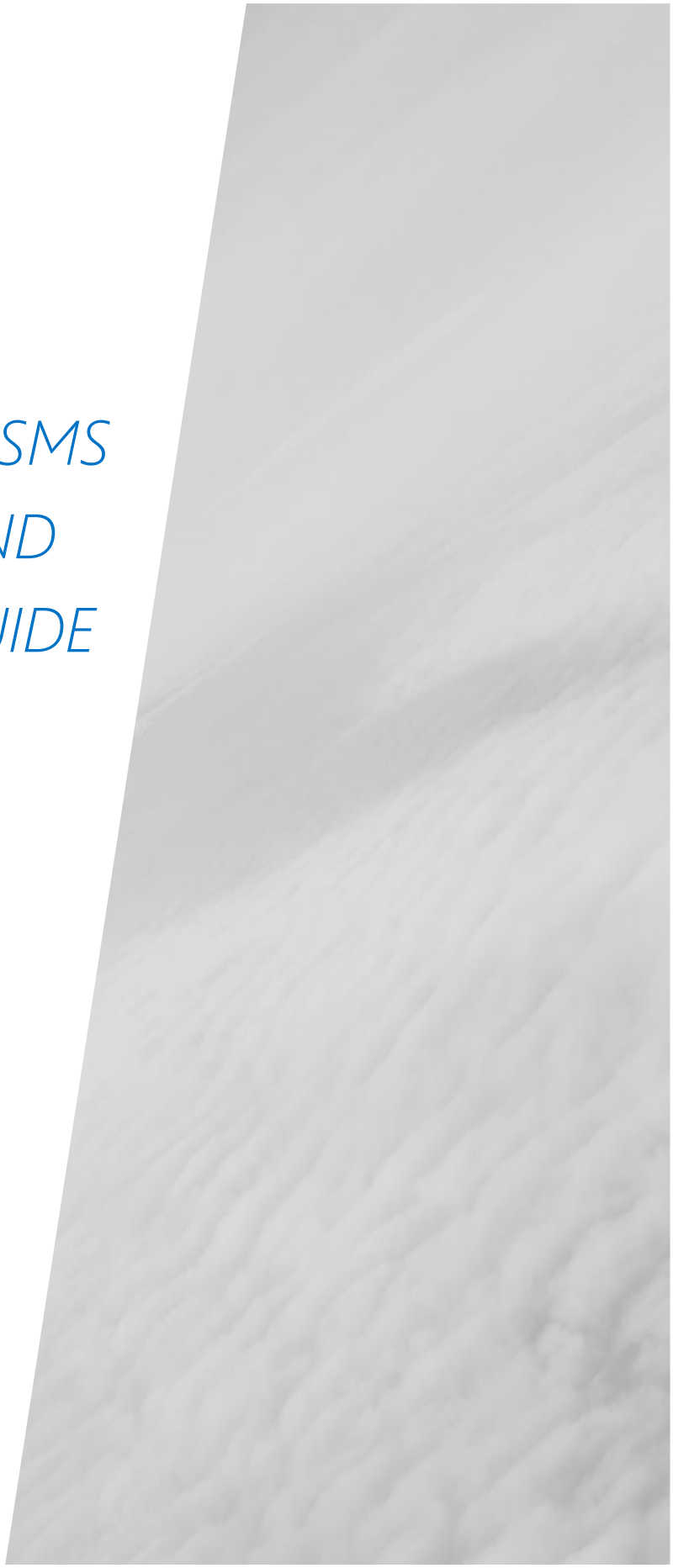
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

B10 SUPERSTRUCTURE



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat B10 Superstructure Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

B1010 - Floor Construction: Includes balconies, ramps, columns/pillars, elevated floors, beams/girders, joists, and slabs at intermediate floors.

B1020 - Roof Construction: Includes awnings, beams/girders, joist, rafters, trusses, purlins, and decking that support the roof coverings and rooftop equipment.

Building superstructures are above ground and overhead structural components that support other building systems such as the exterior enclosure, roofing, and interior construction.

Inspection

Roof Construction will normally not be visible unless the building is a warehouse or maintenance-type structure with no finished ceilings. No assessment will normally be entered unless the assessor can observes some portion of the Roof Construction, observes distresses noted, or has access to an engineering report.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

Superstructure component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Much of the time, superstructure component sections are not visible. When superstructure component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

If a 2-floor, 10,000 SF (real property area) building is assessed and it is deemed to be within +/- 10% calculated, then the assessor should use SF/FLR (10,000/2), which in this case is 5,000 SF as the quantity for the SF of the superstructure components.

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When superstructures are not visible, as-built drawings should be used to identify and quantify the superstructure components. If as-built drawings are not available, the assessor may use experience to make an assumption for the superstructure types and quantities based on similar construction of nearby buildings, consultation with local staff, and other reputable online resources.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as floor deck and structural frame are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Exterior ramps and canopies should be sectioned by cardinal direction. On maintenance facilities sometimes a canopy or garage door it is covering will be labeled. In this case include the unique door identifier along with the N/S/E/W in the section name.

Floor framing and deck slabs should be sectioned by floor.

Roof framing, roof deck, and roof covering components should all be sectioned in similar fashion. For example, if there is a 'HIGH' and 'LOW' roof sections for framing the same sectioning methodology is used for the roof deck and roof covering components.

Sectioning by wing is also required if there is a difference in age between wings. If a building with a East and West wing is assessed the Section Name for the floor framing, roof framing, and decking would read 'EAST WING' and 'WEST WING'. If the entire building has the same install date there is no need to section B10 components by wing.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

B10 Superstructure is often not visible, which can lead to a variety of different inventory methods. See below for the steps to properly inventory the B10 Superstructure.

Step 1: Consider the size of the building.

Building Square Footage	B1010 Floor Construction	B1020 Roof Construction
1 SF - 1,000 SF	Not Inventoried	Inventory
1,001 SF - 5,000 SF	Assessor Judgment	Inventory
5,000 SF +	Assessor Judgment	Inventory

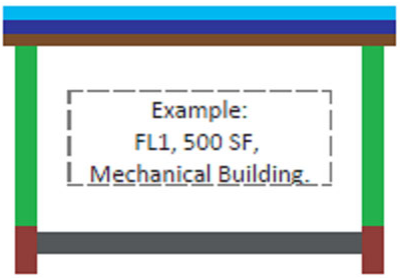
* B1010 captures the structural framing that supports the B1020 (roof) structural framing. B1010 will be present on multiple story buildings and buildings that have a mezzanine or deck area. Note: If there is an attic space, it may be necessary to have a B1010 on a single-story building. While not part of the living area of the building, there is structural support for this area that is not part of the B1020 structural framing.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Shingle	N/A
B102003 Roof Decks and Slabs	Wood	N/A
B102001 Roof Construction	General	N/A
B101003 Floor Decks and Slabs	Wood	ATTIC
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Built-Up	N/A
B102003 Roof Decks and Slabs	Concrete	N/A
B102001 Roof Construction	General	N/A
B201001 Exterior Enclosure	Concrete Block	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Strip Footing	N/A

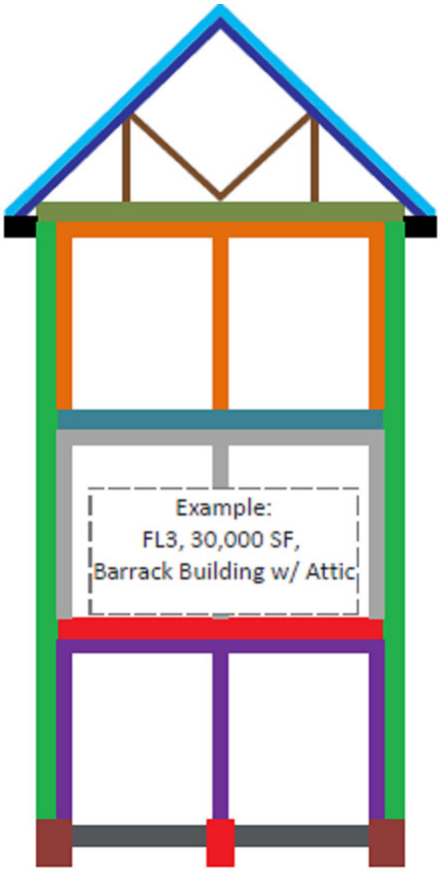


Note: The roof deck overhangs the building. There is no soffit material

Note: B102001 should be included even though structural members are not visible. There is reinforcing (rebar) in the concrete roof deck. A building will always have a B102001 component regardless of size.

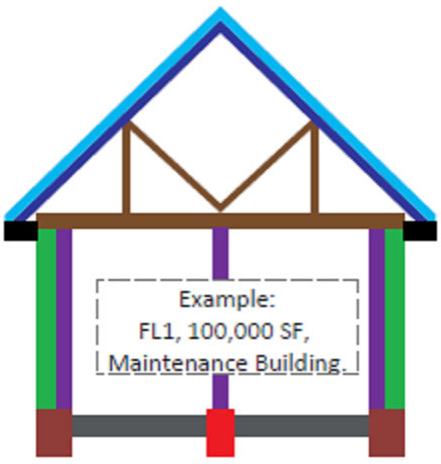
Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B1010003 Floor Decks and Slabs	Concrete	ATTIC
B101001 Floor Construction	General	FL3
B101003 Floor Decks and Slabs	Concrete	FL3
B101001 Floor Construction	General	FL2
B101003 Floor Decks and Slabs	Concrete	FL2
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	FL1
B201001 Exterior Enclosures	Tilt-Up-Panel	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



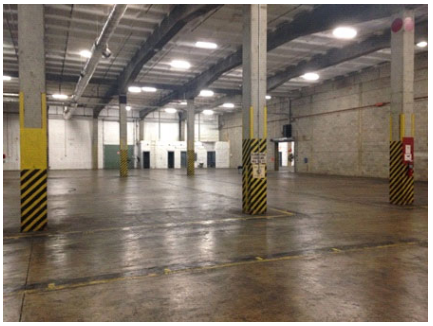
1) B10: Sectioned by floor. B20: Not sectioned by floor.
2) A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101002 Column Foundations	Spread Footing	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) Columns will have a column foundation (typically will be found) use 'A101002 - Spread Footing.'

B101001 STRUCTURAL FRAME - General



Typical Application and General Component Guidance:

This component is used to inventory the structural elements of a building that are column/pillars, purlins, beams, and girders that support the roof structure (B102001).

Lessons Learned/Business Rules/General Comments

Business Rule

Floor framing is chosen for multi-story buildings, large decks, mezzanines, or off-grade structures.

If Floor Framing - General is used for a mezzanine, the section name should be 'MEZZANINE'. Do not include the framing for the mezzanine in with the framing for the overall building.

It is not necessary to section different types of floor framing unless there is an age or condition difference that requires it. Note: Mezzanines are the exception to this rule they are sectioned separately.

Lesson Learned

Floor construction above will not be visible in areas with finished ceilings, but may be visible in mechanical/electrical rooms.

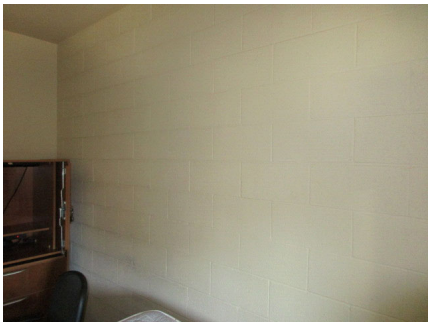
Floor framing can be present on a single-story building IF there is no SOG and the building is supported on piles. Also, it can be used for large decks and landings.

Look for crawl or access spaces to view the structural framing. Access these areas per the safety plan.

The ground floor component may be bearing on a structural frame component. An assessor should look for crawlspace vents to indicate the presence of a floor slab on structural framing instead of a A10 slab on grade.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF

B101002 STRUCTURAL INTERIOR WALLS - General



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory interior structural walls under B10. All interior walls should be inventoried under C10 to provide a clear delineation of components for future data usage and assessments.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	125	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B101003 FLOOR DECKS AND SLABS - Deck - Composite w/Bar Joists



Typical Application and General Component Guidance:

This component is used to inventory composite with bar joists floor deck and slabs.

Lessons Learned/Business Rules/General Comments

Business Rule

Composite w/ Bar Joists should be used to capture concrete on metal pan floor decks and slabs. This should be used regardless of whether joists are present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Deck - Composite w/Bar Joists	Yes	No	No	No	No	15	SF

B101003 FLOOR DECKS AND SLABS - Deck - Composite w/Structural Beam



Typical Application and General Component Guidance:

This component is used to inventory concrete with structural beam floor decks and slabs.

Lessons Learned/Business Rules/General Comments

Business Rule

This is used when there are structural steel beams that are supporting the concrete slab that does NOT have a metal deck.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Deck - Composite w/Structural Beam	Yes	No	No	No	No	30	SF

B101003 FLOOR DECKS AND SLABS - Deck - Light Gauge Steel



Typical Application and General Component Guidance:

This component is used to inventory metal decks.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is ONLY used when there is not a concrete section above. This is very rarely used for entire floors.

Lesson Learned

This is typically used for grating on mezzanines and maintenance bays. If there is a walkway or area that is grating then this (and a floor framing) should be added to capture the asset.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Deck - Light Gauge Steel	Yes	No	No	No	No	50	SF

B101003 FLOOR DECKS AND SLABS - General



Typical Application and General Component Guidance:

This component is used to inventory the floor decks on multiple story buildings. Note: The FL1 slab is captured under A10.

Lessons Learned/Business Rules/General Comments

Business Rule

For a concrete slab the inspector should make a judgment on whether it was CIP or Precast based on visual evidence or building type.

If a building has floor balconies or stairwell slabs, the area of these components should be added to the floor deck and slab quantity.

If a 'MEZZANINE' section for 'Floor Framing - General' is provided, a similar section of 'MEZZANINE' should be provided for B101003 Floor deck and slab.

Slab on Grade (SOG) should be inventoried under A1030. DO NOT USE B101003 for SOG.

The assessor should only use 'Other' when none of the other 'in-scope' choices in B101003 are applicable. An inventory comment should be provided describing the component in this instance.

Lesson Learned

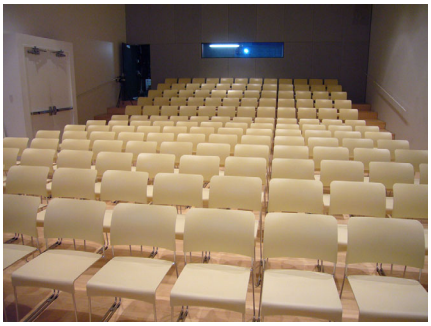
Floor decks will typically match the floor framing quantity.

If a the first floor of a building is not a SOG and it is elevated on piles, it should have a 'FL0' B101001 structural framing component and a 'FL1' B101003 floor deck and slab component.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	15	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B101004 INCLINED AND STEPPED FLOORS - Other



Typical Application and General Component Guidance:

This component is used to inventory the floor construction for theater and auditorium rooms. The photo shows a inclined floor in the front and a stepped floor in the rear.

Lessons Learned/Business Rules/General Comments

Business Rule

Used for theater and auditorium type floors.

Lesson Learned

The 'Other' component type should be used as that is a 'SF', which allows for better estimation as opposed to 'General', which is an 'EA' UOM.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	20	SF

B101005 BALCONY CONSTRUCTION - General



Typical Application and General Component Guidance:

This component is used to inventory balcony construction. In the photo there is the walkway in front of the door entrances on the 2FL, 3FL, and 4FL floors.

Lessons Learned/Business Rules/General Comments

General

This component is primarily used in housing buildings.

This component is to be used to capture structural slabs that are exposed to the elements and are above grade. Common occurrences of use are balconies located outside of living areas and walkways around barracks.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B101006 RAMPS - General



Typical Application and General Component Guidance:

This component is used to inventory ramps. This includes American with Disabilities Act (ADA) accessibility ramps as well as vehicle ramps.

Lessons Learned/Business Rules/General Comments

Business Rule

Ramps follow the section naming convention of the B20 components where they are sectioned by cardinal direction.

Ramps should be part of the structural element of the building. For example, if a ramp is connected to the structural SOG that the building sits on, it should be captured. Temporary ramps (not bolted down) should not be captured.

General

This component captures the ramps on the interior and exterior of a building.

This component should be used to capture ADA ramps leading into a building and located within a building. They should be permanently installed.

This component should be used to capture driveway ramps up to loading docks. Any ramp that leads to a building that is needed for the building to serve its purpose should be captured.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B102001 STRUCTURAL FRAME - General



Typical Application and General Component Guidance:

This component is used to inventory the structural framing that supports the roof deck/covering.

Lessons Learned/Business Rules/General Comments

Business Rule

B1020 ONLY applies to roof construction (some components are similar to B1010.)

Canvas and vinyl window awnings/canopies that typically are attached to buildings for aesthetics or sunshades are not inventoried. More permanent metal or concrete awning/canopies are inventoried.

Earthen berms (magazine roofs) are covered under B1020 Roof Construction.

Metal arch barrel structures (Quonset huts) are covered under B1020 Roof Construction. End walls are covered under B2010 Exterior Walls. Note: No B1010 should be inventoried unless there is a column or other structural support member present.

Only large (> 100 SF) overhangs should be added to the inventory. Do not include awnings over windows or doors (< 25 SF).

When inventorying a Quonset hut, do not break the arched portion into part wall and part roof components. It should all be inventoried under B1020 and the quantity should match what is used in B30.

General

An assessor should include overhangs, soffits, and porches in the calculation of the quantity. The quantity is always inventoried in plan view regardless of the pitch of the roof.

Roof construction materials are typically concrete, steel, or wood.

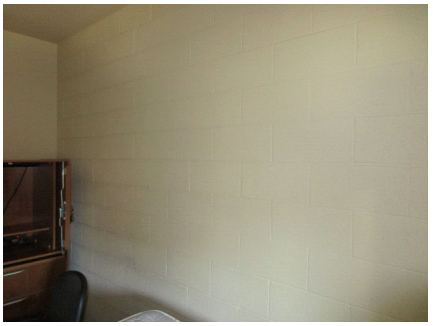
This component captures awnings, beams/girders, joist, rafters, trusses, purlins, and decking that support the roof coverings and roof top equipment.

Lesson Learned

Roof construction may be visible in mechanical/electrical rooms where there are no finished ceilings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF

B102002 STRUCTURAL INTERIOR WALLS - General



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory interior structural walls under B10. All interior walls should be inventoried under C10 to provide a clear delineation of components for future data usage and assessments.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B102003 ROOF DECKS AND SLABS - General



Typical Application and General Component Guidance:

This component is used to inventory the roof deck. Select the correct type.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not take hips or gables into account when determining the predominate slope of the roof. For complex roofs with multiple slopes, the assessor should make a visual estimate of the average slope.

If a sandwich panel is found use, 'General' component type. This is when the roof, insulation, and decking are one panel. This should be inventoried as both 1) a B102003 roof deck and 2) B30 roof covering component types. The SF of both should match.

Roof Decks are the only B10 element that is inventoried in SLOPE rather than plan.

Square footage adjustment factor %: [(0-2):12] = 0% __ [3:12] = 3% __ [4:12] = 5% __ [5:12] = 8% __ [6:12] = 12% __ [7:12] = 16% __ [8:12] = 20% __ [9:12] = 25% __ [10:12] = 30% __ [11:12] = 36% __ [12:12] = 41%

General

An assessor should include overhangs, soffits, and porches in the calculation of the quantity.

The assessor should only use 'Other' when none of the other 'in-scope' choices in B102003 are applicable.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	40	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B102004 CANOPIES - General



Typical Application and General Component Guidance:

This component is used to inventory canopies. A canopy is defined as a roof partially supported by the building that has no exterior walls. Do not inventory window sun shades as a canopy (see if B201011 is in scope).

Lessons Learned/Business Rules/General Comments

Business Rule

A typical canopy consists of a structural element (typically column supports A102002), canopies (B102004), roof deck (B1020), and roof covering (B3010). Sectioning these components as 'cardinal direction - canopy' is required.

Canopies follow the section naming convention of the B20 components where they are sectioned by cardinal direction.

If a canopy is connected to two buildings, it should be inventoried under the largest building and have an inventory comment stating the other building that it is connecting.

If a canopy is lumped in with the main building components an inventory comment should be added on the building components stating how much SF is canopy. This will allow follow on assessments to understand the approach taken during initial inventory.

General

An assessor should consider whether the canopy has just a roof covering (B3010) or if there is a roof deck (B1020) as well. It is acceptable to lump these assets in with the main building if they are the same type/age/condition.

This component captures the structural framing of a canopy. This includes the support members above the SOG and the canopy framing.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	15	SF

B101001 STRUCTURAL FRAME

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF
Other	Yes	No	Yes	Yes	No	70	SF
Unknown	No	No	No	No	No	70	SF
Beam/Girder	No	No	No	No	No	75	LF
Beam/Girder - Concrete	No	No	No	No	No	70	LF
Beam/Girder - Metal	No	No	No	No	No	75	LF
Beam/Girder - Wood	No	No	No	No	No	70	LF
Column	No	No	No	No	No	100	LF
Column - Concrete	No	No	No	No	No	100	LF
Column - Metal	No	No	No	No	No	100	LF
Column - Wood	No	No	No	No	No	80	LF
Truss/Joist	No	No	No	No	No	70	LF
Truss/Joist - Concrete	No	No	No	No	No	75	LF
Truss/Joist - Metal	No	No	No	No	No	75	LF
Truss/Joist - Wood	No	No	No	No	No	70	LF

B101002 STRUCTURAL INTERIOR WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	125	SF
Other	No	No	No	No	No	125	SF
Unknown	No	No	No	No	No	125	SF
CMU	No	No	No	No	No	125	SF
Concrete	No	No	No	No	No	125	SF

B101003 FLOOR DECKS AND SLABS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	SF
Other	Yes	No	Yes	Yes	No	15	SF
Unknown	No	No	No	No	No	15	SF
Deck - Composite w/Bar Joists	Yes	No	No	No	No	15	SF
Deck - Composite w/Structural Beam	Yes	No	No	No	No	30	SF
Deck - Light Gauge Steel	Yes	No	No	No	No	50	SF
Deck - Wood Beam and Joist	Yes	No	No	No	No	15	SF
Slab - CIP Concrete	Yes	No	No	No	No	35	SF
Slab - Precast Concrete	Yes	No	No	No	No	35	SF

B101004 INCLINED AND STEPPED FLOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B101005 BALCONY CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B101006 RAMPS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B101007 FLOOR RACEWAY SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B101090 OTHER FLOOR CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	30	SF
Other	No	No	No	No	No	30	SF
Unknown	No	No	No	No	No	30	SF

B102001 STRUCTURAL FRAME

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF
Other	Yes	No	Yes	Yes	No	70	SF
Unknown	No	No	No	No	No	70	SF
Beam/Girder	No	No	No	No	No	75	LF
Beam/Girder - Concrete	No	No	No	No	No	75	LF
Beam/Girder - Metal	No	No	No	No	No	75	LF
Beam/Girder - Wood	No	No	No	No	No	70	LF
Column	No	No	No	No	No	100	LF
Column - Concrete	No	No	No	No	No	100	LF
Column - Metal	No	No	No	No	No	100	LF
Column - Wood	No	No	No	No	No	80	LF
Truss/Joist	No	No	No	No	No	75	LF
Truss/Joist - Concrete	No	No	No	No	No	75	LF
Truss/Joist - Metal	No	No	No	No	No	75	LF
Truss/Joist - Wood	No	No	No	No	No	70	LF

B102002 STRUCTURAL INTERIOR WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
CMU	No	No	No	No	No	20	SF
Concrete	No	No	No	No	No	20	SF

B102003 ROOF DECKS AND SLABS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	40	SF
Other	No	No	No	No	No	40	SF
Unknown	No	No	No	No	No	40	SF
CIP Concrete Beam and Slab	Yes	No	No	No	No	40	SF
Deck - Fiber Cement	Yes	No	No	No	No	100	SF
Deck - Fiberglass	Yes	No	No	No	No	100	SF
Deck - Gypsum	Yes	No	No	No	No	75	SF
Deck - Other	Yes	No	Yes	Yes	No	40	SF
Deck - Steel	Yes	No	No	No	No	100	SF
Deck - Wood	Yes	No	No	No	No	100	SF
Slab - CIP Concrete	Yes	No	No	No	No	100	SF
Slab - PC Concrete	Yes	No	No	No	No	150	SF

B102004 CANOPIES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	15	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B102090 OTHER ROOF CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	60	SF
Other	No	No	No	No	No	60	SF
Unknown	No	No	No	No	No	60	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

B20 EXTERIOR ENCLOSURE



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat B20 Exterior Enclosure Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BRED™ software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

B2010 - Exterior Wall Assembly: Besides providing protection from the environment, an exterior wall may also provide bearing support, shear support, or fire resistance. Structural elements can operate separate from the exterior façade material, or be integrated into the wall assembly. An example of an integrated wall assembly is a load bearing masonry wall.

B2020 - Exterior Windows: Allows daylight, air movement, security, and exterior vision.

B2030 - Exterior Door: Allows for the passage of people or vehicles, and may also serve many of the same purposes as exterior windows.

The exterior enclosure system separates the building interior from the external environment. It keeps environmental elements such as sunlight, moisture, wind, heat/cold, and sound out of the living or work space. The exterior enclosure is supported by the building structural system and may be separate or integrated with the structural system. Exterior Enclosure does not include roofing systems.

Inspection

Exterior enclosure component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually exterior enclosure components will be visible and accessible. When component sections are not visible no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Exterior wall components show slow rates of deterioration initially, but can accelerate with age.

Only assess the exterior skin component. For instance, if the exterior wall has an exterior insulation and finishing system (EIFS), the EIFS is the basis of the DCR inspection on the exterior wall and not the backup system.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The following conditions or events can accelerate exterior enclosure component deterioration and should be considered by the assessor: 1) Improper construction or installation, 2) Neglected maintenance, 3) Moisture infiltration, 4) Surface damage, 5) Environmental factors damage such as wind-driven rain and solar (ultraviolet [UV] deterioration).

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Exterior enclosure components inventoried for buildings are usually visible. When exterior enclosure components are not visible, as-built drawings should be used to identify and quantify the components. If as-built drawings are not available, the assessor may use experience to make an assumption for the exterior enclosure types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

Exterior enclosure components that are integral to the building are typically the same age as building.

If construction drawings or as-builts are available, look for date published to assist with determining age of materials.

Some exterior enclosure components may have been replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed, if they are not appropriate, the age must be estimated. The building occupants or other facilities staff may be able to provide some information.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as exterior enclosure components and window counts are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

The section name for a window component consists of 3 parts (in this order): 1) Cardinal direction, 2) Material type (Wood, Steel, Aluminum, Vinyl), and 3) Window opening count. Example: 'NORTH-ALUMINUM-20'. If there are multiple install dates of the same window type, the section name would include the install year and read such as: 'NORTH-ALUMINUM-20-1970' and 'NORTH-ALUMINUM-20-2015'. If there is only one section, there is no need for the date it is already found in the record.

Additions, new wings, or major renovations require identifying a separate exterior enclosure sections with a different age identified in the section name. For instance, two metal panel sections would have the names 'NORTH - 1970' and 'NORTH - 2015'.

All exterior B20 components (enclosure, windows, doors, etc.) are required to be sectioned by cardinal direction. If a building has windows on all four sides, there will be North/South/East/West section names.

Do not section by floor.

It is desired that N/S/E/W be used as the predominate sections even though a building may not sit squarely pointed in one direction. If a team decides to use NE/NW/SE/SW, it is ok as long as all team members follow suit. Verifying cardinal direction should be the first step a team takes when approaching a building.

Typical section names include: WING 'X,' NORTH, SOUTH, EAST, WEST, etc.

When sectioning by cardinal direction include all components on the predominant side in the section. For example, if on the north face of the building there is a indent in the building that has a window that is technically facing east it should be included in the north facing quantity.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

B10 Superstructure is often not visible, which can lead to a variety of different inventory methods. See below for the steps to properly inventory the B10 Superstructure.

Step 1: Consider the size of the building.

Building Square Footage	B1010 Floor Construction	B1020 Roof Construction
1 SF - 1,000 SF	Not Inventoried	Inventory
1,001 SF - 5,000 SF	Assessor Judgment	Inventory
5,000 SF +	Assessor Judgment	Inventory

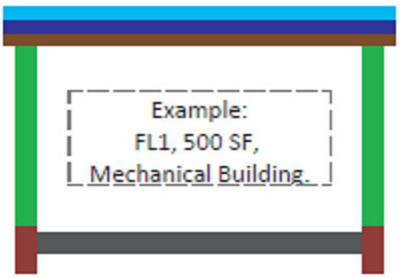
* B1010 captures the structural framing that supports the B1020 (roof) structural framing. B1010 will be present on multiple story buildings and buildings that have a mezzanine or deck area. Note: If there is an attic space, it may be necessary to have a B1010 on a single-story building. While not part of the living area of the building, there is structural support for this area that is not part of the B1020 structural framing.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Shingle	N/A
B102003 Roof Decks and Slabs	Wood	N/A
B102001 Roof Construction	General	N/A
B101003 Floor Decks and Slabs	Wood	ATTIC
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Built-Up	N/A
B102003 Roof Decks and Slabs	Concrete	N/A
B102001 Roof Construction	General	N/A
B201001 Exterior Enclosure	Concrete Block	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Strip Footing	N/A

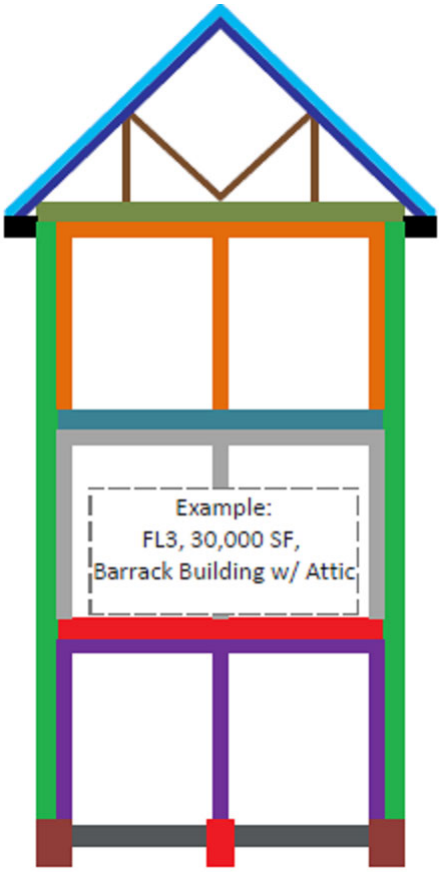


Note: The roof deck overhangs the building. There is no soffit material

Note: B102001 should be included even though structural members are not visible. There is reinforcing (rebar) in the concrete roof deck. A building will always have a B102001 component regardless of size.

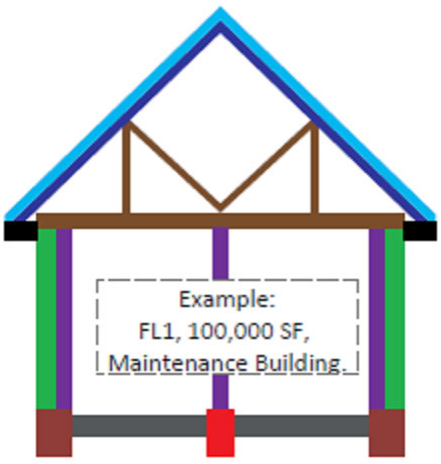
Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B1010003 Floor Decks and Slabs	Concrete	ATTIC
B101001 Floor Construction	General	FL3
B101003 Floor Decks and Slabs	Concrete	FL3
B101001 Floor Construction	General	FL2
B101003 Floor Decks and Slabs	Concrete	FL2
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	FL1
B201001 Exterior Enclosures	Tilt-Up-Panel	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) B10: Sectioned by floor. B20: Not sectioned by floor.
2) A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101002 Column Foundations	Spread Footing	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) Columns will have a column foundation (typically will be found) use 'A101002 - Spread Footing.'

B201001 EXTERIOR CLOSURE - E.I.F.S.



Typical Application and General Component Guidance:

This component is used to inventory Exterior Insulation Finish System (EIFS) walls.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Further clarification: EIFS will usually make a hollow sound as it is typically a 2-inch-thick foam-backed sandwich panel. Stucco will usually make a more solid sound as it is typically applied to a solid substrate/wall or lath.

There can often be confusion between EIFS and Stucco wall systems since they can look the same.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
E.I.F.S.	Yes	No	No	No	No	50	SF

B201001 EXTERIOR CLOSURE - General



Typical Application and General Component Guidance:

This component is used to inventory the exterior enclosure of a building. Select the correct component type.

Lessons Learned/Business Rules/General Comments

Business Rule

Exterior walls of a multi-story building with the same construction history are inventoried/assessed as one section.

General

For composite exterior walls, only the exterior layer of the wall is documented. For example, a concrete masonry unit (CMU) wall with EIFS on the exterior is inventoried as an EIFS wall.

Lesson Learned

Assessors should pay close attention to the condition of the caulking when performing their assessment. It may be necessary to degrade the asset to an A+ or lower and note that the failure of the caulk material is the driving factor for the DCR.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B201001 EXTERIOR CLOSURE - Metal Panel



Typical Application and General Component Guidance:

This component is used to inventory metal panel exterior walls.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is a metal exterior finish that is not part of a pre-engineered system.

Lesson Learned

If the building is a pre-engineered structure, then use 'Pre-Engineered Steel Wall and Panel' instead of 'Metal Panel'.

'Metal Panel' should not be confused with 'Metal Siding' or 'Pre-Engineered Steel Wall and Panel.' Different types include flat panel, corrugated panel, and formed panel. This component will affixed to the exterior enclosure as a veneer finish.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Metal Panel	Yes	No	No	No	No	30	SF

B201001 EXTERIOR CLOSURE - Metal Siding



Typical Application and General Component Guidance:

This component is used to inventory metal siding.

Lessons Learned/Business Rules/General Comments

Business Rule

This is used for horizontal housing-type exterior finish. This will commonly be aluminum.

Lesson Learned

'Pre-Engineered Steel Wall and Panel' should not be confused with 'Metal Siding' or 'Metal Panel.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Metal Siding	Yes	No	No	No	No	30	SF

B201001 EXTERIOR CLOSURE - Pre-Engineered Steel Wall and Panel



Typical Application and General Component Guidance:

This component is used to inventory pre-engineered steel wall and exterior panels on pre-engineered metal buildings.

Lessons Learned/Business Rules/General Comments

Business Rule

Used to capture exterior walls on pre-engineered metal buildings. This component is limited to just this application. There are 'Metal Siding' and 'Metal Panel' available for other metal panel enclosure types.

Lesson Learned

'Pre-Engineered Steel Wall and Panel' should not be confused with 'Metal Siding' or 'Metal Panel.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Pre-Engineered Steel Wall and Panel	Yes	No	No	No	No	60	SF

B201001 EXTERIOR CLOSURE - Solid Brick - Double Wythe



Typical Application and General Component Guidance:

This component is used to inventory double wythe brick walls.

Lessons Learned/Business Rules/General Comments

Business Rule

Many historic buildings are solid brick built up to triple wythe. Some buildings have brick veneer over brick. In both cases they should be inventoried as solid brick - double wythe.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Solid Brick - Double Wythe	Yes	No	No	No	No	75	SF

B201001 EXTERIOR CLOSURE - Wall Louver



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

'B201005 EXTERIOR LOUVERS & SCREENS' is the correct component type to inventory louvers. Do not use B102001 Exterior Closure - Wall Louver.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wall Louver	No	No	No	No	No	30	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B201004 PARAPETS - General



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Parapets should not be used. The quantity of the parapet component should be included in the B201001 exterior enclosure component quantity.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B201005 EXTERIOR LOUVERS & SCREENS - General



Typical Application and General Component Guidance:

This component is used to inventory wall louvers.

Lessons Learned/Business Rules/General Comments

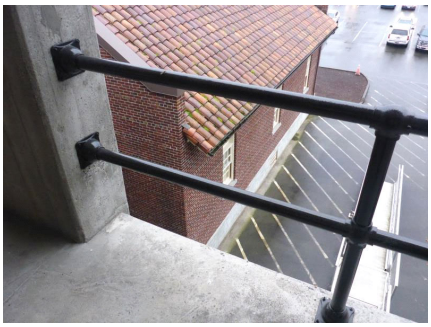
Business Rule

'B201005 EXTERIOR LOUVERS & SCREENS' is the correct component type to inventory louvers. Do not use B102001 Exterior Closure - Wall Louver.

Do not inventory small brick vents and pipe penetrations.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B201006 BALCONY WALLS & HANDRAILS - Handrailing



Typical Application and General Component Guidance:

This component is used to inventory exterior handrail and guardrail components.

Lessons Learned/Business Rules/General Comments

Business Rule

Handrails and guardrails should be sectioned per cardinal direction similar to other exterior architecture components.

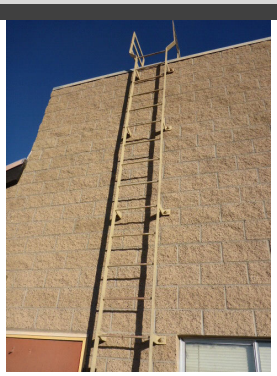
Handrails and guardrails that are part of a stair component should not be inventoried.

Only inventory if the LF value of handrails for the section is greater than 10'.

Only inventory if the railing is a stand-alone component that is not integrated into another component. Example: A balcony with a 4' handrail to protect against falls would be inventoried. A single rail on top of a half wall would not be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Handrailing	Yes	No	No	No	No	15	LF

B201006 BALCONY WALLS & HANDRAILS - Ladder



Typical Application and General Component Guidance:

This component is used to inventory exterior ladders.

Lessons Learned/Business Rules/General Comments

Business Rule

Ladders should be sectioned by cardinal direction in the same manner as other exterior components.

General

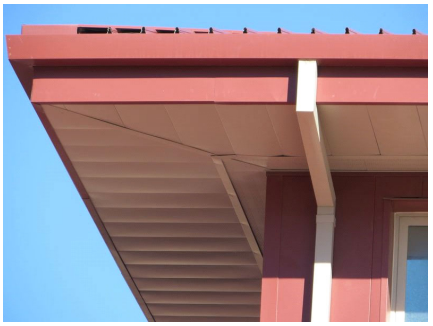
There is an interior ladder component type, so those should not be captured in this quantity.

Lesson Learned

Exterior ladders should be tested for structural integrity before being used. If the ladder is loose, do not use and report the safety deficiency to the building manager and the team leader.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Ladder	Yes	No	No	No	No	15	LF

B201007 EXTERIOR SOFFITS - General



Typical Application and General Component Guidance:

This component is used to inventory soffits. A general description of a soffit is a ceiling-type application that is used on the exterior of a building.

Lessons Learned/Business Rules/General Comments

Business Rule

In facilities where multiple material types are used for soffits they should be sectioned by material type such as 'WOOD', 'METAL', or 'CONCRETE.'

Soffits will typically degrade in the same manner so there is no need to section by cardinal direction. A single section is acceptable. If there are multiple install dates/conditions then sectioning by cardinal direction is required.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B201011 SUN CONTROL DEVICES - General



Typical Application and General Component Guidance:

This component is used to inventory sun control devices.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory if the sum SF is less than 100 SF.

The sun shade device must be attached to the building. If it is a surface mounted type canopy, do not inventory.

Lesson Learned

Will be typically found on barrack and dining facility type buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B201090 OTHER EXTERIOR WALLS - General



Typical Application and General Component Guidance:

This component is used to inventory other types of exterior walls. The most common is fencing that is part of the building structure. The photo shows a mechanical yard enclosure.

Lessons Learned/Business Rules/General Comments

Business Rule

If fencing is permanently attached to the building, it should be captured. The most common occurrence is mechanical yards. The section name 'FENCING' should be used.

If the fencing is installed as the ceiling of a mechanical enclosure, capture it with the wall section. There is no component type for exterior ceilings and the walls/ceiling fencing will degrade at the same rate.

Other types of exterior walls should be sectioned by cardinal direction in the same manner as other exterior components.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	40	SF

B202001 WINDOWS - Aluminum Windows



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

General

Included for reference purposes only. Out of scope. All business rules stated in B202001 WINDOWS - General are to be followed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Aluminum Windows	No	No	No	No	No	75	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B202001 WINDOWS - Exterior Glazing



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

General

Included for reference purposes only. Out of scope. All business rules stated in B202001 WINDOWS - General are to be followed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Glazing	No	No	No	No	No	50	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B202001 WINDOWS - General

Typical Application and General Component Guidance:

This component is used to inventory the exterior windows.



Lessons Learned/Business Rules/General Comments

Business Rule

If a window is constructed out of storefront material (common on newer buildings), it should NOT be inventoried under 'B202002 Storefronts.' Only windows that extend to the ground are considered a storefront. All other glazing is considered a window.

Only in the occurrence where there identical section names is 'year installed' to be added. For instance, there could be 'NORTH-ALUMINUM-20-2014' and 'NORTH-ALUMINUM-20-1975.'

The material type should be entered into the section name.

The operability (operable or non-operable) of windows does not impact how the windows are inventoried. Do not section windows out by 'SLIDING', 'FIXED', 'AWNING' or any other functionality type.

The section name for a window component consists of 3 parts (in this order): 1) Cardinal direction, 2) Material type (Wood, Steel, Aluminum, Vinyl), and 3) Window opening count. Example: 'NORTH-ALUMINUM-20'.

The window count for a section is obtained by viewing a glazed area wall penetration separated by items (not mullions) such as CMU, stucco, etc. to be counted as 1 window. Note: The section name requirements that include this number.

Window screen condition or missing screen does not factor into the window DCR inspection.

Window sectioning drivers: cardinal direction (included in section name), material type (included in section name), and condition.

General

All windows are to be inventoried under 'General' which is a SF (UOM).

Creating an inordinate amount of sections for windows does not increase quality. Assessors should strive to have an accurate inventory of windows at the minimum amount of sections while still meeting the requirements above.

The goal in sectioning of windows is to have one section per side of building (if all are the same type). If one window is broken, an assessor can have a non-representative inspection added in BRED™.

Windows that extend to the ground are to be inventoried under 'B202002 Storefronts.'

Lesson Learned

On certain windows the construction date can be viewed in small font on a sticker somewhere on the window frame. This can be used by an assessor to estimate the install date of the window.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	50	SF

B202001 WINDOWS - Other



Typical Application and General Component Guidance:

This component is used to inventory exterior window screens/bars.

Lessons Learned/Business Rules/General Comments

Business Rule

Due to the amount of security bars/screens on installations if 'B202001 WINDOWS - Other' is used there is no need to provide an inventory photo and comment even though it is an 'OTHER' component type.

Follows the same section naming and inventory requirements as 'B202001 WINDOWS - General'

Used to capture security bars/screens that are protecting the window. These are commonly found on armories and other secure buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	No	No	No	50	SF

B202001 WINDOWS - Steel Windows



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

General

Included for reference purposes only. Out of scope. All business rules stated in B202001 WINDOWS - General are to be followed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Steel Windows	No	No	No	No	No	50	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B202001 WINDOWS - Wood Windows



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

General

Included for reference purposes only. Out of scope. All business rules stated in B202001 WINDOWS - General are to be followed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wood Windows	**No**	No	No	No	No	50	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B202002 STOREFRONTS - General



Typical Application and General Component Guidance:

This component is used to inventory storefronts.

Lessons Learned/Business Rules/General Comments

Business Rule

A glazed door that is part of a storefront should still be inventoried as a separate glazed door component type.

All business rules stated in B202001 WINDOWS - General in regards to sectioning are to be followed. 1) Cardinal direction, 2) Material type (Wood, Steel, Aluminum, Vinyl), and 3) Storefront opening count. Example: 'NORTH-ALUMINUM-2'.

If the component is over one story in height, it should be captured as a 'B202003 GLAZED CURTAIN WALL'.

On newer buildings the use of storefront material for windows is becoming more popular. Do not capture windows under this storefront component type. Use 'B202001 WINDOWS'

General

Any glazing that extends to the ground is considered a storefront. This is commonly found on entrances into buildings. The entire assembly SF should be captured as a storefront (minus the glazed doors SF).

Lesson Learned

An assessor should calculate the SF of the opening and then subtract the SF of the doors in an entry way application.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B202003 CURTAIN WALLS - General



Typical Application and General Component Guidance:

This component is used to inventory curtain walls.

Lessons Learned/Business Rules/General Comments

General

A curtain wall will typically be over one story in height.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF

B203001 SOLID DOORS - Steel



Typical Application and General Component Guidance:

This component is used to inventory steel doors.

Lessons Learned/Business Rules/General Comments

Business Rule

A pair of steel doors are to be captured as a quantity of 2.

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

Doors that are primarily wood with a thin metal covering shall be inventoried as wood doors as their costs and service lives are more consistent with wood doors.

Screen doors or other covering doors over exterior doors are not inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Steel	Yes	No	No	No	No	20	EA

B203001 SOLID DOORS - Wood



Typical Application and General Component Guidance:

This component is used to inventory exterior wood doors.

Lessons Learned/Business Rules/General Comments

Business Rule

A pair of wood doors are to be captured as a quantity of 2.

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

Screen doors or other covering doors over exterior doors are not inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wood	Yes	No	No	No	No	20	EA

B203002 GLAZED DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory glazed doors. The photo would be inventoried as a quantity of 2.

Lessons Learned/Business Rules/General Comments

Business Rule

A pair of glazed doors are to be captured as a quantity of 2.

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

If a door has a window, it is not considered to be a glazed door. Glazed doors consist primarily of full height glass panes with or without a frame/stile on the perimeter of the door.

Lesson Learned

If the glazed doors are installed in a 'B202002 Storefront,' capture the SF of the doors so it can be deducted from the Storefront opening quantity.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA

B203004 OVERHEAD AND ROLL-UP DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory overhead and roll-up doors. Select the correct type and size (round up to the nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

It is understood that while several sizes are available in BUILDER™ there will be other size doors found in the field. The assessor is to use judgment on selecting component type. The component type should be rounded up to the next available size.

Lesson Learned

If there are multiple doors where the sizes don't align, it is helpful to add an inventory comment with the actual size and cardinal direction. This will leave a bread crumb from the next assessor to understand the previous sectioning.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

B203007 GATES - General



Typical Application and General Component Guidance:

This component is used to inventory gates.

Lessons Learned/Business Rules/General Comments

Business Rule

A pair of double gate doors are to be captured as a quantity of 2.

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

B203090 OTHER EXTERIOR SPECIALTY DOORS - Emergency Egress Door



Typical Application and General Component Guidance:

This component is used to inventory exterior doors that have emergency egress (fire alarm bar) installed.

Lessons Learned/Business Rules/General Comments

Business Rule

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

The door must have a fire alarm bar installed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Emergency Egress Door	Yes	No	No	No	No	30	EA

B203090 OTHER EXTERIOR SPECIALTY DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory specialty doors that do not have a component type in BUILDER™. The photo shows a weapons issue door at an armory.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessor to add a section name to adequately identify the door. 'ARMORY ISSUE' is one example. If enough detail is not provided in the section name for easy identification, an inventory comment should be provided.

Doors should be sectioned by cardinal direction in the same manner as other exterior components.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA

B201001 EXTERIOR CLOSURE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	SF
Other	Yes	No	Yes	Yes	No	30	SF
Unknown	No	No	No	No	No	30	SF
Adobe	Yes	No	No	No	No	75	SF
Brick Veneer w/CMU Backup	Yes	No	No	No	No	75	SF
Brick Veneer w/Stud Backup	Yes	No	No	No	No	75	SF
Cementitous Boards / Panels	Yes	No	No	No	No	30	SF
CIP Concrete	Yes	No	No	No	No	75	SF
Concrete Block	Yes	No	No	No	No	75	SF
E.I.F.S.	Yes	No	No	No	No	50	SF
Fiber Cement Siding	Yes	No	No	No	No	75	SF
Glass Block	Yes	No	No	No	No	50	SF
Gypsum	Yes	No	No	No	No	50	SF
Masonite	Yes	No	No	No	No	75	SF
Masonry Cavity	Yes	No	No	No	No	75	SF
Masonry Composite	Yes	No	No	No	No	75	SF
Metal Panel	Yes	No	No	No	No	30	SF
Metal Siding	Yes	No	No	No	No	30	SF
Precast Concrete Panel (Ribbed)	Yes	No	No	No	No	75	SF
Precast Concrete Panel (Tilt Up)	Yes	No	No	No	No	75	SF
Pre-Engineered Steel Wall and Panel	Yes	No	No	No	No	60	SF
Solid Brick - Double Wythe	Yes	No	No	No	No	75	SF
Solid Brick - Single Wythe	Yes	No	No	No	No	75	SF
Stone	Yes	No	No	No	No	75	SF
Stone Veneer w/CMU Backup	Yes	No	No	No	No	75	SF
Stone Veneer w/Stud Backup	Yes	No	No	No	No	30	SF
Stucco	Yes	No	No	No	No	40	SF
Tile Veneer w/CMU Backup	Yes	No	No	No	No	75	SF
Vinyl/Fiberglass Siding	Yes	No	No	No	No	30	SF
Wall Louver	No	No	No	No	No	30	SF

Wood Cladding w/Stud Backup	Yes	No	No	No	No	40	SF

B201002 EXTERIOR WALL BACKUP CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201003 INSULATION & VAPOR RETARDER

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Fiberglass Batts	No	No	No	No	No	20	SF

B201004 PARAPETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

B201005 EXTERIOR LOUVERS & SCREENS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201006 BALCONY WALLS & HANDRAILS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	LF
Other	No	No	No	No	No	15	LF
Unknown	No	No	No	No	No	15	LF
Handrailing	Yes	No	No	No	No	15	LF
Ladder	Yes	No	No	No	No	15	LF

B201007 EXTERIOR SOFFITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201008 FLASHING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201009 EXTERIOR PAINTING AND SPECIAL COATINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201010 EXTERIOR JOINT SEALANT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

B201011 SUN CONTROL DEVICES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

B201012 SCREEN WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

B201090 OTHER EXTERIOR WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	40	SF
Other	No	No	No	No	No	40	SF
Unknown	No	No	No	No	No	40	SF

B202001 WINDOWS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	50	SF
Other	Yes	No	No	No	No	50	SF
Unknown	No	No	No	No	No	50	SF
Aluminum Windows	No	No	No	No	No	75	EA
Exterior Glazing	No	No	No	No	No	50	SF
Steel Windows	No	No	No	No	No	50	EA
Vinyl Clad Windows	No	No	No	No	No	70	EA
Wood Windows	No	No	No	No	No	50	EA

B202002 STOREFRONTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B202003 CURTAIN WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF
Other	Yes	No	Yes	Yes	No	75	SF
Unknown	No	No	No	No	No	75	SF

B202090 OTHER EXTERIOR WINDOWS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	65	EA
Other	No	No	No	No	No	65	EA
Unknown	No	No	No	No	No	65	EA

B203001 SOLID DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Aluminum	Yes	No	No	No	No	20	EA
Steel	Yes	No	No	No	No	20	EA
Wood	Yes	No	No	No	No	20	EA

B203002 GLAZED DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA
Other	Yes	No	Yes	Yes	No	40	EA
Unknown	No	No	No	No	No	40	EA

B203003 REVOLVING DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Electric	Yes	No	No	No	No	20	EA
Manual	Yes	No	No	No	No	20	EA

B203004 OVERHEAD AND ROLL-UP DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Aluminum/Fiberglass, Electric, 12'x12'	Yes	No	No	No	No	20	EA
Aluminum/Fiberglass, Manual, 12'x12'	Yes	No	No	No	No	20	EA
Shutter, Rollup	Yes	No	No	No	No	20	EA
Steel Rolling	No	No	No	No	No	20	EA
Steel Rolling, Electric, 10'x10'	Yes	No	No	No	No	20	EA
Steel Rolling, Electric, 12'x12'	Yes	No	No	No	No	20	EA
Steel Rolling, Electric, 14'x14'	Yes	No	No	No	No	20	EA
Steel Rolling, Electric, 20'x12'	Yes	No	No	No	No	20	EA
Steel Rolling, Electric, 20'x16'	Yes	No	No	No	No	20	EA
Steel Rolling, Electric, 8'x8'	Yes	No	No	No	No	20	EA
Steel Rolling, Fire Rated, 10'x10'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 10'x10'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 12'x12'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 14'x14'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 20'x12'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 20'x16'	Yes	No	No	No	No	20	EA
Steel Rolling, Manual, 8'x8'	Yes	No	No	No	No	20	EA
Steel Sectional	No	No	No	No	No	20	EA
Steel Sectional, Electric, 10'x10'	Yes	No	No	No	No	20	EA
Steel Sectional, Electric, 12'x12'	Yes	No	No	No	No	20	EA
Steel Sectional, Electric, 20'x14'	Yes	No	No	No	No	20	EA
Steel Sectional, Electric, 8'x8'	Yes	No	No	No	No	20	EA
Steel Sectional, Manual, 10'x10'	Yes	No	No	No	No	20	EA
Steel Sectional, Manual, 12'x12'	Yes	No	No	No	No	20	EA
Steel Sectional, Manual, 20'x14'	Yes	No	No	No	No	20	EA
Steel Sectional, Manual, 8'x8'	Yes	No	No	No	No	20	EA
Steel Vertical Lift, Electric, 16'x16'	Yes	No	No	No	No	20	EA

Steel Vertical Lift, Electric, 32'x24'	Yes	No	No	No	No	20	EA
Wood, Electric, 10'x10'	Yes	No	No	No	No	20	EA
Wood, Electric, 12'x12'	Yes	No	No	No	No	20	EA
Wood, Electric, 14'x14'	Yes	No	No	No	No	20	EA
Wood, Electric, 20'x16'	Yes	No	No	No	No	20	EA
Wood, Electric, 8'x8'	Yes	No	No	No	No	20	EA
Wood, Manual, 10'x10'	Yes	No	No	No	No	20	EA
Wood, Manual, 12'x12'	Yes	No	No	No	No	20	EA
Wood, Manual, 14'x14'	Yes	No	No	No	No	20	EA
Wood, Manual, 20'x16'	Yes	No	No	No	No	35	EA
Wood, Manual, 8'x8'	Yes	No	No	No	No	35	EA

B203005 HANGAR DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	35	SF
Other	No	No	No	No	No	35	SF
Unknown	No	No	No	No	No	35	SF
Steel	No	No	No	No	No	35	SF
Steel Bi-Fold	Yes	No	No	No	No	35	SF
Steel Sliding	Yes	No	No	No	No	35	SF
Steel Vertical	Yes	No	No	No	No	35	SF
Wood	No	No	No	No	No	35	SF
Wood Bi-Fold	Yes	No	No	No	No	35	SF
Wood Sliding	Yes	No	No	No	No	20	SF
Wood Vertical	Yes	No	No	No	No	20	SF

B203006 BLAST RESISTANT DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B203007 GATES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

B203008 EXTERIOR DOOR HARDWARE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

B203090 OTHER EXTERIOR SPECIALTY DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Emergency Egress Door	Yes	No	No	No	No	30	EA
Storm Door	Yes	No	No	No	No	25	EA

B203091 OTHER EXTERIOR PERSONNEL DOORS

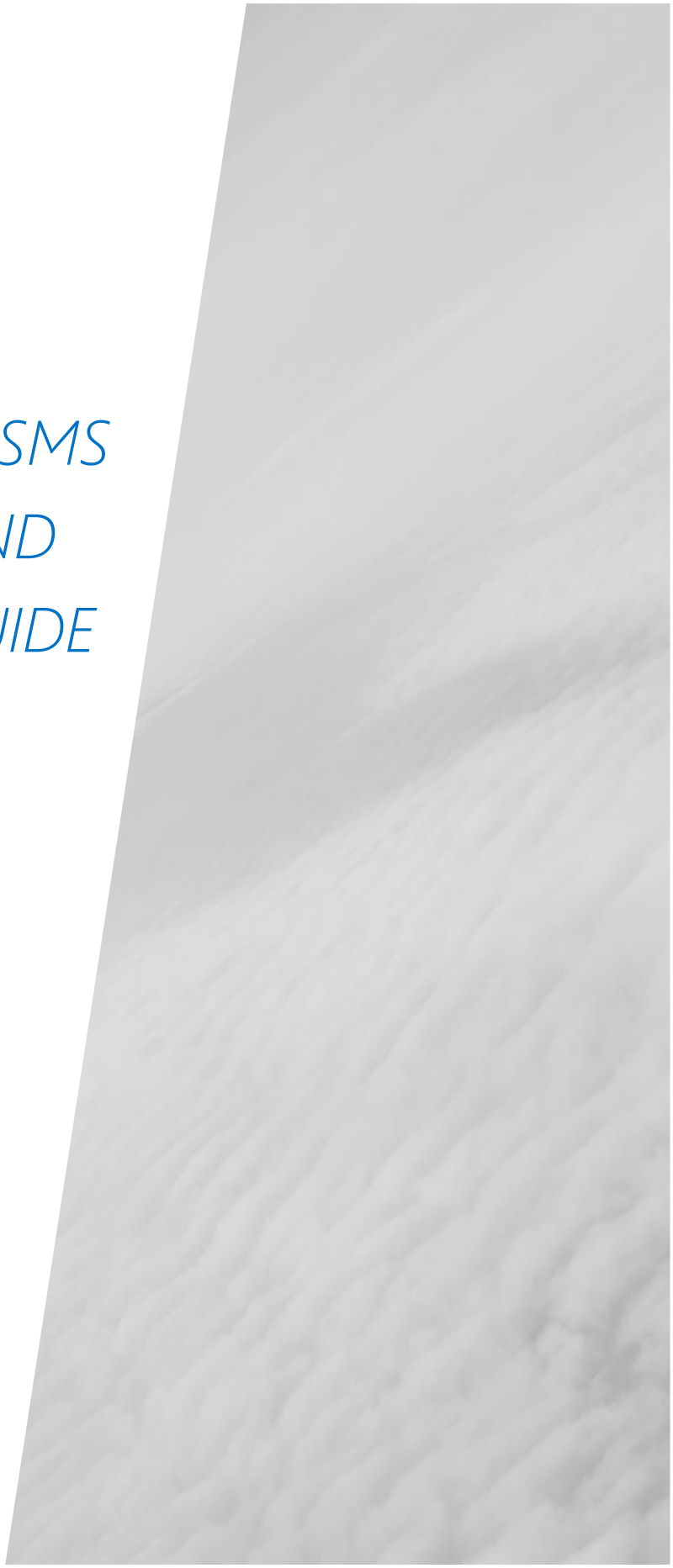
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	30	EA
Other	No	No	No	No	No	12	EA
Unknown	No	No	No	No	No	12	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

B30 ROOFING



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat B30 Roofing Inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

B3010 - Roof Coverings: Provide the primary weather protection and insulation for the top of the building. In BUILDER™, roof covering refers to the complete roof system composed of the exposed covering and any underlayment such as insulation, asphaltic/bitumen layers, membranes, etc. Typical roof covering or system types found on bases include Built-up, Modified-Bitumen, Membrane, Metal, Shingle, and Tile. The roof coverings component also includes exterior rain drainage (gutters and downspouts). When the roof structure also serves as a weatherproofing component (e.g. A single sheet of metal, or a concrete deck, coated or uncoated), it is inventoried and assessed under B1020. If the roof construction includes a structural substrate under the roof cover, that component is inventoried and assessed by the architectural assessor under B1020 Roof Construction. It is incumbent upon the roofing assessor to ensure roof structures that also serve as weatherproofing components are properly inventoried and assessed, i.e. ensure the weatherproofing function of the roof is considered in the assessment.

B3020 - Roof Openings: Provide physical access and daylight passage through the roof system. These openings can be fixed or operable and be made of different materials.

Roof covering component sections are inventoried by roof covering system (component type). Because the inventory is by roof covering system, the assessor will not inventory underlayment materials, roof insulation, or accessory items (e.g. edge metal, flashing, insulation, fascia, pitch pans, ridge vents, walk pads, etc.). The roof covering inventory includes the roof system material typically rubber, plastic, asphalt, metal, shingle, tile, etc. and the component type such as single-ply, built-up, modified-bitumen, shingle, tile, etc.

The roofing system of a building separates the building interior from the external environment. It provides weather protection and insulation. It may also serve other functions such as supporting equipment, providing fire separation, or allowing daylight to enter the building. The roof is supported by the building structural system.

Inspection

Roof systems and coverings have advanced over the years and typically have a design life of 25–50 years. When properly installed, these components show slow rates of deterioration, but can accelerate with age if common problems such as wind damage, debris build up, minor leaks, etc. are not addressed in a timely manner.

Roofing component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually roofing components will be visible. When component sections are not visible inventory should still be entered, but no assessment is provided. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The assessor should consider the condition of roof accessories in rating the roof covering, even though roof accessories are not inventoried. A roof covering in excellent condition, could be rated amber '+' or below if a significant quantity or severity of conditions exist related to roof flashing, edge metal, pitch pockets, curbs, etc. Problems noted with accessories should be included in assessment comments.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

In some cases, roof sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed; if they are not appropriate, the roof age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Some buildings may have a roof warranty document posted near roof access to assist in determining age.

If a 2-floor, 10,000 SF (real property area) building is assessed and it is deemed to be within +/- 10% calculated, then the assessor should use SF/FLR (10,000/2), which in this case is 5,000 SF as the quantity for the SF of roofing components (Note: many roofing components also require the slope factor to be applied).

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

Roofing components inventoried for buildings are usually visible. When roofing components are not visible (or the roof is not accessible), as-built drawings should be used to identify and quantify the roofing components. If as-built drawings are not available, the assessor may use experience to make an assumption for the roofing types and quantities based on similar construction, consultation with local staff, other reputable online resources.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should have photos taken that show the ID number, component, and nameplate data. All 3 photos should be attached to the Section Detail record. It is preferred they are attached in that order. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as roof coverings and hatches are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate roof section with a different age.

Typical section names used for B30 include MAIN, UPPER, LOWER, WING 'X,' EAST, WEST, FLAT, SLOPED, etc.

For roofing, do not section by floor.

If a building east and west wings is assessed and the roofs have different install dates, the Section Name for the roof covering would read 'EAST WING' and 'WEST WING'. If there is an instance where a single wing has multiple roofs with different install dates the names 'WEST WING - 1970' and 'WEST WING - 2015' would be used.

Roof framing, roof deck, and roof covering components should all be sectioned in similar fashion using the exact same section names. For example, if there are 'HIGH' and 'LOW' roof sections for framing the same sectioning methodology is used for the roof deck and roof covering components.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

B10 Superstructure is often not visible, which can lead to a variety of different inventory methods. See below for the steps to properly inventory the B10 Superstructure.

Step 1: Consider the size of the building.

Building Square Footage	B1010 Floor Construction	B1020 Roof Construction
1 SF - 1,000 SF	Not Inventoried	Inventory
1,001 SF - 5,000 SF	Assessor Judgment	Inventory
5,000 SF +	Assessor Judgment	Inventory

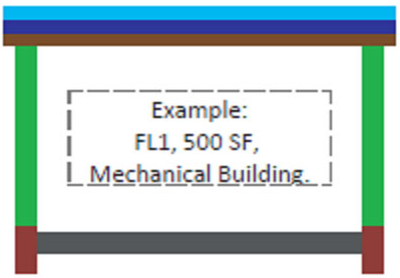
* B1010 captures the structural framing that supports the B1020 (roof) structural framing. B1010 will be present on multiple story buildings and buildings that have a mezzanine or deck area. Note: If there is an attic space, it may be necessary to have a B1010 on a single-story building. While not part of the living area of the building, there is structural support for this area that is not part of the B1020 structural framing.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Shingle	N/A
B102003 Roof Decks and Slabs	Wood	N/A
B102001 Roof Construction	General	N/A
B101003 Floor Decks and Slabs	Wood	ATTIC
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Built-Up	N/A
B102003 Roof Decks and Slabs	Concrete	N/A
B102001 Roof Construction	General	N/A
B201001 Exterior Enclosure	Concrete Block	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Strip Footing	N/A

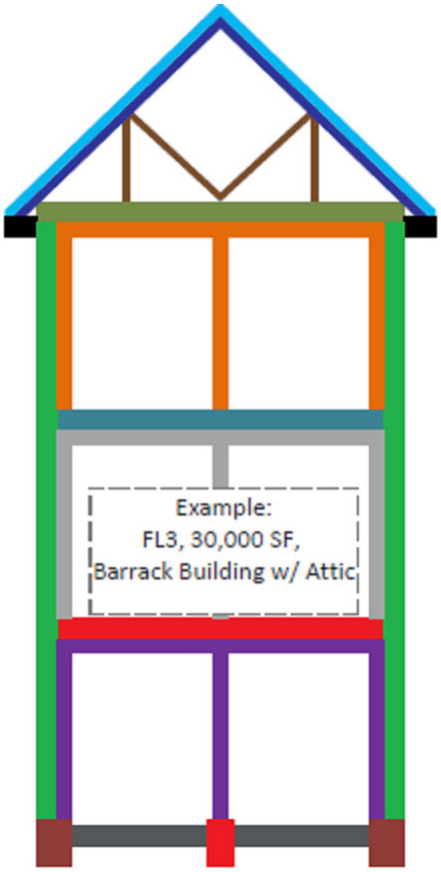


Note: The roof deck overhangs the building. There is no soffit material

Note: B102001 should be included even though structural members are not visible. There is reinforcing (rebar) in the concrete roof deck. A building will always have a B102001 component regardless of size.

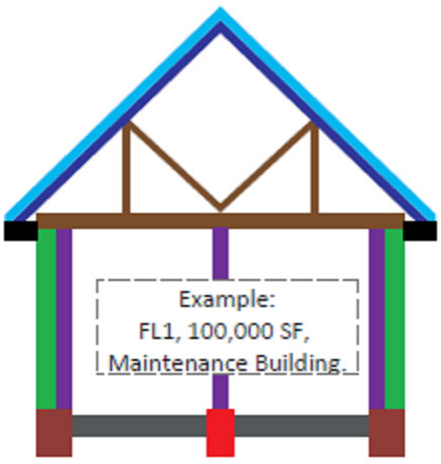
Visual Aid: How to Inventory A10, B10, B20, and B30 Components.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B1010003 Floor Decks and Slabs	Concrete	ATTIC
B101001 Floor Construction	General	FL3
B101003 Floor Decks and Slabs	Concrete	FL3
B101001 Floor Construction	General	FL2
B101003 Floor Decks and Slabs	Concrete	FL2
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	FL1
B201001 Exterior Enclosures	Tilt-Up-Panel	N/S/E/W
A103002 Structural SOG	General	N/A
A101001 Wall Foundations	Grade Beams	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) B10: Sectioned by floor. B20: Not sectioned by floor.
2) A10 assets will be hard to inventory as they are not visible. Use drawings or assessor experience on construction type to inventory these assets.

Material/Equipment Category	Component Type	Section Name
B301001 Roof Coverings	Standing Seam	N/A
B102003 Roof Decks and Slabs	Steel	N/A
B102001 Roof Construction	General	N/A
B201007 Exterior Soffits	General	N/S/E/W
B101001 Floor Construction	General	N/A
B201001 Exterior Enclosure	Siding	N/S/E/W
A103002 Structural SOG	General	N/A
A101002 Column Foundations	Spread Footing	N/A
A101001 Wall Foundations	Strip Footing	N/A



1) Columns will have a column foundation (typically will be found) use 'A101002 - Spread Footing.'

B301001 STEEP SLOPE ROOF SYSTEMS - Fiberglass Shingles



Typical Application and General Component Guidance:

This component is used to inventory residential-style shingle roof coverings.

Lessons Learned/Business Rules/General Comments

General

Design life varies from 30-50 years. 3-tabs (photo) typically 30 years. "Dimensional" shingles are typically 40-50 years.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fiberglass Shingles	Yes	No	No	No	No	30	SF

B301001 STEEP SLOPE ROOF SYSTEMS - Formed Metal - Metal Standing Seam



Typical Application and General Component Guidance:

This component is used to inventory standing seam metal roofs.

Lessons Learned/Business Rules/General Comments

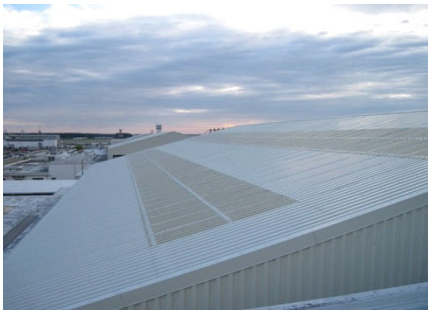
General

Panel system consists of a factory or field formed panel with a raised interlocking standing seam.

Typically factory finished or painted. Insulation, if present, is below the roof deck

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Formed Metal - Metal Standing Seam	Yes	No	No	No	No	30	SF

B301001 STEEP SLOPE ROOF SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory translucent panels that are integrated into roofing systems.

Lessons Learned/Business Rules/General Comments

Business Rule

DO NOT inventory as a skylight. If a skylight is found, inventory under 'B301006 ROOF OPENINGS AND SUPPORTS - skylight.'

If a sandwich panel is found, use 'General' component type. This is when the roof, insulation, and decking are one panel. This should be inventoried as both 1) a B102003 roof deck and 2) B30 roof covering component types. The SF of both should match.

Square footage adjustment factor %: [(0-2):12] = 0% __ [3:12] = 3% __ [4:12] = 5% __ [5:12] = 8% __ [6:12] = 12% __ [7:12] = 16% __ [8:12] = 20% __ [9:12] = 25% __ [10:12] = 30% __ [11:12] = 36% __ [12:12] = 41%

The section name 'TRANSLUCENT PANEL' should be used when capturing translucent panels that are integrated into the roofing system.

There may be instances where fiberglass panels have been used. The section name 'FIBERGLASS PANELS' should be used.

Lesson Learned

The quantity (and sectioning) of the steep slope roof system should match that of the roof decking.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	12	SF

B301001 STEEP SLOPE ROOF SYSTEMS - Preformed Metal - Metal Panel



Typical Application and General Component Guidance:

This component is used to inventory preformed metal panel roof coverings.

Lessons Learned/Business Rules/General Comments

Business Rule

Most metal roofs of small storage buildings consist of only one layer. This metal layer should be captured as this component. This will primarily be used for pre-manufactured and small metal buildings.

General

May be galvanized or painted.

Stamped or formed panels, “corrugated” metal sheets are included in this component

Lesson Learned

There are several other options for metal roofs available. Make sure you are selecting the correct one!

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Preformed Metal - Metal Panel	Yes	No	No	No	No	70	SF

B301002 LOW SLOPE ROOF SYSTEMS - Built-Up



Typical Application and General Component Guidance:

This component is used to inventory low slope built-up roof coverings.

Lessons Learned/Business Rules/General Comments

General

Developed in 1850s for flat, low slope covering. Felts embedded in hot asphalt 'plies' usually totaling 4.

Gravel embedded in asphalt flood coat. Sometimes referred to as "Tar and Gravel." Typically applied in a hot top coat with an edge band metal stop.

There will frequently be little or no insulation.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Built-Up	Yes	No	No	No	No	20	SF

B301002 LOW SLOPE ROOF SYSTEMS - Liquid Elastomers



Typical Application and General Component Guidance:

This component is used to inventory liquid elastomer roof coverings.

Lessons Learned/Business Rules/General Comments

General

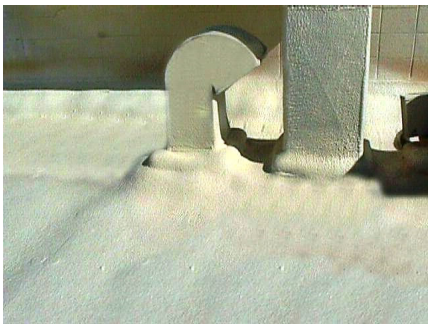
Often used as “recover” to extend life or provide impact protection.

Spray applied and then it expands after spraying to form a seamless cover.

The consists of a rubber-like sprayed over top coat over an existing roof surface.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Liquid Elastomers	Yes	No	No	No	No	20	SF

B301002 LOW SLOPE ROOF SYSTEMS - Polyurethane Foam



Typical Application and General Component Guidance:

This component is used to inventory polyurethane foam roof coverings.

Lessons Learned/Business Rules/General Comments

Business Rule

If a structural base is visible from below (which is typical), it should be captured under 'B102003 ROOF DECKS AND SLABS' with the appropriate component type selected.

General

Often used as “recover” to extend life, provide insulation, or provide impact protection.

Spray applied and then it expands after spraying to form a seamless cover.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Polyurethane Foam	Yes	No	No	No	No	20	SF

B301002 LOW SLOPE ROOF SYSTEMS - Single Ply Membrane



Typical Application and General Component Guidance:

This component is used to inventory single ply membrane roof coverings.

Lessons Learned/Business Rules/General Comments

General

A typical single ply roof section.

Insulation is located below the membrane. Plate and pin fasteners or adhesives hold down the insulation. The sheets are then glued to the plate fasteners.

Sheets will have glued or heat welded seams

The membrane is either fully adhered, mechanically fastened, or loose laid with a ballast.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single Ply Membrane	**Yes**	No	No	No	No	20	SF

B301005 GUTTERS & DOWNSPOUTS - Downspouts



Typical Application and General Component Guidance:

This component is used to inventory rainwater downspouts.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not section downspouts by cardinal direction. This is a single system so a single record for the entire building is acceptable. Section by typical rules of age and condition.

Downspouts discharge to grade. Note: If a downspout does not daylight and is tied into a below grade storm water collection system, the 'downspout' piping should be inventoried under 'D204002 ROOF DRAINS.'

If there are multiple material types of downspouts, they should be sectioned separately. For example, on older buildings you may have both copper and galvanized downspouts. Section names of 'COPPER' and 'GALVANIZED' should be used.

Lesson Learned

An assessor should pay close attention to the bottom of the downspout when providing a DCR. Often these are damaged by forklifts, maintenance operations, lawn mowers, etc.

If the downspout is to be inventoried under 'D402002 ROOF DRAINS', then the assessor should capture a LF quantity and provide it to the plumbing assessor (assuming there is a division of labor between the two).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Downspouts	Yes	No	No	No	No	75	LF

B301005 GUTTERS & DOWNSPOUTS - Gutters



Typical Application and General Component Guidance:

This component is used to inventory gutters.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not section gutters by cardinal direction. This is a single system so a single record for the entire building is acceptable. Section by typical rules of age and condition.

If there are multiple types of gutters, they should be sectioned separately. For example, on older buildings you may have both copper and galvanized gutters. Section names of 'COPPER' and 'GALVANIZED' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Gutters	Yes	No	No	No	No	75	LF

B301006 ROOF OPENINGS AND SUPPORTS - Hatches



Typical Application and General Component Guidance:

This component is used to inventory roof hatches.

Lessons Learned/Business Rules/General Comments

Business Rule

There are a variety of roof hatches that have 2 leafs to the door opening. In this case the quantity should be 1. DO NOT capture as a quantity of 2, which is typical for other double door applications.

General

Typically metal and allow for personnel or equipment access to the roof.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Hatches	Yes	No	No	No	No	10	EA

B301006 ROOF OPENINGS AND SUPPORTS - Skylights



Typical Application and General Component Guidance:

This component is used to inventory skylights.

Lessons Learned/Business Rules/General Comments

Business Rule

Large glass atrium roofs should be included in B1020 Other Roof Construction.

Lesson Learned

Take note of the UOM. An assessor needs to capture the SF of glazing.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Skylights	Yes	No	No	No	No	20	SF

Complete Component Catalog Breakdown

B30 ROOFING

B301001 STEEP SLOPE ROOF SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	12	SF
Other	Yes	No	Yes	Yes	No	70	SF
Unknown	No	No	No	No	No	40	SF
Asbestos Cement Shingles	Yes	No	No	No	No	70	SF
Asphalt Shingles	Yes	No	No	No	No	70	SF
Clay Tile	Yes	No	No	No	No	70	SF
Concrete Shingles	Yes	No	No	No	No	20	SF
Concrete Tile	Yes	No	No	No	No	30	SF
Fiberglass Shingles	Yes	No	No	No	No	30	SF
Formed Metal	Yes	No	No	No	No	30	SF
Formed Metal - Metal Standing Seam	Yes	No	No	No	No	30	SF
Metal Shingles	Yes	No	No	No	No	30	SF
Preformed Metal	No	No	No	No	No	20	SF
Preformed Metal - Metal Panel	Yes	No	No	No	No	70	SF
Shingle & Tile	Yes	No	No	No	No	30	SF
Slate Shingles	Yes	No	No	No	No	12	SF
Wood Shakes	Yes	No	No	No	No	20	SF
Wood Shingles	Yes	No	No	No	No	20	SF

B301002 LOW SLOPE ROOF SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF
Built-Up	Yes	No	No	No	No	20	SF
Liquid Elastomers	Yes	No	No	No	No	20	SF
Modified Bitumen	Yes	No	No	No	No	20	SF
Polyurethane Foam	Yes	No	No	No	No	20	SF
Single Ply Membrane	Yes	No	No	No	No	20	SF

B301003 ROOF INSULATION & FILL

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Cellular Fill	No	No	No	No	No	20	SF
Fiberglass Batts	No	No	No	No	No	20	SF
Gypsum Fill	No	No	No	No	No	20	SF
Lightweight Concrete Fill	No	No	No	No	No	20	SF
Perlite Fill	No	No	No	No	No	20	SF
Rigid Cork	No	No	No	No	No	20	SF
Rigid Expanded Polystyrene	No	No	No	No	No	20	SF
Rigid Extruded Polystyrene	No	No	No	No	No	20	SF
Rigid Foamed-In-Place/PUF	No	No	No	No	No	20	SF
Rigid Foamglass	No	No	No	No	No	20	SF
Rigid Glass Fiber	No	No	No	No	No	20	SF
Rigid Multiple Types	No	No	No	No	No	20	SF
Rigid Perlite	No	No	No	No	No	20	SF
Rigid Phenolic	No	No	No	No	No	20	SF
Rigid Polyisocyanurate	No	No	No	No	No	20	SF
Rigid Polyurethane/Board	No	No	No	No	No	20	SF
Rigid Unknown	No	No	No	No	No	20	SF
Rigid Wood Fiberboard	No	No	No	No	No	25	SF
Vermiculite Fill	No	No	No	No	No	25	SF

B301004 FLASHINGS & TRIM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	LF
Other	No	No	No	No	No	25	SF
Unknown	No	No	No	No	No	25	SF
Chimney Cap/Squirrel/Bird Screen	No	No	No	No	No	25	LF
Flashings - Apron	No	No	No	No	No	25	LF
Flashings - Base	No	No	No	No	No	25	LF
Flashings - Cap	No	No	No	No	No	25	LF
Flashings - Embedded Edge Metal	No	No	No	No	No	25	LF
Flashings - Flashing Penetrations	No	No	No	No	No	25	EA
Flashings - Pitch Pans	No	No	No	No	No	25	EA
Flashings - Step	No	No	No	No	No	20	LF
Flashings - Valley	No	No	No	No	No	20	LF

B301005 GUTTERS & DOWNSPOUTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF
Downspouts	Yes	No	No	No	No	75	LF
Gutters	Yes	No	No	No	No	75	LF

B301006 ROOF OPENINGS AND SUPPORTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	75	SF
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	SF
Gravity Ventilator	No	No	No	No	No	20	EA
Gravity Ventilator - 12" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 12" x 12"	No	No	No	No	No	20	EA
Gravity Ventilator - 12" x 24"	No	No	No	No	No	20	EA
Gravity Ventilator - 12" x 36"	No	No	No	No	No	20	EA
Gravity Ventilator - 18" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 20" x 72"	No	No	No	No	No	20	EA
Gravity Ventilator - 24" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 24" x 72"	No	No	No	No	No	20	EA
Gravity Ventilator - 30" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 36" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 42" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 48" x 60"	No	No	No	No	No	20	EA
Gravity Ventilator - 48" x 72"	No	No	No	No	No	20	EA
Gravity Ventilator - 6" Diameter	No	No	No	No	No	20	EA
Gravity Ventilator - 60" x 72"	No	No	No	No	No	75	EA
Gravity Ventilator - 72" x 72"	No	No	No	No	No	75	EA
Hatches	Yes	No	No	No	No	10	EA
Skylights	Yes	No	No	No	No	20	SF

B301090 OTHER ROOFING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	10	SF
Other	No	No	No	No	No	10	SF
Unknown	No	No	No	No	No	50	SF
Walkway Protection	No	No	No	No	No	14	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

C10 INTERIOR CONSTRUCTION



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat C10 Interior Construction inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

C1010 - Partitions: Partitions include interior walls constructed from different types of materials (typically drywall, masonry, wood, or plaster) and windows used to divide the interior space to meet the needs of the occupants.

C1020 - Interior Doors: Interior doors allow access, environmental control, and security for both personnel and non-personnel needs.

C1030 - Specialties: Fittings are a collection of interior components including shower compartments, cubicles, toilet partitions, counters, lockers, ladders, display boards, etc.

The interior construction system of a building facilitates space definition, separation, security, observation, functionality, and environmental control within the building. The system is designed to support the function/mission of the building and for the comfort and safety of the occupants.

Inspection

Do not provide inspection comments directed at/identifying only problems with the paint/paint coating. If another distress is present, an assessor may comment on the paint coating in their inspection comment.

Interior construction component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually interior construction components will be visible. When component sections are not visible inventory should still be entered, but no assessment is provided. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The component should be rated based on its condition, NOT the condition of the paint coating. An assessor can have a DCR for the component and then select the 'PAINTED' box and provide a DCR for the paint coating.

The following conditions or events can accelerate interior construction deterioration and should be considered by the assessor: 1) Moisture damage due to roof or pipe leaks, 2) Damage due to personnel or 3) equipment, 4) Improper construction or installation, and 5) Neglected maintenance.

The life cycle for Interior Construction varies based on material type/quality, amount of use, and care over the lifecycle. Typically finish materials are short-lived components and the lifecycle is based on the manufacturers' standard life of the product.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

A sliding glazed door will often have a fixed glazed component as part of the assembly. This should be counted as 1 EA and not inventoried as one part door and one part window since it is one assembly.

As a general rule, all double doors are inventoried as 2 EA.

If construction drawings or as-builts are available, look for date published to assist with determining age of materials.

If the interior (C10) and exterior (B20) master systems are divided between two assessors, extra coordination needs to take place to avoid duplication/missing of components. If B20 captures the exterior block, it should not be included in C10 as well. If that same block wall is furred out with a 'Wall - Drywall w/Stud Framing,' then there is a C10 component that needs to be captured.

In some cases, interior construction sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed; if they are not appropriate, the interior construction age must be estimated. The building occupants or other facilities staff may be able to provide some information

Interior construction components inventoried for buildings are usually visible. When interior construction components are not visible, as-built drawings should be used to identify and quantify the interior construction components. If as-built drawings are not available, the assessor may use experience to make an assumption for the interior construction types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

Interior windows are assessed separately from the interior partition walls. The UOM to be used is SF.

The year or date manufactured for interior doors may be visible on a label on the door edge (hinge side) in determining age.

Transoms and sidelights on doors are inventoried as windows.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as floor finishes and window counts are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Additions, new wings, or major renovations likely require identifying separate Interior Partitions or Interior Doors sections with different ages.

In the case of interior construction, the assessor must use judgment in sectioning interior partitions or doors. In large buildings with many interior partitions or doors, these components should be sectioned in the manner they are generally managed. If there are two major types or ages of interior partitions or doors, then separate sectioning is a good idea. If sectioning out a single door inclusion of the room number (if available) in the section name is required.

In the case where age/condition/material type is different for a single component type it is required that the functional area be included in the section name such as 'FL1 - LOBBY' and 'FL2 - KITCHEN'.

Interior construction is always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates, then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building, you would have 'FL2 EAST' and 'FL2 - WEST'.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

C101001 FIXED PARTITIONS - Security Cage / Wire Mesh



Typical Application and General Component Guidance:

The component is used to inventory fencing/mesh that is used as a partition.

Lessons Learned/Business Rules/General Comments

Business Rule

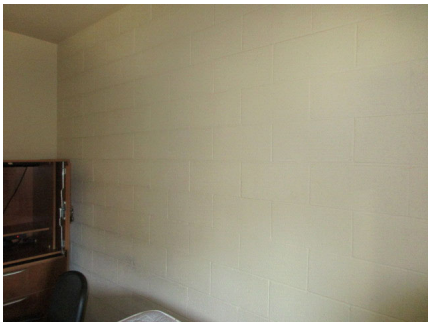
The security cage/wire mesh should be permanently affixed to the facility. A bolted down installation meets this requirement.

Lesson Learned

Assessor to also capture a quantity of the gates for inclusion in 'C102006 INTERIOR GATES.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Security Cage / Wire Mesh	Yes	No	No	No	No	75	SF

C101001 FIXED PARTITIONS - Wall - Concrete Block



Typical Application and General Component Guidance:

The component is used to inventory interior concrete block/CMU walls.

Lessons Learned/Business Rules/General Comments

Business Rule

When calculating the height for use in area calculations use the distance between the floor and ceiling. Do not account for the unseen portion of the wall above the ceiling. Measuring to the nearest foot is acceptable.

Typical Distress

Damaged concrete block/CMU.

Mortar joint deterioration due to exposure to moisture.

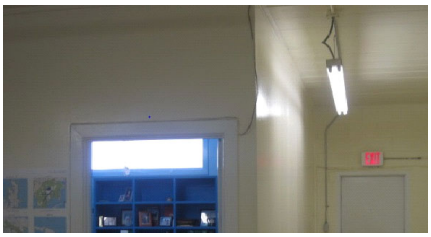
Paint deterioration due to exposure to moisture.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wall - Concrete Block	Yes	No	No	No	No	125	SF

C101001 FIXED PARTITIONS - Wall - Drywall w/Stud Framing

Typical Application and General Component Guidance:

This component is used to inventory the drywall interior partition walls.



Lessons Learned/Business Rules/General Comments

Business Rule

In the rare case where one side of the wall does not have drywall it should be inventoried in a regular fashion in which both sides had drywall. Add an inventory comment stating the % of wall not covered on the other side.

This assembly includes the studs and BOTH sides of the drywall. Do not double count when in different rooms that share the same wall. Do not add C301003 Gypsum Wallboard Finish to the other side of the wall.

When calculating the height for use in area calculations use the distance between the floor and ceiling. Do not account for the unseen portion of the wall above the ceiling. Measuring to the nearest foot is acceptable.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wall - Drywall w/Stud Framing	Yes	No	No	No	No	125	SF

C101002 DEMOUNTABLE PARTITIONS - General

Typical Application and General Component Guidance:

This component is used to inventory demountable partitions.



Lessons Learned/Business Rules/General Comments

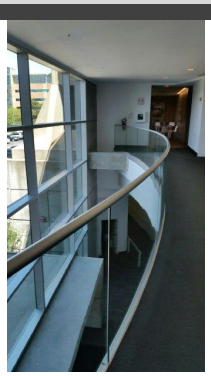
Business Rule

Demountable partitions are very common on installations and even though they can be viewed as temporary construction they should be inventoried as part of the assessment.

Demountable partitions will often have interior doors and windows integrated into the assembly. Do not capture these items separately as it is assumed that the C101002 component cost includes these items. The DCR is for the entire assembly.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

C101004 INTERIOR GUARDRAILS & SCREENS - Guardrail



Typical Application and General Component Guidance:

This component is used to inventory guardrails. The photo shows a glazed guardrail.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory handrails or guardrails that are on stairs as they are viewed to be part of the C20 component.

There are times where mezzanine or balcony has a wall component such as concrete block that provides the majority of the fall protection but will still have a single rail along the top of the wall. Do not inventory as a guardrail in this instance.

Used to capture a crash rail along a wall (typically in a healthcare facility) or a railing acting as a fall prevention device on a balcony or mezzanine.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Guardrail	Yes	No	No	No	No	20	LF

C101005 INTERIOR WINDOWS - General



Typical Application and General Component Guidance:

This component is used to inventory interior windows.

Lessons Learned/Business Rules/General Comments

Business Rule

Interior windows should be inventoried using a 'SF' UOM similar to all other wall construction component types. Use 'C101005 INTERIOR WINDOWS - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

C101005 INTERIOR WINDOWS - Interior Windows



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not use as this is an 'EA' UOM. Use 'C101005 INTERIOR WINDOWS - General', which is a 'SF' UOM.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Windows	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

C101005 INTERIOR WINDOWS - Metal Rollup / Coiling Grille



Typical Application and General Component Guidance:

The component is used to inventory metal rollup/coiling grilles.

Lessons Learned/Business Rules/General Comments

General

These are commonly found in food service buildings such as the base commissary or dining facility.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Metal Rollup / Coiling Grille	Yes	No	No	No	No	20	SF

C101006 GLAZED PARTITIONS & STOREFRONTS - General



Typical Application and General Component Guidance:

This component is used to inventory interior storefronts. Storefronts are defined as windows that extend to the floor and are commonly found on the interior wall of vestibules.

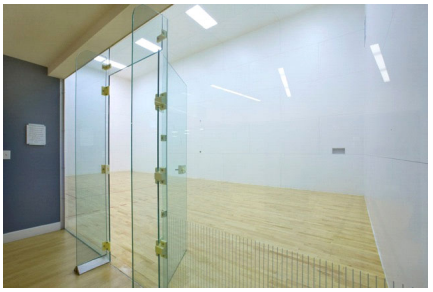
Lessons Learned/Business Rules/General Comments

Business Rule

Only used to capture interior storefronts. If there is an interior glass wall, 'C101007 INTERIOR GLAZING' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

C101007 INTERIOR GLAZING - General



Typical Application and General Component Guidance:

This component is used to inventory interior glass walls.

Lessons Learned/Business Rules/General Comments

Business Rule

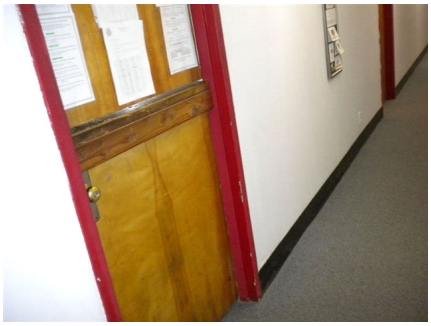
Only used for glass walls. If there is an interior storefront, 'C101006 GLAZES PARTITIONS AND STOREFRONTS' should be used.

General

Commonly found in buildings with offices that have an interior glass wall to the rest of the space or gyms that have racquetball courts.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

C102001 STANDARD INTERIOR DOORS - General



Typical Application and General Component Guidance:

This component is not used very often as there are more appropriate component types in 'C102001.'

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are to be inventoried as 2 EA.

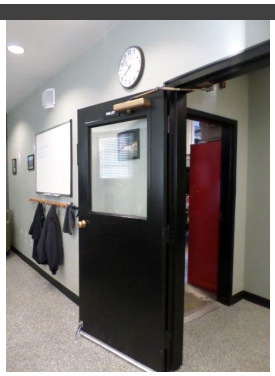
Dutch doors should be sectioned as 'DUTCH.' While Dutch doors are '2' sections they are inventoried as a quantity of 1.

Interior doors that have windows in them DO NOT count toward the 'C101005 INTERIOR WINDOWS' quantity value.

There can be plastic doors (think swinging doors in/out of a kitchen or the back of a warehouse area) found in a building. Inventory under 'General' with the section name 'PLASTIC'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA

C102001 STANDARD INTERIOR DOORS - Metal Door



Typical Application and General Component Guidance:

This component is used to inventory interior metal doors.

Lessons Learned/Business Rules/General Comments

Business Rule

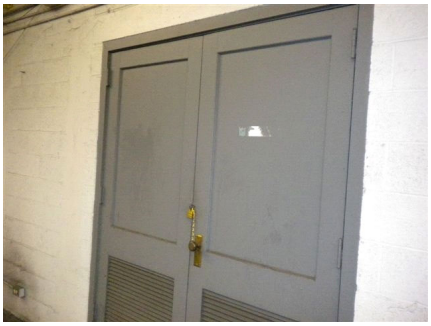
All double doors or pairs of doors are inventoried as 2 EA.

Typical Distress

Corrosion or damaged.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Metal Door	Yes	No	No	No	No	40	EA

C102001 STANDARD INTERIOR DOORS - Wood Door/Metal Frame



Typical Application and General Component Guidance:

This component is used to inventory interior wood door/metal frame doors.

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are inventoried as 2 EA.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wood Door/Metal Frame	Yes	No	No	No	No	40	EA

C102001 STANDARD INTERIOR DOORS - Wood Door/Wood Frame



Typical Application and General Component Guidance:

This component is used to inventory wood door/wood frame interior doors.

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are inventoried as 2 EA.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wood Door/Wood Frame	Yes	No	No	No	No	20	EA

C102002 GLAZED INTERIOR DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory interior glazed doors.

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are inventoried as 2 EA.

If a door has a window it is not considered to be a glazed door. Glazed doors consist primarily of full height glass panes with or without a frame/stile on the perimeter of the door.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA

C102003 FIRE DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory the fire doors.

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are inventoried as 2 EA.

Only inventory under 'C102003 FIRE DOORS' when there is a magnetic 'mechanical closure' device that keeps the door open. All other doors should be inventoried under 'C102001 STANDARD INTERIOR DOORS.'

General

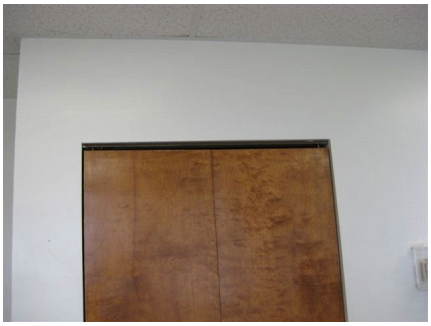
It is understood that fire doors are often located throughout a facility. Due to the maintenance requirements of mechanical closure doors that are controlled by the fire protection system, it is desired that these are inventoried separately.

Lesson Learned

There may be a fire-rated label on the inside edge that can be helpful in determining if a door is fire rated.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA

C102004 SLIDING & FOLDING DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory sliding/folding doors. This is typically found in closet-/pantry-type applications.

Lessons Learned/Business Rules/General Comments

Business Rule

Folding doors will typically have multiple leafs. DO NOT inventory by leaf. Inventory by the opening as the EA quantity NOT by how many doors are present. If 2 folding doors make up 1 closet opening, that is a quantity of 1.

If there are multiple types of these doors, section them separately for ease of reassessment. It helps to also include a location if possible. For example, you could have both 'BIFOLD - CLOSET' and 'SLIDING - PANTRY' sections in a housing unit.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	EA

C102006 INTERIOR GATES - General



Typical Application and General Component Guidance:

This component is used to inventory interior gates.

Lessons Learned/Business Rules/General Comments

Business Rule

The security cage/wire mesh should be permanently affixed to the facility. A bolted down installation meets this requirement. The gate associated with this installation should be captured under 'C102006 INTERIOR GATES.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA

C102090 OTHER INTERIOR SPECIALTY DOORS - Cold Storage



Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing doors are inventoried here, change/move them to the appropriate System and Component Type before performing inspection. Ensure cooler/freezer doors are not inventoried in both places.

Insulated doors for cold storage rooms (insulated panel construction) are to be inventoried under Component Type F101090, Cold Storage Doors - and appropriate door type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cold Storage	**No**	No	No	No	No	24	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

C102090 OTHER INTERIOR SPECIALTY DOORS - Impact/Bumper Doors



Typical Application and General Component Guidance:

This component is used to inventory double action, self-closing, impact resistant traffic doors.

Lessons Learned/Business Rules/General Comments

Business Rule

All double doors or pairs of doors are inventoried as 2 EA.

General

Non-sealed traffic doors are typically used at air-lock vestibules located between conditioned sales areas and non-conditioned storage areas.

Sealed traffic doors are typically used at cold storage room door openings with frequent pedestrian, as well as pallet jack/forklift traffic.

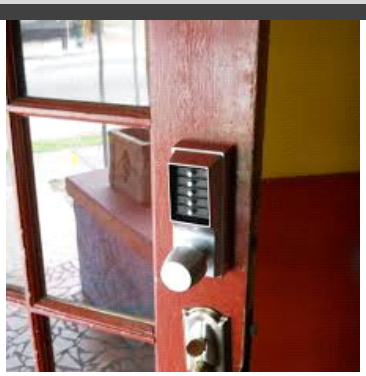
Traffic doors are also called impact doors or bumper doors.

Lesson Learned

Common distresses include damaged door(s), missing door(s), broken or operationally impaired door closer hardware.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Impact/Bumper Doors	Yes	No	No	No	No	20	EA

C102091 OTHER INTERIOR PERSONNEL DOORS - Cipher Lock



Typical Application and General Component Guidance:

This component is used to inventory security doors with electronic locks.

Lessons Learned/Business Rules/General Comments

Business Rule

All doors with a cipher lock should fall under this component type. The door material type (wood/aluminum/steel/etc.) does not factor into the inventory or sectioning methodology.

This component is used to capture vault type doors. Do not use to capture regular metal doors that have an electronic lock installed (these should be inventoried under metal doors).

General

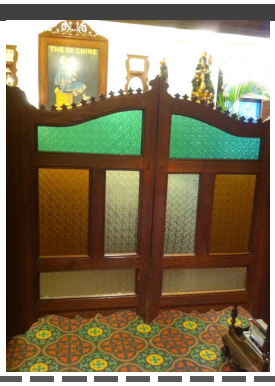
It is understood that cipher locks are often located throughout a facility. Due to the maintenance requirements of the lock on the doors it is desired that these are inventoried separately.

Lesson Learned

These doors are typically found in secure buildings or secure rooms within a building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cipher Lock	Yes	No	No	No	No	20	EA

C102091 OTHER INTERIOR PERSONNEL DOORS - General



Typical Application and General Component Guidance:

This component is used to inventory other material/type doors that do not fall into any other component types available. The photo shows a swinging decorative door.

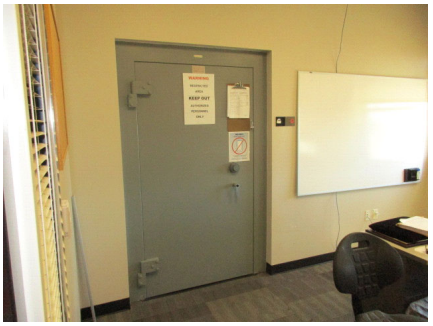
Lessons Learned/Business Rules/General Comments

Business Rule

The section name should be populated with type/location to allow following assessments to understand what was being inventoried. For example, if it is a swinging kitchen door, it should be 'KITCHEN DOOR - SWINGING'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	40	EA

C102091 OTHER INTERIOR PERSONNEL DOORS - Other



Typical Application and General Component Guidance:

This component is used to inventory interior blast doors.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is typically used to capture interior blast doors. A vault door would fall under this component type.
Note: If the door is on the exterior, the component type 'B203006 BLAST RESISTANT DOORS - General' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	40	EA

C103001 COMPARTMENTS, CUBICLES & TOILET PARTITIONS - Shower Compartment



Typical Application and General Component Guidance:

This component is used to inventory shower compartments.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is to capture manufactured shower compartments. If a shower is constructed entirely out of wall tile/floor tile/and gypsum ceiling, then there is no need to inventory a shower compartment. All the components are inventoried elsewhere.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Shower Compartment	Yes	No	No	No	No	20	EA

C103001 COMPARTMENTS, CUBICLES & TOILET PARTITIONS - Toilet Partitions



Typical Application and General Component Guidance:

This component is used to inventory toilet partitions.

Lessons Learned/Business Rules/General Comments

Business Rule

Each stall should be counted as 1 EA 'toilet unit.'

Typical Distress

Broken wall and/or floor anchors.

Corroded anchors due to wet floors.

Rust and corrosion due to exposure to moisture and a concentrated source of Hydrogen Sulfide (H2S) generation.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Toilet Partitions	Yes	No	No	No	No	40	EA

C103005 LOCKERS - General



Typical Application and General Component Guidance:

This component is used to inventory lockers.

Lessons Learned/Business Rules/General Comments

Business Rule

Locker must be permanently affixed to the building.

Must be locker assembly of large enough size that personal items (backpack/purse) can be stored. The intent of this component type is not to inventory small lockboxes outside of a secure room that are used to store cell phones.

General

Commonly found in gyms and training facilities.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	EA

C103010 CASEWORK - General



Typical Application and General Component Guidance:

This component is used to inventory cabinets.

Lessons Learned/Business Rules/General Comments

Business Rule

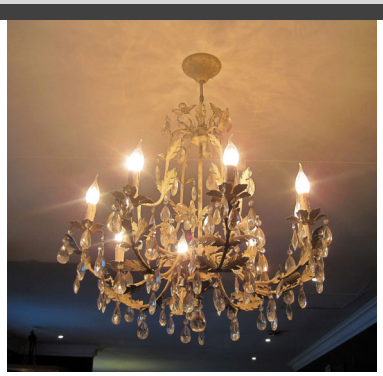
If there is an installation with a top/lower cabinet (typical of a kitchen), the LF should be multiplied by 2 when calculating the quantity.

The 'C103010 CASEWORK' component includes the countertop and all other hardware. Rate the component as the condition of the entire assembly.

This component is used to capture permanently installed cabinets.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	LF

C103090 OTHER INTERIOR SPECIALTIES - Chandelier



Typical Application and General Component Guidance:

This component is used to inventory chandeliers.

Lessons Learned/Business Rules/General Comments

Business Rule

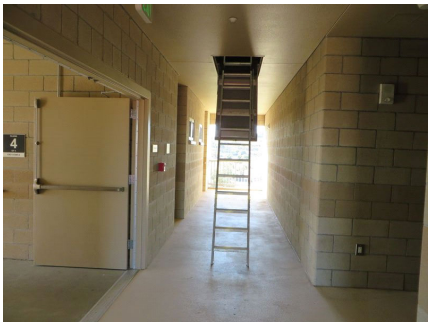
The quantity value is per chandelier assembly. Do not count individual light bulbs.

Lesson Learned

There is often a division of labor between the C10 and D50 assessors. Verify that the D50 assessor did not include the chandelier in his/her light count.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Chandelier	Yes	No	No	No	No	20	EA

C103090 OTHER INTERIOR SPECIALTIES - Ladder



Typical Application and General Component Guidance:

This component is used to inventory interior ladders.

Lessons Learned/Business Rules/General Comments

Business Rule

The unit of measure is LF, and it should include ladder and platform in the estimate of total length.

Lesson Learned

If there is a division of labor between the B30 and C10 systems, assessors should coordinate to make sure that the interior ladder and roof hatch are both inventoried (if the ladder is leading to a roof hatch).

If there is a division of labor between the C10 and C20 systems, assessors should coordinate to verify one picked up a ships ladder as a ladder and the other also picked it up as a stair. Ship ladders should be inventoried under C20 as a metal stair.

Typical Distress

Damage to safety rail or cage.

Damaged rungs or vertical supports from vehicle traffic (in shops).

Loose or broken bolt connections.

Rust.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Ladder	Yes	No	No	No	No	65	LF

Complete Component Catalog Breakdown

C10 INTERIOR CONSTRUCTION

C101001 FIXED PARTITIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	75	SF
Security Cage / Wire Mesh	Yes	No	No	No	No	75	SF
Wall - Brick	Yes	No	No	No	No	50	SF
Wall - Concrete Block	Yes	No	No	No	No	125	SF
Wall - Drywall w/Stud Framing	Yes	No	No	No	No	125	SF
Wall - Glass Block	Yes	No	No	No	No	75	SF
Wall - Glass Curtain Wall	Yes	No	No	No	No	125	SF
Wall - Glazed Tile	Yes	No	No	No	No	20	SF
Wall - Plaster w/Stud Framing	Yes	No	No	No	No	20	SF

C101002 DEMOUNTABLE PARTITIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C101003 RETRACTABLE PARTITIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C101004 INTERIOR GUARDRAILS & SCREENS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF
Guardrail	Yes	No	No	No	No	20	LF
Wall Screen	Yes	No	No	No	No	20	SF

C101005 INTERIOR WINDOWS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	No	No	No	No	No	50	SF
Unknown	No	No	No	No	No	20	SF
Interior Windows	No	No	No	No	No	20	EA
Metal Rollup / Coiling Grille	Yes	No	No	No	No	20	SF

C101006 GLAZED PARTITIONS & STOREFRONTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C101007 INTERIOR GLAZING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C101008 INTERIOR JOINT SEALANT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

C101090 OTHER PARTITIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF
Other	No	No	No	No	No	40	SF
Unknown	No	No	No	No	No	40	SF

C102001 STANDARD INTERIOR DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA
Other	Yes	No	Yes	Yes	No	50	EA
Unknown	No	No	No	No	No	40	EA
Metal Door	Yes	No	No	No	No	40	EA
Wood Door/Metal Frame	Yes	No	No	No	No	40	EA
Wood Door/Wood Frame	Yes	No	No	No	No	20	EA

C102002 GLAZED INTERIOR DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	40	EA
Unknown	No	No	No	No	No	40	EA

C102003 FIRE DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	EA
Other	Yes	No	Yes	Yes	No	40	EA
Unknown	No	No	No	No	No	40	EA
Fire Door - Rollup	No	No	No	No	No	40	EA
Fire Door - Sliding	No	No	No	No	No	40	EA
Fire Door - Sliding, Metal	No	No	No	No	No	40	EA
Fire Door - Sliding, Wood	No	No	No	No	No	40	EA
Fire Door - Swinging	No	No	No	No	No	40	EA
Fire Door - Swinging, Metal	No	No	No	No	No	30	EA
Fire Door - Swinging, Wood	No	No	No	No	No	30	EA

C102004 SLIDING & FOLDING DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	EA
Other	No	No	No	No	No	30	SF
Unknown	No	No	No	No	No	30	SF
Rolling, Steel, Electric, 10' x 10'	Yes	No	No	No	No	30	EA
Rolling, Steel, Electric, 12' x 12'	Yes	No	No	No	No	30	EA
Rolling, Steel, Electric, 20' x 10'	Yes	No	No	No	No	30	EA
Rolling, Steel, Electric, 8' x 8'	Yes	No	No	No	No	30	EA
Rolling, Steel, Manual, 10' x 10'	Yes	No	No	No	No	30	EA
Rolling, Steel, Manual, 12' x 12'	Yes	No	No	No	No	30	EA
Rolling, Steel, Manual, 20' x 10'	Yes	No	No	No	No	30	EA
Rolling, Steel, Manual, 8' x 8'	Yes	No	No	No	No	30	EA
Sliding, 16' x 9', black finish	Yes	No	No	No	No	72	EA
Sliding, 16' x 9', bronze finish	Yes	No	No	No	No	30	EA
Sliding, 16' x 9', mill finish	Yes	No	No	No	No	30	EA
Sliding, 24' x 9', black finish	Yes	No	No	No	No	30	EA
Sliding, 24' x 9', bronze finish	Yes	No	No	No	No	30	EA
Sliding, 24' x 9', mill finish	Yes	No	No	No	No	30	EA
Sliding, 48' x 9', black finish	Yes	No	No	No	No	30	EA
Sliding, 48' x 9', bronze finish	Yes	No	No	No	No	16	EA
Sliding, 48' x 9', mill finish	Yes	No	No	No	No	16	EA

C102005 INTERIOR OVERHEAD DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	16	EA
Other	No	No	No	No	No	35	SF
Unknown	No	No	No	No	No	16	SF
Metal	Yes	No	No	No	No	20	EA
Wood	Yes	No	No	No	No	20	EA

C102006 INTERIOR GATES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C102007 INTERIOR DOOR HARDWARE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	50	EA
Unknown	No	No	No	No	No	24	EA

C102090 OTHER INTERIOR SPECIALTY DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	24	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	24	EA
Cold Storage	No	No	No	No	No	24	EA
Impact/Bumper Doors	Yes	No	No	No	No	20	EA
Rollup Grille, Aluminum, Electric, 10' x 10', bronze anodized	Yes	No	No	No	No	24	EA
Rollup Grille, Aluminum, Electric, 10' x 10', mill finish	Yes	No	No	No	No	24	EA
Rollup Grille, Aluminum, Manual, 10' x 10', bronze anodized	Yes	No	No	No	No	25	EA
Rollup Grille, Aluminum, Manual, 10' x 10', mill finish	Yes	No	No	No	No	24	EA
Rollup Grille, Steel, Electric, 10' x 10'	Yes	No	No	No	No	25	EA
Rollup Grille, Steel, Electric, 15' x 8'	Yes	No	No	No	No	24	EA
Rollup Grille, Steel, Manual, 10' x 10'	Yes	No	No	No	No	40	EA
Rollup Grille, Steel, Manual, 15' x 8'	Yes	No	No	No	No	40	EA

C102091 OTHER INTERIOR PERSONNEL DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	40	EA
Other	Yes	No	Yes	Yes	No	40	EA
Unknown	No	No	No	No	No	20	EA
Cipher Lock	Yes	No	No	No	No	20	EA

C103001 COMPARTMENTS, CUBICLES & TOILET PARTITIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Shower Compartment	Yes	No	No	No	No	20	EA
Shower Compartment - Coated Steel	No	No	No	No	No	20	EA
Shower Compartment - Fiberglass	No	No	No	No	No	20	EA
Shower Compartment - Glass	No	No	No	No	No	20	EA
Shower Compartment - Plastic	No	No	No	No	No	20	EA
Shower Compartment - Stainless Steel	No	No	No	No	No	40	EA
Toilet Partitions	Yes	No	No	No	No	40	EA
Toilet Partitions - Coated Steel	No	No	No	No	No	20	EA
Toilet Partitions - Plastic	No	No	No	No	No	50	EA
Toilet Partitions - Stainless Steel	No	No	No	No	No	20	EA
Toilet Partitions - Stone	No	No	No	No	No	20	EA
Urinal Screen	Yes	No	No	No	No	20	EA

C103002 TOILET & BATH ACCESSORIES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

C103003 MARKER BOARDS & TACK BOARDS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

C103004 IDENTIFYING DEVICES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	30	EA
Unknown	No	No	No	No	No	30	EA

C103005 LOCKERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	EA
Other	Yes	No	Yes	Yes	No	50	EA
Unknown	No	No	No	No	No	50	EA

C103006 SHELVING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

C103007 FIRE EXTINGUISHER CABINETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	30	EA
Unknown	No	No	No	No	No	30	EA

C103008 COUNTERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	LF
Other	No	No	No	No	No	30	LF
Unknown	No	No	No	No	No	30	LF
Concrete	No	No	No	No	No	30	LF
Corian	No	No	No	No	No	30	LF
Granite	No	No	No	No	No	30	LF
Laminated Plastic	No	No	No	No	No	30	LF
Metal	No	No	No	No	No	30	LF
Stone	No	No	No	No	No	30	LF
Tile	No	No	No	No	No	50	LF
Wood	No	No	No	No	No	20	LF

C103009 CABINETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

C103010 CASEWORK

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	LF
Other	Yes	No	Yes	Yes	No	20	LF
Unknown	No	No	No	No	No	20	LF

C103011 CLOSETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

C103012 FIRESTOPPING PENETRATIONS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

C103013 SPRAYED FIRE-RESISTIVE MATERIALS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	28	SF
Unknown	No	No	No	No	No	28	SF

C103014 ENTRANCE FLOOR GRILLES AND MATS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	28	SF
Other	No	No	No	No	No	28	SF
Unknown	No	No	No	No	No	20	SF
Fiberglass Grate System	No	No	No	No	No	20	SF

C103015 ORNAMENTAL METALWORK

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA

C103090 OTHER INTERIOR SPECIALTIES

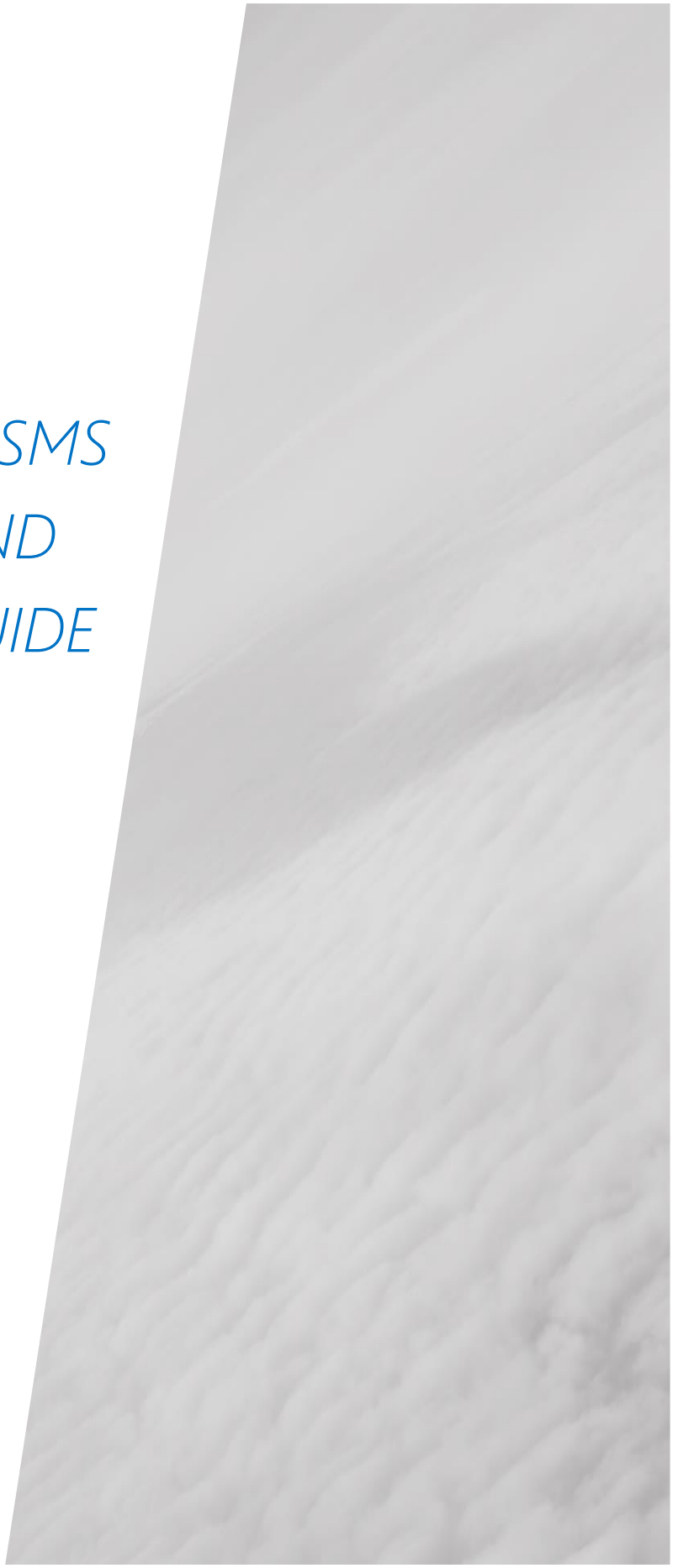
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA
Other	No	No	No	No	No	100	EA
Unknown	No	No	No	No	No	20	EA
Built-In Fireplace	Yes	No	No	No	No	40	EA
Chandelier	Yes	No	No	No	No	20	EA
Fireplace Accessories	No	No	No	No	No	25	EA
Ladder	Yes	No	No	No	No	65	LF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

C20 STAIRS



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat C20 Stairs inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

C2010 - Stair Construction: Allows access and egress to/from multi-level facilities including from the ground level down to a basement or up to the 1st floor level. Materials primarily include concrete, masonry, metal, and wood. Component types include Full-Set, Half-Set, and Steps. The C20 system includes both interior and exterior stairs.

Stairs allow access and egress to/from multi-level facilities including from the ground level down to a basement or up to the 1st floor level. Full functionality of stairs is important to minimize potential of accidents and injuries. This is especially important for stairs providing emergency egress from the building.

Inspection

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

Staircase component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually staircase components will be visible and accessible. When component sections are not visible or accessible, inventory should still be entered, but no assessment is provided. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

The assessment of C20 components is based on the structural component of the stair (supports, treads, handrails) not the stair finishes. The C30 assessor will capture the finishes and rate them as a separate component.

The assessor should consider handrail condition in the overall staircase assessment. A comment should be added pertaining to poor stair handrail conditions if they are encountered.

Inventory

Do not break up a 24 step riser into two, 12 step risers due to a landing being present. This should be one 24 step riser component.

Full sets (24 riser flights) extend from one floor to another and may have an intermediate landing.

Half sets (12 riser flights) may be on exterior of building at the entrance or dock areas or may go to a mezzanine or other intermediate location between floors.

If a staircase is between 3 and 14 steps, it should be inventoried as a '12 riser flight.' If a staircase is between 15 and 30 steps, it should be inventoried as a '24 riser flight.'

If the component section appears to have been installed when the building was constructed, check available as-built drawings to determine the original construction date.

If this is an initial assessment and no staircase inventory has previously been entered into BUILDER™, an inventory is required. Staircase components inventoried for buildings are usually accessible and visible. When staircase components are not, as-built drawings should be used to identify and quantify the staircase components. If as-built drawings are not available, the assessor may use experience to make an assumption for the staircase types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Portable or wheeled steps commonly used in warehouses are not assessed. The stairs must be structurally attached to the building or loading dock.

Some staircases may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed, if they are not appropriate, the age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Staircase finishes (carpet, tile, vinyl composite tile [VCT]) are captured under C3020 Floor Finishes.

Staircase should be captured by the staircase frame materials, not the step or tread materials. If a structural steel stair with concrete tread is encountered, it should fall under a 'steel' component type.

Staircases that are integral to building are typically the same age as building.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should have photos taken that show the ID number, component, and nameplate data. All 3 photos should be attached to the Section Detail record. It is preferred they are attached in that order. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as stairs should be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate staircase section with a different age.

Do not section stairs by floor (FL1, FL2, etc.).

For exterior stairs, section by cardinal direction to match the sectioning methodology of the B20 assessor.

Typical section names used for C20 include: N. WING, S. WING, etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

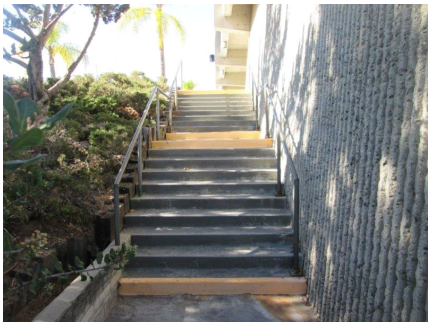
Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Concrete (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory exterior stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Business Rule

A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Stairs - Concrete (24 Riser Flight)	Yes	No	No	No	No	125	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Metal (12 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory exterior metal stairs in which the riser is 12 steps.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Metal stairs/steps may have different step inserts such as concrete or metal grates. Make sure you are looking at the stair construction and not just the tread.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Stairs - Metal (12 Riser Flight)	Yes	No	No	No	No	65	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Metal (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory exterior metal stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Business Rule

A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

General

Includes all metal , open grate, and steel stairs with concrete filled steps.

Lesson Learned

Metal stairs/steps may have different step inserts such as concrete or metal grates. Make sure you are looking at the stair construction and not just the tread.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Stairs - Metal (24 Riser Flight)	Yes	No	No	No	No	65	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Wood (12 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory exterior wood stairs in which the riser is 12 steps.

Lessons Learned/Business Rules/General Comments

General

Stair treads may be concrete, wood, or metal.

The finish is normally clear varnish or paint.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Stairs - Wood (12 Riser Flight)	Yes	No	No	No	No	65	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Wood (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory exterior wood stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Business Rule

A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

General

Stair treads may be concrete, wood, or metal.

The finish is normally clear varnish or paint.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Stairs - Wood (24 Riser Flight)	Yes	No	No	No	No	65	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Steps - Concrete



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not use the 'Exterior Steps' component type. If the stair riser is 1 or 2 steps, it can be ignored. If 3 or more steps, it should be categorized as a 12 step riser flight with correct material type selected.

Lesson Learned

The stoop shown in the photo above would be inventoried as a 'C201001 INTERIOR AND EXTERIOR STAIRS - Exterior Stairs - Concrete (12 Riser Flight)' component type. This shows the smallest stair to be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Steps - Concrete	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

C201001 INTERIOR AND EXTERIOR STAIRS - Interior Stairs - Concrete (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory interior concrete stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Business Rule

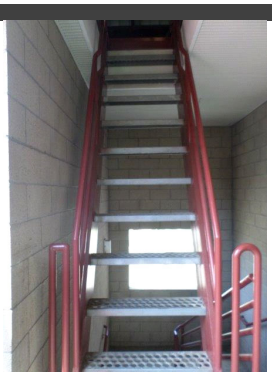
A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

General

Concrete Stair/Steps may be finished with carpet, epoxy or rubber.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Stairs - Concrete (24 Riser Flight)	Yes	No	No	No	No	125	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Interior Stairs - Metal (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory interior metal stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Business Rule

A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

Lesson Learned

Metal Stair/Steps may have different step inserts such as concrete or metal grates. Make sure you are looking at the stair construction and not just the tread.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Stairs - Metal (24 Riser Flight)	Yes	No	No	No	No	125	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Interior Stairs - Wood (24 Riser Flight)



Typical Application and General Component Guidance:

This component is used to inventory interior wood stairs in which the riser is 24 steps.

Lessons Learned/Business Rules/General Comments

Lesson Learned

A "full set" is 24 steps that start at one floor and lead to another floor level. There may be an intermediate landing breaking up the riser, but it should be inventoried as 1 EA. DO NOT inventory as 2 '12 step' risers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Stairs - Wood (24 Riser Flight)	Yes	No	No	No	No	100	EA

C201001 INTERIOR AND EXTERIOR STAIRS - Interior Steps - Concrete



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not use the 'Interior Steps' component type. If the stair riser is 1 or 2 steps, it can be ignored. If 3 or more steps, it should be categorized as a 12 step riser flight with correct material type selected.

Lesson Learned

The stoop shown in the photo above would be inventoried as a 'C201001 INTERIOR AND EXTERIOR STAIRS - Interior Stairs - Concrete (12 Riser Flight)' component type. This shows the smallest stair to be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Steps - Concrete	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

Complete Component Catalog Breakdown

C20 STAIRS

C201001 INTERIOR AND EXTERIOR STAIRS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	FLT
Other	Yes	No	Yes	Yes	No	65	EA
Unknown	No	No	No	No	No	65	FLT
Concrete Stoop	Yes	No	No	No	No	100	FLT
Exterior Stairs	No	No	No	No	No	65	EA
Exterior Stairs - Concrete (12 Riser Flight)	Yes	No	No	No	No	125	EA
Exterior Stairs - Concrete (24 Riser Flight)	Yes	No	No	No	No	125	EA
Exterior Stairs - Metal (12 Riser Flight)	Yes	No	No	No	No	65	EA
Exterior Stairs - Metal (24 Riser Flight)	Yes	No	No	No	No	65	EA
Exterior Stairs - Wood (12 Riser Flight)	Yes	No	No	No	No	65	EA
Exterior Stairs - Wood (24 Riser Flight)	Yes	No	No	No	No	65	EA
Exterior Steps	No	No	No	No	No	20	EA
Exterior Steps - Concrete	No	No	No	No	No	20	EA
Exterior Steps - Wood	No	No	No	No	No	20	EA
Interior Stairs	No	No	No	No	No	100	EA
Interior Stairs - Concrete (12 Riser Flight)	Yes	No	No	No	No	125	EA
Interior Stairs - Concrete (24 Riser Flight)	Yes	No	No	No	No	125	EA
Interior Stairs - Metal (12 Riser Flight)	Yes	No	No	No	No	125	EA
Interior Stairs - Metal (24 Riser Flight)	Yes	No	No	No	No	125	EA
Interior Stairs - Wood (12 Riser Flight)	Yes	No	No	No	No	100	EA
Interior Stairs - Wood (24 Riser Flight)	Yes	No	No	No	No	100	EA
Interior Steps	No	No	No	No	No	20	EA
Interior Steps - Concrete	No	No	No	No	No	20	EA
Interior Steps - Wood	Yes	No	No	No	No	20	EA

C201002 FIRE ESCAPE STAIRS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	FLT
Other	No	No	No	No	No	20	FLT
Unknown	No	No	No	No	No	20	FLT

C201090 STAIR HANDRAILS, GUARDRAILS AND ACCESSORIES

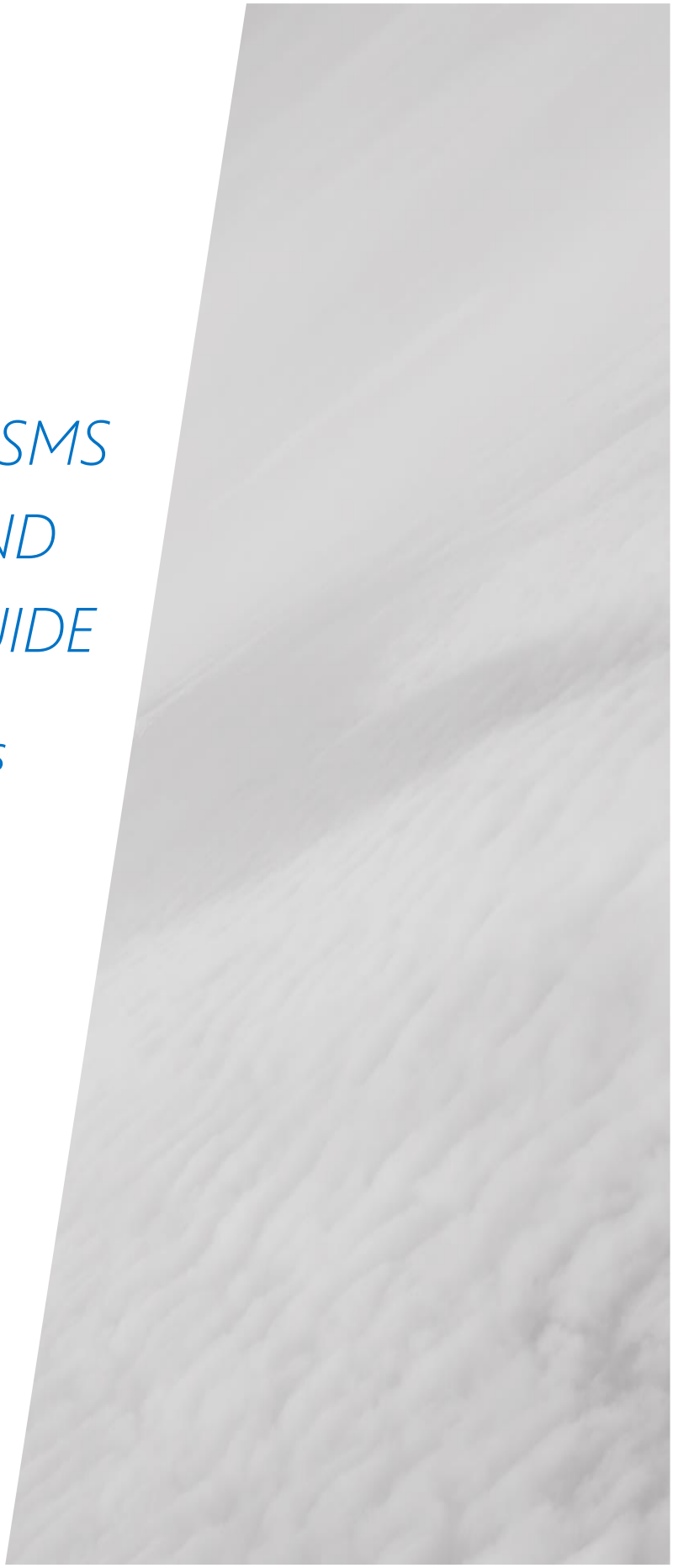
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	20	LF
Other	**No**	No	No	No	No	20	LF
Unknown	**No**	No	No	No	No	20	LF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

C30 INTERIOR FINISHES



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat C30 Interior Finishes inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

C3010 - Wall Finishes: Finishes for interior walls to meet the intended space use and provide durability. Note: Partition walls are captured under C1010.

C3020 - Floor Finishes: Finishes for interior floor substrate to meet the intended space use and provide durability.

C3030 - Ceiling Finishes: Finishes for interior ceilings to meet the interior space use and provide climate control, security and/or durability.

C3040 - Interior Coatings / Special Finishes: Special finishes and coatings applied to interior spaces.

The interior finishes provide required durable finishes for interior construction materials to support the interior space use and occupancy. Additionally, C3030 Ceiling Finishes allow the spaces to be enclosed where required for security and/or interior climate control as needed by the users.

Inspection

Do not provide inspection comments directed at/identifying only problems with the paint/paint coating.

Interior finish component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually interior finishes components will be visible and accessible. When component sections are not visible or accessible, inventory should still be entered, but no assessment is provided. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The component should be rated based on its condition, NOT the condition of the paint coating. An assessor can have a DCR for the component and then select the 'PAINTED' box and provide a DCR for the paint coating.

The DCR inspection reflects observed deterioration and impact on functionality based on the assessor’s professional judgment.

The following conditions or events can accelerate interior finishes deterioration and should be considered by the assessor: 1) Surface damage due to personnel or equipment, 2) Neglected maintenance, 3) Improper construction or installation, 4) Moisture infiltration resulting from roof or pipe leaks, and 5) Improper finish for current facility use.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Additions, new wings, or major renovations likely require identifying a separate interior finishes sections with a different age.

Cubicle partitions are not captured.

Due to some overlap in the BUILDER™, interior partitions (walls) are captured under C1010 Partitions. It is very important for the CRV to capture walls under C1010 Partitions and ONLY finishes under C30.

Exposed metal decking supporting concrete for the floor above is not considered a ceiling finish for the floor below.

If construction drawings or as-builts are available, look for date published to assist with determining age of materials.

If there is a PAINTED CMU, brick, or wood interior wall, there would not be a finish to capture. The wall component is captured under C1010 with the 'PAINTED' box selected and a paint DCR provided. The most common occurrence of a 'PAINT' interior finish for a wall would be a 'B2010 EXTERIOR WALLS' component that is painted on the interior face.

In some cases, interior finishes sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed; if they are not appropriate, the interior finishes age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Interior finishes components inventoried for buildings are usually visible. When interior finishes components are not visible or accessible, as-built drawings should be used to identify and quantify the interior finishes components. If as-built drawings are not available, the assessor may use experience to make an assumption for the interior finishes types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should have photos taken that show the ID number, component, and nameplate data. All 3 photos should be attached to the Section Detail record. It is preferred they are attached in that order. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as wall, floor, and ceiling finishes are to be validated to a +/-15% accuracy. This can be accomplished through random sampling.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Barracks are to be sectioned by floor then by 1) commons and 2) quarters. Commons refers to the common areas (halls, utility rooms, lobby, etc). Quarters refers to the individual living area (dorms). A common section name would be 'FL1 - COMMONS' and 'FL1 - QUARTERS.' Barracks refers to all multi-level housing units for permanent and transient residents. This methodology is applicable to all interior finishes.

Do not section by the type of the component type. For instance, if there are two carpet designs installed and the condition/age of the carpet is similar for both types, they are to be one 'carpet' section.

In the case of interior finishes, the assessor must use judgment in sectioning interior finishes. In large buildings with many interior finishes, these components should be sectioned in the manner they are generally managed.

In the case where age/condition/material type is different for a single component type, it is required that the functional area be included in the section name such as 'FL1 - LOBBY' and 'FL1 - KITCHEN'.

Interior finishes are always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building you would have 'FL2 EAST' and 'FL2 - WEST'.

Stair finishes need to be inventoried as a single component section for the entire stairwell with the section name 'STAIR'. Do not include as part of the floor finish total. If there are multiple stairwells, it is acceptable to combine into one section if they are the same condition.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

C301001 CONCRETE WALL FINISHES - General



Typical Application and General Component Guidance:

This component is used to inventory decorative concrete wall finishes.

Lessons Learned/Business Rules/General Comments

Business Rule

This is only used for an interior skim coat on a block wall or other concrete wall hanging affixed to a block wall. Do not use this to inventory a concrete wall as that should be inventoried under C10.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF

C301002 PLASTER WALL FINISHES - General



Typical Application and General Component Guidance:

This component is used to inventory plaster wall finishes.

Lessons Learned/Business Rules/General Comments

Business Rule

This finish is typically applied to an interior face of an exterior wall. If the plaster wall has a stud backup, it should be captured under 'C1010 PARTITIONS.'

Typical Distress

Damage from personnel or maintenance operations. Water damage from piping behind wall or HVAC components above. Cracks from settling of building after construction.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF

C301003 GYPSUM WALLBOARD FINISHES - General



Typical Application and General Component Guidance:

This component is used to inventory gypsum wall finishes.

Lessons Learned/Business Rules/General Comments

Business Rule

This finish is typically attached to an interior face of an exterior wall. If the gypsum wall has a stud backup, it should be captured under 'C1010 PARTITIONS'.

Lesson Learned

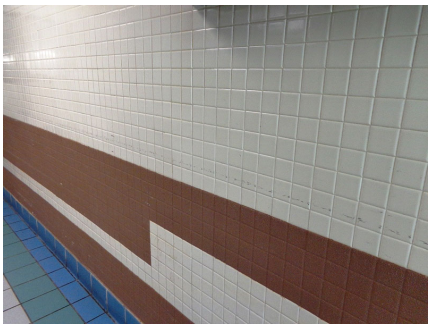
The wall component 'C101001 FIXED PARTITIONS - Wall - Drywall w/Stud Framing' includes drywall. Do not double count and add drywall under 'C301003 GYPSUM WALLBOARD FINISHES.'

Typical Distress

Damage from personnel or maintenance operations. Water damage from piping behind wall or HVAC components above. Cracks from settling of building after construction.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF

C301004 TILE & TERRAZZO WALL FINISHES - Tile



Typical Application and General Component Guidance:

This component is used to inventory tile wall coverings.

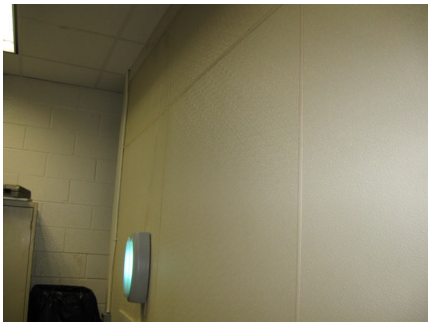
Lessons Learned/Business Rules/General Comments

General

Commonly found in bathrooms or kitchen areas.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Tile	Yes	No	No	No	No	75	SF

C301005 WALL COVERINGS - Laminated Plastic



Typical Application and General Component Guidance:

This component is used to inventory laminated plastic wall coverings.

Lessons Learned/Business Rules/General Comments

General

FRP will typically have protruding seam covers and is washable.

May be referred to as FRP (fiber-reinforced plastic).

Lesson Learned

Commonly found in food service areas and occasionally in bathrooms.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Laminated Plastic	Yes	No	No	No	No	10	SF

C301005 WALL COVERINGS - Paint



Typical Application and General Component Guidance:

This component is used to inventory paint wall finishes.

Lessons Learned/Business Rules/General Comments

Business Rule

If an interior wall has been painted, DO NOT inventory the quantity under a paint finish. The assessor should have selected 'PAINTED' and provided a 'PAINT DCR' under C1010.

If there is an exterior wall where the interior has been painted, then only the paint is captured as an interior finish.

Unpainted brick, concrete, and masonry walls are not captured under C3010. C1010 should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Paint	Yes	No	No	No	No	20	SF

C301005 WALL COVERINGS - Wallpaper

Typical Application and General Component Guidance:

This component is used to inventory wallpaper wall finishes.



Lessons Learned/Business Rules/General Comments

General

Commonly found as a wainscot or in full wall application.

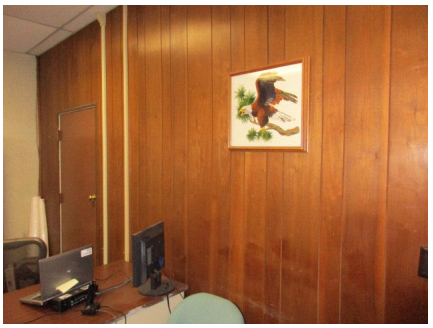
Types include vinyl coated paper, coated fabric, textile, and foil-faced.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wallpaper	Yes	No	No	No	No	15	SF

C301005 WALL COVERINGS - Wood

Typical Application and General Component Guidance:

This component is used to inventory wood wall finishes.



Lessons Learned/Business Rules/General Comments

General

Includes interior wood like tongue and groove.

Types include shiplap, tongue and groove, reclaimed wood, board and batten, beadboard, and flat panel.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wood	Yes	No	No	No	No	10	SF

C301006 ACOUSTICAL PANELS ADHERED TO WALLS - General



Typical Application and General Component Guidance:

This component is used to inventory acoustic panels that are adhered to walls. Will typically be found in gyms and auditoriums.

Lessons Learned/Business Rules/General Comments

Business Rule

There is no ceiling component for these type of acoustical panels. If, for example, in an auditorium there are panels on the walls and ceilings, the assessor should combine them into one section and inventory under 'C301006-General.'

Lesson Learned

This component may also be found along the top of loud rooms like engine generator rooms to prevent noise from reaching the main areas of the building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	90	SF

C301090 OTHER WALL FINISHES - General



Typical Application and General Component Guidance:

This component is used to inventory other wall finishes such as the stone shown in the photo.

Lessons Learned/Business Rules/General Comments

Business Rule

Always provide a inventory comment stating what the asset is and where it is located. This will give follow-on assessments the ability to find and reassess the component.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	14	SF

C301090 OTHER WALL FINISHES - Other



Typical Application and General Component Guidance:

This component is used to inventory plastic covered insulated batt installed on walls.

Lessons Learned/Business Rules/General Comments

Business Rule

It's common for a building to have batt insulation installed on both walls and ceiling in metal buildings. Use 'C303090 OTHER CEILING & CEILING FINISHES - Plastic Covered Insulated Batts' to capture the ceiling and C301090 - Other for the walls.

Use the Section Name 'PLASTIC COVERED INSULATED BATT' to identify the component.

Lesson Learned

It is very common that the walls for the insulation finish are a different condition than the ceiling so they are to be separated when inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	No	No	No	14	SF

C302001 TILE FLOOR FINISHES - Ceramic Tile



Typical Application and General Component Guidance:

This component is used to inventory ceramic tile floor coverings.

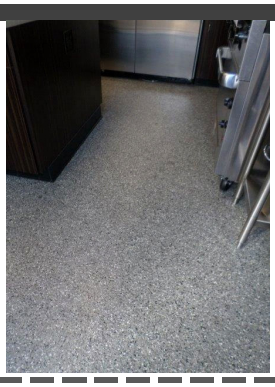
Lessons Learned/Business Rules/General Comments

General

Commonly found in bathrooms or kitchen areas.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Ceramic Tile	Yes	No	No	No	No	75	SF

C302002 TERRAZZO FLOOR FINISHES - General



Typical Application and General Component Guidance:

This component is used to inventory terrazzo floor finishes.

Lessons Learned/Business Rules/General Comments

General

Commonly found in dining areas, lobbies, labs, and main corridors of older and somewhat more costly buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF

C302003 WOOD FLOORING - General



Typical Application and General Component Guidance:

This component is used to inventory wood floor finishes.

Lessons Learned/Business Rules/General Comments

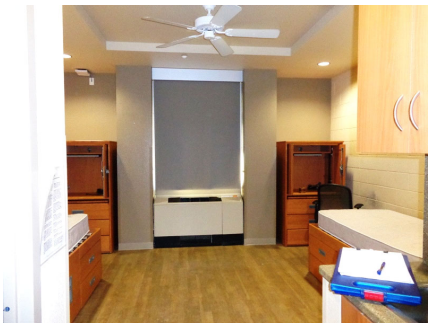
General

Most commonly found in gyms.

Types include solid and engineered.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	SF

C302004 RESILIENT FLOOR FINISHES - Composition Sheet



Typical Application and General Component Guidance:

This component is used to inventory composition sheet resilient floor finishes.

Lessons Learned/Business Rules/General Comments

General

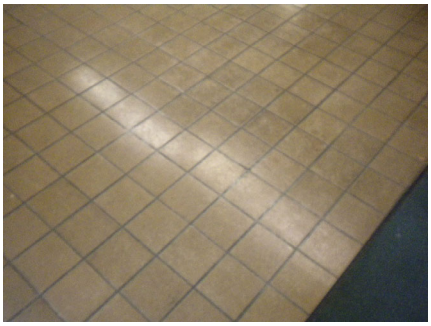
Often found in kitchen, galleys, and Morale, Welfare, and Recreation (MWR) facilities.

Types include linoleum and sheet vinyl.

Usually installed in sheets 4' to 6' wide.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Composition Sheet	Yes	No	No	No	No	18	SF

C302004 RESILIENT FLOOR FINISHES - Resilient Tile



Typical Application and General Component Guidance:

This component is used to inventory resilient tile floor finishes.

Lessons Learned/Business Rules/General Comments

General

Types can include cork, rubber, PVC, and solid vinyl.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Resilient Tile	Yes	No	No	No	No	50	SF

C302004 RESILIENT FLOOR FINISHES - Rubber Sheet



Typical Application and General Component Guidance:

This component is used to inventory rubber sheet resilient floor finishes.

Lessons Learned/Business Rules/General Comments

General

Commonly found in fitness facilities, at entries and on stair landings / treads.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Rubber Sheet	Yes	No	No	No	No	40	SF

C302004 RESILIENT FLOOR FINISHES - Vinyl Tile



Typical Application and General Component Guidance:

This component is used to inventory vinyl composition tile (VCT) resilient floor finishes.

Lessons Learned/Business Rules/General Comments

General

Commonly found in office areas and hallways, referred to as “VCT”.

VCT is made with PVC chips and limestone as a filler material. The original VCT flooring was made with asphalt or asbestos (predominantly used from the 1920s to the 1980s).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Vinyl Tile	Yes	No	No	No	No	18	SF

C302005 CARPETING - Carpet Tile



Typical Application and General Component Guidance:

This component is used to inventory carpet tile floor finishes.

Lessons Learned/Business Rules/General Comments

General

Commonly found in office areas and over raised access flooring.

Typical Distress

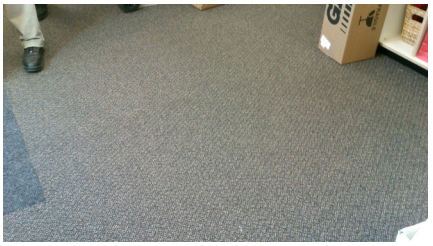
Staining, wear, and curled edges.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Carpet Tile	Yes	No	No	No	No	10	SF

C302005 CARPETING - General

Typical Application and General Component Guidance:

This component is used to inventory carpet floor finishes.



Lessons Learned/Business Rules/General Comments

Typical Distress

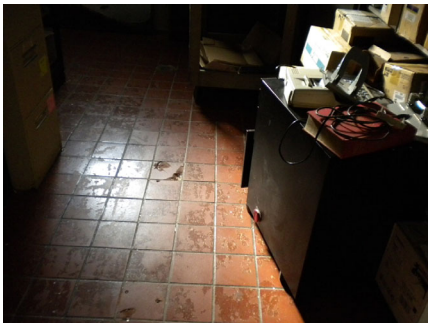
Staining, wear, and frayed seams.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	7	SF

C302006 MASONRY & STONE FLOORING - Quarry Tile

Typical Application and General Component Guidance:

This component is used to inventory quarry tile floor finishes.



Lessons Learned/Business Rules/General Comments

General

Often found in kitchens, galleys, and MWR facilities.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Quarry Tile	Yes	No	No	No	No	50	SF

C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES - Paint



Typical Application and General Component Guidance:

This component is used to inventory painted floor finishes. This is a 'roll on' type application. If a concrete topping was used, then inventory under 'C302010 HARDENERS AND SEALERS'.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory if the paint is just for striping purposes. For instance, in the photo if just the yellow line was present, there would be no component inventoried.

This captures 'rolled/brushed-on' painted floors. If a floor has a more substantial finish applied, then 'C302010 HARDENERS AND SEALERS - Concrete Topping' should be used.

Lesson Learned

For consistency purposes, architect assessors should coordinate on which components are being inventoried under 'C302009 - Paint', 'C302010 - Concrete Topping', and 'C302010 - Epoxy.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Paint	Yes	No	No	No	No	20	SF

C302010 HARDENERS AND SEALERS - Concrete Topping



Typical Application and General Component Guidance:

This component is used to inventory finishes that are a concrete sealer.

Lessons Learned/Business Rules/General Comments

Business Rule

If a floor only has a paint coating applied, then 'C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES - Paint' should be used.

If the concrete has a polished, more decorative finish it should be inventoried under 'C302010 HARDENERS AND SEALERS - Epoxy.'

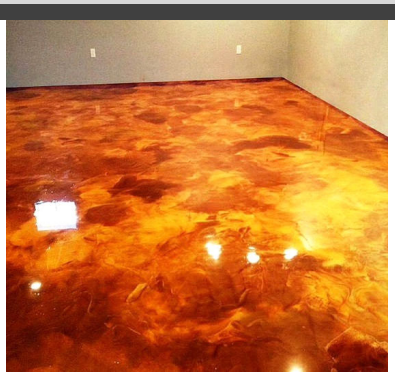
Lesson Learned

Architect assessors should be coordinated on what components are being inventoried under 'C302009 - Paint', 'C302010 - Concrete Topping', and 'C302010 - Epoxy.' This is an area for confusion.

The most common application of concrete topping is in warehouses. The concrete will have a shiny/polished appearance but still be a natural concrete color.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Concrete Topping	Yes	No	No	No	No	40	SF

C302010 HARDENERS AND SEALERS - Epoxy



Typical Application and General Component Guidance:

This component is used to inventory decorative concrete floor finishes.

Lessons Learned/Business Rules/General Comments

Business Rule

If the concrete has a polished, more decorative finish it should be inventoried under 'C302010 HARDENERS AND SEALERS - Epoxy.'

Lesson Learned

It is understood that paint will often be an epoxy, which causes confusion between 'C302009 - Paint' and 'C302010 - Epoxy.' The general rule is if it was applied with a brush it should be inventoried under 'C302009 - Paint'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Epoxy	Yes	No	No	No	No	20	SF

C302011 RAISED ACCESS FLOORING - General



Typical Application and General Component Guidance:

This component is used to inventory raised access flooring.

Lessons Learned/Business Rules/General Comments

General

Commonly found in newer office buildings, data centers, and server rooms.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	SF

C303001 ACOUSTICAL CEILING TILES & PANELS - General



Typical Application and General Component Guidance:

This component is used to inventory acoustical ceiling tile (ACT).

Lessons Learned/Business Rules/General Comments

General

Includes adhered tile and lay-in suspended grid/tile. Will be commonly found in office buildings.

Typical Distress

Blistering from exposure to water or heat.

Damage from being removed for maintenance operations.

Moisture damage/staining from leaking roof or HVAC components.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF

Complete Component Catalog Breakdown

C30 INTERIOR FINISHES

C301001 CONCRETE WALL FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C301002 PLASTER WALL FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF
Other	Yes	No	Yes	Yes	No	125	SF
Unknown	No	No	No	No	No	125	SF

C301003 GYPSUM WALLBOARD FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF
Other	Yes	No	Yes	Yes	No	125	SF
Unknown	No	No	No	No	No	125	SF

C301004 TILE & TERRAZZO WALL FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	75	SF
Other	Yes	No	Yes	Yes	No	75	SF
Unknown	No	No	No	No	No	75	SF
Tile	Yes	No	No	No	No	75	SF

Complete Component Catalog Breakdown

C30 INTERIOR FINISHES

C301005 WALL COVERINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	SF
Other	Yes	No	Yes	Yes	No	10	SF
Unknown	No	No	No	No	No	10	SF
Laminated Plastic	Yes	No	No	No	No	10	SF
Metal Panel	Yes	No	No	No	No	40	SF
Paint	Yes	No	No	No	No	20	SF
Wallpaper	Yes	No	No	No	No	15	SF
Wood	Yes	No	No	No	No	10	SF

C301006 ACOUSTICAL PANELS ADHERED TO WALLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	90	SF
Other	Yes	No	Yes	Yes	No	90	SF
Unknown	No	No	No	No	No	90	SF

C301090 OTHER WALL FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	14	SF
Other	Yes	No	No	No	No	14	SF
Unknown	No	No	No	No	No	14	SF

C302001 TILE FLOOR FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	75	SF
Other	Yes	No	Yes	Yes	No	75	SF
Unknown	No	No	No	No	No	75	SF
Ceramic Tile	Yes	No	No	No	No	75	SF
Marble Tile	Yes	No	No	No	No	75	SF
Porcelain Tile	Yes	No	No	No	No	75	SF

C302002 TERRAZZO FLOOR FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	75	SF
Other	Yes	No	Yes	Yes	No	75	SF
Unknown	No	No	No	No	No	75	SF

C302003 WOOD FLOORING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	SF
Other	Yes	No	Yes	Yes	No	40	SF
Unknown	No	No	No	No	No	40	SF

C302004 RESILIENT FLOOR FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	18	SF
Other	Yes	No	Yes	Yes	No	18	SF
Unknown	No	No	No	No	No	18	SF
Composition Sheet	Yes	No	No	No	No	18	SF
Cork Tile	Yes	No	No	No	No	40	SF
Resilient Tile	Yes	No	No	No	No	50	SF
Rubber Sheet	Yes	No	No	No	No	40	SF
Vinyl Tile	Yes	No	No	No	No	18	SF

C302005 CARPETING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	7	SF
Other	Yes	No	Yes	Yes	No	7	SF
Unknown	No	No	No	No	No	7	SF
Carpet Tile	Yes	No	No	No	No	10	SF

C302006 MASONRY & STONE FLOORING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	50	SF
Other	Yes	No	Yes	Yes	No	50	SF
Unknown	No	No	No	No	No	50	SF
Quarry Tile	Yes	No	No	No	No	50	SF

C302007 WALL BASE FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF

C302008 STAIR FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Paint	Yes	No	No	No	No	20	SF

C302010 HARDENERS AND SEALERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	40	SF
Other	No	No	No	No	No	40	SF
Unknown	No	No	No	No	No	40	SF
Concrete Topping	Yes	No	No	No	No	40	SF
Epoxy	Yes	No	No	No	No	20	SF

C302011 RAISED ACCESS FLOORING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	30	SF
Other	Yes	No	Yes	Yes	No	30	SF
Unknown	No	No	No	No	No	30	SF

C302090 OTHER FLOORING & FLOOR FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	50	SF
Other	No	No	No	No	No	50	SF
Unknown	No	No	No	No	No	50	SF

C303001 ACOUSTICAL CEILING TILES & PANELS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	70	SF
Other	Yes	No	Yes	Yes	No	70	SF
Unknown	No	No	No	No	No	70	SF

C303002 GYPSUM WALLBOARD CEILING FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF
Other	Yes	No	Yes	Yes	No	125	SF
Unknown	No	No	No	No	No	125	SF

C303003 PLASTER CEILING FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	125	SF
Other	Yes	No	Yes	Yes	No	125	SF
Unknown	No	No	No	No	No	125	SF

C303004 WOOD CEILINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	60	SF
Other	Yes	No	Yes	Yes	No	60	SF
Unknown	No	No	No	No	No	60	SF

C303005 SUSPENSION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Unknown	No	No	No	No	No	20	SF

C303006 METAL STRIP CEILINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	40	SF
Other	Yes	No	Yes	Yes	No	40	SF
Unknown	No	No	No	No	No	40	SF

C303090 OTHER CEILING & CEILING FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	40	SF
Other	No	No	No	No	No	40	SF
Unknown	No	No	No	No	No	40	SF
Exposed Concrete Finish	Yes	No	No	No	No	125	SF
Plastic Covered Insulated Batts	Yes	No	No	No	No	20	SF

C304001 GENERAL REQUIREMENTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304002 CONCRETE FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304003 CONCRETE MASONRY FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304004 METAL FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304005 INTERIOR WOOD FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304006 GYPSUM WALLBOARD FINISHES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

C304007 SPECIAL COATINGS ON WALLS

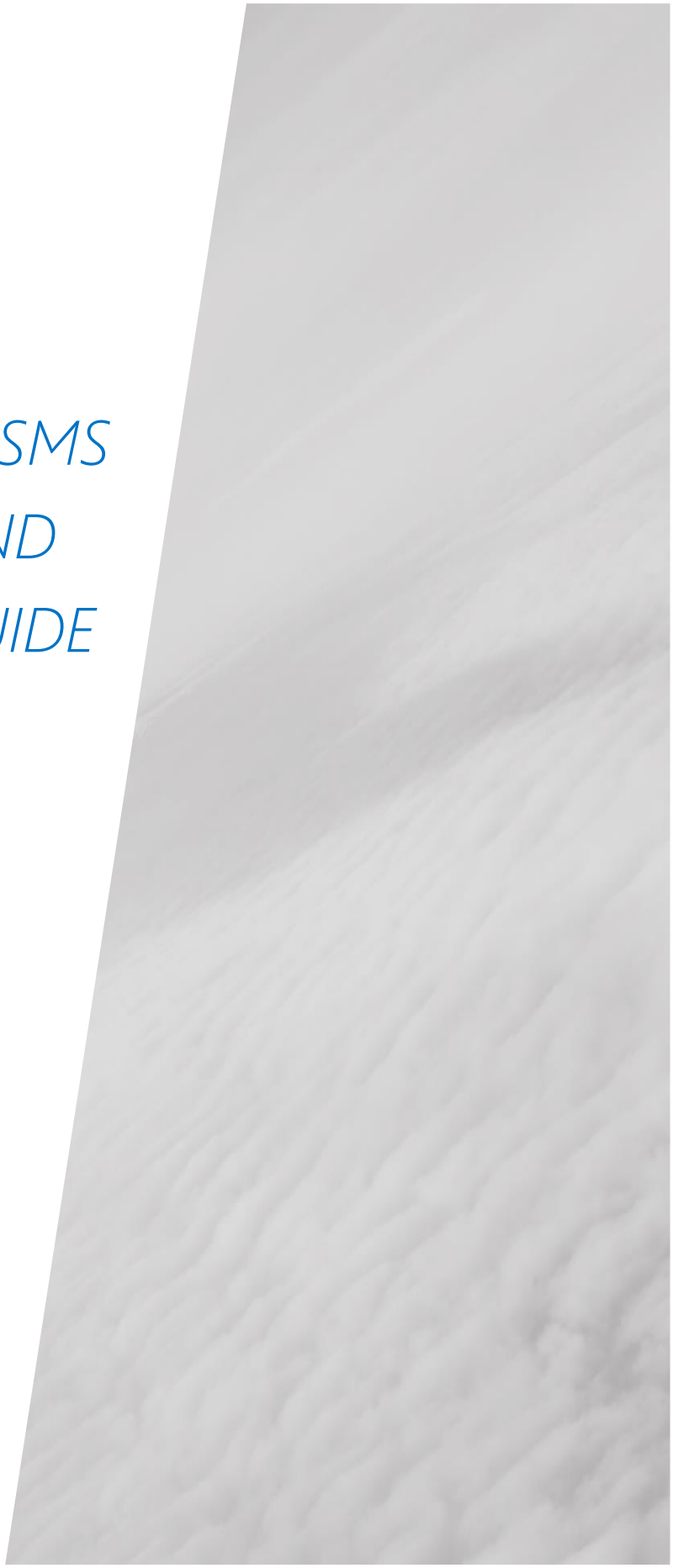
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	20	SF
Other	**No**	No	No	No	No	20	SF
Unknown	**No**	No	No	No	No	20	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

D10 CONVEYING



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat D10 Conveying Systems Inventory Component Sections, found across installations, as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

Inspection

Conveying component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Usually conveying components will be visible. When component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built in to the software to establish the Condition Index (CI).

Elevators and building weight handling equipment (WHE) require an independent inspection/annual certification. These certifications are normally performed by assigned base staff or through a service contractor. The assessor should rely heavily on this information to assist in determining the inspection rating.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

Some thought may be required regarding deterioration and functionality loss, along with level of repair. Total functionality loss may occur due to some minor reason (e.g. failed switch, hydraulic leak, etc.). In these cases, the overall component section condition may be 'Green' when only a minor fix will correct the problem.

The following conditions or events can accelerate deterioration: 1) Improper construction or installation, 2) Improper maintenance or service, 3) Improper loading, and 4) Equipment damage.

When equipment is found that has been abandoned that is not functional it should not be inventoried. If the equipment is functional it should be inventoried, assessed, and an inventory comment provided stating the component is not in use.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Accessibility lifts may be retrofitted on older administrative, recreation, or base service buildings.

Certain items such as loading dock levelers and automotive equipment lifts are inventoried under 'E1030 VEHICULAR EQUIPMENT'. If E10 is part of the scope, they should be inventoried in that system.

Hydraulic elevators have a large hydraulic oil tank in the elevator control room near the elevator on the lowest floor and will typically be 3 stops or less.

If as-builts can be located, they should indicate conveying system type, material, and quantity.

If the elevator capacity information is not available, the assessor should use professional judgment to estimate capacity. Small passenger elevators are typically < 2,500 pounds (LBS) capacity. Freight elevators are typically > 4,000 LBS capacity.

If the elevator control room is not accessible, the make and capacity is typically included on the control panel in the cab.

Older buildings may have retrofitted elevators. Do not automatically assume the elevator dates to the year the building was built.

The annual elevator inspection certificate may be posted in the elevator or on file with the building point of contact (POC) or base Public Works. The certificate may provide specific information. The certificate may provide specific information.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When conveying systems are not fully visible (such as chutes), as-built drawings should be used to identify and quantify the conveying components. If as-built drawings are not available, the assessor may use experience to make an assumption for the conveying system type and quantities based on similar systems, consultation with local staff, and other reputable online resources.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such wall, floor, and ceiling finishes are to be validated to a +/-15% accuracy. This can be accomplished through random sampling. Large equipment (lifts, cranes, etc.) should be validated to 100% accuracy level.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, if an elevator with no tag is found, it may read '3500 LB ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '3500 LB EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (ELEV-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if existing data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying separate sections with a different age.

Do not section elevators by floor. It can simply be 'ELEV-1'.

Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Section each elevator, crane, lift, and monorail out separately.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

D101002 PASSENGER ELEVATORS - General



Typical Application and General Component Guidance:

This component is used to inventory passenger elevators. Assessor to select the most correct component type (rounding up to nearest available size).

Lessons Learned/Business Rules/General Comments

Business Rule

If the elevator capacity information is not available, the assessor should use professional judgment to estimate capacity. Small passenger elevators are typically < 2,500 LBS capacity. Freight elevators are typically > 4,000 LBS capacity.

Section each elevator separately.

General

Electric traction elevators will be more than 4 stops.

Hydraulic elevators have a large hydraulic oil tank in the elevator control room near the elevator on the lowest floor and will typically be 3 stops or less.

If the building has an elevator, be sure to enter the elevator control room for a thorough assessment. Observing the pumps or motors is preferred over just observing the inside of the cab.

The annual elevator inspection certificate may be posted in the elevator, on file with the building Point of Contact (POC), or base Public Works. The certificate may provide specific information such as the install date.

Lesson Learned

Elevators will typically have a G or G- inspection. It is understood that other more in depth inspections take place on these components. Accurate inventory is very important due to elevators being a high dollar item for a facility.

If the elevator control room is not accessible, the make and capacity is typically included on the control panel in the cab.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	STP

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D101004 WHEELCHAIR LIFT - Vertical



Typical Application and General Component Guidance:

This component is used to inventory vertical wheelchair lifts.

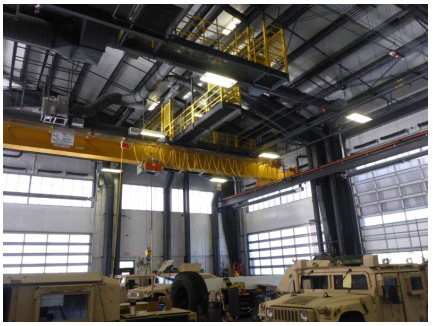
Lessons Learned/Business Rules/General Comments

Lesson Learned

Accessibility lifts may be retrofitted on older administrative, recreation, or base service buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Vertical	Yes	Yes	Yes	No	No	20	EA

D102002 OVERHEAD CRANES - Cranes, Bridge girder, 10 ton, 40' span



Typical Application and General Component Guidance:

This component is used to inventory bridge cranes.

Lessons Learned/Business Rules/General Comments

Business Rule

If the size of the crane is in the middle of the component types available, the assessor should round up to the next available size and indicate the correct size in the section details.

Section each bridge crane separately. There will often be a unique identifier on the bridge crane that can be included in the section name.

General

Do not operate the Weight Handling Equipment (WHE)/Crane to perform the assessment. Coordinate with the building POC or authorized operator if there is a question.

Lesson Learned

The annual WHE/Crane inspection certificate may be located near the lift controls, on file with the building POC, or base Public Works. The certificate may provide specific information.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Cranes, Bridge girder, 10 ton, 40' span	Yes	Yes	Yes	No	No	20	EA

D102002 OVERHEAD CRANES - Hoists, 15' lift, 3 ton



Typical Application and General Component Guidance:

This component is used to inventory jib cranes and other miscellaneous lifts.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory portable jib-booms, A-frames, or lifts if they are not permanently affixed components. Some lifts will be on rollers so they can be moved around as needed. These are not to be inventoried.

If the size of the crane is in the middle of the component types available, the assessor should round up to the next available size and indicate the correct size in the section details.

Section each lift separately. There will often be a unique identifier on the lifts that can be included in the section name.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Hoists, 15' lift, 3 ton	Yes	Yes	Yes	No	No	20	EA

D102003 MONORAILS - General



Typical Application and General Component Guidance:

This component is used to inventory monorails.

Lessons Learned/Business Rules/General Comments

Business Rule

Monorails are inventoried by the number of hooks present as an 'EA' UOM. The lifting mechanism and the rail is viewed as an assembly and should be rated as such.

Section each monorail assembly separately. If there are two lifting mechanisms on one rail, a quantity of 2 should be used.

General

Do not operate the WHE/Crane to perform the assessment. Coordinate with the building POC or authorized operator if there is a question.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	20	EA

D109001 PNEUMATIC TUBE SYSTEMS - Other



Typical Application and General Component Guidance:

This component is used to inventory pneumatic tube systems.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is inventoried as an entire system using the 'Other' component type, which is an 'EA' UOM. Assessor should enter one component for each system that is found.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	35	EA

D109002 CONVEYORS - General



Typical Application and General Component Guidance:

This component is used to inventory industrial type conveyors.

Lessons Learned/Business Rules/General Comments

General

The component is used to capture industrial type conveyors (not the type you use at the grocery store) with rollers and belts. A 'LF' UOM should be used.

Lesson Learned

There are times when the conveyor system belongs to a tenant and does not need to be inventoried. The assessor should contact the building manager and installation POC to verify if the conveyor should be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	35	LF

D101001 GENERAL CONSTRUCTION ITEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D101002 PASSENGER ELEVATORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	STP
Other	No	No	No	No	No	25	STP
Unknown	No	No	No	No	No	25	STP
Hydraulic Elevators - 1500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 1500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 2000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 2000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 2500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 2500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 3000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 3000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 3500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 3500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 4000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 4000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 4500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - 4500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 3500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 3500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 4000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 4000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 4500 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 4500 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 5000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - Hospital, 5000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 2000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 2000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 2500 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 2500 lb., 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 3000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA

Traction Geared Elevators - 3000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 3500 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 3500 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 4000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 4000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 4500 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 4500 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 5000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - 5000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 3500 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 3500 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 4000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 4000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 4500 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 4500 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 5000 lb, 15 floors, 350 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - Hospital, 5000 lb, 5 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 3000 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 2500 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 2500 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 3000 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 3500 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 3500 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 3500 lb, 50 floors, 800 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4000 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4000 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4000 lb, 50 floors, 800 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4500 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4500 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 4500 lb, 50 floors, 800 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 5000 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - 5000 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA

Traction Gearless Elevators - 5000 lb, 50 floors, 800 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 3500 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 3500 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 4000 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 4000 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 4500 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 4500 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 5000 lb, 10 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Gearless Elevators - Hospital, 5000 lb, 30 floors, 600 FPM	Yes	Yes	Yes	No	No	25	EA

D101003 FREIGHT ELEVATORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	STP
Other	No	No	No	No	No	25	STP
Unknown	No	No	No	No	No	25	STP
Hydraulic Elevators - (class"B"), 10,000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 10,000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 20,000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 20,000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 3000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 3000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 4000 lb, 2 floors	Yes	Yes	Yes	No	No	25	EA
Hydraulic Elevators - (class"B"), 4000 lb, 5 floors	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 10,000 lb, 15 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 10,000 lb, 5 floors, 50 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 20,000 lb, 15 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 20,000 lb, 5 floors, 50 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 4000 lb, 15 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 4000 lb, 5 floors, 50 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 8000 lb, 15 floors, 200 FPM	Yes	Yes	Yes	No	No	25	EA
Traction Geared Elevators - (class"B"), 8000 lb, 5 floors, 50 FPM	Yes	Yes	Yes	No	No	25	EA

D101004 WHEELCHAIR LIFT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Inclined, stair climber	Yes	Yes	Yes	No	No	20	EA
Inclined, stair lift	Yes	Yes	Yes	No	No	20	EA
Vertical	Yes	Yes	Yes	No	No	20	EA

D101005 DUMBWAITERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	35	EA
Other	No	No	No	No	No	35	STP
Unknown	No	No	No	No	No	35	STP
Automatic	No	No	No	No	No	35	EA
Electric	Yes	Yes	Yes	No	No	35	EA
Hydraulic	Yes	Yes	Yes	No	No	35	EA
Manual	Yes	Yes	Yes	No	No	35	EA

D101090 OTHER VERTICAL TRANSPORTATION EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA
Correspondence lifts, elec	No	No	No	No	No	25	EA
Correspondence lifts, hand	No	No	No	No	No	25	EA
Lifts	No	No	No	No	No	35	EA
Other Hydraulic Elevators	No	No	No	No	No	25	EA
Other Traction Geared Elevators	No	No	No	No	No	25	EA
Other Traction Gearless Elevators	No	No	No	No	No	25	EA
Parcel lifts, elec	No	No	No	No	No	25	EA

D102001 BASIC REQUIREMENTS OF CRANES AND MONORAILS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	20	EA
Other	**No**	No	No	No	No	20	EA
Unknown	**No**	No	No	No	No	20	EA

D102002 OVERHEAD CRANES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Cranes, Bridge girder, 10 ton, 20' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 10 ton, 30' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 10 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 10 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 15 ton, 20' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 15 ton, 30' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 15 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 15 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 25 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 25 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 3 ton, 20' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 3 ton, 30' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 3 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 3 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 5 ton, 20' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 5 ton, 30' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 5 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 5 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 7.5 ton, 20' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 7.5 ton, 30' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 7.5 ton, 40' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Bridge girder, 7.5 ton, 50' span	Yes	Yes	Yes	No	No	20	EA
Cranes, Movable gantry, 2,000 lb, 12' to 15' range	Yes	Yes	Yes	No	No	20	EA
Cranes, Movable gantry, 6,000 lb, 12' to 15' range	Yes	Yes	Yes	No	No	20	EA
Hoists, 15' lift, 1 ton	Yes	Yes	Yes	No	No	20	EA
Hoists, 15' lift, 3 ton	Yes	Yes	Yes	No	No	20	EA
Hoists, 15' lift, 5 ton	Yes	Yes	Yes	No	No	20	EA

D102003 MONORAILS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA

D103001 ESCALATORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	40	EA
Other	Yes	Yes	Yes	Yes	No	40	LF
Unknown	No	No	No	No	No	40	LF
10' hieght, 32" width	No	No	No	No	No	40	EA
10' hieght, 48" width	No	No	No	No	No	40	EA
15' hieght, 32" width	No	No	No	No	No	40	EA
15' hieght, 48" width	No	No	No	No	No	40	EA
20' hieght, 32" width	No	No	No	No	No	40	EA
20' hieght, 48" width	No	No	No	No	No	40	EA
25' hieght, 32" width	No	No	No	No	No	40	EA
25' hieght, 48" width	No	No	No	No	No	40	EA

D103002 MOVING WALKS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	40	LF
Other	Yes	Yes	Yes	Yes	No	40	LF
Unknown	No	No	No	No	No	40	LF
Flat, 2'-0" width	Yes	Yes	Yes	No	No	40	LF
Flat, 3'-4" width	Yes	Yes	Yes	No	No	40	LF
Ramp, 3'4" width	Yes	Yes	Yes	No	No	40	LF

D103090 OTHER MOVING STAIRS & WALKS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D109001 PNEUMATIC TUBE SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	35	LF
Other	Yes	Yes	Yes	Yes	No	35	EA
Unknown	No	No	No	No	No	35	EA

D109002 CONVEYORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	35	LF
Other	No	No	No	No	No	35	EA
Unknown	No	No	No	No	No	35	EA
Horizontal belt, 27' length	No	No	No	No	No	35	EA
Horizontal belt, 42' length	No	No	No	No	No	35	EA
Horizontal belt, 62' length	No	No	No	No	No	35	EA
Inclined belt, 28' length	No	No	No	No	No	35	EA

D109003 LINEN, TRASH, AND MAIL CHUTES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF
Chute - Linen / Refuse	No	No	No	No	No	20	LF
Chute - Personnel	No	No	No	No	No	20	LF
Chutes	No	No	No	No	No	20	LF

D109004 TURNTABLES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D109005 OPERABLE SCAFFOLDING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

D109006 TRANSPORTATION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D109090 OTHER MATERIAL HANDLING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

D20 PLUMBING

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General Guidance

D20 PLUMBING

General

This section presents common Uniformat D20 pluming inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

D2010 - Plumbing Fixtures: A receptor or device that has both a water supply connection and a discharge to the drainage system such as toilets, lavatories, showers, and sinks.

D2020 - Domestic Water Distribution: The system of pipes, tanks, pumps, filters, and water conditioning appliances used for the supply, distribution, heating, and filtering of potable water within a building.

D2030 - Sanitary Waste: The system of drain, waste, and vent pipes that remove sanitary waste and gray water from a building and vents the gases produced by the waste.

D2040 - Rain Water Drainage: The piping system within a building (interior) for the removal of rain water collected on the roof.

D2090 - Other Plumbing Systems: Specialty pipe, equipment or appliances that are not part of the potable water distribution system or the drain-waste-vent system.

One of the most common problems with plumbing systems is that over time building mission, equipment, and occupancy change. These changes often require plumbing system alterations, additional piping, and new fixtures that can result in an overloaded building sanitary waste system, code issues, and plumbing as-built drawings.

The plumbing system of a building provides the supply and distribution of potable water and the removal of waterborne/sanitary wastes and roof rainwater (interior piping). The system includes piping and fixtures for safe distribution and waste removal, and may include energized equipment for heat transfer, water heating, washing, or pumping. The system may also contain control valves, relief valves, filters, and conditioners. The system is designed to support the function/mission of the building, and for comfort and safety of the occupants.

Inspection

A large building will have a significant number of plumbing fixtures; the assessor should use judgment in assigning the rating based on the overall condition of fixtures of a specific component section. Do not assign a low rating based on a single old or damaged fixture. This fixture should be sectioned separately.

It is very common for piping to be insulated. In this case, the assessor should look for signs of leaking or degradation on connection points to equipment. If totally concealed by the insulation, the assessor should provide no assessment and let the component be degraded by BUILDER™ degradation curves.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

Some thought may be required regarding deterioration and functionality loss, along with level of repair. Total functionality loss may occur due to some minor reason (e.g. failed switch, failed pump motor, etc.). In these cases, the overall component section condition may be 'Green' when only a minor fix will correct the problem.

When equipment is found that has been abandoned and is no longer functional, it should not be inventoried. If the equipment is abandoned but is still able to be put back in service, it should be inventoried and assessed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Assessors for 'D20 Plumbing' and 'D30 HVAC' need to work closely together. These systems have some similar components.

Do not inventory water heaters under 20 gallons, point of use water heaters, expansion tanks under 5 gallons, and equipment (washer, refrigerator, etc.) hookups (they are included in piping estimate),

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

In some cases, plumbing sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed, if they are not appropriate, the component age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Most plumbing components inventoried for buildings are visible with exception of piping. When plumbing components are not visible (or an area of the building is not accessible), as-built drawings should be used to identify and quantify the plumbing components. If as-built drawings are not available, the assessor may use experience to make an estimate for the plumbing component types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as fixture counts and pipe quantities are to be validated to a +/-15% accuracy. This can be accomplished through random sampling. Large equipment (water heaters, pumps, etc.) should be validated to 100% accuracy level.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, if a pump with no tag is found, it may read '100 GPM ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '100 GPM EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (PUMP-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate plumbing section with a different age.

Barracks are to be sectioned by floor then by 1) commons and 2) quarters. Commons refers to the common areas (halls, utility rooms, lobby, etc). Quarters refers to the individual living area (dorms). A common section name would be 'FL1 - COMMONS' and 'FL1 - QUARTERS.' Barracks refers to all multi-level housing units for permanent and transient residents. This methodology is applicable only to plumbing fixtures.

For 'D2010 PLUMBING FIXTURES' barracks are to be sectioned by floor then by 1) commons and 2) quarters. Commons refers to the common areas (halls, utility rooms, lobby, etc.). Quarters refers to the individual living areas (dorms). A common section name would be 'FL1 - COMMONS.' Barracks refers to all multi-level housing units for permanent or transient residents.

Plumbing components such as water closets and urinals can be grouped in a section. For instance, if there are 5 urinals they can be grouped in a single component section with a quantity of 5. Do not section fixtures by men's/women's restrooms unless there is a difference in condition.

Plumbing fixtures and equipment are always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building you would have 'FL2 EAST' and 'FL2 - WEST'.

Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Rule of Thumb: All plumbing components that require Section Details should be sectioned separately. There may be further guidance on sectioning in the component type breakdown part of the manual.

Typical section names used to describe plumbing components may be used where a unique component exists such as PUMP-1, BOILER-1, etc.

Typical section names used to describe the major areas of the building include: FL1, FL2, BASEMENT, MEZZANINE, ROOF, WING 'X,' etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Sectioning of Equipment Components

The business rules stated below are applicable to equipment components.

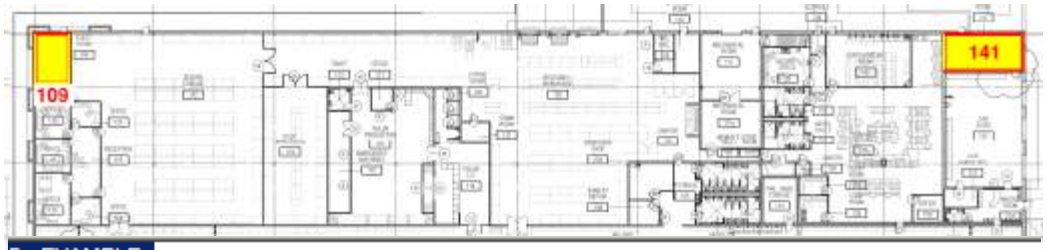
Sectioning of equipment components is of critical importance to provide a data set that is usable by the installation, is able to have Quality Assurance reviews, and is able to be reassessed. To achieve this it is required that equipment be sectioned by area/room.

Case Study: Below is a drawing of a large building that has several electrical rooms. If one section of 125 AMP panels is provided with section name 'N/A', the usability of the data is greatly reduced. If the equipment is sectioned by room (FL1 - RM 109, FL1 - RM 141, FL1 - RM 104, FL1 - RM 153, FL1 - RM 149), follow-on assessments, QA, and the installation can easily identify/reassess components.

The business rule is for Mechanical/Electrical equipment to be sectioned per Mechanical/Electrical room on buildings greater than 7,500 SF. All other equipment that is located throughout the building (such as VAV boxes) follows general sectioning rules.

This also provides the benefit that if a remodel/addition takes place between assessments, it will be apparent what has been added/deleted in THAT room without the assessor having to do a complete walk-through of the building and the deduce what changed (which is a very difficult, if not impossible, task).

If a component only has an quantity of 1, the Section Name can include the equipment ID number. For example, the panel LP1 can have the Section Name: FL1 - RM 109 - LP1.



5 - EXAMPLE

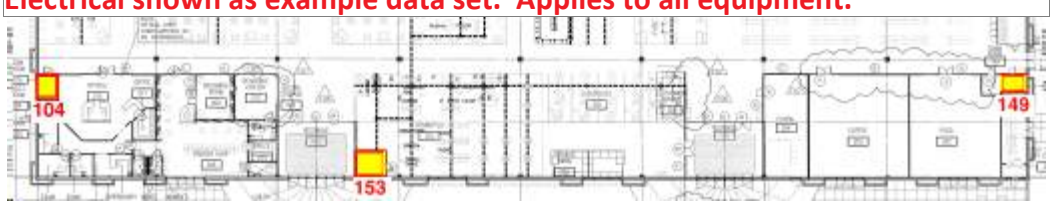
D50 ELECTRICAL

D5010 ELECTRICAL SERVICE & DISTRIBUTION

- FL1 - RM 104 - LP1 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - LP2 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - MP1 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 109 - SG1 - D501004 PANELBOARDS - Switchgear - 2000 Amp
- FL1 - RM 141 - LP3 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 141 - MP2 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 141 - T1 - D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 15 kV
- FL1 - RM 149 - LP4 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 149 - MP3 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 153 - LP5 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 153 - MP4 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB

Example BRED Tree Structure

Electrical shown as example data set. Applies to all equipment.



Example Section Names

FL1 - RM 109
FL1 - RM 141
FL1 - RM 104
FL1 - RM 153
FL1 - RM 149

Note:
The inclusion of the room/area into the section name DOES NOT negate the need to fill in the 'location' field in the Section Details. All general detail population rules must still be followed.

Business Rule:
Section all equipment on the rooftop separately. This equipment will degrade quicker than ground-/wall-mounted equipment of like kind.

D201001 WATERCLOSETS - General



Typical Application and General Component Guidance:

This component is used to pick up the water closets.

Lessons Learned/Business Rules/General Comments

General

Includes floor-mounted, wall hung, or tankless.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D201002 URINALS - General



Typical Application and General Component Guidance:

This component is used to inventory urinals.

Lessons Learned/Business Rules/General Comments

General

Includes waterless urinals.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D201003 LAVATORIES - General



Typical Application and General Component Guidance:

This component is used to inventory lavatories. The photo has a quantity of 3.

Lessons Learned/Business Rules/General Comments

Typical Distress

Typical distresses include: chipped corners, attachment to wall is failing, the lavatory is separating from wall, leaking faucet.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D201004 SINKS - General



Typical Application and General Component Guidance:

This component is hardly ever used as there are more specific component types available.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not capture sinks that are free standing that serve the mission and not the building. A good way to think of this is if the mission of the building were to change, what sinks would remain?

Do not inventory 3 (multi) basin sinks, galley steam kettles, scullery dishwasher, clothes washers, etc. Only inventory sinks that are permanently mounted to the facility.

Lesson Learned

Buildings that are ran by a tenant (ex: a fast food restaurant chain) always have gray areas on what sinks are part of the building and what sinks are tenant owned. If in doubt, the assessor should error on the side of inventorying the asset.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D201004 SINKS - Group Wash Fountain



Typical Application and General Component Guidance:

This component is used to inventory group wash fountains.

Lessons Learned/Business Rules/General Comments

General

May be circular or semi-circular.

May be stainless steel, concrete, or fiberglass.

Lesson Learned

Typically found in gyms

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Group Wash Fountain	Yes	No	No	No	No	10	EA

D201004 SINKS - Kitchen Sink



Typical Application and General Component Guidance:

This component is used to inventory kitchen sinks.

Lessons Learned/Business Rules/General Comments

Business Rule

To be entered as Kitchen Sink irrespective of material type; may include ceramic, enameled cast iron, or metal.

Lesson Learned

A kitchen sink will often be made of Stainless Steel and since there is a 'Stainless' component type this can lead to confusion. If the sink is located in a kitchen, use the 'Kitchen Sink' component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Kitchen Sink	Yes	No	No	No	No	35	EA

D201004 SINKS - Laundry Sink



Typical Application and General Component Guidance:

This component is used to inventory laundry (plastic) sinks. These may be located in other rooms other than a laundry room.

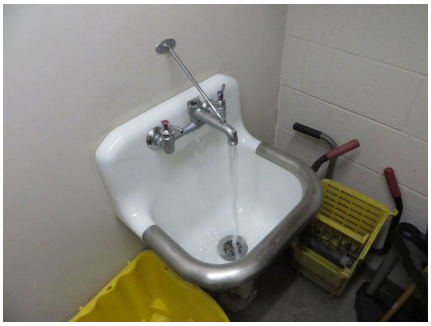
Lessons Learned/Business Rules/General Comments

Business Rule

All plastic sinks should be inventoried under the laundry sink component type regardless of whether they are located in a laundry room or not.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Laundry Sink	Yes	No	No	No	No	35	EA

D201004 SINKS - Service Sink



Typical Application and General Component Guidance:

This component is used to inventory service sinks. This includes floor mounted mop sinks.

Lessons Learned/Business Rules/General Comments

Business Rule

Mop sinks are very common and should be included in the 'Service Sink' component type.

General

Use 'Service Sink' for all wall hung service sinks irrespective of material; typically ceramic, enameled cast iron, metal, or plastic.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Service Sink	Yes	No	No	No	No	25	EA

D201004 SINKS - Stainless



Typical Application and General Component Guidance:

This component is used to inventory stainless steel sinks.

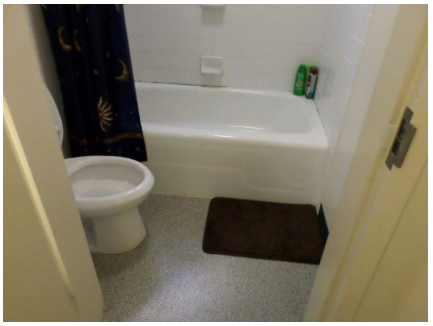
Lessons Learned/Business Rules/General Comments

Lesson Learned

A kitchen sink will often be made of stainless steel, and since there is a 'Stainless' component type, this can lead to confusion. If the stainless sink is NOT located in a kitchen, use the 'Stainless' component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Stainless	Yes	No	No	No	No	25	EA

D201005 SHOWERS/TUBS - Combo Unit (Shower / Tub)



Typical Application and General Component Guidance:

This component is used to inventory shower and tub combo units.

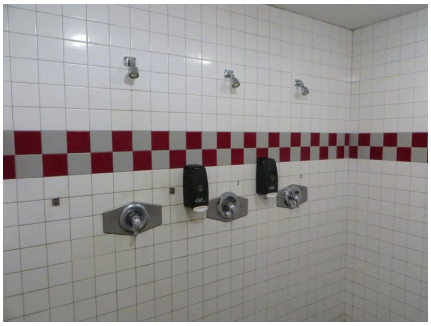
Lessons Learned/Business Rules/General Comments

General

Combo Units have both a tub and a shower head.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Combo Unit (Shower / Tub)	Yes	No	No	No	No	25	EA

D201005 SHOWERS/TUBS - Shower



Typical Application and General Component Guidance:

This component is used to inventory showers. The photos shows a quantity of 3.

Lessons Learned/Business Rules/General Comments

Business Rule

In a gang-type shower installation the assessor should count the number of shower heads to derive the quantity of showers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Shower	Yes	No	No	No	No	25	EA

D201006 DRINKING FOUNTAINS AND COOLERS - Drinking Fountain



Typical Application and General Component Guidance:

This component is used to inventory drinking fountains. Note: If there is a cooling unit integrated use the water cooler component type.

Lessons Learned/Business Rules/General Comments

Business Rule

Double units count quantity as 2.

Stand-alone bottle fill stations are becoming more popular and should be inventoried as part of this component type. If the bottle fill station is integral to the drinking fountain do not count as a separate component.

General

Includes interior, exterior, flush, and surface mount.

Lesson Learned

If the fountain has a compressor to cool water, it should be inventoried under the 'Water Cooler' component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Drinking Fountain	Yes	No	No	No	No	25	EA

D201006 DRINKING FOUNTAINS AND COOLERS - Water Cooler



Typical Application and General Component Guidance:

This component is used to inventory water coolers. The photo shows a 'side by side' ADA install that is counted as a quantity of 2.

Lessons Learned/Business Rules/General Comments

Business Rule

Double units count quantity as 2.

Lesson Learned

This unit will include a compressor that cools the water.

Typical Distress

Loud compressor noises. Missing panels. Corrosion on the exterior. Low water flow hints at internal problems and prevents ease of use.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Water Cooler	Yes	No	No	No	No	25	EA

D201090 OTHER PLUMBING FIXTURES - Combo (Eye Wash and Shower)



Typical Application and General Component Guidance:

This component is used to inventory combination eye wash/showers (ESEW).

Lessons Learned/Business Rules/General Comments

Business Rule

If a combination ESEW is found it should be inventoried under this component type. DO NOT inventory the emergency shower and emergency eyewash as separate components.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Combo (Eye Wash and Shower)	Yes	No	No	No	No	20	EA

D201090 OTHER PLUMBING FIXTURES - Emergency Eye Wash



Typical Application and General Component Guidance:

This component is used to inventory emergency eye washes.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not count portable, un-piped plastic units.

General

The emergency eyewash must be a stand-alone shower and not be integral to a combination unit. If the unit is a combination unit the component type 'Combo (Eye Wash and Shower)' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Emergency Eye Wash	Yes	No	No	No	No	25	EA

D201090 OTHER PLUMBING FIXTURES - Emergency Shower



Typical Application and General Component Guidance:

This component is used to inventory emergency showers.

Lessons Learned/Business Rules/General Comments

General

The emergency shower must be a stand-alone shower and not be integral to a combination unit. If the unit is a combination unit the component type 'Combo (Eye Wash and Shower)' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Emergency Shower	Yes	No	No	No	No	25	EA

D201090 OTHER PLUMBING FIXTURES - Stainless Steel Combo Unit (WC/Sink)



Typical Application and General Component Guidance:

This component is used to inventory fixtures where the water closet and sink are integrated into one component. This is a rare component that would typically be found in hospital/jail applications.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Will typically be found in prisons or hospitals.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Stainless Steel Combo Unit (WC/Sink)	Yes	No	No	No	No	25	EA

D201090 OTHER PLUMBING FIXTURES - Sump



Typical Application and General Component Guidance:

This component is used to inventory sump pumps.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Typically found in mechanical rooms or elevator pits.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sump	Yes	No	No	No	No	100	EA

D202001 PIPES & FITTINGS - General



Typical Application and General Component Guidance:

This component is used to inventory the domestic water piping in a building.

Lessons Learned/Business Rules/General Comments

Business Rule

The average cost of plumbing per SF is estimated at $6/SF. Assessors should use the following formula to derive the LF value: (Building SF * $6) / (BUILDER Cost). The current BUILDER cost per LF is $62/LF. Verify this value at the start of the project.

Lesson Learned

Assessors must use judgment when using the standard formula. A large warehouse will have much less plumbing than a large office building. Assessors can slide the average cost per SF up/down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	75	LF

D202002 VALVES & HYDRANTS - Backflow Preventer - 2" pipe



Typical Application and General Component Guidance:

This component is used to inventory backflow preventers. Select the correct size.

Lessons Learned/Business Rules/General Comments

Business Rule

Use pipe size to determine component type selection. If the backflow preventer is larger than 8", the 8" component type should be selected with the actual size noted in the section detail capacity field.

General

May be brass, stainless steel, or painted steel.

May be located on the exterior of a building, climate permitting, or in a mechanical room.

May be reduced pressure or double check. A reduced pressure will have an air gap attachment and a drain on the bottom of the assembly.

Lesson Learned

There will often be a fire protection backflow preventer in the same vicinity as the potable water backflow preventer. The fire protection backflow preventer should be captured under 'D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Backflow Preventer - 2" pipe	Yes	Yes	Yes	No	No	25	EA

D202003 DOMESTIC WATER EQUIPMENT - Booster Pump - <1HP



Typical Application and General Component Guidance:

This component is used to inventory small booster or circulating pumps.

Lessons Learned/Business Rules/General Comments

Business Rule

'D202003 DOMESTIC WATER EQUIPMENT - Pumps' are only applicable to potable water systems. Do not inventory D30 Hot/Chilled water pumps under D20. The pump component types under D30 should be used for Hot/Chilled water systems.

Do not section small circulation pumps as individual component sections. Combine into one component section for an entire facility unless there is a difference in condition.

The rules here only apply to this component type (pumps under 1 HP).

There are often small circulation pumps throughout a plumbing system. These are to be inventoried and assessed. No section details are required to be populated.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Booster Pump - <1HP	Yes	No	No	No	No	25	EA

D202003 DOMESTIC WATER EQUIPMENT - Booster Pump - 1 HP



Typical Application and General Component Guidance:

This component is used to inventory booster pumps found on water systems.

Lessons Learned/Business Rules/General Comments

Business Rule

'D202003 DOMESTIC WATER EQUIPMENT - Pumps' are only applicable to potable water systems. Do not inventory D30 Hot/Chilled water pumps under D20. The pump component types under D30 should be used for Hot/Chilled water systems.

In the instance of a duplex pump assembly the quantity is 2. Provide details for each pump. Do not inventory the pumps as separate component sections.

General

Booster pumps are used for increasing domestic water pressure.

Will often be seen as a “package” unit duplex pump assembly in mechanical room serving a barracks or building complex.

Typical Distress

Failed seals are leading to the pump leaking. Louder than usual operation.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Booster Pump - 1 HP	Yes	Yes	Yes	No	No	25	EA

D202003 DOMESTIC WATER EQUIPMENT - Storage Tank - Galvanized steel, 500 gallon, 36" diameter,126" L.O.A.



Typical Application and General Component Guidance:

This component is used to inventory storage tanks. Select the correct size. Some storage tanks (pictured) may have an integral heat exchanger.

Lessons Learned/Business Rules/General Comments

General

May use steam or hot water as the heating source.

The tank may have an internal heat exchanger. If this is the case, do not inventory the Heat Exchanger (HX) separately as the asset is a single assembly and is to be treated as one component.

Typically used in mechanical rooms where a boiler is being used to make hot water and is connected to the tank. Heat is transferred from boiler loop to domestic hot water loop via an external/internal heat exchanger.

Lesson Learned

For large water heater tanks or storage tanks the volume can be calculated by measuring the length or height and the radius (1/2 the diameter) and using the following formula ((3.142) x Radius^2 x Length (or Height)) / 7.48 (Gal/Ft3).

If there is a division of labor between the D20 and D30 systems, the assessors need to coordinate to make sure all tanks in the facility have been captured. Detailed section naming is needed. Ex: A chilled water tank should have 'CW' in the section name.

There are often tanks for the chilled/hot water systems in D30 that are inventoried under D202003 due to there being no component type available in D30 for these to be inventoried.

Typical Distress

Corrosion on the base or where pipes are connected.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Storage Tank - Galvanized steel, 500 gallon, 36" diameter,126"	Yes	Yes	Yes	No	No	30	EA

D202003 DOMESTIC WATER EQUIPMENT - Tankless Heater - Gas



Typical Application and General Component Guidance:

This component is used to inventory instantaneous tankless gas-fired water heaters.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory 'point of use' tankless heaters. Point-of-use is defined as a small heater serving only one fixture.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Tankless Heater - Gas	Yes	Yes	Yes	No	No	12	EA

D202003 DOMESTIC WATER EQUIPMENT - Water Heaters, Commercial, Electric - 250 gal, 150 KW, 615 GPH



Typical Application and General Component Guidance:

This component is used to inventory electric commercial water heaters.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory 'point of use' tank type heaters under 20 gallon. Point-of-use is defined as a small heater serving only one fixture.

Lesson Learned

For large water heater tanks or storage tanks, the volume can be calculated by measuring the length or height and the radius (1/2 the diameter) and using the following formula ((3.142) x Radius^2 x Length (or Height)) / 7.48 (Gal/Ft3).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Water Heaters, Commercial, Electric - 250 gal, 150 KW, 615 G	Yes	Yes	Yes	No	No	10	EA

D202003 DOMESTIC WATER EQUIPMENT - Water Heaters, Commercial, Gas - 200 MBH input, 192 GPH



Typical Application and General Component Guidance:

This component is used to inventory commercial water heaters.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory under D20 if unit supplies heating hot water as these are counted under HVAC D30. Water heaters in D20 only apply to drinking water systems.

General

BRED™ D2020 does not have a dropdown for domestic water boilers. Enter as 'Water Heater - Commercial' with correct MBH selected. If MBH exceeds options in D20, inventory under 'D302001 - Boilers'.

Large vertical-tank-style units often are provided with circulating pump.

Lesson Learned

For large water heater tanks or storage tanks, the volume can be calculated by measuring the length or height and the radius (1/2 the diameter) and using the following formula ((3.142) x Radius^2 x Length (or Height)) / 7.48 (Gal/Ft3).

Large barrack buildings will often use a boiler to make hot water (through a heat exchanger). These boilers will quickly exceed the BRED™ size selections and since they are in fact a boiler, it makes sense to inventory them under D30.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Water Heaters, Commercial, Gas - 200 MBH input, 192 GPH	Yes	Yes	Yes	No	No	10	EA

D202003 DOMESTIC WATER EQUIPMENT - Water Heaters, Residential, Electric



Typical Application and General Component Guidance:

This component is used to inventory residential water heaters. Note: If it is a commercial water heater, do not use this component type.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory 'point of use' heaters. Point-of-use is defined as a small heater serving only one fixture.

Do not inventory water heaters under 20 gallons. 20 gallons or more are to be inventoried.

General

Typically found in small administrative buildings with low occupancy.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Water Heaters, Residential, Electric	Yes	Yes	Yes	No	No	25	EA

D202003 DOMESTIC WATER EQUIPMENT - Water Treatment Equipment - Chemical Treatment



Typical Application and General Component Guidance:

This component is used to inventory commercial chemical water treatment equipment. If a residential type water softener is installed use the 'Water Softener' component type. In the photo there is a quantity of 2.

Lessons Learned/Business Rules/General Comments

Business Rule

This component is used for commercial water treatment systems. If there is a residential water softener installed, then 'D202003 DOMESTIC WATER EQUIPMENT - Water Softener' should be used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Water Treatment Equipment - Chemical Treatment	Yes	Yes	Yes	No	No	25	EA

D203001 WASTE PIPE & FITTINGS - General



Typical Application and General Component Guidance:

This component is used to inventory the sanitary piping in a building.

Lessons Learned/Business Rules/General Comments

Business Rule

The average cost of plumbing per SF is estimated at $4/SF. Assessors should use the following formula to derive the LF value: (Building SF * 4) / (BUILDER Cost). The current BUILDER cost per SF is $62/LF. Verify this value at the start of the project.

General

Bell & Spigot cast iron pipe (3” and up) with galvanized pipe branches (1-1/4” to 2”) was used through the 1950s. Copper came into use in the 1960s and is still used today.

Lesson Learned

Assessors must use judgment when using the standard formula. A large warehouse will have much less sanitary piping than a large office building. Assessors can slide the average cost per SF up/down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	50	LF

D203003 FLOOR DRAINS - General



Typical Application and General Component Guidance:

This component is used to inventory floor drains.

Lessons Learned/Business Rules/General Comments

Business Rule

Floor drains are to be counted and inventoried as a single component for the entire facility. These are viewed as part of the plumbing distribution system so there is no need to section by floor.

If a floor drain in a restroom or a mechanical room is of a significantly worse condition, it should be sectioned out and a standard section name 'FL1 - MECH ROOM' should be used.

The component is meant to inventory standard floor drains. If the drain is part of a plastic shower or another type of fixture, it does not count towards the quantity.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D204002 ROOF DRAINS - General



Typical Application and General Component Guidance:

This component is used to inventory the roof drains. Note: 'General' is a LF UOM, which is the correct one to use. Other is an EA which should not be used.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors count the number of drains (main and overflows) on the roof and use the following formula to derive the LF value: (# Drains * (building width/2))+(2*(building length+ building height) = LF quantity.

If the downspout from the roof is of light gauge material, it should be inventoried under 'B301005 GUTTERS & DOWNSPOUTS - Downspouts.'

If the downspout from the roof is of piping (Ex: schedule 40 pipe) material, it should be inventoried under 'D204002 ROOF DRAINS- General.' Coordinate with the B30 assessor to verify double inventory is not taking place.

The 'Roof Drain' component type includes both the basket on the roof, the drain, and the interior piping. Capture the component in LF from the drain to the downspout including all laterals and mains.

General

The component UOM is 'LF', which requires the assessor to make a calculation to arrive at the quantity.

Lesson Learned

Typically cast iron, bell & spigot in older buildings, no hub band in newer buildings. May be plastic in some applications.

Typically only found on flat roofs. There are instances where a gutter system is on a building and the downspout is of piping material. In this instance, there would be a sloped roof with a D204002 Roof Drain present.

Typical Distress

Corrosion.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	LF

D204090 OTHER RAIN WATER DRAINAGE SYSTEM - General



Typical Application and General Component Guidance:

This component is used to inventory rain water collection systems.

Lessons Learned/Business Rules/General Comments

Business Rule

In newer building there may be a rain water collection system installed. The component is an 'EA' UOM that captures the rain water piping system from the roof to the tank. A quantity of '1' should be entered.

Lesson Learned

Assessors will still have to add a gray water piping distribution system (D202001), tanks, pumps, and other applicable components that complete the system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D209001 SPECIAL PIPING SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory specialty piping in a building. The photo shows medical gas piping.

Lessons Learned/Business Rules/General Comments

General

This component is used to capture other types of piping systems that are made of standard steel or flex piping.

This component is used to capture special piping systems like a stainless fuel system or an oxygen gas system found in a hospital.

Lesson Learned

The most common application of this component type is compressed air, oil, or lubricant piping in maintenance shops. The section name should indicate which type of system is being inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	15	LF

D209002 ACID WASTE SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory acid waste systems.

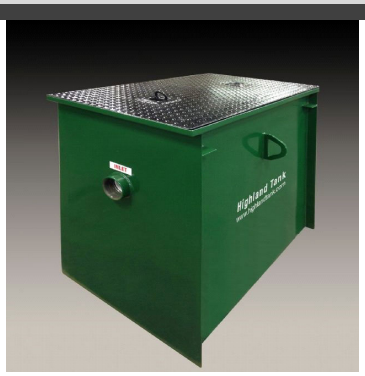
Lessons Learned/Business Rules/General Comments

General

This component can be found in labs where there is a hazardous environment.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D209003 INTERCEPTORS - General



Typical Application and General Component Guidance:

This component is used to inventory grease traps or oil/water separators.

Lessons Learned/Business Rules/General Comments

Business Rule

For the section details 'capacity' field the assessor should estimate the total volume of the oil/water separator. It is understood that these are typically below grade an assumption will be made on this field.

Multiple grease traps should be inventoried as a single component section. Oil/Water separators should be sectioned separately as they are typically serving different areas of a facility and will have different maintenance schedules.

General

This component is used to inventory oil/water separators (commonly found on maintenance garages) and grease traps (commonly found in kitchens).

Lesson Learned

The oil/water separator will often be located outside of the building. Put the cardinal direction in the section name to align with the other exterior component sectioning methodology.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D209004 POOL PIPING AND EQUIPMENT - General



Typical Application and General Component Guidance:

This component is used to inventory pool equipment.

Lessons Learned/Business Rules/General Comments

Business Rule

If there are multiple pools/hot tub systems, section them separately with the pool they are serving indicated in the section name.

It is not desired to inventory all aspects of a pool system. This component represents the entire system from pumps, chemical, piping, and all other appurtenances. Use a quantity of 1 EA.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D201001 WATERCLOSETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Stainless	No	No	No	No	No	25	EA

D201002 URINALS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Stainless	No	No	No	No	No	25	EA

D201003 LAVATORIES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Stainless	No	No	No	No	No	25	EA

D201004 SINKS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Group Wash Fountain	Yes	No	No	No	No	10	EA
Kitchen Sink	Yes	No	No	No	No	35	EA
Laboratory Sink	Yes	No	No	No	No	25	EA
Laundry Sink	Yes	No	No	No	No	35	EA
Service Sink	Yes	No	No	No	No	25	EA
Stainless	Yes	No	No	No	No	25	EA

D201005 SHOWERS/TUBS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA
Bathtub	Yes	No	No	No	No	25	EA
Combo Unit (Shower / Tub)	Yes	No	No	No	No	25	EA
Shower	Yes	No	No	No	No	25	EA

D201006 DRINKING FOUNTAINS AND COOLERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	EA
Other	No	No	No	No	No	10	EA
Unknown	No	No	No	No	No	10	EA
Drinking Fountain	Yes	No	No	No	No	25	EA
Water Cooler	Yes	No	No	No	No	25	EA
Water Fountain With Bottle Filler	Yes	No	No	No	No	40	EA

D201007 BIDETS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA

D201090 OTHER PLUMBING FIXTURES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA
Combo (Eye Wash and Shower)	Yes	No	No	No	No	20	EA
Emergency Eye Wash	Yes	No	No	No	No	25	EA
Emergency Shower	Yes	No	No	No	No	25	EA
Stainless Steel Combo Unit (WC/Sink)	Yes	No	No	No	No	25	EA
Sump	Yes	No	No	No	No	100	EA
Washer / Dryer Hookup	No	No	No	No	No	15	EA

D202001 PIPES & FITTINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	75	LF
Other	No	No	No	No	No	75	EA
Unknown	No	No	No	No	No	75	EA
Black / Galvanized Steel <1" Pipe	No	No	No	No	No	75	LF
Black / Galvanized Steel 1"-2" Pipe	No	No	No	No	No	75	LF
Black / Galvanized Steel 2"-4" Pipe	No	No	No	No	No	75	LF
Black / Galvanized Steel 4"-6" Pipe	No	No	No	No	No	75	LF
Black / Galvanized Steel >6" Pipe	No	No	No	No	No	75	LF
Copper <1" Pipe	No	No	No	No	No	75	LF
Copper 1"-2" Pipe	No	No	No	No	No	75	LF
Copper 2"-4" Pipe	No	No	No	No	No	75	LF
Copper 4"-6" Pipe	No	No	No	No	No	75	LF
Copper >6" Pipe	No	No	No	No	No	75	LF
CPVC <1" Pipe	No	No	No	No	No	75	LF
CPVC 1"-2" Pipe	No	No	No	No	No	75	LF
CPVC 2"-4" Pipe	No	No	No	No	No	75	LF
CPVC >6" Pipe	No	No	No	No	No	75	LF
Ductile Iron 4" Pipe	No	No	No	No	No	75	LF
Ductile Iron 6" Pipe	No	No	No	No	No	75	LF
HDPE 4" Pipe	No	No	No	No	No	75	LF
HDPE 6" Pipe	No	No	No	No	No	75	LF
PVC 2"-4" Pipe	No	No	No	No	No	75	LF
PVC 4"-6" Pipe	No	No	No	No	No	75	LF
PVC < 2" Pipe	No	No	No	No	No	75	LF
PVC >6" Pipe	No	No	No	No	No	75	LF

D202002 VALVES & HYDRANTS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA
Backflow Preventer	No	No	No	No	No	25	EA
Backflow Preventer - 1" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 1.5" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 2" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 3" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 4" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 6" pipe	Yes	Yes	Yes	No	No	25	EA
Backflow Preventer - 8" pipe	Yes	Yes	Yes	No	No	25	EA
Hose Bib	No	No	No	No	No	25	EA
Kitchen Faucets	No	No	No	No	No	10	EA
Washer/Dryer Faucets	No	No	No	No	No	10	EA

D202003 DOMESTIC WATER EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	Yes	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	10	EA
Booster Pump - <1HP	Yes	No	No	No	No	25	EA
Booster Pump - 1 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 1.5 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 10 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 2 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 3 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 5 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - 7.5 HP	Yes	Yes	Yes	No	No	25	EA
Booster Pump - Variable speed, 15 HP, 6" discharge, 1000 GPM	Yes	Yes	Yes	No	No	25	EA
Booster Pump - Variable speed, 30 HP, 6" discharge, 1700 GPM	Yes	Yes	Yes	No	No	25	EA
Booster Pump - Variable speed, 7.5 HP, 4" discharge, 400 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package	No	No	No	No	No	25	EA
Heat Transfer Package - One pump system, 28 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 35 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 55 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 130 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 255 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 550 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - One pump system, 800 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 130 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 255 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 28 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 35 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 55 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 550 GPM	Yes	Yes	Yes	No	No	25	EA
Heat Transfer Package - Two pump system, 800 GPM	Yes	Yes	Yes	No	No	25	EA
Storage Tank	No	No	No	No	No	30	EA

Storage Tank - Galvanized steel, 135 gallon, 24" diameter, 75" L.O.A	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Galvanized steel, 15 gallon, 14" diameter, 26" L.O.A.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Galvanized steel, 240 gallon, 30" diameter, 86" L.O.A	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Galvanized steel, 30 gallon, 14" diameter, 49" L.O.A.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Galvanized steel, 300 gallon, 36" diameter, 76" L.O.A	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Galvanized steel, 400 gallon, 36" diameter, 100" L.O.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Galvanized steel, 500 gallon, 36" diameter,126" L.O.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Galvanized steel, 80 gallon, 20" diameter, 64" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 1330 gallon, 66" diameter, 107" L.O.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Glass lined, PE, 140 gallon, 24" diameter, 80" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 1615 gallon, 72" diameter, 110" L.O.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Glass lined, PE, 225 gallon, 30" diameter, 78" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 2285 gallon, 84" diameter, 128" L.O.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Glass lined, PE, 325 gallon, 36" diameter, 81" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 3440 gallon, 96" diameter, 157" L.O.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Glass lined, PE, 460 gallon, 42" diameter, 84" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 605 gallon, 48" diameter, 87" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 740 gallon, 54" diameter, 91" L.O.A.	Yes	Yes	Yes	No	No	50	EA
Storage Tank - Glass lined, PE, 80 gallon, 20" diameter, 64" L.O.A.	Yes	Yes	Yes	No	No	30	EA
Storage Tank - Glass lined, PE, 940 gallon, 60" diameter, 93" L.O.A.	Yes	Yes	Yes	No	No	50	EA
Tankless Heater - Electric	Yes	Yes	Yes	No	No	12	EA
Tankless Heater - Gas	Yes	Yes	Yes	No	No	12	EA
Water Heaters, Commercial, Electric	No	No	No	No	No	10	EA
Water Heaters, Commercial, Electric - 50 gal, 9 KW, 37 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 80 gal, 12 KW, 49 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 80 gal, 36 KW, 147 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 120 gal, 36 KW, 147 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 150 gal, 120 KW, 490 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 200 gal, 120 KW, 490 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 250 gal, 150 KW, 615 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 300 gal, 180 KW, 738 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 350 gal, 30 KW, 123 GPH	Yes	Yes	Yes	No	No	10	EA

Water Heaters, Commercial, Electric - 350 gal, 180 KW, 738 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 500 gal, 30 KW, 123 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 500 gal, 240 KW, 984 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 700 gal, 30 KW, 123 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 700 gal, 300 KW, 1230 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 1000 gal, 60 KW, 245 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 1000 gal, 480 KW, 1970 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 1500 gal, 60 KW, 245 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Electric - 1500 gal, 480 KW, 1970 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas	No	No	No	No	No	10	EA
Water Heaters, Commercial, Gas - 75 MBH input, 63 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 95 MBH input, 86 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 100 MBH input, 91 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 115 MBH input, 110 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 155 MBH input, 150 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 175 MBH input, 168 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 200 MBH input, 192 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 240 MBH input, 230 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 300 MBH input, 278 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 390 MBH input, 374 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 500 MBH input, 480 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Gas - 600 MBH input, 576 GPH	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil	No	No	No	No	No	10	EA
Water Heaters, Commercial, Oil - 140 gal, 140 MBH input, 134 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 140 gal, 255 MBH input, 247 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 140 gal, 270 MBH input, 259 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 140 gal, 400 MBH input, 384 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 140 gal, 720 MBH input, 691 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 201 gal, 1000 MBH input, 960 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 201 gal, 1250 MBH input, 1200 G	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 201 gal, 1500 MBH input, 1441 G	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 221 gal, 300 MBH input, 288 GP	Yes	Yes	Yes	No	No	10	EA

Water Heaters, Commercial, Oil - 221 gal, 600 MBH input, 576 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 221 gal, 800 MBH input, 768 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 397 gal, 1500 MBH input, 1441 G	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 397 gal, 1750 MBH input, 1681 G	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 411 gal, 600 MBH input, 576 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 411 gal, 800 MBH input, 768 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 411 gal, 1000 MBH input, 960 GP	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Commercial, Oil - 411 gal, 1250 MBH input, 1200 G	Yes	Yes	Yes	No	No	10	EA
Water Heaters, Residential, Electric	Yes	Yes	Yes	No	No	25	EA
Water Heaters, Residential, Gas	Yes	Yes	Yes	No	No	25	EA
Water Heaters, Residential, Oil	Yes	Yes	Yes	No	No	25	EA
Water Softener	Yes	Yes	Yes	No	No	15	EA
Water Treatment Equipment	No	No	No	No	No	25	EA
Water Treatment Equipment - Chemical Treatment	Yes	Yes	Yes	No	No	25	EA
Water Treatment Equipment - Deionization Station	Yes	Yes	Yes	No	No	25	EA
Water Treatment Equipment - Ultraviolet Treatment	Yes	Yes	Yes	No	No	30	EA
Water Treatment Equipment - Wastewater Filtration for WashRack	Yes	Yes	Yes	No	No	25	EA

D202004 INSULATION & IDENTIFICATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D202005 SPECIALTIES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D202090 OTHER DOMESTIC WATER SUPPLY

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	8	EA
Other	No	No	No	No	No	8	EA
Unknown	No	No	No	No	No	8	EA

D203001 WASTE PIPE & FITTINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	50	LF
Other	No	No	No	No	No	50	EA
Unknown	No	No	No	No	No	75	EA

D203002 VENT PIPE & FITTINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	75	EA
Other	No	No	No	No	No	75	EA
Unknown	No	No	No	No	No	75	EA

D203003 FLOOR DRAINS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D203004 SANITARY AND VENT EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Backflow Preventer	No	No	No	No	No	40	EA
Backflow Preventer - > 6" Pipe	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 2" Pipe	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 3" Pipe	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 4" Pipe	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 6" Pipe	Yes	Yes	Yes	No	No	40	EA
Sanitary Waste Separator	No	No	No	No	No	25	EA
Sanitary Waste Separator - 1" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 10" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 2" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 3" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 4" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 5" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 6" size	No	No	No	No	No	25	EA
Sanitary Waste Separator - 8" size	No	No	No	No	No	25	EA

D203005 INSULATION & IDENTIFICATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D203090 OTHER SANITARY WASTE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	100	EA
Other	No	No	No	No	No	100	EA
Unknown	No	No	No	No	No	100	EA

Complete Component Catalog Breakdown

D20 PLUMBING

D204001 PIPE & FITTINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	LF
Other	No	No	No	No	No	25	LF
Unknown	No	No	No	No	No	25	LF

D204002 ROOF DRAINS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	LF
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D204003 RAINWATER DRAINAGE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA
Sump Pump - Duplex	Yes	Yes	Yes	No	No	25	EA
Sump Pump - Submersible	Yes	Yes	Yes	No	No	25	EA

D204004 INSULATION & IDENTIFICATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	LF
Other	No	No	No	No	No	25	LF
Unknown	No	No	No	No	No	25	LF

D204090 OTHER RAIN WATER DRAINAGE SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

Complete Component Catalog Breakdown

D20 PLUMBING

D209001 SPECIAL PIPING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	15	LF
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA

D209002 ACID WASTE SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D209003 INTERCEPTORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D209004 POOL PIPING AND EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D209005 COMPRESSED AIR SYSTEM (NON-BREATHING)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

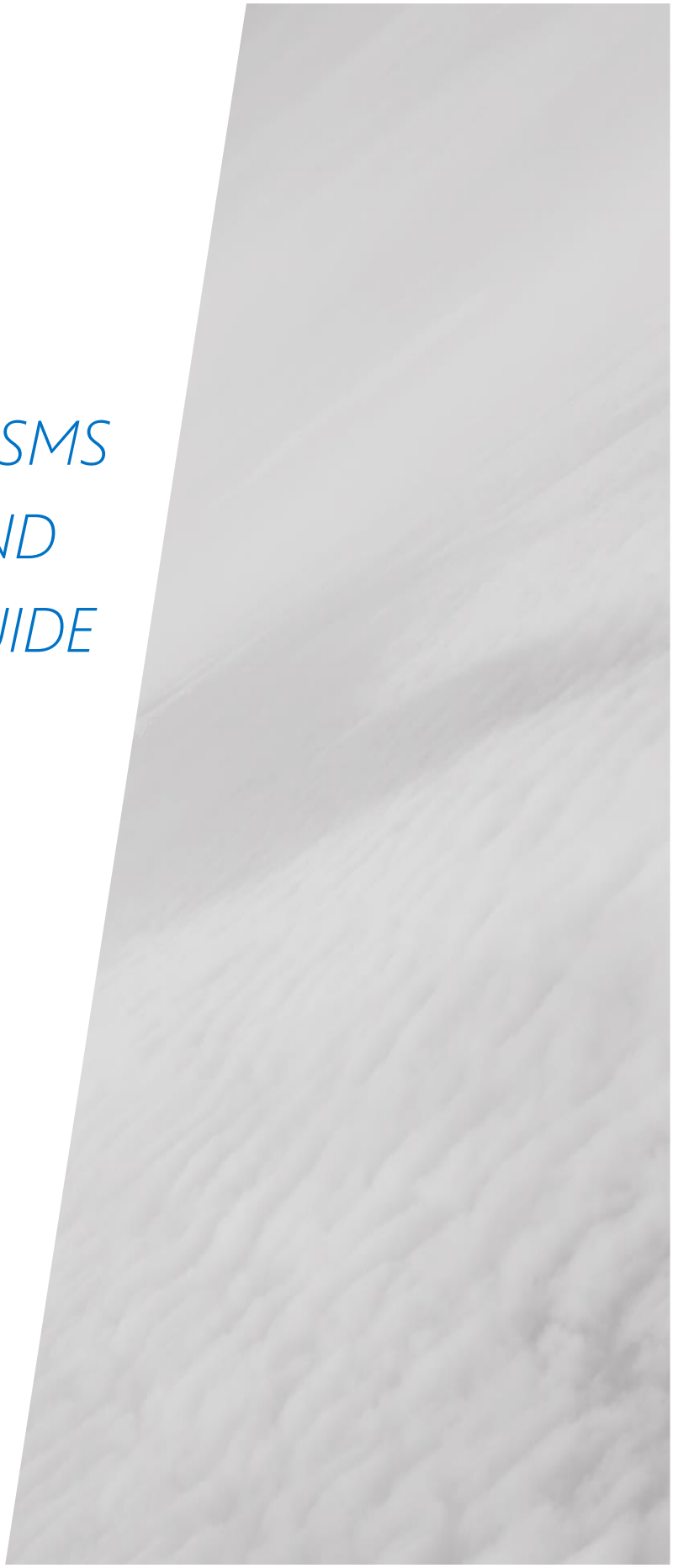
D209090 OTHER SPECIAL PLUMBING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

D30 HVAC



Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat D30 HVAC inventory component sections found across installations as a guide for entering into the BUILDER™ or BUILDER Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

D3010 - Energy Supply: This subsystem provides a source of fuel/energy (other than electrical) for the heating and cooling systems in the building. The inventory components are those not owned and operated by a utility provider such as the local gas company or through a lease with a propane tank provider.

D3020 - Heat Generating Systems: This subsystem provides the heating for the building and may include boilers, furnaces, and duct furnace heaters.

D3030 - Cooling Generating Systems: This subsystem provides the cooling for the building and may include chillers, cooling towers, and condensing units.

D3040 - Distribution Systems: This subsystem distributes heated and cooled air in the building. Components include piping, fans, air handling equipment, and pumps.

D3050 - Terminal & Package Units: This subsystem provides self-contained heating and cooling units and includes unit heaters, package units, and heat pumps.

D3060 - Controls and Instrumentation: This subsystem includes equipment and devices to monitor and control the HVAC system, such as thermostats, timers, sensors, and control valves.

D3090 - Other HVAC Systems & Equipment: This grouping captures additional unique or specialized HVAC equipment including humidifiers, dehumidifiers, burner assemblies, and water treatment.

One of the most common problems with HVAC systems is that over time building, mission, equipment and occupancy change. These changes often require HVAC system alterations, additional loads, new or changed services, mechanical/HVAC code/safety issues, damaged components, and outdated HVAC as-built drawings. Another common problem is that HVAC components are subject to corrosion/deterioration due to their circulation of steam, water, and air through the systems. Also, installations that are located in a coastal environment, which accelerates the deterioration of components and subcomponents exposed to the weather.

The HVAC system of a building generates, distributes, and controls energy, fluids, and air to associated equipment in order to maintain environmental conditions (humidity, temperature, air exchanges, etc.) within the building. The HVAC system may serve the entire building or a part of the building. The system is designed to support the function/mission of the building, and for comfort and safety of the occupants.

Inspection

HVAC component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Most HVAC component sections will be visible. When component sections are not visible, inventory should be entered, but no assessment is entered. In this case, BUILDER™ will use the inventory, year installed, and degradation curves built in to the software to establish the CI.

All HVAC equipment using R-22 refrigerant should be rated A+ or below.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based.

The following conditions or events can accelerate HVAC component deterioration and should be considered by the assessor: 1) Improper construction or installation, 2) Improper maintenance or service, 3) Weather exposure and/or coastal environment, 4) Damage or misuse, 5) Overloading, 6) Water or chemical treatment issues, and 7) Corrosion.

When equipment is found that has been abandoned and is no longer functional, it should not be inventoried. If the equipment is abandoned but is still able to be put back in service, it should be inventoried and assessed.

When HVAC component sections are visible, they should be assessed. When determining the rating, the assessor should consider the quantity and severity of conditions or distresses observed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Do not inventory: 1) Common valves, 2) Kitchen exhaust units (think residential-type kitchen hood), 3) Filters, 4) Small bathroom exhaust fans, 5) Residential-style ceiling fans, 6) Window A/C units (window mounted), and 7) Ceiling or floor vents, grilles, registers, diffusers, or fire dampers.

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

In some cases, HVAC sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed, if they are not appropriate, the component age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Information to determine age and capacity is often available online. A web search question can be used to find informational websites (e.g. How to read boiler model numbers?).

Most HVAC components inventoried for buildings are visible with exception of piping and ductwork components. When HVAC components are not visible (or an area of the building is not accessible), as-built drawings should be used to identify and quantify the HVAC components. If as-built drawings are not available, the assessor may use experience to make an assumption for the HVAC component types and quantities based on similar construction, consultation with local staff, and other reputable online resources. Often manufacturer websites will have extensive product information available that can help the assessor determine age, equipment type, capacity, and/model.

Reading the model number of a piece of equipment can help determine the size. Many manufacturers use a factor of 12 (12 = 1 ton, 24 = 2 ton), For example, in the following model number 2TWB0060A1000AA, the '060' indicates 60000 BTU or 5 Ton cooling).

To assist in determining capacity: 1 Ton of cooling = 12000 BTUH and 1000 BTUH = 1 MBH

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as VAV boxes, HVAC controls, and fan coils are to be validated to a +/-15% accuracy. This can be accomplished through random sampling. Large equipment (air handlers, boilers, pumps, chillers, etc.) should be validated to 100% accuracy level.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

For all HVAC equipment that has R-22 refrigerant the designation 'R-22' should be included in the section details 'equipment type' field. This will allow the installation to query 'R-22' and identify all equipment still using class II controlled compounds.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, if a pump with no tag is found, it may read '100 GPM ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '100 GPM EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (PUMP-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Manufacturer’s data tags for HVAC equipment will normally be in the back near the piping connections or service panel.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate HVAC section with a different age.

HVAC components such as VAVs can be grouped in a section. For instance, if there are 5 VAVs a single component section can be provided with a quantity of 5. This sectioning methodology for equipment is limited to components that are like kind throughout a facility and are part of a single system.

HVAC equipment is always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates, then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building you would have 'FL2 EAST' and 'FL2 - WEST'.

It is required to have all equipment on the roof to have the section name 'ROOF - XXX' so future assessments can easily differentiate equipment located roof from equipment on the ground level, mechanical room, etc. Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Rule of Thumb: All HVAC components that require Section Details should be sectioned separately. There may be further guidance on sectioning in the component type breakdown part of the manual.

Typical section names are used to describe equipment designations such as AHU-1, RTU-1, MU-1, EF-1, CWP-1, etc.

Typical section names used to describe the major areas of the building include: FL1, FL2, BASEMENT, MEZZANINE, ROOF, WING 'X,' etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.				
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.			
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.				
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.				
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.				
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.					

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Sectioning of Equipment Components

The business rules stated below are applicable to equipment components.

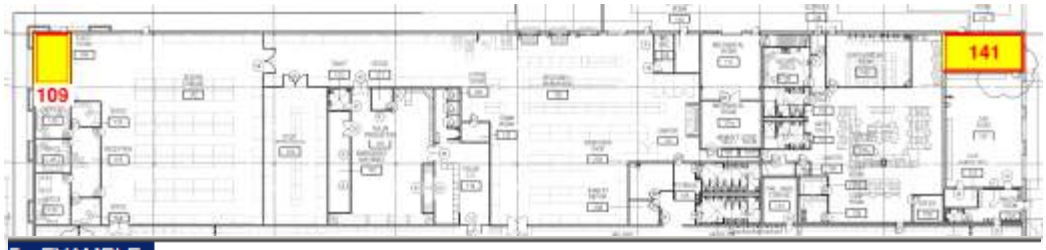
Sectioning of equipment components is of critical importance to provide a data set that is usable by the installation, is able to have Quality Assurance reviews, and is able to be reassessed. To achieve this it is required that equipment be sectioned by area/room.

Case Study: Below is a drawing of a large building that has several electrical rooms. If one section of 125 AMP panels is provided with section name 'N/A', the usability of the data is greatly reduced. If the equipment is sectioned by room (FL1 - RM 109, FL1 - RM 141, FL1 - RM 104, FL1 - RM 153, FL1 - RM 149), follow-on assessments, QA, and the installation can easily identify/reassess components.

The business rule is for Mechanical/Electrical equipment to be sectioned per Mechanical/Electrical room on buildings greater than 7,500 SF. All other equipment that is located throughout the building (such as VAV boxes) follows general sectioning rules.

This also provides the benefit that if a remodel/addition takes place between assessments, it will be apparent what has been added/deleted in THAT room without the assessor having to do a complete walk-through of the building and the deduce what changed (which is a very difficult, if not impossible, task).

If a component only has an quantity of 1, the Section Name can include the equipment ID number. For example, the panel LP1 can have the Section Name: FL1 - RM 109 - LP1.



5 - EXAMPLE

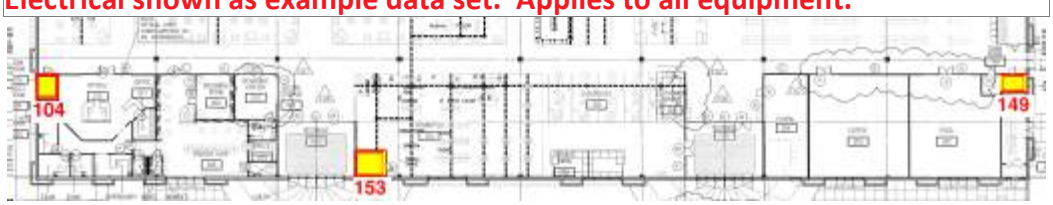
D50 ELECTRICAL

D5010 ELECTRICAL SERVICE & DISTRIBUTION

- FL1 - RM 104 - LP1 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - LP2 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - MP1 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 109 - SG1 - D501004 PANELBOARDS - Switchgear - 2000 Amp
- FL1 - RM 141 - LP3 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 141 - MP2 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 141 - T1 - D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 15 kV
- FL1 - RM 149 - LP4 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 149 - MP3 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 153 - LP5 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 153 - MP4 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB

Example BRED Tree Structure

Electrical shown as example data set. Applies to all equipment.



Example Section Names

FL1 - RM 109
FL1 - RM 141
FL1 - RM 104
FL1 - RM 153
FL1 - RM 149

Note:
The inclusion of the room/area into the section name DOES NOT negate the need to fill in the 'location' field in the Section Details. All general detail population rules must still be followed.

Business Rule:
Section all equipment on the rooftop separately. This equipment will degrade quicker than ground-/wall-mounted equipment of like kind.

D301002 GAS SUPPLY SYSTEM - Fuel Storage Tank - Fuel Storage Tank, 2500 GAL



Typical Application and General Component Guidance:

This component is used to inventory diesel, natural gas, oil, etc. type of tanks.

Lessons Learned/Business Rules/General Comments

Business Rule

Use tank size to determine component type selection. If the tank is larger than 5,000 gallons, the 5,000 gallon component type should be selected with the actual size noted in the section detail capacity field.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fuel Storage Tank - Fuel Storage Tank, 2500 GAL	Yes	Yes	Yes	No	No	50	EA

D301005 SOLAR ENERGY SYSTEMS - Closed Loop, Space/Hot Water Systems



Typical Application and General Component Guidance:

This component is used to inventory solar heating systems. quantity is determined by number of solar panels located on roof. The photo shows a QTY of 8.

Lessons Learned/Business Rules/General Comments

Business Rule

The assessor should count the number of solar water heating panels and use that as the EA value to populate the quantity field.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Closed Loop, Space/Hot Water Systems	Yes	No	No	No	No	25	EA

D301005 SOLAR ENERGY SYSTEMS - Solar Inverter

Typical Application and General Component Guidance:

This component is used to inventory the solar inverter.



Lessons Learned/Business Rules/General Comments

Lesson Learned

The inverter may be located in a weather proof enclosure on the exterior of the building or in the electrical room. If it is not found coordinate with the D50 Electrical assessor as it may have been seen elsewhere in the building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Solar Inverter	Yes	Yes	Yes	No	No	10	EA

D301005 SOLAR ENERGY SYSTEMS - Solar Panel - Aluminum Monocrystalline Silicon

Typical Application and General Component Guidance:

This component is used to inventory the solar panels.



Lessons Learned/Business Rules/General Comments

Business Rule

If the assessor is unsure about what type of panel is installed (very common if located on a sloped roof and is being viewed from the ground) then the component type 'Aluminum Monocrystalline Silicon' should be used.

The quantity value should be the square foot sum of the entire PV array. Do not section by individual panels.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Solar Panel - Aluminum Monocrystalline Silicon	Yes	No	No	No	No	25	SF

D301005 SOLAR ENERGY SYSTEMS - Solar Panel Battery - Lead Acid



Typical Application and General Component Guidance:

This component is used to inventory the batteries associated with the solar panel system.

Lessons Learned/Business Rules/General Comments

Business Rule

Section details are required for the entire assembly. Do not add a section detail for each individual battery.

The quantity value is the number of batteries present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Solar Panel Battery - Lead Acid	Yes	Yes	Yes	No	No	4	EA

D301005 SOLAR ENERGY SYSTEMS - Solar Panel System



Typical Application and General Component Guidance:

This component is used to inventory the solar panel system wiring, supports, and other appurtenances.

Lessons Learned/Business Rules/General Comments

Business Rule

If there is a PV system present this component type should be added. An age-based approach is required with no section details to be populated.

General

This component is used to inventory the miscellaneous items (wiring, conduits, supports) for the PV system.

Lesson Learned

The KW can often be obtained by looking at the equipment tag of the inverter.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Solar Panel System	Yes	No	No	No	No	25	KW

D301090 OTHER ENERGY SUPPLY - Thermal Storage Tank



Typical Application and General Component Guidance:

This component is used to inventory thermal storage tanks.

Lessons Learned/Business Rules/General Comments

General

Typically an ice storage system used to store cooling capacity to be used at peak loads.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Thermal Storage Tank	Yes	Yes	Yes	No	No	25	EA

D302001 BOILERS - Electric, Hot Water - 135-180 KW, 460-613 M



Typical Application and General Component Guidance:

This component is used to inventory electric boilers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically smaller than gas-fired boilers these can be identified by having no gas lines serving the unit. These types are typically only used when gas service is not available.

Lesson Learned

An assessor will need to convert the boiler KW to MBH for the sizing of the 'D304003 HOT WATER DISTRIBUTION SYSTEMS - General' hot water distribution piping system which has a UOM of MBH.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Electric, Hot Water - 135-180 KW, 460-613 M	Yes	Yes	Yes	No	No	30	EA

D302001 BOILERS - Gas, Hot Water - 400-500 MBH



Typical Application and General Component Guidance:

This component is used to inventory smaller gas-fired boilers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

The most common type of boiler found on installations. Look for the gas flue through the roof or exterior wall of the mechanical room as an indicator. There will also be gas lines serving the boiler.

Lesson Learned

The burner assembly may show capacity information.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Gas, Hot Water - 400-500 MBH	Yes	Yes	Yes	No	No	30	EA

D302001 BOILERS - Gas/Oil, Fire Tube - Fire Tube 7,500-12,500



Typical Application and General Component Guidance:

This component is used to inventory larger gas-fired boilers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically used for larger facilities or will be found in a mechanical building that is serving a large building or campus distribution system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Gas/Oil, Fire Tube - Fire Tube 7,500-12,500	Yes	Yes	Yes	No	No	30	EA

D302001 BOILERS - General



Typical Application and General Component Guidance:

This component is hardly ever used as there are more specific component types available.

Lessons Learned/Business Rules/General Comments

Business Rule

If a boiler is inventoried, it is required that the assessor also add a component section for the hot water distribution piping. The component type used for this is 'D304003 HOT WATER DISTRIBUTION SYSTEMS - General.'

General

There are many types of boilers in the catalog and the assessor needs to be familiar with each component type. Also, there may be domestic hot water heating boilers that exceeded the sizes of D202003 captured here as well.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	MBH

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D302002 FURNACES - Electric, 34.1 MBH

Typical Application and General Component Guidance:

This component is used to inventory electric furnaces. Select the correct type and size (round up to nearest size if required).



Lessons Learned/Business Rules/General Comments

Business Rule

If there is no heating element (electric coil) in the unit, then only the DX coil exists. In this case do not inventory as a furnace. The component type 'D305003 FAN COIL UNITS - DX' should be used.

General

Will look like a standard residential-type furnace. Note: There may be an integrated cooling coil as well, but that is not captured separately as the furnace is viewed as a single assembly.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Electric, 34.1 MBH	Yes	Yes	Yes	No	No	15	EA

D302002 FURNACES - Gas, 150 MBH

Typical Application and General Component Guidance:

This component is used to inventory gas-fired furnaces. Select the correct type and size (round up to nearest size if required).



Lessons Learned/Business Rules/General Comments

Business Rule

If there is no heating element (burner) in the unit, then only the DX coil exists. In this case do not inventory as a furnace. The component type 'D305003 FAN COIL UNITS - DX' should be used.

Note in the Section Details field 'Equipment Type' if the unit is of a different fuel source than natural gas (LPG or oil-fired).

General

Will look like a standard residential-type furnace. Note: There may be an integrated cooling coil as well, but that is not captured separately as the furnace is viewed as a single assembly.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Gas, 150 MBH	Yes	Yes	Yes	No	No	15	EA

D302003 FUEL-FIRED UNIT HEATERS - Gas - 160 MBH



Typical Application and General Component Guidance:

This component is used to inventory fuel-fired unit heaters. Select the correct type and size (round up to nearest size if required). Note: There are also unit heaters under D305002. See business rules for clarification.

Lessons Learned/Business Rules/General Comments

Business Rule

To eliminate confusion within this component type, if both 'forced air' and 'tube-type infrared' heaters are present, the section name of the radiant heater shall be 'RADIANT', which will differentiate the two. Do not combine into one section.

General

One of the most common types of unit heaters found on installations. This is a gas-fired unit heater component type and captures 2 separate types of heaters: 1) Forced air and 2) tube-type radiant heaters.

Lesson Learned

Often confused with 'D305002 UNIT HEATERS - Infrared'. If the heater is a cassette type (square) infrared heater, it should be captured under D305002. If it is forced air or a long tube type, it should be captured under D302003.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Gas - 160 MBH	Yes	Yes	Yes	No	No	25	EA

D302004 AUXILIARY EQUIPMENT - Chemical Feedwater - 150 lb., 5 gallon, ASME



Typical Application and General Component Guidance:

This component is used to inventory chemical feeders. Select the correct type and size (round up to nearest size if required). Collect both Hot and Chilled water chemical feeders under this component type.

Lessons Learned/Business Rules/General Comments

Business Rule

In the Section Details 'Equipment Type' field it should also be noted which loop the chemical feeder is serving.

Include in the Section Name field if the unit is part of the 'CW' or 'HW' loop as both distribution system chemical feeders are captured under this component type. Ex: 'FL1 - MECH RM 109 - CW'

General

Chemical feeder is typically located by pumps and is a 5-gallon type with a 3-leg pedestal. If the system is small, they may be mounted/supported off the piping system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Chemical Feedwater - 150 lb., 5 gallon, ASME	Yes	Yes	Yes	No	No	30	EA

D302004 AUXILIARY EQUIPMENT - Expansion Tank - 100 gal



Typical Application and General Component Guidance:

This component is used to inventory expansion tanks. Select the correct type and size (round up to nearest size if required). Collect both hot and chilled water expansion tanks under this component type.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory small expansion tanks connected to the domestic water system. Do not inventory any expansion tanks under 5 gallon in size.

In the Section Details 'Equipment Type' field it should also be noted which loop the chemical feeder is serving.

Include in the Section Name field if the unit is part of the 'CW' or 'HW' loop as both distribution system expansion tanks are captured under this component type. Ex: 'FL1 - MECH RM 109 - CW'

General

Will be typically ground mounted on newer hydronic systems. However, older systems they were often mounted on the ceiling to save floor space. A good rule of thumb is if you have a hydronic system you must have a expansion tank.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Expansion Tank - 100 gal	Yes	Yes	Yes	No	No	30	EA

D303001 CHILLED WATER SYSTEMS - Chiller, Reciprocating, Air Cooled - 80 TN



Typical Application and General Component Guidance:

This component is used to inventory air-cooled reciprocating chillers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Reciprocating compressors have bolts at cylinder heads; smaller units may have hermetic (tin can) compressors

Scroll compressors are typically mounted vertically.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Chiller, Reciprocating, Air Cooled - 80 TN	Yes	Yes	Yes	No	No	20	EA

D303001 CHILLED WATER SYSTEMS - Chiller, Rotary Screw - 150 TN, Water Cooled Screw Liquid Chiller, Dual Compressors



Typical Application and General Component Guidance:

This component is used to inventory water-cooled screw chillers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Compressors have “flat oval” appearance.

Normal operational sound is a “whine” or gear noise.

Lesson Learned

A building will typically have a cooling tower if this component type is present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Chiller, Rotary Screw - 150 TN, Water Cooled Screw Liquid Chill	Yes	Yes	Yes	No	No	20	EA

D303001 CHILLED WATER SYSTEMS - Chiller, Scroll



Typical Application and General Component Guidance:

This component is used to inventory scroll chillers.

Lessons Learned/Business Rules/General Comments

Business Rule

Select the 'Chiller, Scroll' component type and indicate the size in the section details 'capacity' field.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Chiller, Scroll	Yes	Yes	Yes	No	No	15	EA

D303001 CHILLED WATER SYSTEMS - Cooling Tower, Fiberglass - 125 TN



Typical Application and General Component Guidance:

This component is used to inventory fiberglass cooling towers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Can be mounted on the ground in an equipment yard or on the roof of large buildings.

Cooling towers will have a fan on top pulling air over the coils.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Cooling Tower, Fiberglass - 125 TN	Yes	Yes	Yes	No	No	15	EA

D303002 DIRECT EXPANSION SYSTEMS - Condenser, DX, Air Cooled - Direct Drive, 5 ton, R-22



Typical Application and General Component Guidance:

This component is used to inventory air-cooled DX condensers/heat pumps. Select the correct type and size (round up to nearest size if required). Ignore the R-22 designation.

Lessons Learned/Business Rules/General Comments

Business Rule

All condensing units 10 tons and above should be inventoried using this component type. If under 10 tons, assessor needs to verify if the split system is a standard DX system or if the indoor unit is a furnace. This will modify the inventory approach.

In the Section Details 'Equipment Type' field indicate if the refrigerant is R-22.

VRF systems are becoming more popular and use this component type. The exterior unit is inventoried under 'D303002 DIRECT EXPANSION SYSTEMS - Condenser, DX, Evaporative' and the indoor units under 'D305003 FAN COIL UNITS - DX.'

General

Typically used to inventory the heat rejection (outdoor) side of a split system. This may be used for a condensing unit or heat pump.

When capturing a split system the indoor side will typically be a 'D302002 FURNACES.' If the system is just a DX system (with no heat) and is under 10 tons then use 'D305006 PACKAGE UNITS-A/C Unit, Split Systems w/ Air Cooled Condenser.'

Lesson Learned

Ignore the R-22 in the component type when selecting this component type. R-22 is being replaced with R-410a and there is no R-410a component type available.

Variable Refrigerant Volume (VRV) systems are becoming increasingly popular. Use this component type to capture the outdoor unit and use 'D305003 FAN COIL UNITS' to capture the multiple indoor units.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Condenser, DX, Air Cooled - Direct Drive, 5 ton, R-22	Yes	Yes	Yes	No	No	15	EA

D303002 DIRECT EXPANSION SYSTEMS - Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 20 ton cooling



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

'D305006 PACKAGE UNITS' has much better selections for rooftop units and should be used for all rooftop air handlers. This is out of scope and is only included as a reference to eliminate any confusion when seen in the catalog.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Rooftop Air Conditioning Unit - multizone, electric cool, gas he	**No**	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D304001 AIR DISTRIBUTION, HEATING & COOLING - Dehumidifier - 16 to 20 lb./Hr., 600 CFM



Typical Application and General Component Guidance:

This component is used to inventory dehumidifiers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory plug-in dehumidifiers. Do not inventory if the dehumidifier section is integrated into the air handler. The unit must be a permanently installed stand-alone assembly.

General

Typically will be installed in ductwork and will have refrigerant lines connected to the unit with a drain line for the water.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Dehumidifier - 16 to 20 lb./Hr., 600 CFM	Yes	Yes	Yes	No	No	20	EA

D304001 AIR DISTRIBUTION, HEATING & COOLING - Ductwork



Typical Application and General Component Guidance:

This component is used to inventory ductwork.

Lessons Learned/Business Rules/General Comments

Business Rule

A ductwork calculator can be used in the cases where the majority of the ductwork is not readily visible.

The average cost of ductwork per SF is estimated at $8/SF. Assessors should use the formula to derive the LF value: (Building SF * $8) / (BUILDER Cost). The current BUILDER cost value per LF is 27 $/LF. Verify this value at the start of the project.

Lesson Learned

Assessors must use judgment when using the standard formula. A large warehouse will have much less ductwork than a large office building. Assessors can slide the average cost per SF up/down based on their expertise.

The assessor can use the length of the building as the value for the main trunk. The amount of horizontal distribution legs off the main should be estimated at multiplied by the width of the building. The sum of these two values is the LF quantity.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Ductwork	Yes	No	No	No	No	20	LF

D304001 AIR DISTRIBUTION, HEATING & COOLING - Humidifier - 22 lb. per hour



Typical Application and General Component Guidance:

This component is used to inventory humidifiers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory plug-in humidifiers. Do not inventory if the humidifier section is integrated into the air handler.

Lesson Learned

Do not inventory swamp coolers under this component type (you may find existing data with inventory under this type). Use 'D305006 PACKAGE UNITS - Evaporative Cooler' to inventory swamp coolers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Humidifier - 22 lb. per hour	Yes	Yes	Yes	No	No	10	EA

D304001 AIR DISTRIBUTION, HEATING & COOLING - VAV Terminal, Fan Powered - 1000 CFM, Hot Water Reheat



Typical Application and General Component Guidance:

This component is used to inventory Variable Air Volume (VAV) boxes. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

VAVs are typically hidden from view. To accurately arrive at a CRV the number of VAV's can be estimated (see lesson learned for acceptable methods).

General

There are 2 pipe and 4 pipe VAVs available. It can also be determined from the mechanical room piping if it is a true 4 pipe or is a 2 pipe with a CW/HW switchover.

VAV's can be fan powered or unpowered. If a VAV is exposed in a mechanical room, the type can be determined.

Lesson Learned

It is not required for ceiling tiles to be removed during the assessment.

Last resort: An assessor can assume 1 CFM/SF as the total airflow and use the formula Bldg SF /400 to arrive at the number of boxes. Building SF would only be the area served by the VAV system. The boxes would be inventoried as 'VAV Terminal - 400 CFM.'

There are several ways to estimated the number of VAVs: 1) Count the T-stats, 2) View the digital display in the Mechanical Room that shows a one-line of the HVAC system, 3) Drawings, 4) Engineering judgment, 5) last resort.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
VAV Terminal, Fan Powered - 1000 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA

D304002 STEAM DISTRIBUTION SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory the steam distribution system. Note the UOM is LF.

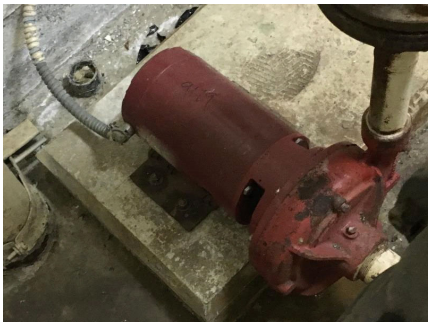
Lessons Learned/Business Rules/General Comments

Business Rule

Use General, which is a LF UOM to capture the steam piping. The piping from 5' outside the building to the heat exchanger (supply and return) should be totaled and used for the quantity value.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	LF

D304003 HOT WATER DISTRIBUTION SYSTEMS - Circulating Pump - 1/2 HP



Typical Application and General Component Guidance:

This component is used to inventory small pumps associated with the HW distribution system.

Lessons Learned/Business Rules/General Comments

Business Rule

All hot water distribution pumps should have section details populated.

Pumps sized 1/2 HP to 1 HP (not including 1 HP) should be inventoried under the 1/2 HP component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Circulating Pump - 1/2 HP	Yes	Yes	Yes	No	No	30	EA

D304003 HOT WATER DISTRIBUTION SYSTEMS - Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM



Typical Application and General Component Guidance:

This component is used to inventory hot water circulating pumps. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

1/4 and 1/2 HP pumps selections have been recently added to the BRED catalog. Previous inspections may have omitted these smaller pumps. All pumps 1/4 HP and above should be inventoried.

All pumps 1 HP to 2.5 HP should be inventoried under the 2.5 HP component type.

Do not inventory hot water distribution pumps under 'D202003 DOMESTIC WATER EQUIPMENT - Booster Pump'. All hot water distribution pumps should be under 'D304003 HOT WATER DISTRIBUTION SYSTEMS'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM	Yes	Yes	Yes	No	No	30	EA

D304003 HOT WATER DISTRIBUTION SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory hot/steam water distribution piping systems. Note the UOM is MBH.

Lessons Learned/Business Rules/General Comments

Business Rule

The UOM is MBH. When sizing the hot water hydronic system one can view the size of the boiler for the total MBH. If the boiler is electric, a conversion from KW to MBH is required.

Lesson Learned

Assessors will commonly collect all the hydronic components and forget the piping distribution system, which is a significant portion of CRV for the building.

The hot water distribution system will typically not be visible as it will be fully insulated. It is preferred to inventory with correct MBH and install date and let BUILDER™ degrade the asset. If a large portion is visible, provide an assessment.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	MBH

D304003 HOT WATER DISTRIBUTION SYSTEMS - Heat Exchanger, Plate Type - 400 GPM



Typical Application and General Component Guidance:

This component is used to inventory hot/chilled water plate and frame heat exchangers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Include in the Section Name field if the unit is part of the 'CW' or 'HW' loop as both distribution system heat exchangers are captured under this component type. Ex: 'FL1 - MECH RM 109 - CW'

The smallest component type is 400 GPM. Plate and frame HX below 400 GPM shall be inventoried under the 400 GPM component type and the correct size placed in the Section Details field 'Capacity'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Heat Exchanger, Plate Type - 400 GPM	Yes	Yes	Yes	No	No	30	EA

D304003 HOT WATER DISTRIBUTION SYSTEMS - Heat Exchanger, Shell & Tube - 96 GPM



Typical Application and General Component Guidance:

This component is used to inventory hot/chilled water shell and tube heat exchangers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Include in the Section Name field if the unit is part of the 'CW' or 'HW' loop as both distribution system heat exchangers are captured under this component type. Ex: 'FL1 - MECH RM 109 - HW'

General

Commonly used on steam distribution to hot water applications.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Heat Exchanger, Shell & Tube - 96 GPM	Yes	Yes	Yes	No	No	30	EA

D304006 CHILLED WATER DISTRIBUTION SYSTEMS - Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM



Typical Application and General Component Guidance:

This component is used to inventory chilled water circulating pumps. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

1/4 and 1/2 HP pumps selections may be in the BRED catalog (If not, use the 2.5 HP selection). Previous inspections may have omitted these smaller pumps. All pumps 1/4 HP and above should be inventoried.

All pumps 1 HP to 2.5 HP should be inventoried under the 2.5 HP component type.

Do not inventory chilled water distribution pumps under 'D202003 DOMESTIC WATER EQUIPMENT - Booster Pump'. All chilled water distribution pumps should be under 'D304006 CHILLED WATER DISTRIBUTION SYSTEMS'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM	Yes	Yes	Yes	No	No	20	EA

D304006 CHILLED WATER DISTRIBUTION SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory chilled water distribution piping systems. Note the UOM is ton.

Lessons Learned/Business Rules/General Comments

General

The chilled water distribution system will typically not be visible (it will be fully insulated). It is preferred to inventory with correct tonnage and install date and let BUILDER degrade the asset. If a large portion is visible, provide an assessment.

The UOM is TON. When sizing the hot water hydronic system, one can view the size of the chiller for the total TON.

Lesson Learned

Assessors will commonly collect all the hydronic components and forget the piping distribution system, which is a significant portion of CRV for the building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	TON

D304007 EXHAUST SYSTEMS - Commercial/Industrial Vacuum Dust Collection - 5000 CFM



Typical Application and General Component Guidance:

This component is used to inventory commercial/industrial dust collection systems. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically found on paint booths or woodshop-type buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Commercial/Industrial Vacuum Dust Collection - 5000 CFM	Yes	Yes	Yes	No	No	20	EA

D304007 EXHAUST SYSTEMS - Fan System, Roof Exhaust - 800 CFM



Typical Application and General Component Guidance:

This component is used to inventory roof-/wall-mounted 'mushroom' or 'bulls-eye' fans. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Note in the Section Details field 'Equipment Type' if the unit is 'UPBLAST' or 'DOWNBLAST' or 'WALL MOUNTED.'

The section name for wall mounted fans should start with the cardinal direction.

There are many mushroom/bull's-eye fans located on walls that are the same type as the roof exhaust fans. To summarize: All mushroom/bull's-eye fans should be inventoried under this component type regardless of wall/roof installation.

This component type captures mushroom or bull's-eye exhaust fans whether mounted on roof or wall. Note in the Section Details 'Location' field the location to allow for ease of reassessment.

General

Mushroom fans that are located on the walls are also referred to as bull's-eye.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Fan System, Roof Exhaust - 800 CFM	Yes	Yes	Yes	No	No	20	EA

D304007 EXHAUST SYSTEMS - Fan System, Wall Exhaust - Wall Exhaust, 6175 CFM



Typical Application and General Component Guidance:

This component is used to inventory wall prop fans. Note the minimum size. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If the wall fan is mushroom type wall-mounted exhaust fan it should be captured under 'D304007 EXHAUST SYSTEMS - Fan System, Roof Exhaust.' All large wall prop fans should be inventoried under this component type.

General

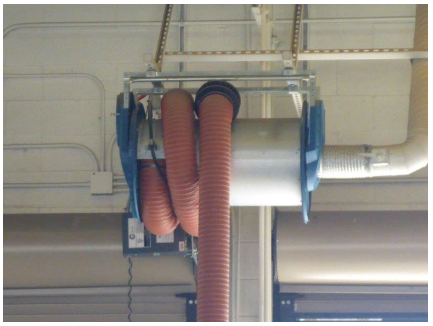
Typically this will be a large prop exhaust fan located in a maintenance bay or supply storage to provide general ventilation.

Lesson Learned

The smallest component type is 'Fan System, Wall Exhaust - Wall Exhaust, 6175 CFM.' These will typically be a prop fan of 3' and above in diameter. If small prop fans are found, use 'D304007 EXHAUST SYSTEMS-Industrial Exhaust System - 2000 CFM, 3 H.P.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Fan System, Wall Exhaust - Wall Exhaust, 6175 CFM	Yes	Yes	Yes	No	No	10	EA

D304007 EXHAUST SYSTEMS - Garage Exhaust Systems - Single exhaust, 3" outlet, 1 bay



Typical Application and General Component Guidance:

This component is used to inventory garage exhaust systems. Count the quantity of connections.

Lessons Learned/Business Rules/General Comments

Business Rule

If a garage exhaust system is a system with an integral fan, this component captures the exhaust nozzle, fan system, and the controls as a single component section.

If the garage exhaust system nozzles are daisy chained to one large utility set exhaust fan count the number of nozzles for this quantity and capture the exhaust fan as a separate 'D304007 - Industrial Exhaust System - 8000 CFM, 15 H.P' component section.

Lesson Learned

If the function of the building has changed and the garage exhaust is no longer needed, do not inventory or assess the component. It can be assumed it has been abandoned in place.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Garage Exhaust Systems - Single exhaust, 3" outlet, 1 bay	Yes	Yes	Yes	No	No	10	EA

D304007 EXHAUST SYSTEMS - Industrial Exhaust System - 2000 CFM, 3 H.P.



Typical Application and General Component Guidance:

This component is used to inventory industrial type fans. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

'Double width - double inlet' and 'Single width - single inlet' are both inventoried with this material/equipment category. Note in the Section Details field 'Equipment Type' if the unit is 'SWSI' or 'DWDI'.

In an instance where a garage exhaust system has the nozzles daisy chained and connected to one utility set, that exhaust fan should be a separate section under this component type.

This component type can be widely used, so make sure the Section Name/Section Details accurately describe the asset. If not, provide an inventory comment describing the type of fan and location to allow for ease of reassessment.

General

This component type is not limited to exhaust Utility Sets. There are several other types such as small wall prop exhaust fans located in mechanical rooms this can be used for.

Utility set type exhaust fans that are connected to an industrial process whether that be a garage exhaust system or a building specific process should be captured under this component type.

Lesson Learned

Assessors need to be aware there is a 'D305001 UNIT VENTILATORS - Fan System, Utility Set' in the catalog. That is used for general HVAC ventilation, NOT exhaust fans. A utility set used in an exhaust application should be captured under D304007.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Industrial Exhaust System - 2000 CFM, 3 H.P.	Yes	Yes	Yes	No	No	40	EA

D304007 EXHAUST SYSTEMS - Kitchen Exhaust/Make-Up Air - 8000 CFM



Typical Application and General Component Guidance:

This component is used to inventory ONE unit package kitchen exhaust and make-up air systems.

Lessons Learned/Business Rules/General Comments

Business Rule

If the make-up air unit and exhaust fan are separate assets, they should not be inventoried under this component type. Both assets should be captured under the correct respective component type. Only use this for packaged systems.

General

This component captures packaged systems that come on a skid with both the kitchen exhaust piece and make-up air piece installed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Kitchen Exhaust/Make-Up Air - 8000 CFM	Yes	Yes	Yes	No	No	20	EA

D304008 AIR HANDLING UNITS - Central Station - 5000 CFM, VAV



Typical Application and General Component Guidance:

This component is used to inventory central station air handlers located indoors. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

The 'D304008 AIR HANDLING UNITS - Central Station' component type should be used for air handlers found indoors in mechanical rooms or mezzanines. Note there are VAV and non-VAV selections available.

This component type is located indoors.

Lesson Learned

Assessor should be aware of selections in 'D305006 PACKAGE UNITS' that are very similar and which are used for outdoor packaged units. This often leads to confusion.

Items inventoried under 'D304008 AIR HANDLING UNITS' will typically just have a hot water (HW) and chilled water (CW) coil present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Central Station - 5000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA

D304008 AIR HANDLING UNITS - Field Fabricated - 150000 CFM, VAV



Typical Application and General Component Guidance:

This component is used to inventory field fabricated air handlers. Note the size. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically used on very large buildings that need an extreme amount of airflow. A good rule of thumb is to use this for air handlers that have doors and you can physically walk into the unit. If not, there are other component types that are better.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Field Fabricated - 150000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA

D304008 AIR HANDLING UNITS - Indoor Modular - 3200 CFM, 8 TN Central AHU



Typical Application and General Component Guidance:

This component is used to inventory indoor modular air handlers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically used in a single zone indoor application. Example: a gym with a single AHU in the corner, a long run of ductwork down the middle, and airflow returning to the unit. If it is a VAV system, use the 'Central Station' component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Indoor Modular - 3200 CFM, 8 TN Central AHU	Yes	Yes	Yes	No	No	20	EA

D304008 AIR HANDLING UNITS - Rooftop - 15000 CFM, VAV



Typical Application and General Component Guidance:

This component is used to inventory central station air handlers located on the rooftop. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

There is a very slim chance a roof mounted unit will be captured under this component type. Use the rooftop component types under 'D305006 PACKAGE UNITS'.

Lesson Learned

There are 3 rooftop component types in the catalog :1) 'D303002 DIRECT EXPANSION SYSTEMS' - Not used, 2) 'D304008 AIR HANDLING UNITS' - Used very infrequently, and 3) 'D305006 PACKAGE UNITS' - Used very frequently.

There are several options for rooftop units, so this one is hardly ever used. In 'D305006 PACKAGE UNITS' the best selections are available.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Rooftop - 15000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA

D304090 OTHER DISTRIBUTION SYSTEMS - 2-Pipe Heating/Cooling Distribution Steel Piping - 1 IN



Typical Application and General Component Guidance:

This component is used to inventory steel 2-pipe refrigerant piping.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not use it to inventory individual line sets connecting split system components.

Do not use this component type to inventory chilled water distribution system piping. 'D304006 CHILLED WATER DISTRIBUTION SYSTEMS' should be used.

Do not use this component type to inventory hot water distribution system piping. 'D304003 HOT WATER DISTRIBUTION SYSTEMS - General' should be used.

The average cost of piping per SF is estimated at $2/SF. Assessors should use the following formula to derive the LF value: (Building SF * $2) / (BUILDER Cost). The current BUILDER cost per LF is $62/LF. Verify this value at the start of the project.

There will typically be several sizes of pipes as part of the system. Select the 1 IN component type and have a single record that capture the entire distribution system. Do not section by size, floor, etc.

This is used to inventory building wide refrigerant distribution systems and all associated appurtenances between the exterior and interior units. If this is a 3 pipe VRV assessors should adjust the $/SF in the calculation accordingly.

General

This component is often found in buildings that have a variable refrigerant volume (VRV) HVAC system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
2-Pipe Heating/Cooling Distribution Steel Piping - 1 IN	Yes	No	No	No	Yes	30	LF

D304090 OTHER DISTRIBUTION SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory significant hydronic equipment not listed in BUILDER™. Items such as steam headers, vacuum pumps (in photo), and other large value hydronic items fall under this component type.

Lessons Learned/Business Rules/General Comments

Business Rule

If a condensate return (typically on a steam system) or a steam header is captured, the Section Name should accurately describe the component. An inventory comment is required to aid the next assessment in finding the component.

General

Significant pieces hydronic equipment that do not have a component type in BUILDER™ still need to be inventoried under 'D304090 OTHER DISTRIBUTION SYSTEMS.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	15	EA

D305001 UNIT VENTILATORS - Air Curtain



Typical Application and General Component Guidance:

This component is used to inventory air curtains. Note the UOM is LF.

Lessons Learned/Business Rules/General Comments

Business Rule

Note that the UOM is LF. Provide a component section for each individual air curtain with the Section Details field 'Capacity' populated with the LF of the unit.

General

Typically found on the entrance to stores or backdoors into kitchens. The ventilator provides a velocity of air across the face of the opening to prevent bugs from flying in and helps keep the inside area conditioned.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Curtain	Yes	Yes	Yes	No	No	15	LF

D305001 UNIT VENTILATORS - Fan System, Axial



Typical Application and General Component Guidance:

This component is used to inventory large industrial circulating fans.

Lessons Learned/Business Rules/General Comments

General

Typically used to inventory large commercial-style ceiling fans. Note: Residential ceiling fans should not be captured.

Lesson Learned

There are axial inline fans used in HVAC systems. There is often confusion between 'Fan System, Axial' and 'Centrifugal In-Line' in this case. Axial should be used as it is the more accurate component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fan System, Axial	Yes	Yes	Yes	No	No	15	EA

D305001 UNIT VENTILATORS - Fan System, Centrifugal In-Line - 2500 CFM



Typical Application and General Component Guidance:

This component is used to inventory in-line exhaust fans. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

This is a very common type of fan. It will be found on the interior of a building ducted to a louver in an exhaust fan application. It can be found on HVAC systems as a return air fan. There are many applications.

Lesson Learned

Very common in electrical rooms that need just a small amount of ventilation.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fan System, Centrifugal In-Line - 2500 CFM	Yes	Yes	Yes	No	No	15	EA

D305001 UNIT VENTILATORS - Fan System, Utility Set - 3500 CFM



Typical Application and General Component Guidance:

This component is used to inventory utility set fans. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If the fan is operating in an exhaust fashion it should be inventoried under 'D304007 EXHAUST SYSTEMS - Industrial Exhaust System.'

General

Typically located indoors and used for applications such as a HVAC supply fan.

Lesson Learned

Often confused with 'D304007 EXHAUST SYSTEMS - Industrial Exhaust System'. If the utility set is used in an exhaust application capture it under that component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fan System, Utility Set - 3500 CFM	Yes	Yes	Yes	No	No	15	EA

D305001 UNIT VENTILATORS - Make-Up Air Unit - 3000 CFM, 252 MBH, includes standard controls



Typical Application and General Component Guidance:

This component is used to inventory make up air units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Typically used in kitchens or gyms that have a large amount of outside air requirements to meet.

Lesson Learned

Often confused with 'D305006 PACKAGE UNITS', 'D304008 AIR HANDLING UNITS', and 'D303002 DIRECT EXPANSION SYSTEMS' that have air handler component types available.

Previous inspections may have captured this equipment under 'D302002 FURNACES'. If the air is solely used for make-up air, it should be inventoried under this component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Make-Up Air Unit - 3000 CFM, 252 MBH, includes standard con	Yes	Yes	Yes	No	No	30	EA

D305002 UNIT HEATERS - Hydronic - 60 MBH



Typical Application and General Component Guidance:

This component is used to inventory hydronic unit heaters. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

This is a very common piece of equipment across installations. It will have 2 pipes (supply/return) going to the unit heater and be fed from the hot water distribution system.

Lesson Learned

Note that there is no option for electric unit heaters under 'D305002 UNIT HEATERS'. They are captured under 'D305005 ELECTRIC HEATING'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Hydronic - 60 MBH	Yes	Yes	Yes	No	No	20	EA

D305002 UNIT HEATERS - Infrared - 45 MBH



Typical Application and General Component Guidance:

This component is used to inventory infrared unit heaters. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Lesson Learned

Note that there is no option for electric unit heaters under 'D305002 UNIT HEATERS'. They are captured under 'D305005 ELECTRIC HEATING'.

Often confused with 'D302003 FUEL-FIRED UNIT HEATERS'. This is for cassette-type infrared unit heaters. If the asset is a gas-fired radiant tube heater, it should be inventoried under 'D302003 FUEL-FIRED UNIT HEATERS' not under 'D305002 UNIT HEATERS'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Infrared - 45 MBH	Yes	Yes	Yes	No	No	30	EA

D305003 FAN COIL UNITS - Cab Mount, Four Pipe - 2 ton



Typical Application and General Component Guidance:

This component is used to inventory cab mount hydronic 4-pipe fan coil units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

This component type is used for hydronic systems. They will typically be found on barrack type buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cab Mount, Four Pipe - 2 ton	Yes	Yes	Yes	No	No	25	EA

D305003 FAN COIL UNITS - Cab Mount, Two Pipe - 2 ton



Typical Application and General Component Guidance:

This component is used to inventory cab mount hydronic 2-pipe fan coil units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

This component type is used for hydronic systems. They will typically be found on barrack type buildings.

Lesson Learned

Do not confuse two pipe hydronic systems with DX systems. There is a component type under 'D305003 FAN COIL UNITS' for DX fan coils.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Cab Mount, Two Pipe - 2 ton	Yes	Yes	Yes	No	No	25	EA

D305003 FAN COIL UNITS - Duct Mount, 2 Pipe - 2 ton, Elec. Heat



Typical Application and General Component Guidance:

This component is used to inventory hydronic duct mount fan coils that have electric backup heat.

Lessons Learned/Business Rules/General Comments

Lesson Learned

Do not confuse two pipe hydronic systems with DX systems. There is a component type under 'D305003 FAN COIL UNITS' for DX fan coils.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Duct Mount, 2 Pipe - 2 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA

D305003 FAN COIL UNITS - DX - 3 ton



Typical Application and General Component Guidance:

This component is used to inventory DX fan coil units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

VRF systems are becoming more popular and use this component type. The exterior unit is inventoried under 'D303002 DIRECT EXPANSION SYSTEMS - Condenser, DX, Evaporative' and the indoor units under 'D305003 FAN COIL UNITS - DX.'

Lesson Learned

Typically used to capture the indoor DX fan coils. As Variable Refrigerant Volume (VRV) systems become more popular this component type is being used more often.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
DX - 3 ton	Yes	Yes	Yes	No	No	15	EA

D305004 FIN TUBE RADIATION - Baseboard Heating - 2' long



Typical Application and General Component Guidance:

This component is used to inventory baseboard heaters. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

For hydronic baseboard heaters the UOM options of 'LF' should be used. For electric baseboard heaters the UOM of 'EA' should be used with the average size (length) component selected for the facility/floor.

The goal is to inventory the baseboard heaters in a manner that they are captured but does not result in a significant amount of sections. They are typically maintained as a single system. One section per floor/building is desired.

General

Typically found in vestibules, at the bottom of stairwells, or on the linear perimeter of a building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Baseboard Heating - 2' long	Yes	No	No	No	No	15	EA

D305005 ELECTRIC HEATING - 208-240 volt, 5 kW



Typical Application and General Component Guidance:

This component is used to inventory electric heaters (typically unit heaters). Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

Electric unit heaters are very common and there is no place in BUILDER™ under 'D305002 UNIT HEATERS' to inventory these items. This component type is where electric unit heaters are to be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
208-240 volt, 5 kW	Yes	Yes	Yes	No	No	15	EA

D305006 PACKAGE UNITS - A/C Unit, Computer Room - Air Cooled, 8 ton



Typical Application and General Component Guidance:

This component is used to inventory computer room air conditioners (CRAC) units.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not capture BARD or Liebert units under this component type. This is only to be used for HVAC systems that are cooling computer/server/IT rooms.

If the system is a split system and is 10 tons or bigger both the interior and exterior units should be inventoried.

This component type captures both the exterior and interior part of the computer room A/C system (if installed in a split system fashion). Populate section details based on the exterior data nameplate.

General

These systems are industrial cooling systems that are located in computer/server/IT rooms. This component will typically be in the form of a split system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
A/C Unit, Computer Room - Air Cooled, 8 ton	Yes	Yes	Yes	No	No	30	EA

D305006 PACKAGE UNITS - A/C Unit, Package Terminal - Packaged Terminal AC, 48,000 BTUH, 10 kw



Typical Application and General Component Guidance:

This component is used to inventory packaged A/C terminal units (PTAC).

Lessons Learned/Business Rules/General Comments

Business Rule

If a unit is greater than 48,000 BTUH of cooling (4 tons), select the 48,000 BTUH component type and indicate the correct size in the capacity field in the section details.

General

These are commonly referred to as BARD or Liebert units after the most common manufacturers.

These units are very common and are used in a variety of applications from trailers to utility buildings.

Lesson Learned

Often these units will not have heating (dependent on climate). The component types all have a KW listed that can be ignored if this is a cooling/heat pump only application.

Select the most correct component type. The catalog shows a BTUH and a KW value. The unit in the field may not exactly match. Use the BTUH value as the driving factor when selecting the component type.

The component types in the catalog show the cooling capacity in BTUH. Dividing by 12,000 will arrive at the tonnage of the unit. Often, the units in the field will only show the tonnage.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
A/C Unit, Package Terminal - Packaged Terminal AC, 48,000 BT	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - A/C Unit, Split Systems w/ Air Cooled Condenser - 2 TN



Typical Application and General Component Guidance:

This component is used to inventory A/C and Heat Pump Mini split systems. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

All split systems that are 10 tons or greater in size should follow the guidance in the lessons learned. Use this component type for systems that are under 10 tons.

If the split system is under 2 tons, the '2 ton' component type should be selected and the correct capacity should be populated in the Section Details 'Capacity' field.

This component type can be used for Heat Pump (HP) or Air Cooled Condensing Unit (ACCU) systems.

This component type is typically used for small DX split systems that serve a single IT/electrical/elevator closet/room. The methodology is that these two components (inside/outside) have the same degradation curve.

This component type is used for units up to 10 tons with the indoor unit having no other heating energy source. This captures both the interior and exterior unit. Section Details should be populated from the exterior unit only.

VRF systems do not use this component type. The exterior unit is inventoried under 'D303002 DIRECT EXPANSION SYSTEMS - Condenser, DX, Evaporative' and the indoor units under 'D305003 FAN COIL UNITS - DX.'

General

One of the biggest areas of confusion in the BRED™ catalog is caused by this component type. It looks at the split system as a 'packaged system'. Make sure to understand the business rules and lessons learned.

Lesson Learned

When capturing a standard split system with a heating source (like a furnace), the outdoor side will be a 'D303002 DIRECT EXPANSION SYSTEMS - Condenser, DX, Evaporative'. Size of the system does not affect the inventory methodology.

When capturing a standard split system with a heating source, the indoor side will typically be inventoried under 'D302002 FURNACES.' Size of the system does not affect the inventory methodology.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
A/C Unit, Split Systems w/ Air Cooled Condenser - 2 TN	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - A/C Unit, Thru-Wall - 1 ton



Typical Application and General Component Guidance:

This component is used to thru-wall A/C units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If a window-style A/C unit is installed in a permanent fashion through a wall, it is to be captured as this component type.

If the window unit is located within a window frame, it is considered temporary and is not to be captured.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
A/C Unit, Thru-Wall - 1 ton	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - Evaporative Cooler - 4215 CFM



Typical Application and General Component Guidance:

This component is used to inventory evaporative coolers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory the portable swamp coolers that can be wheeled into a room for spot cooling. The unit must be permanently affixed to the building.

General

Typically found in dry climates and is often referred to as a swamp cooler.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Evaporative Cooler - 4215 CFM	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - Heat Pump Package Condenser/Evaporator/Air Handler - 3 TN



Typical Application and General Component Guidance:

This component is used to inventory packaged heat pump HVAC systems.

Lessons Learned/Business Rules/General Comments

Business Rule

As a general rule, if the packaged unit is a heat pump and is under 10 tons then 'Heat Pump Package Condenser/Evaporator/Air Handler - X TN' should be used. For larger units there are other component types available.

Lesson Learned

There is often confusion between the 'Heat Pump Package Condenser/Evaporator/Air Handler' and the other component types available under 'D305006 PACKAGE UNITS.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Heat Pump Package Condenser/Evaporator/Air Handler - 3 TN	Yes	Yes	Yes	No	No	15	EA

D305006 PACKAGE UNITS - Heat Pump Water Source Single Package - 3 TN



Typical Application and General Component Guidance:

This component is used to inventory water source heat pumps.

Lessons Learned/Business Rules/General Comments

General

This component type is commonly associated with geothermal systems.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Heat Pump Water Source Single Package - 3 TN	Yes	Yes	Yes	No	No	15	EA

D305006 PACKAGE UNITS - Heat Pump, Thru-Wall - 1 ton



Typical Application and General Component Guidance:

This component is used to inventory thru-wall heat pump units. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If a window heat pump unit is installed in a permanent fashion through a wall, it is to be captured as this component type.

If the window unit is located within a window frame, it is considered temporary and is not to be captured.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Heat Pump, Thru-Wall - 1 ton	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - Packaged A/C, Air Cooled, Elec Heat - 5 ton



Typical Application and General Component Guidance:

This component is used to inventory packaged air handlers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Due to the number of areas in the catalog where air handlers can be captured, it is very important for accurate section details to be populated. Accurate 'ID Number' and 'Location' will allow follow-on assessments to located the component.

There are many packaged selections available under 'D305006 PACKAGE UNITS'. Assessor should select the most correct component type. Note in Section Details the location (ground/roof mounted).

Lesson Learned

The catalog often causes confusion because of other air handler unit selections in 'D304008 AIR HANDLING UNITS'. A good rule of thumb is to use 'D304008 AIR HANDLING UNITS' for indoor units and 'D305006 PACKAGED UNITS' for outdoor units.

There is confusion in the D305006 material type because 'Packaged A/C' units are often located on the roof and there is a 'Rooftop' Component type as well. The 'Packaged A/C' often has more accurate selections. Use the most accurate selection available.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Packaged A/C, Air Cooled, Elec Heat - 5 ton	Yes	Yes	Yes	No	No	20	EA

D305006 PACKAGE UNITS - Rooftop Unit - 5 ton

Typical Application and General Component Guidance:

This component is used to inventory rooftop air handling units. Select the correct type and size (round up to nearest size if required).



Lessons Learned/Business Rules/General Comments

Business Rule

A rooftop unit can be selected even if the unit is not located on the roof. Sometimes these units are ground mounted and are ducted into a space. Clarify the location in the Section Details 'location' field.

There are many packaged selections available under 'D305006 PACKAGE UNITS' in addition to 'Rooftop Unit'. Assessor should select the most correct component type. Note in Section Details the location (ground/roof mounted).

Lesson Learned

The catalog often causes confusion because of other rooftop unit selections in: 1) 'D303002 DIRECT EXPANSION SYSTEMS - Rooftop Air Conditioning Unit' (out of scope) and 2) 'D304008 AIR HANDLING UNITS - Rooftop' (hardly ever used).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Rooftop Unit - 5 ton	Yes	Yes	Yes	No	No	20	EA

D306001 HVAC CONTROLS - General



Typical Application and General Component Guidance:

This component is used to inventory variable frequency drives (VFDs).

Lessons Learned/Business Rules/General Comments

Business Rule

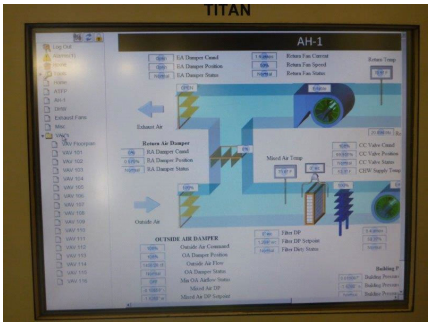
Do not section by individual VFD. Combine into one component section unless there is a difference in age and condition. All standard sectioning rules apply.

Indicate size (if found) on the capacity field in the section details. If not listed the HP size of the motor the VFD is controlling can be used as this value. If there are multiple VFDs add multiple section details to the section.

This component type is only used to inventory VFDs. For Direct Digital Controls (DDC) systems use 'D306002 ELECTRONIC CONTROLS - General'

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	20	EA

D306002 ELECTRONIC CONTROLS - General



Typical Application and General Component Guidance:

This component is used to inventory HVAC controls.

Lessons Learned/Business Rules/General Comments

Business Rule

The average cost of controls per SF is estimated at $3/SF. Assessors should use the following formula to derive the EA value: (Building SF * 3) / (BUILDER Cost). The current BUILDER cost is $1200/EA. Verify this value at the start of the project.

General

Buildings with Direct Digital Control (DDC) electronic controls are hard to inventory because the number of points is hardly ever known. An assessor may find a control drawing in the mechanical room.

Lesson Learned

Assessors must use judgment when using the standard formula. A large warehouse will have much less electronic controls than a large office building. Assessors can slide the average cost per SF up/down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	10	EA

D306004 INSTRUMENT AIR COMPRESSORS - General



Typical Application and General Component Guidance:

This component is used to inventory air compressors dedicated to HVAC controls.

Lessons Learned/Business Rules/General Comments

Business Rule

This component type is NOT used to capture air compressors in other applications other than HVAC systems such as 1) Maintenance garages, 2) Gas stations, and 3) Dry-type fire suppression system charge.

General

In older buildings pneumatic controls may be present and this is where this component type should be used. Often, this is used to capture items that should be captured elsewhere in the catalog due to having 'air compressor' in the title.

Lesson Learned

Large air compressors to power pneumatic devices are very common in maintenance shops. If 'E103004 AUTOMOTIVE SHOP EQUIPMENT' is in scope, that is where these compressors would be captured. Do not use D306004.

Note that if a dry pipe D40 system is present, there is often an air compressor to charge the system. Use 'D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Air compressor' to capture this item.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	25	EA

D309090 OTHER SPECIAL MECHANICAL SYSTEMS - Ventilation/Heat Recovery System



Typical Application and General Component Guidance:

This component is used to inventory heat recovery systems.

Lessons Learned/Business Rules/General Comments

Business Rule

This is used to inventory all types of energy recovery devices such as enthalpy wheels, fixed plate, and heat pipe. Assessor should indicate the appropriate type in the 'equipment type' section detail field.

Lesson Learned

The photo shows a small residential style heat recovery system. These systems can range a great deal in size. Assessors should look for 4 ducts heading to one unit as an indicator that a heat recovery system may be present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Ventilation/Heat Recovery System	Yes	Yes	Yes	No	No	20	EA

Complete Component Catalog Breakdown

D30 HVAC

D301001 OIL SUPPLY SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	MBH
Other	No	No	No	No	No	20	MBH
Unknown	No	No	No	No	No	20	MBH

D301002 GAS SUPPLY SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	MBH
Other	No	No	No	No	No	50	MBH
Unknown	No	No	No	No	No	50	MBH
Fuel Storage Tank	No	No	No	No	No	75	EA
Fuel Storage Tank - Fuel Storage Tank, 1000 GAL	Yes	Yes	Yes	No	No	50	EA
Fuel Storage Tank - Fuel Storage Tank, 2500 GAL	Yes	Yes	Yes	No	No	50	EA
Fuel Storage Tank - Fuel Storage Tank, 5000 GAL	Yes	Yes	Yes	No	No	50	EA
Gas Meter	No	No	No	No	No	50	EA

D301003 STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	MBH
Other	No	No	No	No	No	20	MBH
Unknown	No	No	No	No	No	20	MBH

D301004 HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	MBH
Other	No	No	No	No	No	20	MBH
Unknown	No	No	No	No	No	20	MBH

D301005 SOLAR ENERGY SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Charge Controller	Yes	Yes	Yes	No	No	5	EA
Closed Loop, Space/Hot Water Systems	Yes	No	No	No	No	25	EA
PV Module	Yes	No	No	No	No	10	EA
Solar Inverter	Yes	Yes	Yes	No	No	10	EA
Solar Panel - Aluminum Monocrystalline Silicon	Yes	No	No	No	No	25	SF
Solar Panel - Aluminum Polycrystalline Silicon	Yes	No	No	No	No	25	SF
Solar Panel - Thin Film AMORPHOUS	Yes	No	No	No	No	25	SF
Solar Panel - Thin Film Cadmium Telluride	Yes	No	No	No	No	25	SF
Solar Panel - Thin Film Monocrystalline	Yes	No	No	No	No	25	SF
Solar Panel Battery - Gel Acid	Yes	Yes	Yes	No	No	4	EA
Solar Panel Battery - Lead Acid	Yes	Yes	Yes	No	No	4	EA
Solar Panel System	Yes	No	No	No	No	25	KW

D301006 WIND ENERGY SUPPLY SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA

D301007 COAL SUPPLY SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	MBH
Other	No	No	No	No	No	20	MBH
Unknown	No	No	No	No	No	20	MBH

D301090 OTHER ENERGY SUPPLY

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA
Ice Bank	Yes	Yes	Yes	No	No	25	EA
Thermal Storage Tank	Yes	Yes	Yes	No	No	25	EA

D302001 BOILERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	MBH
Other	No	No	No	No	No	30	MBH
Unknown	No	No	No	No	No	30	MBH
Electric, Hot Water	No	No	No	No	No	30	EA
Electric, Hot Water - <22 KW, <78 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 22-45 KW, 78-154 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 45-90 KW, 154-308 MB	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 90-135 KW, 308-460 M	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 135-180 KW, 460-613 M	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 180-253 KW, 613-863 M	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 253-370 KW, 863-1263	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 370-555 KW, 1263-1894	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 555-783 KW, 1894-2672	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 783-1110 KW, 2672-378	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 1110-1710 KW, 3788-583	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 1710-2355 KW, 5836-803	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - 2355-3105 KW, 8036-105	Yes	Yes	Yes	No	No	30	EA
Electric, Hot Water - >3105 KW, >10594 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam	No	No	No	No	No	30	EA
Electric, Steam - 25-48 KW, 92-164 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 48-90 KW, 164-307 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 90-135 KW, 307-461 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - <25 KW, <92 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 135-180 KW, 461-614 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 180-255 KW, 614-870 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 255-405 KW, 870-1382 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 405-615 KW, 1382-2098 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 615-900 KW, 2098-3071 MBH	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 900-1170 KW, 3071-3993 MB	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 1170-1440 KW, 3993-4914 MB	Yes	Yes	Yes	No	No	30	EA

Electric, Steam - 1440-1845 KW, 4914-6295 MB	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - 1845-2205 KW, 6295-7524 MB	Yes	Yes	Yes	No	No	30	EA
Electric, Steam - >2205 KW, >7524 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water	No	No	No	No	No	30	EA
Gas, Hot Water - <150 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 150-250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 250-400 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 400-500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 500-650 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 650-900 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 900-1200 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 1200-1800 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 1800-2500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 2500-3500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 3500-4500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 4500-5500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - 5500-6500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Hot Water - >6500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Pulse	No	No	No	No	No	30	EA
Gas, Pulse - Pulse <100,000 BTU	Yes	Yes	Yes	No	No	30	EA
Gas, Pulse - Pulse >100,000 BTU	Yes	Yes	Yes	No	No	30	EA
Gas, Steam	No	No	No	No	No	30	EA
Gas, Steam - <150 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 150-250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 250-400 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 400-650 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 650-1000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 1000-2000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 2000-3000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 3000-4000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 4000-5000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Steam - 5000-6500 MBH	Yes	Yes	Yes	No	No	30	EA

Gas, Steam - >6500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Water Tube	No	No	No	No	No	30	EA
Gas, Water Tube - Water Tube <1500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Water Tube - Water Tube 1500-2000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Water Tube - Water Tube 2000-2700 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Water Tube - Water Tube 2700-4000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas, Water Tube - Water Tube >4000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Fire Tube	No	No	No	No	No	30	EA
Gas/Oil, Fire Tube - Fire Tube <5,000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Fire Tube - Fire Tube 5,000-7,500	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Fire Tube - Fire Tube 7,500-12,500	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Fire Tube - Fire Tube 12,500-20,000	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Fire Tube - Fire Tube >20,000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water	No	No	No	No	No	30	EA
Gas/Oil, Hot Water - <750 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 750-1,000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 1,000-1,250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 1,250-1,750 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 1,750-2,250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 2,250-2,750 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 2,750-3,500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 3,500-4,250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 4,250-5,000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 5,000-5,750 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 5,750-7,500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 7,500-10,000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - 10,000-12,500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Hot Water - >12,500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam	No	No	No	No	No	30	EA
Gas/Oil, Steam - <1000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 1000-1500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 1500-2250 MBH	Yes	Yes	Yes	No	No	30	EA

Gas/Oil, Steam - 2250-3000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 3000-3500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 3500-4250 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 4250-5000 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 5000-5750 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - 5750-6500 MBH	Yes	Yes	Yes	No	No	30	EA
Gas/Oil, Steam - >6500 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Fire Tube	No	No	No	No	No	30	EA
Oil, Fire Tube - <5000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Fire Tube - 5000-7500 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Fire Tube - 7500-12500 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Fire Tube - 12500-20000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Fire Tube - >20000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW	No	No	No	No	No	30	EA
Oil, HW - <150 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - 150-200 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - 200-700 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - 700-1300 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - 1300-2000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - 2000-3000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, HW - >3000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam	No	No	No	No	No	30	EA
Oil, Steam - <150 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - 150-200 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - 200-700 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - 700-1300 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - 1300-2000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - 2000-3000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Steam - >3000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Water Tube	No	No	No	No	No	30	EA
Oil, Water Tube - <1500 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Water Tube - 1500-2000 MBH	Yes	Yes	Yes	No	No	30	EA

Oil, Water Tube - 2000-2700 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Water Tube - 2700-4000 MBH	Yes	Yes	Yes	No	No	30	EA
Oil, Water Tube - >4000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel	No	No	No	No	No	30	EA
Solid Fuel - Natural Draft, <1500 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 1500-1700 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 1700-2000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 2000-2400 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 2400-2800 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 2800-3300 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 3300-4000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 4000-5000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 5000-6000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 6000-7000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 7000-8000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 8000-10000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 10000-12000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 12000-14000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 14000-16000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, 16000-17500 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Natural Draft, >17500 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 148 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 175-225 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 225-275 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 275-350 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 350-450 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 450-550 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 550-1000 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 1000-1350 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 1350-1600 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 1600-1800 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 1800-1900 MBH	Yes	Yes	Yes	No	No	30	EA

Solid Fuel - Stoker Fired, 1900-2200 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 2200-2500 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 2500-2800 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 2800-3100 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 3100-3400 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 3400-3700 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 3700-3900 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 3900-4100 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 4100-4300 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, 4300-4500 MBH	Yes	Yes	Yes	No	No	30	EA
Solid Fuel - Stoker Fired, >4500 MBH	Yes	Yes	Yes	No	No	30	EA

D302002 FURNACES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	No	No	No	No	No	15	MBH
Unknown	No	No	No	No	No	15	MBH
Electric, 10.2 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 17.1 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 27.3 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 34.1 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 51.6 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 68.3 MBH	Yes	Yes	Yes	No	No	15	EA
Electric, 85.3 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 100 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 125 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 150 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 200 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 300 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 400 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 45 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 60 MBH	Yes	Yes	Yes	No	No	15	EA
Gas, 75 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 134 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 151 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 200 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 300 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 400 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 56 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 84 MBH	Yes	Yes	Yes	No	No	15	EA
Oil, 95 MBH	Yes	Yes	Yes	No	No	15	EA
Solid Fuel	Yes	Yes	Yes	No	No	15	EA

D302003 FUEL-FIRED UNIT HEATERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	MBH
Other	No	No	No	No	No	25	MBH
Unknown	No	No	No	No	No	25	MBH
Gas	No	No	No	No	No	25	EA
Gas - 100 MBH	Yes	Yes	Yes	No	No	25	EA
Gas - 160 MBH	Yes	Yes	Yes	No	No	25	EA
Gas - 20 MBH	Yes	Yes	Yes	No	No	25	EA
Gas - 200 MBH	Yes	Yes	Yes	No	No	30	EA
Gas - 280 MBH	Yes	Yes	Yes	No	No	30	EA
Gas - 320 MBH	Yes	Yes	Yes	No	No	30	EA
Gas - 60 MBH	Yes	Yes	Yes	No	No	30	EA

D302004 AUXILIARY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	MBH
Other	No	No	No	No	No	20	MBH
Unknown	No	No	No	No	No	20	MBH
Air Separator	No	No	No	No	No	20	EA
Air Separator - Air control, air separator, 10" diameter, includes stra	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 12" diameter, includes stra	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 2" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 2-1/2" diameter, includes	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 3" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 4" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 5" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 6" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Air Separator - Air control, air separator, 8" diameter, includes strai	Yes	Yes	Yes	No	No	20	EA
Boiler Feedwater Tank	No	No	No	No	No	20	EA
Boiler Feedwater Tank - Shot chemical feeder, by pass, floor mount,	Yes	Yes	Yes	No	No	20	EA
Boiler Feedwater Tank - Shot chemical feeder, by pass, floor mount,	Yes	Yes	Yes	No	No	30	EA
Boiler Feedwater Tank - Shot chemical feeder, by pass, in-line moun	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater	No	No	No	No	No	30	EA
Chemical Feedwater - 125 PSIG, 1.7 gallon	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 150 lb., 10 gallon, ASME	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 150 lb., 5 gallon, ASME	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 175 PSIG, 12 gallon	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 175 PSIG, 5 gallon	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 300 lb., 10 gallon, ASME	Yes	Yes	Yes	No	No	30	EA
Chemical Feedwater - 300 lb., 5 gallon, ASME	Yes	Yes	Yes	No	No	30	EA
Expansion Tank	No	No	No	No	No	30	EA
Expansion Tank - 1,200 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 100 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 120 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 135 gal	Yes	Yes	Yes	No	No	30	EA

Expansion Tank - 15 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 175 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 2,500 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 220 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 24 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 240 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 30 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 305 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 40 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 400 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 528 gal	Yes	Yes	Yes	No	No	30	EA
Expansion Tank - 60 gal	Yes	Yes	Yes	No	No	20	EA
Expansion Tank - 80 gal	Yes	Yes	Yes	No	No	20	EA

D302005 EQUIPMENT THERMAL INSULATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

D302090 OTHER HEAT GENERATING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Steel Pipe Steam Distribution Service Lateral	No	No	No	No	No	30	LF

D303001 CHILLED WATER SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	TON
Other	No	No	No	No	No	20	TON
Unknown	No	No	No	No	No	20	TON
Chiller, Absorption, Gas, Water Cooled	No	No	No	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 800 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 10 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 100 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 1000 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 200 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 400 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 5 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Gas, Water Cooled - 600 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled	No	No	No	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 750 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 955 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 100 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 1465 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 1660 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 200 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Absorption, Steam, Water Cooled - 420 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Centrifugal, Water Cooled	No	No	No	No	No	20	EA
Chiller, Centrifugal, Water Cooled - 200 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Centrifugal, Water Cooled - 400 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Centrifugal, Water Cooled - 1000 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Centrifugal, Water Cooled - 1500 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled	No	No	No	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 20 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 30 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 40 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 60 TN	Yes	Yes	Yes	No	No	20	EA

Chiller, Reciprocating, Air Cooled - 70 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 80 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 90 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 100 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 110 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 130 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 175 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Air Cooled - 210 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Water Cooled	No	No	No	No	No	20	EA
Chiller, Reciprocating, Water Cooled - 60 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Water Cooled - 100 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Water Cooled - 150 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Reciprocating, Water Cooled - 200 TN	Yes	Yes	Yes	No	No	20	EA
Chiller, Rotary Screw	No	No	No	No	No	20	EA
Chiller, Rotary Screw - 130 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	20	EA
Chiller, Rotary Screw - 150 TN, Water Cooled Screw Liquid Chiller, D	Yes	Yes	Yes	No	No	20	EA
Chiller, Rotary Screw - 160 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	20	EA
Chiller, Rotary Screw - 180 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 200 TN, Water Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 200 TN, Water Cooled Screw Liquid Chiller, D	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 210 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 270 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 291 TN, Water Cooled Screw Liquid Chiller, D	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 320 TN, Air Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 350 TN, Water Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Rotary Screw - 80 TN, Water Cooled Screw Liquid Chiller	Yes	Yes	Yes	No	No	15	EA
Chiller, Scroll	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Fiberglass	No	No	No	No	No	15	EA
Cooling Tower, Fiberglass - 60 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Fiberglass - 125 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Fiberglass - 300 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Fiberglass - 600 TN	Yes	Yes	Yes	No	No	15	EA

Cooling Tower, Fiberglass - 1000 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Fluid Cooler	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Galvanized	No	No	No	No	No	15	EA
Cooling Tower, Galvanized - 60 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Galvanized - 110 TN	Yes	Yes	Yes	No	No	20	EA
Cooling Tower, Galvanized - 300 TN	Yes	Yes	Yes	No	No	20	EA
Cooling Tower, Galvanized - 600 TN	Yes	Yes	Yes	No	No	20	EA
Cooling Tower, Galvanized - 1000 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Stainless Steel	No	No	No	No	No	15	EA
Cooling Tower, Stainless Steel - 60 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Stainless Steel - 110 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Stainless Steel - 300 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Stainless Steel - 600 TN	Yes	Yes	Yes	No	No	15	EA
Cooling Tower, Stainless Steel - 1000 TN	Yes	Yes	Yes	No	No	15	EA

D303002 DIRECT EXPANSION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	TON
Other	No	No	No	No	No	15	TON
Unknown	No	No	No	No	No	15	TON
Condenser, DX, Air Cooled	No	No	No	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 101 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 159 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 228 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 314 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 45 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 471 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 50 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 54 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 59 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 65 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 73 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 81 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 86 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Belt Drive, 88 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 1 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 10 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 105 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 1-1/2 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 118 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 12 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 126 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 136 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 14 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 142 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 16 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 2 ton, R-22	Yes	Yes	Yes	No	No	15	EA

Condenser, DX, Air Cooled - Direct Drive, 21 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 26 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 3 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 30 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 41 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 5 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 52 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 63 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 76 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 8 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 86 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Air Cooled - Direct Drive, 97 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative	No	No	No	No	No	15	EA
Condenser, DX, Evaporative - 10 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 100 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 110 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 125 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 135 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 15 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 150 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 165 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 185 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 20 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 25 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 30 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 40 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 50 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 65 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 80 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Condenser, DX, Evaporative - 90 ton, R-22	Yes	Yes	Yes	No	No	15	EA
Rooftop Air Conditioning Unit	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat	No	No	No	No	No	15	EA

Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 10	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 15	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 20	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 25	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 28	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 30	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 40	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 50	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 70	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 80	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - multizone, electric cool, gas heat, 90	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 1	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 1	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 1	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 1	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 2	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 2	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 2	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 3	No	No	No	No	No	15	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 3	No	No	No	No	No	20	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 4	No	No	No	No	No	20	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 4	No	No	No	No	No	20	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 5	No	No	No	No	No	20	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 6	No	No	No	No	No	20	EA
Rooftop Air Conditioning Unit - single zone, electric cool, gas heat, 7	No	No	No	No	No	20	EA

D303090 OTHER COOLING GENERATING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Refrigeration Compressor	No	No	No	No	No	20	EA

D304001 AIR DISTRIBUTION, HEATING & COOLING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Dehumidifier	No	No	No	No	No	20	EA
Dehumidifier - 1.5 lb./Hr., 50 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 1060 to 1375 lb./Hr., 40,000 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 120 to 155 lb./Hr., 4500 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 16 to 20 lb./Hr., 600 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 240 to 310 lb./Hr., 9000 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 3 lb./Hr., 150 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 30 to 40 lb./Hr., 1125 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 400 to 515 lb./Hr., 15,000 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 530 to 690 lb./Hr., 20,000 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 6 lb./Hr., 150 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 60 to 75 lb./Hr., 2250 CFM	Yes	Yes	Yes	No	No	20	EA
Dehumidifier - 800 to 1030 lb./Hr., 30,000 CFM	Yes	Yes	Yes	No	No	20	EA
Ductwork	Yes	No	No	No	No	20	LF
Ductwork - Metal Ductwork, 10" Diameter (80 SQ IN)	No	No	No	No	No	20	LF
Ductwork - Metal Ductwork, 12" Diameter (120 SQ IN)	No	No	No	No	No	15	LF
Ductwork - Metal Ductwork, 14" Diameter (160 SQ IN)	No	No	No	No	No	15	LF
Ductwork - Metal Ductwork, 16" Diameter (210 SQ IN)	No	No	No	No	No	15	LF
Ductwork - Metal Ductwork, 18" Diameter (260 SQ IN)	No	No	No	No	No	15	LF
Ductwork - Metal Ductwork, 20" Diameter (320 SQ IN)	No	No	No	No	No	20	LF
Ductwork - Metal Ductwork, 22" Diameter (390 SQ IN)	No	No	No	No	No	20	LF
Ductwork - Metal Ductwork, 24" Diameter (460 SQ IN)	No	No	No	No	No	20	LF
Ductwork - Metal Ductwork, 30" Diameter (710 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Metal Ductwork, 36" Diameter (1020 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Metal Ductwork, 4" Diameter (15 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Metal Ductwork, 5" Diameter (20 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Metal Ductwork, 6" Diameter (30 SQ IN)	No	No	No	No	No	35	LF

Ductwork - Metal Ductwork, 7" Diameter (40 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Metal Ductwork, 8" Diameter (60 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Non-Metal Ductwork, 10" Diameter (80 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Non-Metal Ductwork, 12" Diameter (120 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Non-Metal Ductwork, 18" Diameter (260 SQ IN)	No	No	No	No	No	35	LF
Ductwork - Non-Metal Ductwork, 24" Diameter (460 SQ IN)	No	No	No	No	No	10	LF
Ductwork - Non-Metal Ductwork, 4" Diameter (15 SQ IN)	No	No	No	No	No	10	LF
Ductwork - Non-Metal Ductwork, 6" Diameter (30 SQ IN)	No	No	No	No	No	10	LF
Ductwork - Non-Metal Ductwork, 8" Diameter (60 SQ IN)	No	No	No	No	No	10	LF
Fire Dampers	No	No	No	No	No	10	EA
Humidifier	No	No	No	No	No	10	EA
Humidifier - 100 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 11 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 150 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 200 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 22 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 33 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Humidifier - 50 lb. per hour	Yes	Yes	Yes	No	No	10	EA
Smoke Vents	No	No	No	No	No	40	EA
VAV Terminal	No	No	No	No	No	40	EA
VAV Terminal - 1000 CFM, Cooling Only	Yes	No	No	No	No	40	EA
VAV Terminal - 1000 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA
VAV Terminal - 1250 CFM, Cooling Only	No	No	No	No	No	40	EA
VAV Terminal - 1250 CFM, Hot Water Reheat	No	No	No	No	No	40	EA
VAV Terminal - 1500 CFM, Cooling Only	Yes	No	No	No	No	40	EA
VAV Terminal - 1500 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA
VAV Terminal - 200 CFM, Cooling Only	No	No	No	No	No	40	EA
VAV Terminal - 200 CFM, Hot Water Reheat	No	No	No	No	No	40	EA
VAV Terminal - 2000 CFM, Cooling Only	Yes	No	No	No	No	40	EA
VAV Terminal - 2000 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA
VAV Terminal - 400 CFM, Cooling Only	Yes	No	No	No	No	40	EA
VAV Terminal - 400 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA

VAV Terminal - 600 CFM, Cooling Only	No	No	No	No	No	40	EA
VAV Terminal - 600 CFM, Hot Water Reheat	No	No	No	No	No	40	EA
VAV Terminal - 800 CFM, Cooling Only	No	No	No	No	No	40	EA
VAV Terminal - 800 CFM, Hot Water Reheat	No	No	No	No	No	40	EA
VAV Terminal, Fan Powered	No	No	No	No	No	40	EA
VAV Terminal, Fan Powered - 1000 CFM, Cooling Only	Yes	No	No	No	No	40	EA
VAV Terminal, Fan Powered - 1000 CFM, Hot Water Reheat	Yes	No	No	No	No	40	EA
VAV Terminal, Fan Powered - 1250 CFM, Cooling Only	No	No	No	No	No	40	EA
VAV Terminal, Fan Powered - 1250 CFM, Hot Water Reheat	No	No	No	No	No	40	EA
VAV Terminal, Fan Powered - 1500 CFM, Cooling Only	Yes	No	No	No	No	20	EA
VAV Terminal, Fan Powered - 1500 CFM, Hot Water Reheat	Yes	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 200 CFM, Cooling Only	No	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 200 CFM, Hot Water Reheat	No	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 2000 CFM, Cooling Only	Yes	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 2000 CFM, Hot Water Reheat	Yes	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 400 CFM, Cooling Only	Yes	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 400 CFM, Hot Water Reheat	Yes	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 600 CFM, Cooling Only	No	No	No	No	No	10	EA
VAV Terminal, Fan Powered - 600 CFM, Hot Water Reheat	No	No	No	No	No	20	EA
VAV Terminal, Fan Powered - 800 CFM, Cooling Only	No	No	No	No	No	30	EA
VAV Terminal, Fan Powered - 800 CFM, Hot Water Reheat	No	No	No	No	No	30	EA

D304002 STEAM DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	LF
Other	No	No	No	No	No	30	MBH
Unknown	No	No	No	No	No	30	MBH

D304003 HOT WATER DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	MBH
Other	No	No	No	No	No	30	MBH
Unknown	No	No	No	No	No	30	MBH
Circulating Pump - 1/2 HP	Yes	Yes	Yes	No	No	30	EA
Circulating Pump - 1/4 HP	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, Double Suction	No	No	No	No	No	30	EA
Circulating Pump, Double Suction - 10" size, 150 HP, to 4000 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, Double Suction - 6" size, 50 HP, to 1200 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, Double Suction - 8" size, 100 HP, to 3000 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, Double Suction - 8" size, 75 HP, to 2500 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, End Suction	No	No	No	No	No	30	EA
Circulating Pump, End Suction - 2-1/2" size, 3 HP, to 150 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, End Suction - 3" size, 5 HP, to 225 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, End Suction - 5" size, 15 HP, to 1000 GPM	Yes	Yes	Yes	No	No	30	EA
Circulating Pump, End Suction - 6" size, 25 HP, to 1550 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Plate Type	No	No	No	No	No	30	EA
Heat Exchanger, Plate Type - 1200 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Plate Type - 1800 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Plate Type - 400 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Plate Type - 800 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Shell & Tube	No	No	No	No	No	30	EA
Heat Exchanger, Shell & Tube - 240 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Shell & Tube - 40 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Shell & Tube - 600 GPM	Yes	Yes	Yes	No	No	30	EA
Heat Exchanger, Shell & Tube - 96 GPM	Yes	Yes	Yes	No	No	30	EA

D304004 CHANGE OVER DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	MBH
Other	No	No	No	No	No	30	MBH
Unknown	No	No	No	No	No	30	MBH

D304005 GLYCOL DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	LF
Other	No	No	No	No	No	30	MBH
Unknown	No	No	No	No	No	30	MBH

D304006 CHILLED WATER DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	30	TON
Other	No	No	No	No	No	30	TON
Unknown	No	No	No	No	No	20	TON
Circulating Pump, Double Suction	No	No	No	No	No	20	EA
Circulating Pump, Double Suction - 10" size, 150 HP, to 4000 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, Double Suction - 6" size, 50 HP, to 1200 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, Double Suction - 8" size, 100 HP, to 3000 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, Double Suction - 8" size, 75 HP, to 2500 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, End Suction	No	No	No	No	No	20	EA
Circulating Pump, End Suction - 2-1/2" size, 3 HP, to 150 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, End Suction - 3" size, 5 HP, to 225 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, End Suction - 4" size, 7-1/2 HP, to 350 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, End Suction - 5" size, 15 HP, to 1000 GPM	Yes	Yes	Yes	No	No	20	EA
Circulating Pump, End Suction - 6" size, 25 HP, to 1550 GPM	Yes	Yes	Yes	No	No	20	EA

D304007 EXHAUST SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Ceiling Vents, Passive	No	No	No	No	No	20	EA
Ceiling Vents, Passive - Passive < 50 CFM	No	No	No	No	No	20	EA
Ceiling Vents, Passive - Passive > 300 CFM	No	No	No	No	No	20	EA
Ceiling Vents, Passive - Passive 110-180 CFM	No	No	No	No	No	20	EA
Ceiling Vents, Passive - Passive 200-300 CFM	No	No	No	No	No	20	EA
Ceiling Vents, Passive - Passive 50-110 CFM	No	No	No	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection	No	No	No	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection - 1000 CFM	Yes	Yes	Yes	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection - 1500 CFM	Yes	Yes	Yes	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection - 3000 CFM	Yes	Yes	Yes	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection - 500 CFM	Yes	Yes	Yes	No	No	20	EA
Commercial/Industrial Vacuum Dust Collection - 5000 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Residential Exhaust	Yes	Yes	Yes	No	No	30	EA
Fan System, Roof Exhaust	Yes	Yes	Yes	No	No	30	EA
Fan System, Roof Exhaust - 13,800 CFM	Yes	Yes	Yes	No	No	30	EA
Fan System, Roof Exhaust - 1500 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 2750 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 3500 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 500 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 5000 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 800 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Roof Exhaust - 8500 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust	No	No	No	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 10,100 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 14,300 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 19,800 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 26,250 CFM	Yes	Yes	Yes	No	No	20	EA

Fan System, Wall Exhaust - Wall Exhaust, 38,500 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 46,000 CFM	Yes	Yes	Yes	No	No	20	EA
Fan System, Wall Exhaust - Wall Exhaust, 51,500 CFM	Yes	Yes	Yes	No	No	10	EA
Fan System, Wall Exhaust - Wall Exhaust, 6175 CFM	Yes	Yes	Yes	No	No	10	EA
Fan System, Wall Exhaust - Wall Exhaust, 7500 CFM	Yes	Yes	Yes	No	No	10	EA
Fume Hood Exhaust System	No	No	No	No	No	20	EA
Fume Hood Exhaust System - 10', 8000 CFM	No	No	No	No	No	20	EA
Fume Hood Exhaust System - 3', 1000 CFM	No	No	No	No	No	20	EA
Fume Hood Exhaust System - 4', 2000 CFM	No	No	No	No	No	20	EA
Fume Hood Exhaust System - 6', 3500 CFM	No	No	No	No	No	20	EA
Fume Hood Exhaust System - 6', 5000 CFM	No	No	No	No	No	20	EA
Garage Exhaust Systems	No	No	No	No	No	10	EA
Garage Exhaust Systems - Dual exhaust, 3" outlets, pair of adjoining	Yes	Yes	Yes	No	No	10	EA
Garage Exhaust Systems - Single exhaust, 3" outlet, 1 bay	Yes	Yes	Yes	No	No	10	EA
Industrial Exhaust System	No	No	No	No	No	10	EA
Industrial Exhaust System - 1000 CFM, 1-1/2 H.P.	Yes	Yes	Yes	No	No	10	EA
Industrial Exhaust System - 12,000 CFM, 30 H.P.	Yes	Yes	Yes	No	No	10	EA
Industrial Exhaust System - 2000 CFM, 3 H.P.	Yes	Yes	Yes	No	No	40	EA
Industrial Exhaust System - 4000 CFM, 7-1/2 H.P.	Yes	Yes	Yes	No	No	20	EA
Industrial Exhaust System - 8000 CFM, 15 H.P.	Yes	Yes	Yes	No	No	20	EA
Kitchen Exhaust/Make-Up Air	No	No	No	No	No	10	EA
Kitchen Exhaust/Make-Up Air - 12,000 CFM	Yes	Yes	Yes	No	No	20	EA
Kitchen Exhaust/Make-Up Air - 16,000 CFM	Yes	Yes	Yes	No	No	10	EA
Kitchen Exhaust/Make-Up Air - 2000 CFM	Yes	Yes	Yes	No	No	20	EA
Kitchen Exhaust/Make-Up Air - 3000 CFM	Yes	Yes	Yes	No	No	10	EA
Kitchen Exhaust/Make-Up Air - 5000 CFM	Yes	Yes	Yes	No	No	20	EA
Kitchen Exhaust/Make-Up Air - 8000 CFM	Yes	Yes	Yes	No	No	20	EA

D304008 AIR HANDLING UNITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	EA
Other	Yes	Yes	Yes	Yes	No	10	EA
Unknown	No	No	No	No	No	10	EA
Central Station	No	No	No	No	No	10	EA
Central Station - 2000 CFM	Yes	Yes	Yes	No	No	10	EA
Central Station - 5000 CFM	Yes	Yes	Yes	No	No	10	EA
Central Station - 5000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Central Station - 10000 CFM	Yes	Yes	Yes	No	No	10	EA
Central Station - 10000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Central Station - 15000 CFM	Yes	Yes	Yes	No	No	10	EA
Central Station - 15000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Central Station - 20000 CFM	Yes	Yes	Yes	No	No	10	EA
Central Station - 20000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Central Station - 30000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Field Fabricated	No	No	No	No	No	10	EA
Field Fabricated - 75000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Field Fabricated - 100000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Field Fabricated - 150000 CFM, VAV	Yes	Yes	Yes	No	No	10	EA
Field Fabricated - 40000 CFM	Yes	Yes	Yes	No	No	10	EA
Field Fabricated - 60000 CFM	Yes	Yes	Yes	No	No	25	EA
Field Fabricated - 75000 CFM	Yes	Yes	Yes	No	No	35	EA
Indoor Modular	No	No	No	No	No	35	EA
Indoor Modular - 10,000 CFM, 25 TN Central AHU	Yes	Yes	Yes	No	No	35	EA
Indoor Modular - 12,000 CFM, 30 TN Central AHU	Yes	Yes	Yes	No	No	35	EA
Indoor Modular - 3000 CFM, 7.5 TN Central AHU	Yes	Yes	Yes	No	No	35	EA
Indoor Modular - 3200 CFM, 8 TN Central AHU	Yes	Yes	Yes	No	No	20	EA
Indoor Modular - 4000 CFM, 10 TN Central AHU	Yes	Yes	Yes	No	No	20	EA
Indoor Modular - 4400 CFM, 11 TN Central AHU	Yes	Yes	Yes	No	No	20	EA
Indoor Modular - 6000 CFM, 15 TN Central AHU	Yes	Yes	Yes	No	No	20	EA
Indoor Modular - 7000 CFM, 17.5 TN Central AHU	Yes	Yes	Yes	No	No	20	EA

Rooftop	No	No	No	No	No	20	EA
Rooftop - 2000 CFM	Yes	Yes	Yes	No	No	20	EA
Rooftop - 5000 CFM	Yes	Yes	Yes	No	No	15	EA
Rooftop - 5000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA
Rooftop - 10000 CFM	Yes	Yes	Yes	No	No	15	EA
Rooftop - 10000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA
Rooftop - 15000 CFM	Yes	Yes	Yes	No	No	15	EA
Rooftop - 15000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA
Rooftop - 20000 CFM	Yes	Yes	Yes	No	No	15	EA
Rooftop - 20000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA
Rooftop - 30000 CFM, VAV	Yes	Yes	Yes	No	No	15	EA

D304090 OTHER DISTRIBUTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	15	EA
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA
2-Pipe Heating/Cooling Distribution Steel Piping - 1 IN	Yes	No	No	No	Yes	30	LF
2-Pipe Heating/Cooling Distribution Steel Piping - 3 IN	Yes	No	No	No	Yes	30	LF
Heating/Cooling Distribution Copper Piping - 1 IN	Yes	No	No	No	Yes	30	LF
Heating/Cooling Distribution Copper Piping - 3 IN	Yes	Yes	No	No	Yes	30	LF

D305001 UNIT VENTILATORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	35	EA
Unknown	No	No	No	No	No	15	EA
Air Curtain	Yes	Yes	Yes	No	No	15	LF
Fan System, Axial	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 10,000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 1300 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 1500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 2500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 3500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 5000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Centrifugal In-Line - 7500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set	No	No	No	No	No	15	EA
Fan System, Utility Set - 10,000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 15,000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 20,000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 2000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 3500 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 5000 CFM	Yes	Yes	Yes	No	No	15	EA
Fan System, Utility Set - 7500 CFM	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit	No	No	No	No	No	15	EA
Make-Up Air Unit - 10,000 CFM, 838 MBH, includes standard contro	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 12,000 CFM, 1005 MBH, includes standard contr	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 14,000 CFM, 1180 MBH, includes standard contr	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 18,000 CFM, 1340 MBH, includes standard contr	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 20,000 CFM, 1675 MBH, includes standard contr	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 2000 CFM, 168 MBH, includes standard controls	Yes	Yes	Yes	No	No	15	EA
Make-Up Air Unit - 24,000 CFM, 2007 MBH, includes standard contr	Yes	Yes	Yes	No	No	30	EA

Make-Up Air Unit - 30,000 CFM, 2510 MBH, includes standard contr	Yes	Yes	Yes	No	No	30	EA
Make-Up Air Unit - 3000 CFM, 252 MBH, includes standard controls	Yes	Yes	Yes	No	No	30	EA
Make-Up Air Unit - 35,000 CFM, 2930 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 40,000 CFM, 3350 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 4000 CFM, 336 MBH, includes standard controls	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 45,000 CFM, 3770 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 50,000 CFM, 4180 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 55,000 CFM, 4600 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 60,000 CFM, 5020 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 6000 CFM, 502 MBH, includes standard controls	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 65,000 CFM, 5435 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 75,000 CFM, 6275 MBH, includes standard contr	Yes	Yes	Yes	No	No	20	EA
Make-Up Air Unit - 8000 CFM, 670 MBH, includes standard controls	Yes	Yes	Yes	No	No	20	EA

D305002 UNIT HEATERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Hydronic	No	No	No	No	No	20	EA
Hydronic - 100 MBH	Yes	Yes	Yes	No	No	20	EA
Hydronic - 150 MBH	Yes	Yes	Yes	No	No	20	EA
Hydronic - 20 MBH	Yes	Yes	Yes	No	No	20	EA
Hydronic - 200 MBH	Yes	Yes	Yes	No	No	20	EA
Hydronic - 300 MBH	Yes	Yes	Yes	No	No	20	EA
Hydronic - 60 MBH	Yes	Yes	Yes	No	No	20	EA
Infrared	No	No	No	No	No	20	EA
Infrared - 105 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 105,000 BTU	Yes	Yes	Yes	No	No	30	EA
Infrared - 119,000 BTU	Yes	Yes	Yes	No	No	30	EA
Infrared - 120 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 13.5 kW, 40,956 BTU	Yes	Yes	Yes	No	No	30	EA
Infrared - 15 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 24 kW, 81,912 BTU	Yes	Yes	Yes	No	No	30	EA
Infrared - 30 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 45 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 50 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 6 kW, 20,478 BTU	Yes	Yes	Yes	No	No	30	EA
Infrared - 60 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 75 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 90 MBH	Yes	Yes	Yes	No	No	30	EA
Infrared - 91,000 BTU	Yes	Yes	Yes	No	No	30	EA

D305003 FAN COIL UNITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	EA
Other	Yes	Yes	Yes	Yes	No	30	EA
Unknown	No	No	No	No	No	30	EA
Cab Mount, Four Pipe	No	No	No	No	No	30	EA
Cab Mount, Four Pipe - 1 ton	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Four Pipe - 1/2 ton	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Four Pipe - 1-1/2 ton	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Four Pipe - 2 ton	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Four Pipe - 3 ton	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Two Pipe	No	No	No	No	No	25	EA
Cab Mount, Two Pipe - 1 ton	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 1 ton, Elec. Heat	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 1/2 ton	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 1/2 ton, Elec. Heat	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 1-1/2 ton	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 1-1/2 ton, Elec. Heat	Yes	Yes	Yes	No	No	30	EA
Cab Mount, Two Pipe - 2 ton	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Two Pipe - 2 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Two Pipe - 3 ton	Yes	Yes	Yes	No	No	25	EA
Cab Mount, Two Pipe - 3 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe	No	No	No	No	No	25	EA
Duct Mount, 2 Pipe - 1 ton	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 1 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 1/2 ton	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 1/2 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 10 ton	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 10 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 1-1/2 ton	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 1-1/2 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 2 ton	Yes	Yes	Yes	No	No	25	EA

Duct Mount, 2 Pipe - 2 ton, Elec. Heat	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 3 ton	Yes	Yes	Yes	No	No	25	EA
Duct Mount, 2 Pipe - 3 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 3-1/2 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 3-1/2 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 4 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 4 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 5 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 5 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 6 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 6 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 7 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 7 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 8 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 2 Pipe - 8 ton, Elec. Heat	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe	No	No	No	No	No	15	EA
Duct Mount, 4 Pipe - 1 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 1/2 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 10 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 1-1/2 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 2 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 3 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 3.5 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 4 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 5 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 6 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 7 ton	Yes	Yes	Yes	No	No	15	EA
Duct Mount, 4 Pipe - 8 ton	Yes	Yes	Yes	No	No	15	EA
DX	No	No	No	No	No	15	EA
DX - 1.5 ton	Yes	Yes	Yes	No	No	15	EA
DX - 10 ton	Yes	Yes	Yes	No	No	15	EA
DX - 11 ton	Yes	Yes	Yes	No	No	15	EA

DX - 15 ton	Yes	Yes	Yes	No	No	15	EA
DX - 2 ton	Yes	Yes	Yes	No	No	15	EA
DX - 2.5 ton	Yes	Yes	Yes	No	No	15	EA
DX - 20 ton	Yes	Yes	Yes	No	No	15	EA
DX - 25 ton	Yes	Yes	Yes	No	No	15	EA
DX - 3 ton	Yes	Yes	Yes	No	No	15	EA
DX - 3.5 ton	Yes	Yes	Yes	No	No	15	EA
DX - 30 ton	Yes	Yes	Yes	No	No	15	EA
DX - 4 ton	Yes	Yes	Yes	No	No	15	EA
DX - 5 ton	Yes	Yes	Yes	No	No	15	EA
DX - 7.5 ton	Yes	Yes	Yes	No	No	15	EA

D305004 FIN TUBE RADIATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	15	LF
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA
Baseboard Heating	No	No	No	No	No	15	EA
Baseboard Heating - 1" Copper Tube	Yes	No	No	No	No	15	LF
Baseboard Heating - 1/2" Copper Tube	Yes	No	No	No	No	15	LF
Baseboard Heating - 10' long	Yes	No	No	No	No	15	EA
Baseboard Heating - 1-1/4" Copper Tube	Yes	No	No	No	No	15	LF
Baseboard Heating - 2' long	Yes	No	No	No	No	15	EA
Baseboard Heating - 3/4" Copper Tube	Yes	No	No	No	No	15	LF
Baseboard Heating - 6' long	Yes	No	No	No	No	15	EA
Baseboard Heating - 8' long	Yes	No	No	No	No	15	EA

D305005 ELECTRIC HEATING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	15	EA
Unknown	No	No	No	No	No	15	EA
208-240 volt, 10 kW	Yes	Yes	Yes	No	No	15	EA
208-240 volt, 15 kW	Yes	Yes	Yes	No	No	15	EA
208-240 volt, 20 kW	Yes	Yes	Yes	No	No	15	EA
208-240 volt, 25 kW	Yes	Yes	Yes	No	No	15	EA
208-240 volt, 5 kW	Yes	Yes	Yes	No	No	15	EA
208-240 volt, 7 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 10 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 13 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 15 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 20 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 25 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 30 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 40 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 5 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 50 kW	Yes	Yes	Yes	No	No	15	EA
480 volt, 7 kW	Yes	Yes	Yes	No	No	15	EA

D305006 PACKAGE UNITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	30	EA
Unknown	No	No	No	No	No	30	EA
A/C Unit, Computer Room	No	No	No	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 10 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 15 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 20 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 23 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 3 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 5 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Air Cooled, 8 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Chilled Water, 10 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Chilled Water, 15 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Chilled Water, 20 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Chilled Water, 23 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Chilled Water, 5 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Chilled Water, 8 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 10 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 15 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 20 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 23 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 3 ton	Yes	Yes	Yes	No	No	25	EA
A/C Unit, Computer Room - Glycol System, 5 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Glycol System, 8 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 15 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 20 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 23 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 3 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 5 ton	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Computer Room - Water Cooled, 8 ton	Yes	Yes	Yes	No	No	30	EA

Complete Component Catalog Breakdown

D30 HVAC

A/C Unit, Package Terminal	No	No	No	No	No	30	EA
A/C Unit, Package Terminal - Fan Coil Air Conditioning Cabinet Mou	Yes	Yes	Yes	No	No	30	EA
A/C Unit, Package Terminal - Fan Coil Air Conditioning Cabinet Mou	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Fan Coil Air Conditioning Cabinet Mou	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Fan Coil Air Conditioning Cabinet Mou	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 12,000 BTUH c	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 15,000 BTUH c	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 18,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 24,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 30,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 36,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 42,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 48,000 BTUH,	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 6,000 BTUH co	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Package Terminal - Packaged Terminal AC, 9,000 BTUH co	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 10 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 100 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 2 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 3 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 35 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 4 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 45 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 5 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 60 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Split Systems w/ Air Cooled Condenser - 75 TN	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Thru-Wall	No	No	No	No	No	20	EA
A/C Unit, Thru-Wall - 1 ton	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Thru-Wall - 1/2 ton	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Thru-Wall - 1-1/2 ton	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Thru-Wall - 2 ton	Yes	Yes	Yes	No	No	20	EA
A/C Unit, Thru-Wall - 3/4 ton	Yes	Yes	Yes	No	No	20	EA

Complete Component Catalog Breakdown

D30 HVAC

A/C Unit, Window	No	No	No	No	No	20	EA
Evaporative Cooler	No	No	No	No	No	20	EA
Evaporative Cooler - 1785 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 2740 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 3235 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 3625 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 4215 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 5255 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 6090 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 8300 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 8360 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 9725 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 11715 CFM	Yes	Yes	Yes	No	No	20	EA
Evaporative Cooler - 14410 CFM	Yes	Yes	Yes	No	No	20	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 1.5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 2 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 2.5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 3 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler - 7.5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Package Condenser/Evaporator/Air Handler -3.5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Water Source Single Package - 1 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Water Source Single Package - 2 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Water Source Single Package - 3 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Water Source Single Package - 5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump Water Source Single Package - 7.5 TN	Yes	Yes	Yes	No	No	15	EA
Heat Pump, Air Source, Roof Top	No	No	No	No	No	20	EA
Heat Pump, Air Source, Roof Top - 10 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Air Source, Roof Top - 20 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Air Source, Roof Top - 30 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Air Source, Roof Top - 40 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Air Source, Roof Top - 50 ton	Yes	Yes	Yes	No	No	20	EA

Heat Pump, Air Source, Roof Top - 60 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal	No	No	No	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal - 1 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal - 1-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal - 2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal - 3 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Duct Mounted, Horizontal - 3-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Thru-Wall	No	No	No	No	No	20	EA
Heat Pump, Thru-Wall - 1 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Thru-Wall - 1/2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Thru-Wall - 1-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Thru-Wall - 2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Thru-Wall - 3/4 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station	No	No	No	No	No	20	EA
Heat Pump, Water Source, Central Station - 10 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station - 20 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station - 30 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station - 40 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station - 5 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Central Station - 50 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Console	No	No	No	No	No	20	EA
Heat Pump, Water Source, Console - 1 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Console - 1-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Console - 2 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Console - 3 ton	Yes	Yes	Yes	No	No	20	EA
Heat Pump, Water Source, Console - 3-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat	No	No	No	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 10 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 20 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 30 ton	Yes	Yes	Yes	No	No	20	EA

Packaged A/C, Air Cooled, Elec Heat - 30 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 40 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 50 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 50 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, Elec Heat - 60 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat	No	No	No	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 10 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 20 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 30 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 30 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 40 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 50 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 50 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Air Cooled, HW Heat - 60 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat	No	No	No	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 10 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 20 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 30 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 30 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 40 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 50 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, Elec Heat - 50 ton, VAV	Yes	Yes	Yes	No	No	20	EA

Packaged A/C, Water Cooled, Elec Heat - 60 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat	No	No	No	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 10 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 20 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 30 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 30 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 40 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 50 ton	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 50 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged A/C, Water Cooled, HW Heat - 60 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System	No	No	No	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 1.5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 100 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 11 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 15 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 2 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 2.5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 25 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 3 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 3.5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 30 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 4 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 5 Ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 50 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 60 ton	Yes	Yes	Yes	No	No	20	EA

Complete Component Catalog Breakdown

D30 HVAC

Packaged DX Refrigerant System - Air Cooled, 7.5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 75 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 8.5 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Air Cooled, 80 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 10 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 100 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 120 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 15 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 20 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 30 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 40 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 5 Ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 60 ton	Yes	Yes	Yes	No	No	20	EA
Packaged DX Refrigerant System - Water Cooled, 80 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit	No	No	No	No	No	20	EA
Rooftop Unit - 12-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 12-1/2 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 18 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 18 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 25 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 25 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 40 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 40 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 5 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 60 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 7-1/2 ton	Yes	Yes	Yes	No	No	20	EA
Rooftop Unit - 80 ton, VAV	Yes	Yes	Yes	No	No	20	EA
Window Unit Air Conditioner - 1 TN	No	No	No	No	No	10	EA

D305090 OTHER TERMINAL & PACKAGE UNITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D306001 HVAC CONTROLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D306002 ELECTRONIC CONTROLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	10	EA
Other	No	No	No	No	No	10	EA
Unknown	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), CFM/transducer	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), duct humidity, +/-	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), duct static pressu	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), duct temperature	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), KW/transducer	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), KWH totalization (	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), space humidity, +	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), space static press	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), space temperatur	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), steam flow (see D	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), steam pressure (s	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), water flow (see Di	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), water pressure dif	No	No	No	No	No	10	EA
analog inputs, sensors (avg. 50' run in 1/2" EMT), water temperatur	No	No	No	No	No	10	EA
analog outputs, (avg. 50' run in 1/2" EMT), electric, excl. control dev	No	No	No	No	No	10	EA
analog outputs, (avg. 50' run in 1/2" EMT), material in MUX	No	No	No	No	No	10	EA
analog outputs, (avg. 50' run in 1/2" EMT), P/I transducer	No	No	No	No	No	10	EA
analog outputs, (avg. 50' run in 1/2" EMT), pneumatic, excl. control	No	No	No	No	No	10	EA
controller MUX panel, 128 point, incl. function boards	No	No	No	No	No	10	EA
controller MUX panel, 48 point, incl. function boards	No	No	No	No	No	10	EA
D.D.C controller (avg. 50' run in conduit), mechanical room, 16 poin	No	No	No	No	No	10	EA
D.D.C controller (avg. 50' run in conduit), mechanical room, 32 poin	No	No	No	No	No	10	EA
D.D.C controller (avg. 50' run in conduit), space, V.A.V terminal box,	No	No	No	No	No	10	EA
status (alarms), digital inputs (avg. 50' run in 1/2" EMT), current sen	No	No	No	No	No	10	EA
status (alarms), digital inputs (avg. 50' run in 1/2" EMT), differential	No	No	No	No	No	10	EA
status (alarms), digital inputs (avg. 50' run in 1/2" EMT), duct high t	No	No	No	No	No	10	EA
status (alarms), digital inputs (avg. 50' run in 1/2" EMT), duct smoke	No	No	No	No	No	10	EA

status (alarms), digital inputs (avg. 50' run in 1/2" EMT), fire	No	No	No	No	No	10	EA
status (alarms), digital inputs (avg. 50' run in 1/2" EMT), freeze	No	No	No	No	No	10	EA
status (alarms), digital output (avg. 50' run in 1/2" EMT), on/off (ma	No	No	No	No	No	10	EA
status (alarms), digital output (avg. 50' run in 1/2" EMT), start/stop	No	No	No	No	No	10	EA

D306003 PNEUMATIC CONTROLS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	10	EA
Other	No	No	No	No	No	10	EA
Unknown	No	No	No	No	No	10	EA
air supply for pneumatic, tank mounted duplex compressor, sterter,	No	No	No	No	No	10	EA
boiler room combustion air, damper to 5 SF, controls	No	No	No	No	No	10	EA
compensated hot water from boiler, valve control, readout & reset	No	No	No	No	No	10	EA
compensated hot water from boiler, valve control, readout & reset	No	No	No	No	No	10	EA
compensated hot water from valve control, readout & reset at pan	No	No	No	No	No	10	EA
fan coil, heating & cooling valves, 4 pipe control system	No	No	No	No	No	10	EA
heat exchanger system controls	No	No	No	No	No	10	EA
heating & ventilating, split system, cooling coil, chilled water, room,	No	No	No	No	No	10	EA
heating & ventilating, split system, cooling tower, fan cycle, damper	No	No	No	No	No	10	EA
heating & ventilating, split system, heating coil, hot water, 3 way va	No	No	No	No	No	10	EA
heating & ventilating, split system, mixed air control, economizer cy	No	No	No	No	No	10	EA
heating & ventilating, split system, mixed air control, enthalpy cycle	No	No	No	No	No	10	EA
multizone control (1 per zone), incl. thermostat, damper motor & r	No	No	No	No	No	10	EA
pneumatic thermostat, incl. controlling room radiator valve	No	No	No	No	No	10	EA
program energy saving optimizer	No	No	No	No	No	10	EA
pump control system	No	No	No	No	No	10	EA
reheat coil control system, excl. coil	No	No	No	No	No	10	EA
static pressure control for air handling unit, incl. pressure sensor, re	No	No	No	No	No	10	EA
unit ventilator, day/night operation, freezestat, ASHRAE, cycle 2	No	No	No	No	No	10	EA
VAV boxes, incl. thermostat, damper motor, reheat coil & tubing	No	No	No	No	No	10	EA

D306004 INSTRUMENT AIR COMPRESSORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	No	No	25	EA
Other	No	No	No	No	No	25	EA
Unknown	No	No	No	No	No	25	EA

D306005 GAS PURGING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D306090 OTHER CONTROLS INSTRUMENTATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	10	EA
Other	No	No	No	No	No	10	EA
Unknown	No	No	No	No	No	10	EA

D307001 WATER SIDE TESTING & BALANCING - HEATING & COO

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D307002 AIR SIDE TESTING & BALANCING - HEATING, COOLING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D307003 HVAC COMMISSIONING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D307090 OTHER SYSTEMS TESTING & BALANCING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D309001 GENERAL CONSTRUCTION ITEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

D309002 REFRIGERATION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	TON
Other	No	No	No	No	No	20	TON
Unknown	No	No	No	No	No	20	TON

D309090 OTHER SPECIAL MECHANICAL SYSTEMS

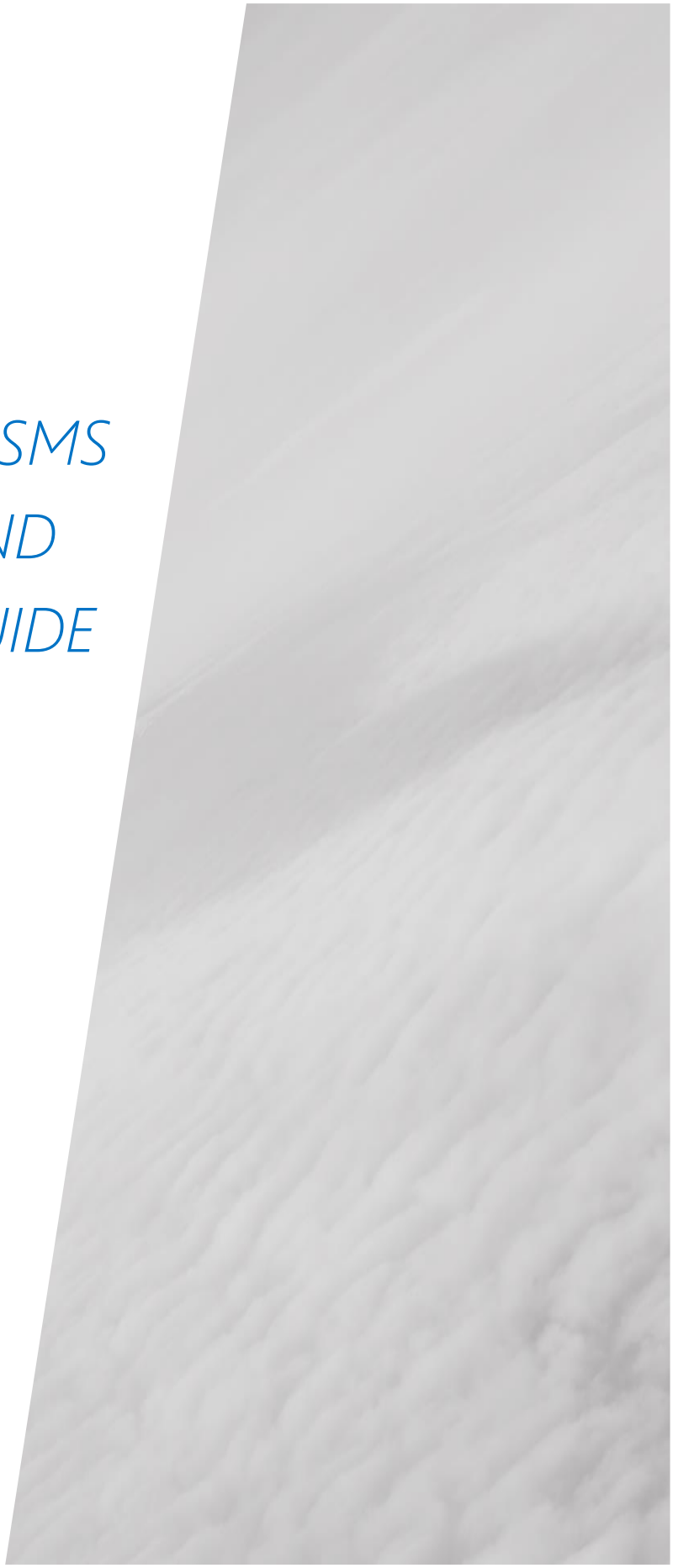
Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	10	EA
Other	No	No	No	No	No	10	EA
Unknown	No	No	No	No	No	10	EA
Radon Management System	Yes	Yes	Yes	No	No	10	EA
Ventilation/Heat Recovery System	Yes	Yes	Yes	No	No	20	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

D40 FIRE PROTECTION



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General Guidance

D40 FIRE PROTECTION

General

This section presents common Uniformat D40 Fire Protection Systems Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

D4010 - Fire Alarm & Detection Systems: Includes fire alarm control panels, fire alarm distribution (SF or EA of a system with a defined number of detectors), strobes, and annunciators.

D4020 - Fire Suppression Water Supply / Equipment: Includes air compressors, backflow preventers, and fire pumps.

D4030 - Standpipes Systems: Includes risers associated with fire sprinkler or suppression systems.

D4040 - Sprinklers: Includes sprinkler piping and various sprinkler system types such as deluge, dry, and preaction.

D4090 - Other Fire Protection Systems: Includes carbon dioxide systems, foam generating equipment, clean agent systems, and hood and duct fire protection.

Fire Protection System components are generally built-in items with static piping and operating or moveable parts that require routine inspection, preventive maintenance, and service. Other than the piping, fire protection system components are typically short-lived components that can show accelerated deterioration if not properly inspected or maintained.

Fire Protection systems include fire alarm and automated or manual systems that release water or other agents to extinguish or suppress the spread of fires and protect the building and contents.

Inspection

Fire protection component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. When component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built into the software to establish the CI.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The following conditions or events can accelerate deterioration: 1) Improper construction or installation, 2) Improper maintenance or service, 3) Corrosion, 4) Obstructions to the system devices, and 5) Equipment damage.

When equipment is found that has been abandoned and is no longer functional it should not be inventoried. If the equipment is abandoned but is still able to be put back in service it should be inventoried and assessed.

When fire protection component sections are visible, they should be assessed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

As-built drawings can be used to identify and quantify components when fire protection systems (such as piping) are not fully visible. If as-built drawings are not available, the assessor may use experience to make an assumption for the piping system and estimate quantities based on similar systems, consultation with local staff, and other reputable online resources.

Fire Protection is viewed as a single system and does not require sectioning by floor. If there are multiple systems in a single building then sectioning by install date would be required.

If as-builts can be located, they should indicate fire protection systems type, material, and quantity.

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

Older buildings may have retrofitted fire protection systems. Do not automatically assume the sprinkler system dates to the year the building was built.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as device and detector counts are to be validated to a +/-15% accuracy. This can be accomplished through random sampling. Large equipment (fire pumps, risers, backflow preventers) should be validated to 100% accuracy level.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, if a pump with no tag is found, it may read '100 GPM ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '100 GPM EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (PUMP-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying separate sections with a different age.

If the FP system is serving an entire building there is no need to section by floor. The system will be installed, maintained, and degrade at the same rate. All equipment should follow the standard equipment sectioning rules.

Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment. This is only applicable to 'D4020 FIRE SUPP WATER SUPPLY / EQUIP' and 'D4030 STANDPIPE SYSTEMS' components.

Rule of Thumb: All fire protection components that require Section Details should be sectioned separately.

Typical section names used to describe the major areas of the building include: FL1, FL2, BASEMENT, MEZZANINE, ROOF, WING 'X,' etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Sectioning of Equipment Components

The business rules stated below are applicable to equipment components.

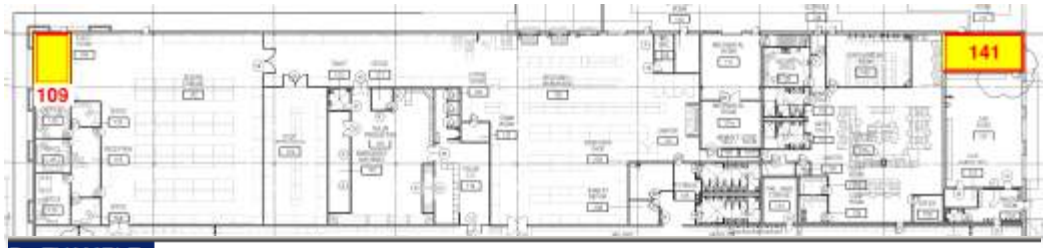
Sectioning of equipment components is of critical importance to provide a data set that is usable by the installation, is able to have Quality Assurance reviews, and is able to be reassessed. To achieve this it is required that equipment be sectioned by area/room.

Case Study: Below is a drawing of a large building that has several electrical rooms. If one section of 125 AMP panels is provided with section name 'N/A', the usability of the data is greatly reduced. If the equipment is sectioned by room (FL1 - RM 109, FL1 - RM 141, FL1 - RM 104, FL1 - RM 153, FL1 - RM 149), follow-on assessments, QA, and the installation can easily identify/reassess components.

The business rule is for Mechanical/Electrical equipment to be sectioned per Mechanical/Electrical room on buildings greater than 7,500 SF. All other equipment that is located throughout the building (such as VAV boxes) follows general sectioning rules.

This also provides the benefit that if a remodel/addition takes place between assessments, it will be apparent what has been added/deleted in THAT room without the assessor having to do a complete walk-through of the building and the deduce what changed (which is a very difficult, if not impossible, task).

If a component only has an quantity of 1, the Section Name can include the equipment ID number. For example, the panel LP1 can have the Section Name: FL1 - RM 109 - LP1.



5 - EXAMPLE

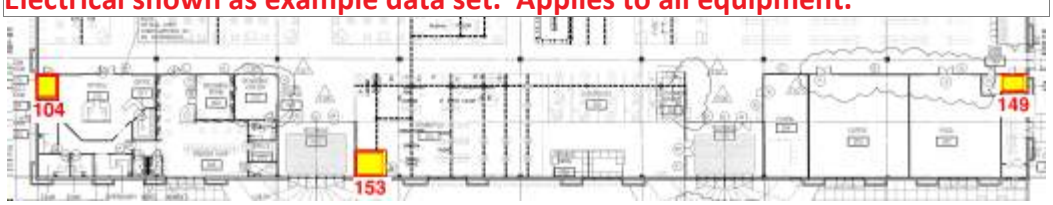
D50 ELECTRICAL

D5010 ELECTRICAL SERVICE & DISTRIBUTION

- FL1 - RM 104 - LP1 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - LP2 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - MP1 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 109 - SG1 - D501004 PANELBOARDS - Switchgear - 2000 Amp
- FL1 - RM 141 - LP3 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 141 - MP2 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 141 - T1 - D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 15 kV
- FL1 - RM 149 - LP4 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 149 - MP3 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 153 - LP5 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 153 - MP4 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB

Example BRED Tree Structure

Electrical shown as example data set. Applies to all equipment.



Example Section Names

FL1 - RM 109
FL1 - RM 141
FL1 - RM 104
FL1 - RM 153
FL1 - RM 149

Note:
The inclusion of the room/area into the section name DOES NOT negate the need to fill in the 'location' field in the Section Details. All general detail population rules must still be followed.

Business Rule:
Section all equipment on the rooftop separately. This equipment will degrade quicker than ground-/wall-mounted equipment of like kind.

D401001 FIRE ALARM DISTRIBUTION - Fire Alarm Control Panel



Typical Application and General Component Guidance:

This component is used to inventory fire alarm control panels.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not provide an inspection. The functionality of the system is verified through other inspections. BUILDER™ will use the inventory year installed and degradation curves built into the software to establish the CI.

Only the main fire alarm control panel requires inventory. In large buildings there may be more than 1 main control panel if there are multiple zones. In this case, there will be multiple control panels inventoried.

Populate section details from the data nameplate information located on the fire control panel.

General

This component captures the main fire alarm control panel. All subpanels and other appurtenances are captured under the 'D401001 FIRE ALARM DISTRIBUTION - General' component type which is a SF (UOM).

Lesson Learned

A typical fire alarm system will have the following component sections: 1) D401001 FIRE ALARM DISTRIBUTION - General (SF), 2) D401001 FIRE ALARM DISTRIBUTION - Fire Alarm Control Panel (EA), and 3) D401002 FIRE ALARM DEVICES - General (EA).

The fire alarm control panel will often be located near the main entrance to the building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fire Alarm Control Panel	Yes	Yes	Yes	No	No	20	EA

D401001 FIRE ALARM DISTRIBUTION - General



Typical Application and General Component Guidance:

This component is used to inventory the fire alarm distribution system.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not provide an inspection. The functionality of the system is verified through other inspections. BUILDER™ will use the inventory year installed and degradation curves built into the software to establish the condition.

Do not section by floor. The total area of the building served by the fire protection system should be used as the quantity. This is viewed as a single system.

Install date may be found on the fire protection control panel.

General

This component captures all the control wiring, subpanels, and other appurtenances downstream of the main fire panel.

Lesson Learned

A typical fire alarm system will have the following component sections: 1) D401001 FIRE ALARM DISTRIBUTION - General (SF), 2) D401001 FIRE ALARM DISTRIBUTION - Fire Alarm Control Panel (EA), and 3) D401002 FIRE ALARM DEVICES - General (EA).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	SF

D401002 FIRE ALARM DEVICES - Annunciator

Typical Application and General Component Guidance:

This component is included for clarification purposes only.



Lessons Learned/Business Rules/General Comments

Business Rule

Annunciators are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Annunciator	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Bell signalling device

Typical Application and General Component Guidance:

This component is included for clarification purposes only.



Lessons Learned/Business Rules/General Comments

Business Rule

Bells are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Bell signalling device	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Detectors with brackets, ion detector (smoke) detector



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Smoke detectors are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Detectors with brackets, ion detector (smoke) detector	**No**	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Detectors with brackets, rate of temperature rise detector



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Temperature detectors are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Detectors with brackets, rate of temperature rise detector	**No**	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Electric mechanical release

Typical Application and General Component Guidance:

This component is included for clarification purposes only.



Lessons Learned/Business Rules/General Comments

Business Rule

Electric mechanical releases are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

If there is a double door and each door has a mechanical release then that should be inventoried as a quantity of 2.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Electric mechanical release	**No**	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - General



Typical Application and General Component Guidance:

This component is used to inventory the fire alarm devices.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not section by floor. The total number of devices served by the fire protection system should be used as the quantity. If there are multiple main fire alarm panels then multiple device sections would be used.

The following should be inventoried: 1) Annunciators, 2) Bell signaling devices, 3) Detectors (smoke and temperature detectors), 4) Manual pull stations, 5) Strobes, 6) Strobe/Annunciator Combos, and 7) Electric mechanical releases.

Lesson Learned

A typical fire alarm system will have the following component sections: 1) D401001 FIRE ALARM DISTRIBUTION - General (SF), 2) D401001 FIRE ALARM DISTRIBUTION - Fire Alarm Control Panel (EA), and 3) D401002 FIRE ALARM DEVICES - General (EA).

One section should be used for all the items inventoried unless there is a difference in age or condition. Do not section out by device type (items 1 through 7 above).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA

D401002 FIRE ALARM DEVICES - Manual pull station



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Pull stations are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Manual pull station	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Strobe



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Strobes are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Strobe	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D401002 FIRE ALARM DEVICES - Strobe/Annunciator Combo



Typical Application and General Component Guidance:

This component is included for clarification purposes only.

Lessons Learned/Business Rules/General Comments

Business Rule

Strobe/Annunciator combos are to be counted and added to the sum of the total devices inventoried under 'D401002 FIRE ALARM DEVICES - General.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Strobe/Annunciator Combo	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Air Compressor



Typical Application and General Component Guidance:

This component is used to inventory the air compressor that charges the dry pipe system.

Lessons Learned/Business Rules/General Comments

Business Rule

This is commonly found on dry-pipe systems.

Lesson Learned

Only air compressors directly associated with the fire protection system should be inventoried under this component type. DO NOT inventory HVAC or maintenance air compressors with this component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Compressor	Yes	Yes	Yes	No	No	20	EA

D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Backflow Preventer - 6"



Typical Application and General Component Guidance:

This component is used to inventory the backflow preventer associated with the fire protection system.

Lessons Learned/Business Rules/General Comments

Business Rule

If the backflow preventer is integrated into the fire riser, BOTH the backflow preventer (D402001) and fire riser (D403001) should be inventoried and assessed.

Use pipe size to determine component type selection. If the backflow preventer is larger than 8", the 8" component type should be selected with the actual size noted in the section detail capacity field.

General

May be located on the exterior of a building, climate permitting, or in a mechanical/fire riser room.

Lesson Learned

A typical fire suppression system will have the following component sections: 1) D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Backflow, 2) D403001 STANDPIPE EQUIPMENT & PIPING - Riser, and 3) D404001 SPRINKLERS AND RELEASING DEVICES - type.

There will often be a potable water backflow preventer in the same vicinity as the fire protection backflow preventer. The potable water backflow preventer should be captured under 'D202002 VALVES & HYDRANTS.'

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Backflow Preventer - 6"	Yes	Yes	Yes	No	No	40	EA

D403001 STANDPIPE EQUIPMENT & PIPING - Fire Hose Equipment - Fire pump, diesel, with controller, 6" pump, 140 HP, 1500 GPM, 100 psi



Typical Application and General Component Guidance:

This component is used to inventory diesel-driven fire protection pumps.

Lessons Learned/Business Rules/General Comments

Business Rule

If the diesel tank is separate from the fire pump skid, it should be inventoried under 'D301002 GAS SUPPLY SYSTEM - Fuel Storage Tank.' If the tank is a belly tank, it is considered part of the fire pump assembly and does not need to be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Fire Hose Equipment - Fire pump, diesel, with controller, 6" pu	Yes	Yes	Yes	No	No	20	EA

D403001 STANDPIPE EQUIPMENT & PIPING - Fire Hose Equipment - Fire pump, electric, with controller, 10" pump, 300 HP, 3500 GPM, 1770 RPM



Typical Application and General Component Guidance:

This component is used to inventory the fire pump and other connected appurtenances. Select the correct size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

General

This includes the fire pump, controller, electrical supply, and all other appurtenances associated with the fire pump system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Fire Hose Equipment - Fire pump, electric, with controller, 10"	Yes	Yes	Yes	No	No	20	EA

D403001 STANDPIPE EQUIPMENT & PIPING - Riser - 4" diam



Typical Application and General Component Guidance:

This component is used to inventory the fire riser. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Use pipe size to determine component type selection. If the riser is larger than 8", the 8" component type should be selected with the actual size noted in an inventory comment.

General

The fire riser will typically have its own room or may be located within the mechanical room. On retrofits, it may be in a closet within the building.

Lesson Learned

A typical fire suppression system will have the following component sections: 1) D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Backflow, 2) D403001 STANDPIPE EQUIPMENT & PIPING - Riser, and 3) D404001 SPRINKLERS AND RELEASING DEVICES - type.

The assessor should do a walk around the building and count the Siamese connections, as they indicate a riser. If a riser is hidden, this is a good way to find it.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Riser - 4" diam	Yes	No	No	No	No	20	EA

D404001 SPRINKLERS AND RELEASING DEVICES - Wet Pipe Systems - ordinary hazard



Typical Application and General Component Guidance:

This component is used to inventory the fire protection distribution system.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not provide an inspection. The functionality of the system is verified through other inspections. BUILDER™ will use the inventory year installed and degradation curves built into the software to establish the CI.

If there is a single sprinkler head attached to a domestic water line (commonly found in janitors closets), do not inventory this under D40 Fire Protection. This can be ignored. D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Backflow

Lesson Learned

A typical fire suppression system will have the following component sections: 1) D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT - Backflow, 2) D403001 STANDPIPE EQUIPMENT & PIPING - Riser, and 3) D404001 SPRINKLERS AND RELEASING DEVICES - type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Wet Pipe Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF

D409001 CARBON DIOXIDE SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory carbon monoxide (CO), dioxide (CO2), nitrogen dioxide (NO2), and combustible gas detection systems.

Lessons Learned/Business Rules/General Comments

Business Rule

This is an EA UOM. Count the number of detectors and use that total as the quantity.

General

Typically found in vehicle maintenance shops.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA

D409002 FOAM GENERATING EQUIPMENT - General



Typical Application and General Component Guidance:

This component is used to inventory foam fire suppression systems. This includes the tank (pictured), valves (pictured), piping, and other appurtenances. Pumps are to be captured under D403001.

Lessons Learned/Business Rules/General Comments

Business Rule

A foam generating system consists of many types of components from tanks, pumps, diffusers, valves, etc. This equipment should not be inventoried under other areas in BUILDER™. This component type covers all appurtenances.

The average cost per SF is estimated at $30/SF. Assessors should use the following formula to derive the EA value: (Building SF * 30) / (BUILDER Cost). The current BUILDER cost per SF is $171/EA. Verify this value at the start of the project.

General

Typically found in aircraft hangars.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA

D409003 CLEAN AGENT SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory clean agent fire suppression systems. FM-200 is a common clean agent and is what is in the picture.

Lessons Learned/Business Rules/General Comments

Business Rule

Use 'General' which is a SF UOM. Use the SF of the room served and use that total as the quantity.

General

Typically found in electrical rooms or data centers. A common type of clean agent is FM-200.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	SF

D409004 HOOD & DUCT FIRE PROTECTION - Carbon Dioxide CO2 (includes agent containers, distribution piping and controls)



Typical Application and General Component Guidance:

This component is used to inventory hood and duct fire suppression systems.

Lessons Learned/Business Rules/General Comments

Business Rule

This is an EA UOM. Count the number of systems and use that total as the quantity. There will typically be a chrome box on the wall that will serve 2 hoods (4-6 nozzles). If they are not visible, the assessor can estimate quantity based on experience.

General

Typically found in kitchens.

Lesson Learned

Typically a system will cover an entire bank (2-3 hoods) in a kitchen. If there are 'back to back' hoods, that will typically be 2 separate systems. Tracing the lines to the control boxes can identify the total number of systems present.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Carbon Dioxide CO2 (includes agent containers, distribution pi	Yes	No	No	No	No	20	EA

D401001 FIRE ALARM DISTRIBUTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Control equipment - combination fire alarm and mass notification ,	Yes	No	No	No	Yes	20	SF
Control equipment - fire alarm, addressable	Yes	No	No	No	Yes	20	SF
Control equipment - mass notification , addressable	Yes	No	No	No	Yes	20	SF
Fire Alarm Control Panel	Yes	Yes	Yes	No	No	20	EA
Fire Alarm Control Panel, multizone (4)	No	No	No	No	No	20	EA
Fire Alarm Control Panel, single zone	No	No	No	No	No	20	EA
Fire detection systems, 12 detectors	No	No	No	No	No	20	EA
Fire detection systems, 25 detectors	No	No	No	No	No	20	EA
Fire detection systems, 50 detectors	No	No	No	No	No	20	EA
Fire detection systems, 100 detectors	No	No	No	No	No	20	EA

D401002 FIRE ALARM DEVICES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Annunciator	No	No	No	No	No	20	EA
Battery standby power 10" x 10" x 17"	No	No	No	No	No	20	EA
Bell signalling device	No	No	No	No	No	20	EA
Detectors with brackets, fixed temperature heat detector	No	No	No	No	No	20	EA
Detectors with brackets, ion detector (smoke) detector	No	No	No	No	No	20	EA
Detectors with brackets, rate of temperature rise detector	No	No	No	No	No	20	EA
Electric mechanical release	No	No	No	No	No	20	EA
Manual pull station	No	No	No	No	No	20	EA
Strobe	No	No	No	No	No	20	EA
Strobe/Annunciator Combo	No	No	No	No	No	20	EA

Complete Component Catalog Breakdown

D40 FIRE PROTECTION

D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	LF
Other	No	No	No	No	No	20	LF
Unknown	No	No	No	No	No	20	LF
Air Compressor	Yes	Yes	Yes	No	No	20	EA
Air Dryer	Yes	Yes	Yes	No	No	20	EA
Backflow Preventer	No	No	No	No	No	40	EA
Backflow Preventer - 1"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 1-1/2"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 2"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 3"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 4"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 6"	Yes	Yes	Yes	No	No	40	EA
Backflow Preventer - 8"	Yes	Yes	Yes	No	No	40	EA
Underground non-potable distribution main - fire service approved	No	No	No	No	No	20	LF

D402002 FIRE PUMP

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
100 to 499 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
1000 to 1499 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
1500 to 1999 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
2000 to 2499 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
2500 to 2999 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
3000 and greater GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
4" pump, 30 HP, 500 GPM	Yes	Yes	Yes	No	No	20	EA
5" pump, 100 HP, 1000 GPM	Yes	Yes	Yes	No	No	20	EA
5" pump, 40 HP, 1000 GPM	Yes	Yes	Yes	No	No	20	EA
500 to 999 GPM includes controller and relief devices	Yes	Yes	Yes	No	No	20	EA
Hydraulic transit controls (surge arrestors)	No	No	No	No	No	20	EA
Jockey Pump includes controller and diconnects	Yes	Yes	Yes	No	No	20	EA
Test header, flow meters, recirculation system	No	No	No	No	No	20	EA

D403001 STANDPIPE EQUIPMENT & PIPING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Class I Riser	No	No	No	No	No	20	EA
Class II Riser	No	No	No	No	No	20	EA
Class III Riser	No	No	No	No	No	20	EA
Fire Hose Equipment	No	No	No	No	No	75	LF
Fire Hose Equipment - Fire pump, diesel, with controller, 10" pump,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, diesel, with controller, 6" pump,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, for jockey pump system,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, w/controller, fittings, reli	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, with controller, 10" pum	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, with controller, 4" pump,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, with controller, 5" pump,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, with controller, 5" pump,	Yes	Yes	Yes	No	No	20	EA
Fire Hose Equipment - Fire pump, electric, with controller, 6" pump,	Yes	Yes	Yes	No	No	20	EA
Riser	No	No	No	No	No	20	EA
Riser - 2" diam	Yes	No	No	No	No	20	EA
Riser - 2-1/2" diam	Yes	No	No	No	No	20	EA
Riser - 4" diam	Yes	No	No	No	No	20	EA
Riser - 6" diam	Yes	No	No	No	No	20	EA
Riser - 8" diam	Yes	No	No	No	No	20	EA

D404001 SPRINKLERS AND RELEASING DEVICES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	No	No	No	No	No	50	EA
Unknown	No	No	No	No	No	50	EA
Deluge Systems	No	No	No	No	No	75	SF
Deluge Systems - extra hazard	Yes	No	No	No	Yes	75	SF
Deluge Systems - light hazard	Yes	No	No	No	Yes	75	SF
Deluge Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF
Dry Pipe Systems	No	No	No	No	No	75	SF
Dry Pipe Systems - extra hazard	Yes	No	No	No	Yes	75	SF
Dry Pipe Systems - light hazard	Yes	No	No	No	Yes	75	SF
Dry Pipe Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF
Firecycle Systems	No	No	No	No	No	75	SF
Firecycle Systems - extra hazard	Yes	No	No	No	Yes	75	SF
Firecycle Systems - light hazard	Yes	No	No	No	Yes	75	SF
Firecycle Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF
Preaction Systems	No	No	No	No	No	75	SF
Preaction Systems - extra hazard	Yes	No	No	No	Yes	75	SF
Preaction Systems - light hazard	Yes	No	No	No	Yes	75	SF
Preaction Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF
Sprinkler Piping	No	No	No	No	No	50	LF
Wet Pipe Systems	No	No	No	No	No	75	SF
Wet Pipe Systems - extra hazard	Yes	No	No	No	Yes	75	SF
Wet Pipe Systems - light hazard	Yes	No	No	No	Yes	75	SF
Wet Pipe Systems - ordinary hazard	Yes	No	No	No	Yes	75	SF

D404002 SPRINKLER WATER SUPPLY EQUIPMENT AND PIPING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	23	EA
Other	No	No	No	No	No	23	SF
Unknown	No	No	No	No	No	23	EA

Complete Component Catalog Breakdown

D40 FIRE PROTECTION

D405001 PORTABLE EXTINGUISHERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Dispersion nozzle	No	No	No	No	No	20	EA
Dispersion nozzle, carbon dioxide 3" x 5" dispersion nozzle	No	No	No	No	No	20	EA
Dispersion nozzle, FM200 1-1/2" dispersion nozzle	No	No	No	No	No	20	EA
Extinguisher agent	No	No	No	No	No	20	EA
Extinguisher agent, 200 lb FM200, container	No	No	No	No	No	20	EA
Extinguisher agent, 75 lb carbon dioxide cylinder	No	No	No	No	No	20	EA

D409001 CARBON DIOXIDE SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
High Pressure Carbon Dioxide CO2 (includes agent containers, distri	Yes	No	No	No	No	20	SF
Low Pressure Carbon Dioxide CO2 (includes agent containers, distri	Yes	No	No	No	No	20	LBS

D409002 FOAM GENERATING EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Control Equipment - Fire Suppression System Releasing, addressabl	Yes	Yes	Yes	No	No	20	EA
Foam-water closed head sprinklers system includes concentrate pr	Yes	No	No	No	No	20	SF
Foam-water deluge sprinkler system includes concentrate proporti	Yes	No	No	No	No	20	SF
Low-level (in trench) grate nozzle system includes concentrate prop	Yes	No	No	No	No	20	SF
Low-level high-expansion system includes concentrate proportionin	Yes	No	No	No	No	20	SF
Supplemental (under-aircraft) fixed nozzle system includes concent	Yes	No	No	No	No	20	SF
Supplemental (under-aircraft) oscillating nozzle system includes con	Yes	No	No	No	No	20	SF
Supplemental high-expansion system includes concentrate proporti	Yes	No	No	No	No	20	SF

D409003 CLEAN AGENT SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	SF
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
FM 200, HFC-227ea, CF3CHFCF3 (includes agent containers, distribu	Yes	Yes	Yes	No	No	20	SF
HALON 1301, CBR2F2 (includes agent containers, distribution pipin	Yes	Yes	Yes	No	No	20	SF
Inergen, IG-541, N2, Ar, CO2 (includes agent containers, distributio	Yes	Yes	Yes	No	No	20	SF
Nitrogen, IG 100, N2 (includes agent containers, distribution piping)	Yes	Yes	Yes	No	No	20	SF
NOVEC 1230, FK-5-1-12mmy2, CF3CF2C(O)CF(CF3)2 (includes agent	Yes	Yes	Yes	No	No	20	SF

D409004 HOOD & DUCT FIRE PROTECTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	No	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Carbon Dioxide CO2 (includes agent containers, distribution piping	Yes	No	No	No	No	20	EA
Dry Chemical (includes agent containers, distribution piping and co	Yes	No	No	No	No	20	EA
Water (includes agent containers, distribution piping and controls)	Yes	No	No	No	No	20	EA
Wet Chemical (includes agent containers, distribution piping and co	Yes	No	No	No	No	20	EA

D409090 OTHER SPECIAL FIRE PROTECTION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
High sensitivity smoke detection systems - air sampling / air aspriati	Yes	Yes	Yes	No	No	20	SF
Optical detection system - triple IR (IR3) (inclues detectors, intercon	Yes	Yes	Yes	No	No	20	SF
Optical detection system - UV/IR (inclues detectors, interconnecting	Yes	Yes	Yes	No	No	20	SF

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

D50 ELECTRICAL

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat D50 Electrical Inventory component sections found across installations as a guide for entering into the BUILDER™ or BRED™ software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

D5010 - Electrical Service & Distribution: This subsystem provides for electrical devices that are required to deliver electricity from the primary service and distribute to subpanels or equipment. These components include main transformers, interior distribution transformers, panelboards, safety switches, transfer switches, switchgear, enclosed circuit breakers, and motor control centers.

D5020 - Lighting & Branch Wiring: This subsystem provides for conduit and wiring to circuit panels, lighting and convenience outlets, as well as exit, explosion-proof, interior, exterior and other lighting systems.

D5030 - Communications & Security: This subsystem includes telecommunications, public address, intercom, TV, and security systems. Note: Fire alarm systems formerly included in D5030 are now included in Fire Alarm and Detection Systems (D4010).

D5090 - Other Electrical Systems: This subsystem includes emergency lighting, emergency generators, and uninterruptible power supplies (UPS).

One of the most common problems with electrical systems is that over time building mission, equipment and occupancy change. These changes often require electrical system alterations, additional loads, new or changed circuits, and equipment additions, that can result in overloaded/unbalanced circuits, electrical code/safety issues, damaged components, and outdated electrical as-built drawings. Another common problem is that electrical components such as switchboxes and lighting, installed outdoors in a coastal environment, can deteriorate quickly.

The electrical system of a building distributes and safely energizes building component sections or installed equipment from the primary transformer to the building support functions and systems.

Inspection

Electrical component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Most electrical component sections will be visible. When component sections are not visible inventory may be entered, but no assessment is entered. In this case, BUILDER™ will use the inventory, year installed, and degradation curves built in to the software to establish the CI.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

The following conditions or events can accelerate electrical component deterioration and should be considered by the assessor: 1) Advanced age, 2) Improper construction or installation, 3) Damage or misuse, 4) Improper additional circuits or alterations, 5) Corrosion, 6) Lack of preventative maintenance, and 7) Overloading or power surges.

When electrical component sections are visible, they should be assessed.

When equipment is found that has been abandoned and is no longer functional, it should not be inventoried. If the equipment is abandoned but is still able to be put back in service, it should be inventoried and assessed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

Chandeliers are a component type under 'C103090 OTHER INTERIOR SPECIALTIES' and are often double counted by both the C10 and D50 assessors. Verify that the C10 assessor inventoried the chandelier and do not include it in the lighting count.

Do not inventory individual disconnects associated with building mission or process equipment (e.g. food service equipment, etc.)

Do not inventory portable lights or lamps.

Do not inventory specialty power equipment such as converters, regulators, etc., associated with the building mission or process.

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

In some cases, electrical sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed, if they are not appropriate, the component age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Most electrical components inventoried for buildings are visible. When electrical components are not visible (or an area of the building is not accessible), as-built drawings should be used to identify and quantify the electrical components. If as-built drawings are not available, the assessor may use experience to make an assumption for the electrical component types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

Unit of measure for lighting fixtures refers to number of fixtures, not lamps. In cases where lights are installed in a strip-type fashion (typical in warehouses), the fixtures are still counted individually.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Common safety issues that require a photograph are missing breaker blanks, exposed wiring in lighting, or boxes missing junction covers. These should be notified to the team lead and the safety procedures followed for reporting the finding.

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

All existing quantities for components such as panels, lights, and exist signs are to be validated to a +/-15% accuracy. This can be accomplished through random sampling. Large equipment (generators, switchgear, transformers, etc.) should be validated to 100% accuracy level.

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope, it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, a generator with no tag is found, it may read '500 KW ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '500 KW EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (PNL-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying a separate section with a different age.

Barracks are to be sectioned by floor then by 1) commons and 2) quarters. Commons refers to the common areas (halls, utility rooms, lobby, etc). Quarters refers to the individual living area (dorms). A common section name would be 'FL1 - COMMONS' and 'FL1 - QUARTERS.' Barracks refers to all multi-level housing units for permanent and transient residents. This methodology is applicable only to light fixtures.

Electrical components are always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building you would have 'FL2 EAST' and 'FL2 - WEST'.

For 'D502002 LIGHTING EQUIPMENT' barracks are to be sectioned by floor then by 1) commons and 2) quarters. Commons refers to the common areas (halls, utility rooms, lobby, etc.). Quarters refers to the individual living areas (dorms). A common section name would be 'FL1 - COMMONS.' Barracks refers to all multi-level housing units for permanent or transient residents.

It is required that lights are sectioned by stairwells. The section name 'STAIR' should be used. It is not required to section each stairwell out individually.

Refer to the 'Sectioning: D20,D30,D40,D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Rule of Thumb: All electrical components that require Section Details should be sectioned separately.

Stair lights need to be inventoried as a single component section for the entire stairwell. Do not include as part of the floor light total. If there are multiple stairwells, it is acceptable to combine into one section if they are the same condition.

Typical section names used to describe the major areas of the building include: FL1, FL2, BASEMENT, MEZZANINE, ROOF, WING 'X,' etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Sectioning of Equipment Components

The business rules stated below are applicable to equipment components.

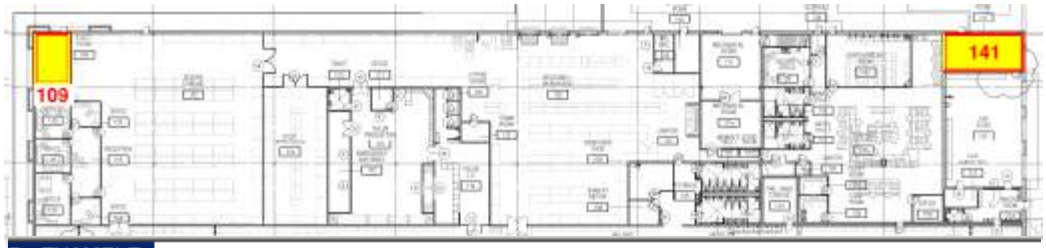
Sectioning of equipment components is of critical importance to provide a data set that is usable by the installation, is able to have Quality Assurance reviews, and is able to be reassessed. To achieve this it is required that equipment be sectioned by area/room.

Case Study: Below is a drawing of a large building that has several electrical rooms. If one section of 125 AMP panels is provided with section name 'N/A', the usability of the data is greatly reduced. If the equipment is sectioned by room (FL1 - RM 109, FL1 - RM 141, FL1 - RM 104, FL1 - RM 153, FL1 - RM 149), follow-on assessments, QA, and the installation can easily identify/reassess components.

The business rule is for Mechanical/Electrical equipment to be sectioned per Mechanical/Electrical room on buildings greater than 7,500 SF. All other equipment that is located throughout the building (such as VAV boxes) follows general sectioning rules.

This also provides the benefit that if a remodel/addition takes place between assessments, it will be apparent what has been added/deleted in THAT room without the assessor having to do a complete walk-through of the building and the deduce what changed (which is a very difficult, if not impossible, task).

If a component only has an quantity of 1, the Section Name can include the equipment ID number. For example, the panel LP1 can have the Section Name: FL1 - RM 109 - LP1.



5 - EXAMPLE

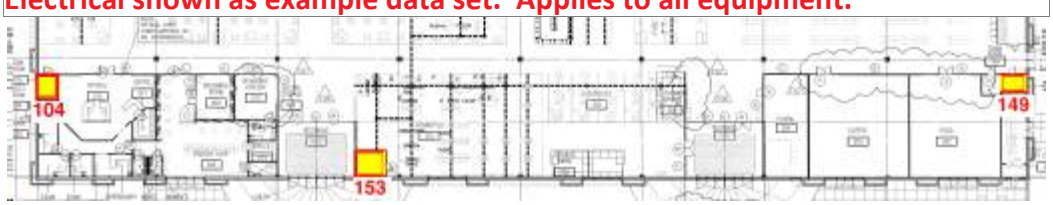
D50 ELECTRICAL

D5010 ELECTRICAL SERVICE & DISTRIBUTION

- FL1 - RM 104 - LP1 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - LP2 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - MP1 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 109 - SG1 - D501004 PANELBOARDS - Switchgear - 2000 Amp
- FL1 - RM 141 - LP3 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 141 - MP2 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 141 - T1 - D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 15 kV
- FL1 - RM 149 - LP4 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 149 - MP3 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 153 - LP5 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 153 - MP4 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB

Example BRED Tree Structure

Electrical shown as example data set. Applies to all equipment.



Example Section Names

FL1 - RM 109
FL1 - RM 141
FL1 - RM 104
FL1 - RM 153
FL1 - RM 149

Note:
The inclusion of the room/area into the section name DOES NOT negate the need to fill in the 'location' field in the Section Details. All general detail population rules must still be followed.

Business Rule:
Section all equipment on the rooftop separately. This equipment will degrade quicker than ground-/wall-mounted equipment of like kind.

D501002 SERVICE ENTRANCE EQUIPMENT - Electrical Service - 3 Phase, 120/208 V, 1200 A



Typical Application and General Component Guidance:

This component is used to inventory exterior service entrance equipment.

Lessons Learned/Business Rules/General Comments

Business Rule

If the component is serving two buildings, inventory under the largest building and provide an inventory comment stating the two buildings it is serving. Consult with government POC on preferred inventory method.

If the equipment is located on the interior of the building, do not use this component type. For interior switchgear use 'D501004 PANELBOARDS - Switchgear - XXX Amp'.

This component is used to capture exterior service entrance equipment that serves only the building being assessed.

General

This equipment will typically be located in large maintenance buildings where there is a lot of power consumption.

Lesson Learned

The equipment will be located in a weather proof enclosure and will typically be locked. If no nameplate is visible on the outside, the assessor should use judgment in selecting the component type size.

Use the amperage as the basis for the component type selection. The voltage will often be wrong so it should be ignored.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Electrical Service - 3 Phase, 120/208 V, 1200 A	Yes	Yes	Yes	No	No	20	EA

D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 480 V primary 120/208 V secondary, 30 kVA, K-13 rated



Typical Application and General Component Guidance:

This component is used to inventory K-Rated transformers.

Lessons Learned/Business Rules/General Comments

Business Rule

If transformers are K-Rated, use the K-13 component type unless the actual K-Rating is known.

Only inventory transformers if they are downstream of the main service entrance. This will typically mean indoor transformers are inventoried and exterior transformers are not inventoried. Large maintenance shops might be an exception to the rule.

Lesson Learned

If an interior transformer is high on a wall or concealed to the point where the nameplate is not accessible, the assessor can estimate the capacity and populate Section Detail fields based on their judgment.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
dry-type, 480 V primary 120/208 V secondary, 30 kVA, K-13 rat	Yes	Yes	Yes	No	No	50	EA

D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 480 V primary 120/208 V secondary, 75 kVA



Typical Application and General Component Guidance:

This component is used to inventory interior distribution transformers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Inventory all interior transformers serving emergency panels. Do not inventory transformers enclosed inside electric panels or those serving process equipment.

Only inventory transformers if they are downstream of the main service entrance. This will typically mean indoor transformers are inventoried and exterior transformers are not inventoried. Large maintenance shops might be an exception to the rule.

General

Interior transformers are typically found in larger buildings.

Lesson Learned

If an interior transformer is high on a wall or concealed to the point where the nameplate is not accessible, the assessor can estimate the capacity and populate Section Detail fields based on their judgment.

Nameplate is typically on front of the transformer.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
dry-type, 480 V primary 120/208 V secondary, 75 kVA	Yes	Yes	Yes	No	No	50	EA

D501004 PANELBOARDS - Main lugs, 50 amp



Typical Application and General Component Guidance:

This component is used to inventory all panels that are under 100 amps.

Lessons Learned/Business Rules/General Comments

Business Rule

Section by 'EXTERIOR' for outside panels and by floor (FL1, FL2, FL3, etc.) for interior panels.

Section Details and inventory photos are not required for this component type. Lump all the panels into one section.

This is the component type to inventory panels between 30 amp and 99 amp.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Main lugs, 50 amp	Yes	No	No	No	No	20	EA

D501004 PANELBOARDS - Main lugs, 125 amp



Typical Application and General Component Guidance:

This component is used to inventory main lug panels that are typically downstream of the main distribution panel.

Lessons Learned/Business Rules/General Comments

Business Rule

If a panel is over 600 amp, it should be inventoried under Switchgear.

If the panel is 30 amp to 99 amp, it should be inventoried under the component type 'Main lugs, 50 amp.'

Inventory as a separate component section if above or equal to 100 amps.

Often on a small building there will be a single panel under 100 amps. In that case the assessor should inventory the panel and provide section details.

Only panelboards WITHOUT a main breaker are inventoried as 'D501004 PANELBOARDS.' If a main breaker is present, it is to be inventoried under 'D501005 ENCLOSED CIRCUIT BREAKERS.'

Panels have a rated capacity on the nameplate. Use the rated capacity on the nameplate for component type and for the Section Details 'Capacity' field.

Section by floor and equipment sectioning guidelines. Always select the most specific component type based on the panel amperage as the first factor and voltage as the second factor.

General

A panelboard is typically a wall mounted electrical cabinet containing a buss bar and circuit breakers for the control and protection of branch circuits from lighting, to HVAC, to plug loads.

Lesson Learned

Assessors should use caution when opening panels as there can be missing breaker covers that expose the connectors/bus bar. This should be brought up as a safety item when found.

If the panel is locked, assessor can use judgment in assuming the size. Often if the panel is downstream of the service entrance panel, the size can be viewed on the service entrance panel breaker as well.

Panels will often have a 'category type' on the equipment tag. This should not be used in the section details for Model/Serial number.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Main lugs, 125 amp	Yes	Yes	Yes	No	No	20	EA

D501004 PANELBOARDS - Safety Switch, 200 Amp



Typical Application and General Component Guidance:

This component is used to inventory safety switches. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If a safety switch is encountered with a live front, the assessor should not approach it.

If the safety switch is 30 amp to 99 amp, it should be inventoried under the component type 'Safety Switch, 30-100 Amp.'

Inventory as a separate component section if above or equal to 100 amps.

Inventory safety switches associated with electrical distribution equipment only. HVAC equipment disconnects are considered part of the HVAC system and are not to be inventoried. The same goes with mission-specific equipment.

The safety switch must be a stand-alone piece of equipment. Do not inventory if it is integral to another piece of equipment.

Lesson Learned

If a safety switch needs to be sectioned out separately due to condition, it is a best practice to include the Equipment ID for the equipment it is serving in the section name so it can be easily located for repair or replacement.

Safety switches can serve HVAC equipment (air handlers, exhaust fans, etc.), process equipment (air compressors, cranes, welders, etc.) and other miscellaneous items.

There is no need to open the safety switch as the capacity can be found on the front label.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Safety Switch, 200 Amp	Yes	Yes	Yes	No	No	20	EA

D501004 PANELBOARDS - Safety Switch, 30-100 Amp



Typical Application and General Component Guidance:

This component is used to inventory small safety switches and disconnects.

Lessons Learned/Business Rules/General Comments

Business Rule

30 amp safety switches are to be inventoried. Switches under 30 amps can be ignored.

Safety switches that are between 30 amp and 99 amp should be combined into one component section to be inventoried and assessed.

Section by 'EXTERIOR' for outside switches and by floor (FL1, FL2, FL3, etc.) for interior switches.

Section Details and inventory photos are not required for this component type. Lump all the switches into one section.

Lesson Learned

If a safety switch needs to be sectioned out separately due to condition, it is a best practice to include the Equipment ID for the equipment it is serving in the section name so it can be easily located for repair or replacement.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Safety Switch, 30-100 Amp	Yes	No	No	No	No	30	EA

D501004 PANELBOARDS - Switchgear - 1200 Amp



Typical Application and General Component Guidance:

This component is used to inventory switchgear and switchboards.
Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not open. Capacity can be found on nameplate on exterior of unit. If no nameplate is available, the assessor should use judgment based on experience to select component type.

If there are multiple, stand-alone switchgear assemblies, each one is a separate component section.

The component type should be selected based on the main breaker size. The quantity should be the number of sections that make up the switchgear. Only one section detail is required for the entire assembly.

General

Normally associated with large buildings and will be typically located in the main electrical room.

Switchgear is usually a floor mounted electrical cabinet or assembly of cabinets containing circuit breakers, switches, and other devices for the protection and control of large electrical loads.

Lesson Learned

The photo would be inventoried as a separate component section with a quantity of 7.

This component type is used to capture both switchgear and switchboards.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Switchgear - 1200 Amp	Yes	Yes	Yes	No	No	50	EA

D501004 PANELBOARDS - Transfer Switch - Automatic, 400 amp



Typical Application and General Component Guidance:

This component is used to inventory transfer switches. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not open transfer switches. They typically will have no model numbers or capacity listed on the inside. The assessor may have to estimate the capacity based on other electrical gear present.

General

Switches maybe located inside or outside. If located inside, they will typically be in the main electrical room. If located outside, they will typically be by the generator or secondary power source.

Lesson Learned

Switches come in both mechanical and automatic varieties. Mechanical will typically have a manual lever that needs to be actuated. Automatic will have more electronic controls and a possible digital readout on the front panel.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Transfer Switch - Automatic, 400 amp	Yes	Yes	Yes	No	No	30	EA

D501005 ENCLOSED CIRCUIT BREAKERS - Main circuit breaker, 120/208 V, 225 amp, NQOD



Typical Application and General Component Guidance:

This component is used to inventory enclosed circuit breakers AND panels with a main breaker. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If a true enclosed circuit breaker is inventoried in the section details, indicate if it is a circuit breaker, buss, or non-fused type.

Panels have a rated capacity on the nameplate. There will also be a main breaker that has an amperage. Often, these two do not match. Use the rated capacity on the nameplate for component type and main breaker size as Section Details 'Capacity' field.

Lesson Learned

A main area of confusion in the D50 catalog is between 'D501004 PANELBOARDS' and 'D501005 ENCLOSED CIRCUIT BREAKERS'. 'D501005 ENCLOSED CIRCUIT BREAKERS' is used to capture single switch circuit breakers AND panelboards that have a main breaker.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Main circuit breaker, 120/208 V, 225 amp, NQOD	Yes	Yes	Yes	No	No	50	EA

D501006 MOTOR CONTROL CENTERS - Motor Control Center - Size 6, 400 HP, 72" high



Typical Application and General Component Guidance:

This component is used to inventory motor control centers. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory a single wall starter as a MCC. This must be a substantial piece of electrical gear with several buckets.

If there are multiple MCCs each one is a separate component section.

MCCs are to be inventoried by number of columns that form the MCC assembly. Only one section detail is required for the entire MCC assembly.

The component type will almost always be the 72" tall type. The quantity should be the number of columns that make up the MCC. The photos would result in a quantity of 9 being entered.

General

Typically found in process-orientated buildings where pumps/fans have large motors that requires starters.

Lesson Learned

It is understood that from an electrical engineering perspective the component types are the size of the buckets. For consistent inventory and CRV calculation MCCs should be inventoried as stated in the business rules.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Motor Control Center - Size 6, 400 HP, 72" high	Yes	Yes	Yes	No	No	40	EA

D502001 BRANCH WIRING - General

Typical Application and General Component Guidance:

This component is used to inventory the wire distribution system. Note: UOM is SF.



Lessons Learned/Business Rules/General Comments

Business Rule

If occupants highlight problem areas that are directly caused by the branch wiring, an inspection can be provided.

Receptacles and switches are not inventoried or assessed. They are part of Branch Wiring. Any issues that are viewed (system-wide or specific) should be brought to the team leads attention for inclusion in the building-wide comments.

Typically will not be visible for an assessment. The UOM is SF. Inventory the wiring and correctly insert the install date. BUILDER™ will degrade the asset from that point or reach the CI.

General

Quantity = Building SF. This captures all the electric service in the building. Do not section by floor. If there is a difference in install dates, then multiple sections would be required.

Lesson Learned

Section name will typically be 'N/A' unless there are new wings or newer remodels of a building where there would be a difference in install date.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	60	SF

D502002 LIGHTING EQUIPMENT - Exit Lighting



Typical Application and General Component Guidance:

This component is used to inventory exit lights.

Lessons Learned/Business Rules/General Comments

Business Rule

Combination emergency (bug eye) and exit lights are very common. These should be inventoried under emergency lights with the Section Name 'EME COMBO'.

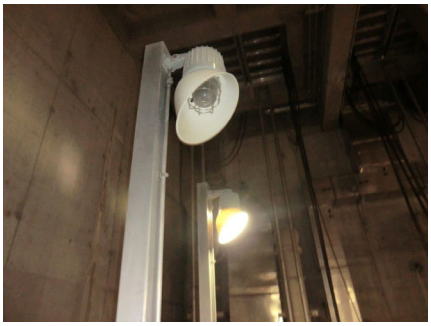
Exits signs may be 1 sided or 2 sided. Both instances should be inventoried as a quantity of 1.

Lesson Learned

Assessors should inventory 'EME Combo' fixtures under 'D509002 EMERGENCY LIGHTING & POWER - Emergency Lighting' since half the fixture is an emergency light. Verify that 1) Exit lights, 2) EME Combos, and 3) Emergency lights are fully understood.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exit Lighting	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Explosion Proof Lighting - Incandescent, ceiling mounted, 200 W



Typical Application and General Component Guidance:

This component is used to inventory explosion proof lighting. Select the correct type. The photo shows the wall mount lights located on a pedestal.

Lessons Learned/Business Rules/General Comments

Business Rule

Incandescent fixtures with screw-in compact fluorescent bulbs are counted as incandescent. Newer fixtures are CFL and have a pin-type connection (not screw-in) that would be counted as a fluorescent. Age is a good indicator to use.

General

Typically found in industrial buildings with explosive gases or munitions. May be located on the inside or exterior of a building.

Lesson Learned

Can be identified by heavy conduit, enclosed fixtures, and switches. Conduit entrance to fixture will be sealed.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Explosion Proof Lighting - Incandescent, ceiling mounted, 200	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Exterior LED Lighting



Typical Application and General Component Guidance:

This component is used to inventory exterior LED lighting.

Lessons Learned/Business Rules/General Comments

Business Rule

Exterior lights should be sectioned per cardinal direction.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior LED Lighting	Yes	No	No	No	No	10	EA

D502002 LIGHTING EQUIPMENT - Exterior Lighting



Typical Application and General Component Guidance:

This component is used to inventory exterior lighting.

Lessons Learned/Business Rules/General Comments

Business Rule

Exterior lights are not sectioned by floor. The cardinal direction should be the first part of the section name.

Exterior lights should be sectioned per cardinal direction.

Fluorescent fixtures are very commonly used in exterior applications and there is no component type under exterior lighting. Use 'Exterior Lighting' with the section name 'NORTH-FL' to inventory these fixtures.

Inventory lights if they are built into stairwells, mounted on banisters, illuminating a ramp, etc. Do not inventory site lighting such as parking light poles or other lighting not associated with the building.

Lesson Learned

It is helpful to section lights by type on the exterior of the building. For instance, section lights in the stair risers as 'STAIR LIGHT', section lights in the soffits as 'SOFFIT LIGHT'. If these are both one section it makes reassessment much harder.

The most common exterior lights are covered by this component type are fluorescent exterior lights. Wall packs have more accurate component types available such as 'Exterior Lighting - Metal halide, wall pack, 175 W'.

There is a component type for exterior incandescent fixtures available and that is: 'Exterior Lighting - Incandescent, wall mounted, 100 W'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Lighting	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Exterior Lighting - Metal halide, wall pack, 175 W



Typical Application and General Component Guidance:

This component is used to inventory exterior lighting. Select the correct type.

Lessons Learned/Business Rules/General Comments

Business Rule

All wall packs should be inventoried under one of the 6 component types with 'wall pack' in the title. Do not use the 'exterior lighting' component type as that is used for exterior CFL fixtures.

Exterior lights are not sectioned by floor.

Exterior lights should be sectioned per cardinal direction.

Wall packs are provided with a high and low wattage selection. For metal halide this is 175W/250W. If the fixture is on the first floor, use the lower wattage selection. If it is on the second (or higher) floor, use the higher wattage selection.

Wall packs are some of the most common exterior lights. Often you can't tell the type unless they are on and there is a blue or yellow hue. If unknown, default to 'Exterior Lighting - Metal halide, wall pack, XXX W'.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Exterior Lighting - Metal halide, wall pack, 175 W	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, FL - 2 Lamp T8



Typical Application and General Component Guidance:

This component is used to inventory fluorescent 2-lamp T8s and T5s.

Lessons Learned/Business Rules/General Comments

Business Rule

If a fixture is higher than 15' above finishes floor, it is assumed to be a HO fixture. In that case it should be inventoried under a T5 HO component type.

T5's that are not a HO fixture should be inventoried as T8.

The driver for FL component type selection is the number of lamps. Whether the fixture is a 2'x2' or a 4'x2' has no bearing on the component type selection.

General

A T8 light is a light with a 1 inch diameter lamp.

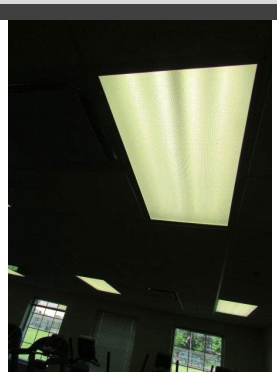
Lesson Learned

If a fixture is concealed behind a lense a photo with a camera will sometimes show the outline of the number of lamps.

Sectioning methodology: T8 = office/schools (low height), T5 = gyms/warehouses (high bay), T12 = uncommon as most have been replaced.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, FL - 2 Lamp T8	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, FL - 4 Lamp T8



Typical Application and General Component Guidance:

This component is used to inventory fluorescent 4-lamp T8 fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should look for seams where the fixtures were joined together. There are instances where 8' fixtures/lamps are used. Assessors should use judgment to determine the fixture length.

Strip lighting: It can be assumed that there are 4' lamps installed. Determine the number of lamps and the total length of strip fixture. Divide the length by 4 to reach the quantity.

T8s are to be used for all common FL light applications such as in offices/barracks/schools. These are typically mounted 7' to 15' above the finished floor.

The driver for FL component type selection is the number of lamps. Whether the fixture is a 2'x2' or a 4'x2' has no bearing on the component type selection.

Lesson Learned

If a fixture is concealed behind a lense a photo with a camera will sometimes show the outline of the number of lamps.

Sectioning methodology: T8 = office/schools (low height), T5 = gyms/warehouses (high bay), T12 = uncommon as most have been replaced.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, FL - 4 Lamp T8	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, FL - 6 Lamp T5, HO



Typical Application and General Component Guidance:

This component is used to inventory fluorescent 6-lamp T5 HO fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

Fixtures that are over 15' in height can be assumed to be a HO fixture. The most common type of HO fixture is a 6-lamp T5.

T5s are commonly used in high bay applications such as gyms/warehouses.

The driver for FL component type selection is the number of lamps. Whether the fixture is a 2'x2' or a 4'x2' has no bearing on the component type selection.

General

A T5 light is a light with a 5/8" diameter lamp.

Lesson Learned

If a fixture is concealed behind a lense a photo with a camera will sometimes show the outline of the number of lamps.

Sectioning methodology: T8 = office/schools (low height), T5 = gyms/warehouses (high bay), T12 = uncommon as most have been replaced.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, FL - 6 Lamp T5, HO	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, Fluorecent



Typical Application and General Component Guidance:

This component is used to inventory fluorescent light fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

If a can light cannot be determined to be a CFL or incandescent the assessor should assume it is an incandescent fixture.

Incandescent fixtures with screw in compact fluorescent bulbs are counted as incandescent. Newer fixtures that are CFL and have a ballast would be counted as a fluorescent. Age is a good indicator to use.

Lesson Learned

Newer can lights that have a pin-type connection will be hard to tell from the standard incandescent. Ask the maintenance staff or local personnel if they have changed (or seen) a bulb and remember what it looked like.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, Fluorecent	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, High Intensity - Metal Halide 400 W (Type B)



Typical Application and General Component Guidance:

This component is used to inventory high intensity metal halide fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

High intensity fluorescent fixtures are becoming more popular on initial installation and retrofits. Use 'Interior Lighting, High Intensity' with the section name 'HIGH BAY CFL' to inventory these fixtures.

General

Typically found in high bay applications. Maintenance shops and gyms are some of the more common places they are used.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, High Intensity - Metal Halide 400 W (Type B)	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, Incandescent



Typical Application and General Component Guidance:

This component is used to inventory incandescent light fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

If a can light cannot be determined to be a CFL or incandescent, the assessor should assume it is an incandescent fixture.

If there is a residential ceiling fan that includes lighting, it should be inventoried as a incandescent fixture. Do not inventory if there is no light present.

Incandescent fixtures with screw in compact fluorescent bulbs are counted as incandescent. Newer fixtures are CFL and have a pin-type connection (not screw-in) that would be counted as a fluorescent. Age is a good indicator to use.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, Incandescent	Yes	No	No	No	No	20	EA

D502002 LIGHTING EQUIPMENT - Interior Lighting, LED



Typical Application and General Component Guidance:

This component is used to inventory interior LED light fixtures.

Lessons Learned/Business Rules/General Comments

General

LEDs are very common on newer buildings and retrofits.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Interior Lighting, LED	Yes	No	No	No	No	20	EA

D502090 OTHER LIGHTING AND BRANCH WIRING - General



Typical Application and General Component Guidance:

This component is used to inventory other types of light fixtures.

Lessons Learned/Business Rules/General Comments

General

As a last resort this can be used to capture any light fixture that does not have a component type elsewhere in the catalog. Provide accurate Section Name and inventory comment to help the next assessor understand what is being inventoried.

Lesson Learned

One use of this was a bug-zapper application where the zapper was located in the vestibule of a building.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA

D503002 PUBLIC ADDRESS SYSTEMS - 12 outlets

Typical Application and General Component Guidance:

This component is used to inventory public address (PA) systems.



Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should only have one component section per PA system. It is understood that the number of outlets may not add up perfectly to the assessor's value.

Larger buildings will have a PA system with speakers. Note the UOM is number of outlets (speakers) in the building. Ask the on-site personnel if there is a PA system in the building and if it is functional.

The system is sized by 6, 12, 25, and 50 outlets. In the event that a building has 75 detectors, a component section of 3 25-outlet systems are added.

Lesson Learned

Assessors will sometimes put in the number of speakers. If the component type of 50 is chosen and the quantity entered is 50, the assessor has just added 2,500 speakers to a building when they thought they were adding 50.

There is often confusion between 'D503002 PUBLIC ADDRESS SYSTEMS' and 'D503003 INTERCOMMUNICATIONS SYSTEMS'. D503002 captures PA systems by number of speakers. D503003 captures intercoms by number of stations.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
12 outlets	Yes	No	No	No	Yes	20	EA

D503003 INTERCOMMUNICATIONS SYSTEMS - 12 stations



Typical Application and General Component Guidance:

This component is used to capture intercommunication systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should only have one component section per intercom system. It is understood that the number of intercoms may not add up perfectly to the assessor's value.

General

Larger buildings will have a intercom speaker with stations. Note the UOM is number of stations in the building. Ask the on-site personnel if there is a intercom system in the building. Intercoms are not as popular as PA systems.

Lesson Learned

Assessors will sometimes put in the number of intercoms. If the component type of 50 is chosen and the quantity entered is 50 the assessor has just added 2,500 intercoms to a building when they thought they were adding 50.

The system is sized by 6, 12, 25, and 50 outlets.

There is often confusion between 'D503002 PUBLIC ADDRESS SYSTEMS' and 'D503003 INTERCOMMUNICATIONS SYSTEMS'. D503002 captures PA systems by number of outlets. D503003 capture, intercoms by number of stations.

Typically located at automatic gates and building entrances.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
12 stations	Yes	No	No	No	Yes	15	EA

D503005 SECURITY SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory security systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should inventory the system and correctly insert the install date. BUILDER™ will degrade the asset from that point to reach the CI.

When a security system is found in a building the component type 'D503005 SECURITY SYSTEMS - General' with a quantity of 1 should be added.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	EA

D503007 CLOCK & PROGRAM SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory synchronized clock systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should inventory the system and correctly insert the install date. BUILDER™ will degrade the asset from that point to reach the CI.

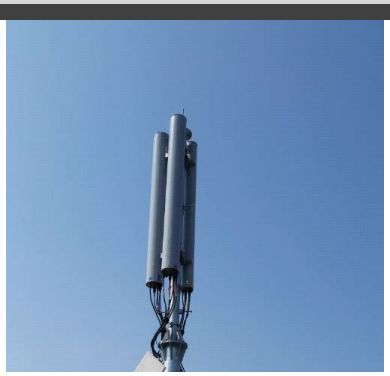
When a clock system is found in a building the component type 'D503007 CLOCK & PROGRAM SYSTEMS - General' with a quantity of 1 should be added.

Lesson Learned

Assessors should look for digital clocks that are synchronized throughout a facility. This system will be commonly found on large/school type buildings.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	EA

D503090 OTHER COMMUNICATIONS & ALARM SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory other communication and alarm systems. The photo shows a large antenna that was mounted on the roof.

Lessons Learned/Business Rules/General Comments

Business Rule

Provide an accurate Section Name and an inventory comment stating what is being inventoried to allow follow on assessments to understand what is being inventoried.

General

Typically used for buildings that have a mass notification system attached to the building. Another use would be a building with a large radio antenna attached. This is hardly ever used, but there are times when it is a useful component type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA

D509002 EMERGENCY LIGHTING & POWER - Emergency Lighting



Typical Application and General Component Guidance:

This component is used to inventory emergency light and emergency/exit light combo fixtures.

Lessons Learned/Business Rules/General Comments

Business Rule

A standard troffer with a battery backup will commonly have a red or green light visible. These lights are NOT counted as an emergency light. These are inventoried under 'D502002 LIGHTING EQUIPMENT.'

If an emergency light (bugeye) is part of an exit sign, it should be inventoried with Section Name 'EME COMBO'.

In buildings with multiple types of emergency lights the assessor should use 'BUGEYE' as the Section Name. In buildings with bugeyes and EME Combo's this will alleviate any confusion.

General

The most common types are bugeyes and EME combos.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Emergency Lighting	Yes	No	No	No	No	20	EA

D509002 EMERGENCY LIGHTING & POWER - Generators - Diesel, 500 kW



Typical Application and General Component Guidance:

This component is used to inventory generators. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

If the diesel tank is separate from the generator, it should be inventoried under 'D301002 GAS SUPPLY SYSTEM - Fuel Storage Tank.' If the tank is a belly tank, it is considered part of the generator assembly and does not need to be inventoried.

If the generator has a remote radiator, it should be inventoried under 'D303090 OTHER COOLING GENERATING SYSTEMS - General.' If there is a division of labor between D30 and D50, this is a coordination item.

The 'Gas' component type covers both NG- and LPG-fired generators. The 'Diesel' type covers diesel as well as any other liquid fuel types (such as gasoline).

General

Note that the component types provide selections by fuel type and capacity.

Typically found on large buildings that have a high importance to base operations. The headquarters building, for instance, will need a secondary power source. Healthcare facilities are another common place to find generators.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Generators - Diesel, 500 kW	Yes	Yes	Yes	No	No	30	EA

D509002 EMERGENCY LIGHTING & POWER - Uninteruptible Power Supply - 15 kVA



Typical Application and General Component Guidance:

This component is used to inventory uninterruptible power supply (UPS) systems. Select the correct type and size (round up to nearest size if required).

Lessons Learned/Business Rules/General Comments

Business Rule

Only inventory if the UPS is physically hard-wired to the building. Do not inventory plug-in type systems or systems that are integral to an IT/panel cabinet.

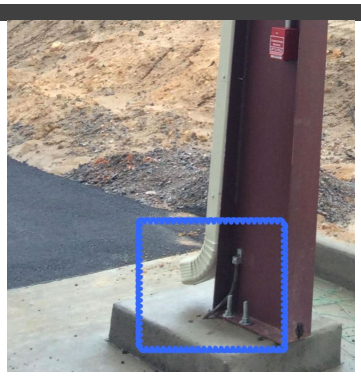
The largest entry of 15 kVA will typically be used. Record the actual or estimated capacity in the Section Details.

General

Typically found in electrical rooms of buildings or data centers, these provide a battery backup so no power is lost between a power failure and the startup of the secondary power source (generator).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Uninteruptible Power Supply - 15 kVA	Yes	Yes	Yes	No	No	25	EA

D509003 GROUNDING SYSTEMS - Other



Typical Application and General Component Guidance:

This component is used to inventory grounding systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should inventory the system and correctly insert the install date. BUILDER™ will degrade the asset from that point to reach the CI.

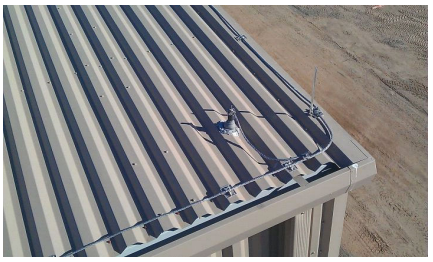
Per building codes, all buildings must be grounded. Use 'D509003 GROUNDING SYSTEMS - Other' to inventory the system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	No	No	Yes	50	SF

D509004 LIGHTNING PROTECTION - Other

Typical Application and General Component Guidance:

This component is used to inventory lightning protection systems.



Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should inventory the system and correctly insert the install date. BUILDER™ will degrade the asset from that point to reach the CI.

If a building has a lightning protection, it should be inventoried using 'D509004 LIGHTNING PROTECTION - Other', which is a SF UOM. The SF quantity should match the B30 quantity, which factors in the slope of the roof.

If 'D509004 LIGHTNING PROTECTION - Other' is used, then a component section should also be added for 'D509003 GROUNDING SYSTEMS - Other' as the two are required to complete the lightning protection system.

General

Lightning protection is commonly found on newer buildings.

Lesson Learned

Lightning protection is an optional system. When it is provided it will be tied to the building grounding system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	No	No	Yes	50	SF

D509006 ENERGY MANAGEMENT CONTROL SYSTEM - General



Typical Application and General Component Guidance:

This component is used to inventory energy management control systems. The photo shows a lighting control panel.

Lessons Learned/Business Rules/General Comments

Business Rule

Assessors should inventory the system and correctly insert the install date. BUILDER™ will degrade the asset from that point to reach the CI.

This component is not used to capture HVAC DDC systems. Those are inventoried under 'D306002 ELECTRONIC CONTROLS - General.'

This component is used to inventory the newer, more complex lighting control systems found in energy efficient buildings. The SF served by the system should be entered as the quantity.

Lesson Learned

Assessors should look for a main lighting control panel. If found, inventory the panel in 'D501004 PANELBOARDS' and include this component type to capture the wiring and logic that make up the system.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	SF

D501001 MAIN TRANSFORMERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	AMP
Other	No	No	No	No	No	20	AMP
Unknown	No	No	No	No	No	20	AMP

D501002 SERVICE ENTRANCE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	AMP
Unknown	No	No	No	No	No	20	AMP
Electrical Service - 3 Phase, 120/208 V, 100 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 1000 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 1200 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 1600 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 200 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 2000 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 400 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 60 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 600 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - 3 Phase, 120/208 V, 800 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - Single Phase, 120/240 V, 100 A	Yes	Yes	Yes	No	No	20	EA
Electrical Service - Single Phase, 120/240 V, 200 A	Yes	Yes	Yes	No	No	20	EA

D501003 INTERIOR DISTRIBUTION TRANSFORMERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	EA
Other	No	No	No	No	No	30	AMP
Unknown	No	No	No	No	No	30	AMP
Buck-boost, 120/240 V primary 12/24 V secondary, 0.10 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 0.25 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 0.50 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 0.75 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 1.0 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 1.5 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 2.0 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 3.0 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 120/240 V primary 12/24 V secondary, 5.0 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 112.5 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 15 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 150 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 225 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 30 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 300 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 45 kVA	Yes	Yes	Yes	No	No	30	EA
Buck-boost, 240 V primary 208/120 V secondary, 75 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 1000 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 112.5 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 150 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 1500 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 2000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 15 kV primary 277/480 volt secondary, 225 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 15 kV primary 277/480 volt secondary, 2500 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 300 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 15 kV primary 277/480 volt secondary, 3000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 15 kV primary 277/480 volt secondary, 500 kVA	Yes	Yes	Yes	No	No	30	EA

dry-type, 15 kV primary 277/480 volt secondary, 750 kVA	Yes	Yes	Yes	No	No	30	EA
dry-type, 240/480 V primary 120/240 V secondary, 1 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 10 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 100 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 15 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 167 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 2 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 25 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 3 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 37.5 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 5 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 50 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 7.5 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 240/480 V primary 120/240 V secondary, 75 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 1000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 112.5 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 112.5 kVA, K-13 rate	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 112.5 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 112.5 kVA, nonventil	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 15 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 15 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 15 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 15 kVA, nonventilate	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 150 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 150 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 150 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 150 kVA, nonventilat	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 225 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 225 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 225 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 225 kVA, nonventilat	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 3 kVA	Yes	Yes	Yes	No	No	50	EA

dry-type, 480 V primary 120/208 V secondary, 30 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 30 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 30 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 30 kVA, nonventilate	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 300 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 300 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 300 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 300 kVA, nonventilat	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 45 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 45 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 45 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 45 kVA, nonventilate	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 500 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 500 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 500 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 6 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 75 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 75 kVA, K-13 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 75 kVA, K-4 rated	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 75 kVA, nonventilate	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 750 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 480 V primary 120/208 V secondary, 9 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 1000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 112.5 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 150 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 1500 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 2000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 225 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 2500 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 300 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 3000 kVA	Yes	Yes	Yes	No	No	50	EA
dry-type, 5 kV primary 277/480 volt secondary, 500 kVA	Yes	Yes	Yes	No	No	50	EA

dry-type, 5 kV primary 277/480 volt secondary, 750 kVA	Yes	Yes	Yes	No	No	50	EA
Isolation, 120/240 V primary 120/208 V secondary, 112.5 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/208 V secondary, 150 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/208 V secondary, 225 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/208 V secondary, 300 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/208 V secondary, 500 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/208 V secondary, 750 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 0.50 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 1 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 10 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 15 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 2 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 25 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 3 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 37.5 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 5 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 7.5 kVA	Yes	Yes	Yes	No	No	30	EA
Isolation, 120/240 V primary 120/240 V secondary, 75 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 1000 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 1500 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 2000 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 225 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 2500 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 300 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 500 kVA	Yes	Yes	Yes	No	No	30	EA
liquid-filled, 5 kV or 15 kV primary, 277/480 V secondary, 750 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 1000 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 150 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 1500 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 2000 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 225 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 2500 kVA	Yes	Yes	Yes	No	No	30	EA

oil-filled, 15 kV primary, 277/480 V secondary, 300 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 3000 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 3750 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 500 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 15 kV primary, 277/480 V secondary, 750 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 10 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 100 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 15 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 25 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 37.5 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 50 kVA	Yes	Yes	Yes	No	No	30	EA
oil-filled, 2400 V primary, 120/240 V secondary, 75 kVA	Yes	Yes	Yes	No	No	30	EA

D501004 PANELBOARDS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	No	No	No	No	No	30	AMP
Unknown	No	No	No	No	No	30	AMP
Main lugs, 50 amp	Yes	No	No	No	No	20	EA
Main lugs, 120/208 V, 100 amp, NQOD	Yes	Yes	Yes	No	No	30	EA
Main lugs, 120/208 V, 225 amp, NQOD	Yes	Yes	Yes	No	No	30	EA
Main lugs, 120/208 V, 225 amp, NQOD, NEMA 7	Yes	Yes	Yes	No	No	30	EA
Main lugs, 120/240 V, 100 amp, NQOD	Yes	Yes	Yes	No	No	30	EA
Main lugs, 120/240 V, 225 amp, NQOD	Yes	Yes	Yes	No	No	30	EA
Main lugs, 125 amp	Yes	Yes	Yes	No	No	20	EA
Main lugs, 200 amp	Yes	Yes	Yes	No	No	20	EA
Main lugs, 277/480 V, 100 amp, NEHB	Yes	Yes	Yes	No	No	30	EA
Main lugs, 277/480 V, 225 amp, NEHB	Yes	Yes	Yes	No	No	30	EA
Main lugs, 277/480 V, 225 amp, NEHB, NEMA 7	Yes	Yes	Yes	No	No	30	EA
Main lugs, 400 amp	Yes	Yes	Yes	No	No	20	EA
Main lugs, 600 amp	Yes	Yes	Yes	No	No	20	EA
Safety Switch	No	No	No	No	No	30	EA
Safety Switch, < 30 Amp	No	No	No	No	No	30	EA
Safety Switch, >100 Amp	Yes	Yes	Yes	No	No	30	EA
Safety Switch, 200 Amp	Yes	Yes	Yes	No	No	20	EA
Safety Switch, 30-100 Amp	Yes	No	No	No	No	30	EA
Safety Switch, 400 Amp	Yes	Yes	Yes	No	No	20	EA
Switchgear	No	No	No	No	No	30	EA
Switchgear - 1200 Amp	Yes	Yes	Yes	No	No	50	EA
Switchgear - 1600 Amp	Yes	Yes	Yes	No	No	50	EA
Switchgear - 2000 Amp	Yes	Yes	Yes	No	No	50	EA
Switchgear - 400 Amp	Yes	Yes	Yes	No	No	50	EA
Switchgear - 600 Amp	Yes	Yes	Yes	No	No	50	EA
Switchgear - 800 Amp	Yes	Yes	Yes	No	No	50	EA
Transfer Switch	No	No	No	No	No	30	EA

Transfer Switch - Automatic, 100 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 1000 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 1200 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 150 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 1600 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 2000 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 225 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 260 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 30 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 400 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 60 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 600 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Automatic, 800 amp	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 100 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 100 Amp, Manual	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 200 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 200 Amp, Manual	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 30 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 30 Amp, Manual	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 400 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 400 Amp, Manual	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 60 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 60 Amp, Manual	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 600 Amp, Electric	Yes	Yes	Yes	No	No	30	EA
Transfer Switch - Non-automatic, 600 Amp, Manual	Yes	Yes	Yes	No	No	30	EA

D501005 ENCLOSED CIRCUIT BREAKERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	AMP
Other	No	No	No	No	No	50	AMP
Unknown	No	No	No	No	No	50	AMP
Main circuit breaker, 120/208 V, 100 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/208 V, 225 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/208 V, 400 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/208 V, 600 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/240 V, 100 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/240 V, 225 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 120/240 V, 400 amp, NQOD	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 277/480 V, 100 amp, NEHB	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 277/480 V, 225 amp, NEHB	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 277/480 V, 400 amp, NEHB	Yes	Yes	Yes	No	No	50	EA
Main circuit breaker, 277/480 V, 600 amp, NEHB	Yes	Yes	Yes	No	No	50	EA

D501006 MOTOR CONTROL CENTERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	40	EA
Other	No	No	No	No	No	40	AMP
Unknown	No	No	No	No	No	40	AMP
Motor Control Center - Size 1, 10 HP, 12" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 2, 25 HP, 18" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 3, 50 HP, 24" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 4, 100 HP, 30" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 4, 75 HP, 24" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 5, 200 HP, 48" high	Yes	Yes	Yes	No	No	40	EA
Motor Control Center - Size 6, 400 HP, 72" high	Yes	Yes	Yes	No	No	40	EA

D501090 OTHER SERVICE AND DISTRIBUTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	25	EA
Other	Yes	Yes	Yes	Yes	No	25	EA
Unknown	No	No	No	No	No	25	EA
Capacitor Bank	No	No	No	No	No	25	EA
Capacitor Bank - 240 V, 0.5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 1.0 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 10 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 15 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 2.5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 20 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 25 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 5.0 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 240 V, 7.5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 1 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 10 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 15 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 2 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 20 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 30 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 40 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 50 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 480 V, 7.5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 1 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 10 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 15 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 2 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 20 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 25 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 35 kVAR	Yes	Yes	Yes	No	No	25	EA

Capacitor Bank - 600 V, 5 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 50 kVAR	Yes	Yes	Yes	No	No	25	EA
Capacitor Bank - 600 V, 7.5 kVAR	Yes	Yes	Yes	No	No	25	EA
Direct Buried Electrical Service Lateral	No	No	No	No	No	30	LF
Ducted Electrical Service Lateral	No	No	No	No	No	30	LF
GFCI Receptacle	No	No	No	No	No	30	EA
Overhead Electrical Service Lateral	No	No	No	No	No	30	LF

D502001 BRANCH WIRING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	60	SF
Other	No	No	No	No	No	60	SF
Unknown	No	No	No	No	No	60	SF

D502002 LIGHTING EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
Exit Lighting	Yes	No	No	No	No	20	EA
Explosion Proof Lighting	No	No	No	No	No	20	EA
Explosion Proof Lighting - Fluorescent, ceiling mounted, 2-40 W, 4' L	Yes	No	No	No	No	20	EA
Explosion Proof Lighting - Fluorescent, ceiling mounted, 3-40 W, 4' L	Yes	No	No	No	No	20	EA
Explosion Proof Lighting - Fluorescent, ceiling mounted, 4-40 W, 4' L	Yes	No	No	No	No	20	EA
Explosion Proof Lighting - High pressure sodium, ceiling, pendent m	Yes	No	No	No	No	20	EA
Explosion Proof Lighting - Incandescent, ceiling mounted, 200 W	Yes	No	No	No	No	20	EA
Explosion Proof Lighting - Metal halide, ceiling, pendent mounted, 2	Yes	No	No	No	No	20	EA
Exterior LED Lighting	Yes	No	No	No	No	10	EA
Exterior Lighting	Yes	No	No	No	No	20	EA
Exterior Lighting - High pressure sodium, wall pack, 150 W	Yes	No	No	No	No	20	EA
Exterior Lighting - High pressure sodium, wall pack, 70 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Incandescent, wall mounted, 100 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Low pressure sodium, wall pack, 35 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Low pressure sodium, wall pack, 55 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Metal halide, wall pack, 175 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Metal halide, wall pack, 250 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Quartz, wall mounted, 1500 W	Yes	No	No	No	No	20	EA
Exterior Lighting - Quartz, wall mounted, 500 W	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 1 Lamp T12	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 1 Lamp T8	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 2 Lamp T12	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 2 Lamp T8	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 3 Lamp T12	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 3 Lamp T8	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 4 Lamp T12	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 4 Lamp T5, HO	Yes	No	No	No	No	20	EA

Interior Lighting, FL - 4 Lamp T8	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 4 Lamp T8, HO	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 6 Lamp T5, HO	Yes	No	No	No	No	20	EA
Interior Lighting, FL - 6 Lamp T8, HO	Yes	No	No	No	No	20	EA
Interior Lighting, Fluorecent	Yes	No	No	No	No	20	EA
Interior Lighting, Fluorecent - Pendent Mounted (Type D)	No	No	No	No	No	20	EA
Interior Lighting, Fluorecent - Recessed Fixture (Type C)	No	No	No	No	No	20	EA
Interior Lighting, Fluorecent - Strip Fixture (Type A)	No	No	No	No	No	20	EA
Interior Lighting, Fluorecent - Surface Mounted (Type B)	No	No	No	No	No	20	EA
Interior Lighting, High Intensity	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - High Pressure Sodium 1000 W (Typ	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - High Pressure Sodium 150 W (Type	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - High Pressure Sodium 400 W (Type	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - Metal Halide 1000 W (Type G)	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - Metal Halide 250 W (Type J)	Yes	No	No	No	No	20	EA
Interior Lighting, High Intensity - Metal Halide 400 W (Type B)	Yes	No	No	No	No	20	EA
Interior Lighting, Incandescent	Yes	No	No	No	No	20	EA
Interior Lighting, Incandescent - Recessed downlight w/baffles 150	No	No	No	No	No	20	EA
Interior Lighting, Incandescent - Recessed PAR-38 flood lamp w/lou	No	No	No	No	No	20	EA
Interior Lighting, Incandescent - Recessed R-40 flood lamp w/flat re	No	No	No	No	No	20	EA
Interior Lighting, Incandescent - Recessed reflector w/flat glass lens	No	No	No	No	No	20	EA
Interior Lighting, LED	Yes	No	No	No	No	20	EA
Interior Rope Light	Yes	No	No	No	No	20	LF

D502090 OTHER LIGHTING AND BRANCH WIRING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA

D503001 TELECOMMUNICATIONS SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Direct Buried Telecommunications Service Lateral	No	No	No	No	No	30	LF
Ducted Telecommunications Service Lateral	No	No	No	No	No	30	LF
Overhead Telecommunications Service Lateral	No	No	No	No	No	30	LF

D503002 PUBLIC ADDRESS SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF
100 outlets	Yes	No	No	No	Yes	20	EA
12 outlets	Yes	No	No	No	Yes	20	EA
30 outlets	Yes	No	No	No	Yes	20	EA
6 outlets	Yes	No	No	No	Yes	20	EA

D503003 INTERCOMMUNICATIONS SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	No	No	No	No	No	15	EA
Unknown	No	No	No	No	No	15	EA
100 stations	Yes	No	No	No	Yes	15	EA
12 stations	Yes	No	No	No	Yes	15	EA
25 stations	Yes	No	No	No	Yes	15	EA
50 stations	Yes	No	No	No	Yes	15	EA
6 stations	Yes	No	No	No	Yes	15	EA

D503004 TELEVISION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Direct Buried Cable Television Service Lateral	No	No	No	No	No	30	LF
Ducted Cable Television Service Lateral	No	No	No	No	No	30	LF
Overhead Cable Television Service Lateral	No	No	No	No	No	30	LF

D503005 SECURITY SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D503006 NURSE CALL SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D503007 CLOCK & PROGRAM SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

D503090 OTHER COMMUNICATIONS & ALARM SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	15	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	15	EA

D509001 GENERAL CONSTRUCTION ITEMS (ELECTRICAL)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	20	SF
Other	**No**	No	No	No	No	20	SF
Unknown	**No**	No	No	No	No	20	SF

D509002 EMERGENCY LIGHTING & POWER

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	15	SF
Emergency Lighting	Yes	No	No	No	No	20	EA
Emergency Lighting - Lead battery, twin sealed beam light	No	No	No	No	No	20	EA
Emergency Lighting - Nickel cadmium battery, twin sealed beam lig	No	No	No	No	No	20	EA
Emergency Lighting - Self-contained, fluorescent lamp pack	No	No	No	No	No	20	EA
Generators	No	No	No	No	No	20	EA
Generators - Diesel, 100 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 1000 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 125 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 150 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 175 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 200 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 250 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 275 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 30 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 300 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 350 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 400 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 50 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 500 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 60 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 600 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 650 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 75 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 750 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 800 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Diesel, 900 kW	Yes	Yes	Yes	No	No	30	EA
Generators - Gas, 100 kW	Yes	Yes	Yes	No	No	20	EA

Generators - Gas, 11.5 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 125 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 185 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 20 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 35 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 60 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 7.5 kW	Yes	Yes	Yes	No	No	20	EA
Generators - Gas, 80 kW	Yes	Yes	Yes	No	No	20	EA
Uninteruptible Power Supply	No	No	No	No	No	15	EA
Uninteruptible Power Supply - 0.35 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 0.5 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 0.75 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 1.0 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 1.5 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 10 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 15 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 2 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 3 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 5 kVA	Yes	Yes	Yes	No	No	25	EA
Uninteruptible Power Supply - 7.5 kVA	Yes	Yes	Yes	No	No	25	EA

D509003 GROUNDING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	Yes	No	No	No	Yes	50	SF
Unknown	No	No	No	No	No	50	SF

D509004 LIGHTNING PROTECTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	Yes	No	No	No	Yes	50	SF
Unknown	No	No	No	No	No	50	SF

D509005 ELECTRIC HEATING

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

D509006 ENERGY MANAGEMENT CONTROL SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	No	No	Yes	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

D509090 OTHER SPECIAL SYSTEMS AND DEVICES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	18	EA
Other	No	No	No	No	No	18	EA
Unknown	No	No	No	No	No	18	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

E10 EQUIPMENT

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

BUILDER™ Safety and Site Preparation Guidance

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common Uniformat E10 Equipment Inventory Component Sections found across installations as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

Inspection

Fire protection component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. When component sections are not visible, no assessment is entered. In this case, BUILDER™ will use the inventory year installed and degradation curves built into the software to establish the CI.

Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See component catalog for items that must be age-based whether visible or non-visible.

When equipment is found that has been abandoned and is no longer functional it should not be inventoried. If the equipment is abandoned but is still able to be put back in service it should be inventoried and assessed.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition or renovation has taken place, check the real property record for year renovated or check local as-built or renovation drawings to help estimate the year installed.

E10 Equipment is primarily used to inventory produce misting systems, loading dock equipment, charging systems for material handling equipment (MHE), balers and compactors.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in the case where there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse should have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See scope of work (SOW) for any photo renaming/deliverable requirements.

The Team Leader is required to take one photo of the front elevation, or a representative elevation view, and attach the photo the building record at the building level. (Required)

Reinspection

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Equipment should be validated to 100% accuracy level.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data for the following fields: ID, Model, Serial Number, Manufacturer, Location, Equipment Type, Capacity, Manufacturer Date, Year Installed, and Control Type for population into section details fields. If information is not available, place 'NA' in the section detail field to indicate it was not available.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place. For example, if a lift with no tag is found, it may read '10 TON ESTIMATED'. Truncating 'estimated' to 'EST' so the example would read '10 TON EST' is acceptable.

If the component has an RPIE ID tag, that exact value (and ONLY that value) should be used in the Section Details 'ID Number' field. If there is no RPIE ID tag present, the regular tag number (PUMP-1) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

The 'Year Installed' field in the Section Details should match the 'Year Installed' field at the Inventory/Section level. Populate the 'Manufacturer Date' field in the Section Details with data found on the component OR default to 1/1/'Year Installed' as the assumed value.

Sectioning

Additions, new wings, or major renovations likely require identifying separate sections with a different age.

Equipment components are always sectioned by floor. If a there are multiple easily definable wings of a building with different install dates then sectioning by floor AND by wing is required. For example, if there is an east and west wing on a 2-floor building you would have 'FL2 EAST' and 'FL2 - WEST'.

Refer to the 'Sectioning: D20, D30, D40, D50 and E10 Equipment Components' part of the manual for section name guidance for equipment.

Rule of Thumb: All equipment components that require Section Details should be sectioned separately.

Typical section names used to describe the major areas of the building include: FL1, FL2, BASEMENT, MEZZANINE, ROOF, WING 'X,' etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

Sectioning of Equipment Components

The business rules stated below are applicable to equipment components.

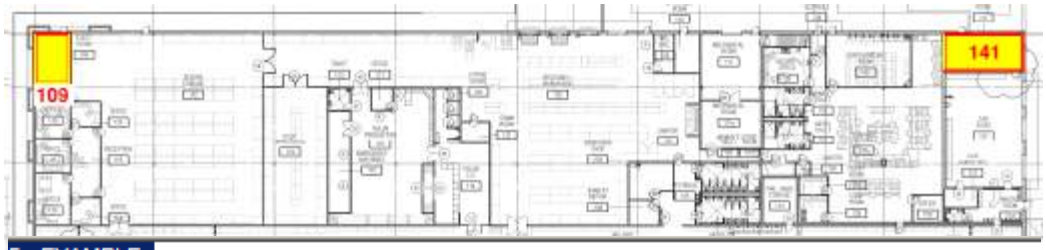
Sectioning of equipment components is of critical importance to provide a data set that is usable by the installation, is able to have Quality Assurance reviews, and is able to be reassessed. To achieve this it is required that equipment be sectioned by area/room.

Case Study: Below is a drawing of a large building that has several electrical rooms. If one section of 125 AMP panels is provided with section name 'N/A', the usability of the data is greatly reduced. If the equipment is sectioned by room (FL1 - RM 109, FL1 - RM 141, FL1 - RM 104, FL1 - RM 153, FL1 - RM 149), follow-on assessments, QA, and the installation can easily identify/reassess components.

The business rule is for Mechanical/Electrical equipment to be sectioned per Mechanical/Electrical room on buildings greater than 7,500 SF. All other equipment that is located throughout the building (such as VAV boxes) follows general sectioning rules.

This also provides the benefit that if a remodel/addition takes place between assessments, it will be apparent what has been added/deleted in THAT room without the assessor having to do a complete walk-through of the building and the deduce what changed (which is a very difficult, if not impossible, task).

If a component only has an quantity of 1, the Section Name can include the equipment ID number. For example, the panel LP1 can have the Section Name: FL1 - RM 109 - LP1.



5 - EXAMPLE

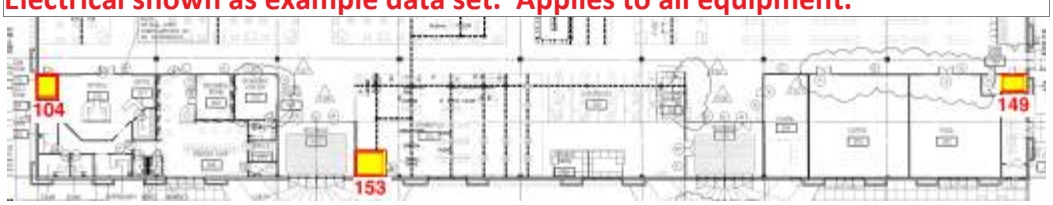
D50 ELECTRICAL

D5010 ELECTRICAL SERVICE & DISTRIBUTION

- FL1 - RM 104 - LP1 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - LP2 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 109 - MP1 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 109 - SG1 - D501004 PANELBOARDS - Switchgear - 2000 Amp
- FL1 - RM 141 - LP3 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 141 - MP2 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 141 - T1 - D501003 INTERIOR DISTRIBUTION TRANSFORMERS - dry-type, 15 kV
- FL1 - RM 149 - LP4 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 149 - MP3 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB
- FL1 - RM 153 - LP5 - D501004 PANELBOARDS - Main lugs, 125 amp
- FL1 - RM 153 - MP4 - D501004 PANELBOARDS - Main lugs, 277/480 V, 225 amp, NEHB

Example BRED Tree Structure

Electrical shown as example data set. Applies to all equipment.



Example Section Names

FL1 - RM 109
FL1 - RM 141
FL1 - RM 104
FL1 - RM 153
FL1 - RM 149

Note:
The inclusion of the room/area into the section name DOES NOT negate the need to fill in the 'location' field in the Section Details. All general detail population rules must still be followed.

Business Rule:
Section all equipment on the rooftop separately. This equipment will degrade quicker than ground-/wall-mounted equipment of like kind.

E103002 LOADING DOCK EQUIPMENT - Loading Dock Equipment - Dock Leveler, hydraulic, 7' x 8', 10 ton



Typical Application and General Component Guidance:

This component is used to capture hydraulic dock levelers.

Lessons Learned/Business Rules/General Comments

Business Rule

For all hydraulic dock levelers use the 'Loading Dock Equipment - Dock Leveler, hydraulic, 7' x 8', 10 ton' component type regardless of actual size.

For permanently affixed dock levelers that are not hydraulic, use 'Loading Dock Equipment - Dock Lift, platform type, 6' x 6', portable, 3000 lb. Ignore the 'portable' part of the component type. Portable dock levelers should not be inventoried.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Loading Dock Equipment - Dock Leveler, hydraulic, 7' x 8', 10 t	Yes	No	No	No	No	20	EA

E109003 WASTE HANDLING EQUIPMENT - Baler



Typical Application and General Component Guidance:

This component is used to inventory balers for cardboard or plastic.

Lessons Learned/Business Rules/General Comments

General

Balers are typically located in the warehouse area.

Lesson Learned

Common distresses include hydraulic fluid leaks at hoses and fittings, physical damage (such as by forklifts), and operationally impaired (if indicated by an attached “out of order” sign or by user interview).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Baler	Yes	Yes	No	No	No	20	EA

E109003 WASTE HANDLING EQUIPMENT - Compactor



Typical Application and General Component Guidance:

This component is used to inventory trash compactors that are owned by DeCA.

Lessons Learned/Business Rules/General Comments

Business Rule

As of 2020, the only DeCA owned compactors are located at Anchorage (2), Germersheim (2), Malmstrom (1), San Diego (1) and Vogelweh (1). Do not inventory compactors at other sites unless it is confirmed that DeCA owns them.

General

Compactors are typically located outside, near the loading dock area.

Lesson Learned

Common distresses include hydraulic fluid leaks at hoses and fittings, physical damage (such as by trucks), and operationally impaired (if indicated by an attached “out of order” sign or by user interview).

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Compactor	Yes	Yes	No	No	No	20	EA

E109003 WASTE HANDLING EQUIPMENT - Other

Typical Application and General Component Guidance:

This component is used to inventory waste handling equipment that does not closely match other types in this category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add an Inventory Comment if the Component Type/Section Name does not accurately/sufficiently describe the equipment/location of the component.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily identify it.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	20	EA

E109090 OTHER SPECIALIZED FIXED AND MOVEABLE EQUIPMENT - Other



Typical Application and General Component Guidance:

This component is used to inventory equipment that does not have a component type in the catalog. The photo shows a pressure washer.

Lessons Learned/Business Rules/General Comments

Business Rule

This component type is used to inventory any equipment items found in the field that require a component type to be created in BUILDER.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

Complete Component Catalog Breakdown

E10 EQUIPMENT

E101001 CHECKROOM EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101002 REGISTRATION EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101003 VENDING EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101004 LAUNDRY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101005 SECURITY & VAULT EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	50	EA
Other	No	No	No	No	No	50	EA
Unknown	No	No	No	No	No	50	EA
Security Vault	No	No	No	No	No	50	EA

E101006 TELLER AND SERVICE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101007 MERCANTILE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E101008 OFFICE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102001 MISCELLANEOUS COMMON FIXED & MOVEABLE EQUIP

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	30	EA
Other	No	No	No	No	No	30	EA
Unknown	No	No	No	No	No	30	EA
Vacuum System	No	No	No	No	No	30	EA

E102002 MEDICAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102003 LABORATORY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102004 MORTUARY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102005 AUDITORIUM & STAGE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102006 LIBRARY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102007 ECCLESIASTICAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102008 INSTRUMENTAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102009 AUDIO-VISUAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E102010 DETENTION EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E103001 PARKING CONTROL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E103002 LOADING DOCK EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA
Loading Dock Equipment - Dock Leveler, hydraulic, 7' x 8', 10 ton	Yes	No	No	No	No	20	EA
Loading Dock Equipment - Dock Lift, platform type, 6' x 6', portable,	Yes	No	No	No	No	20	EA

E103003 WAREHOUSE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E103004 AUTOMOTIVE SHOP EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Automotive lifts (Hydraulic), clear floor, 2 post, 30,000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), clear floor, 2 post, 6000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), clear floor, 2 post, 9000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), clear floor, 2 post,15,000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), ramp style, 4 post, 25,000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), ramp style, 4 post, 35,000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), ramp style, 4 post, 50,000 lb	Yes	Yes	Yes	No	No	20	EA
Automotive lifts (Hydraulic), ramp style, 4 post, 75,000 lb	Yes	Yes	Yes	No	No	20	EA
Compressor, Electric, 1-1/2 HP, standard controls	Yes	Yes	Yes	No	No	20	EA
Compressor, Electric, 5 HP, dual controls	Yes	Yes	Yes	No	No	20	EA
Hoist, dual post, 12 ton capacity, adjustable frame	Yes	Yes	Yes	No	No	20	EA
Hoist, single post, 4 ton capacity, swivel arms	Yes	Yes	Yes	No	No	20	EA
Lube Equipment, 3 reel type, with pumps	Yes	Yes	Yes	No	No	20	EA
Product dispenser, 6 nozzles, with vapor recovery	Yes	Yes	Yes	No	No	20	EA
Scales, concrete foundations, 70' x 10'	Yes	Yes	Yes	No	No	20	EA
Scales, concrete foundations, 8' x 6'	Yes	Yes	Yes	No	No	20	EA
Scales, dial type, built in floor, 10 ton, 9' x 7'	Yes	Yes	Yes	No	No	20	EA
Scales, dial type, built in floor, 5 ton, 8' x 6'	Yes	Yes	Yes	No	No	20	EA
Scales, dial type, truck (including weigh bridge), 20 ton, 24' x 10'	Yes	Yes	Yes	No	No	20	EA
Scales, digital type, truck, 60 ton, 75' x 10'	Yes	Yes	Yes	No	No	20	EA

Complete Component Catalog Breakdown

E10 EQUIPMENT

E109001 BUILT-IN MAINTENANCE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	No	No	No	No	No	20	SF
Unknown	No	No	No	No	No	20	SF

E109002 FOOD SERVICE EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Double Oven Commercial Grade	No	No	No	No	No	10	EA
Ice Maker	No	No	No	No	No	7	EA
One Compartment Freezer Commercial Grade	No	No	No	No	No	15	EA
One Compartment Refrigerator Commercial Grade	No	No	No	No	No	15	EA
Two Compartment Freezer Commercial Grade	No	No	No	No	No	15	EA
Two Compartment Refrigerator Commercial Grade	No	No	No	No	No	15	EA
Warming Drawer	No	No	No	No	No	10	EA

E109003 WASTE HANDLING EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	20	EA
Baler	Yes	Yes	No	No	No	20	EA
Compactor	Yes	Yes	No	No	No	20	EA

E109004 RESIDENTIAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA
Dishwasher Residential Grade	No	No	No	No	No	9	EA
Double Oven Residential Grade	No	No	No	No	No	10	EA
Dryer	No	No	No	No	No	7	EA
Electric Range/Cooktop Residential Grade	No	No	No	No	No	10	EA
Garbage Disposal Residential Grade	No	No	No	No	No	7	EA
Microwave Oven	No	No	No	No	No	8	EA
Refrigerator Residential Grade	No	No	No	No	No	15	EA
Stove/Oven Residential Grade	No	No	No	No	No	10	EA
Trash Compactor Residential grade	No	No	No	No	No	10	EA
Wall Oven Residential Grade	No	No	No	No	No	10	EA
Washer	No	No	No	No	No	7	EA

E109005 UNIT KITCHENS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E109006 DARKROOM EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E109007 ATHLETIC, RECREATIONAL, & THERAPEUTIC EQUIPMEN

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E109008 PLANETARIUM EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E109009 OBSERVATORY EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

E109010 AGRICULTURAL EQUIPMENT

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	No	No	No	No	No	20	EA
Unknown	No	No	No	No	No	20	EA

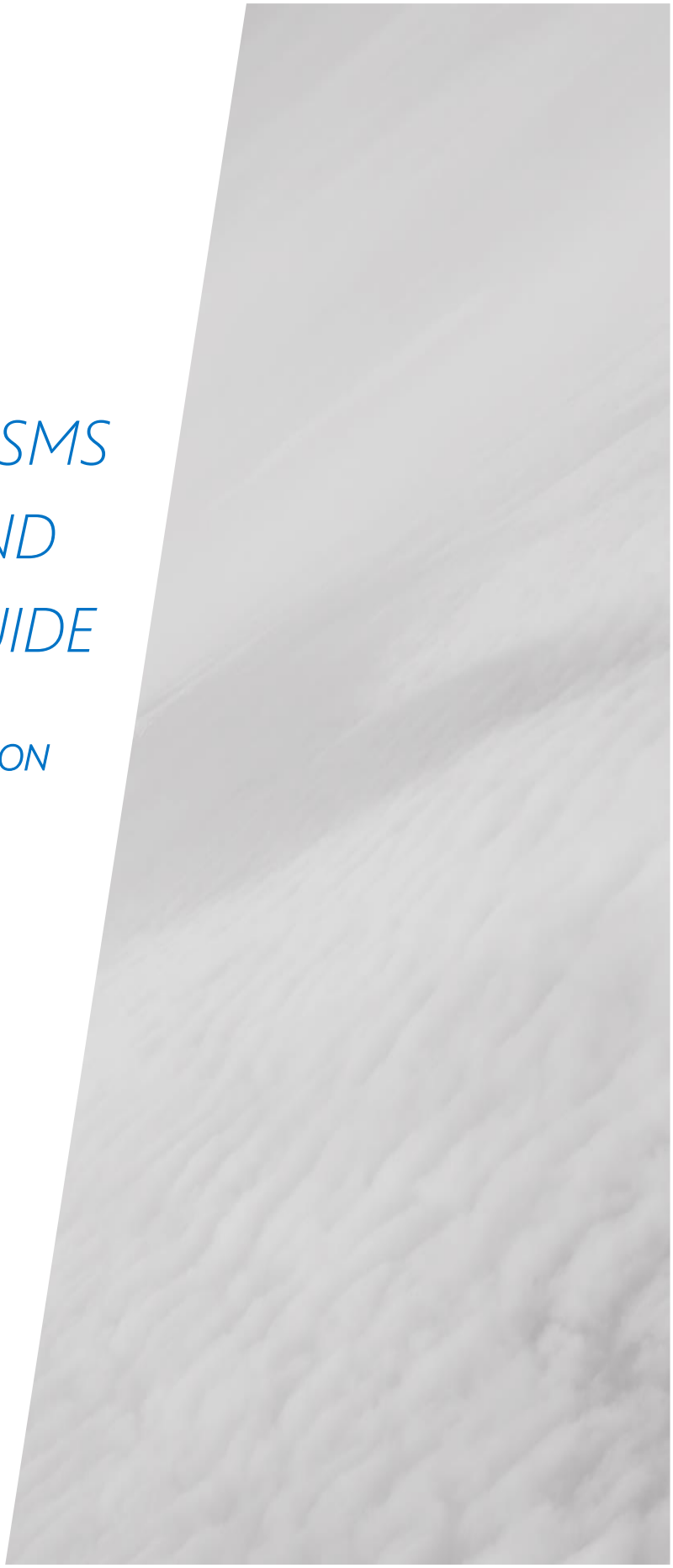
E109090 OTHER SPECIALIZED FIXED AND MOVEABLE EQUIPMEN

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
Unknown	No	No	No	No	No	20	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

F10 SPECIAL CONSTRUCTION



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

BUILDER™ Safety and Site Preparation Guidance

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common special construction inventory component sections found in commissaries and central distribution centers as a guide for entering into the BUILDER™ or BUILDER™ Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

F1010 - Special Structures: This subsystem includes prefabricated enclosures for refrigeration/mechanical centers (Conex box type), metal buildings (typically storage) and exterior utility buildings (generator rooms, fire pump rooms, etc.)

F1020 - Integrated Construction: This subsystem includes insulated doors for cold storage rooms, and the cold storage rooms constructed with insulated panels.

Inspection

Component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See Detailed Inventory Guidance and Complete Component Catalog Breakdown for items that must be age-based.

Do not provide inspection comments directed at/identifying only problems with the paint/paint coating. If another distress is present, an assessor may comment on the paint coating in their inspection comment.

The component should be rated based on its condition, NOT the condition of the paint coating. An assessor can have a DCR for the component and then select the 'PAINTED' box and provide a DCR for the paint coating.

The following conditions or events can accelerate component deterioration and should be considered by the assessor: 1) Improper construction or installation, 2) Improper or neglected maintenance, 3) Damage or misuse, 4) Weather exposure and/or coastal environment, and 5) Corrosion.

When component sections are not visible, inventory should be entered, but no assessment is entered. In this case, BUILDER™ will use the inventory, year installed, and degradation curves built in to the software to establish the CI.

When component sections are visible, they should be assessed and given a DCR. When determining the rating, the assessor should consider the quantity and severity of conditions or distresses observed.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition, renovation, or replacement has taken place, check the real property record for year renovated or check as-built or renovation drawings to help estimate the year installed.

In some cases, sections may be replaced as an individual repair or partial replacement. These areas would have a different age. The real property construction and renovation dates should be confirmed; if they are not appropriate, the interior construction age must be estimated. The building occupants or other facilities staff may be able to provide some information

Most special construction components inventoried are visible. When components are not visible (or an area is not accessible), as-built drawings can be used to identify and quantify the components. If as-built drawings are not available, the assessor may use experience to make an assumption for the component types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

When a component is concealed/hidden, the inventory comment box is used to indicate the reason for no inspection taking place. Standard comments should be used.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in case there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse must have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See the Field Assessment Calibration Plan (FACP) for other photo requirements.

The Architectural Assessor is required to take one landscape photo of the front elevation, or a representative elevation view, and attach the photo to the building record at the building level. (Required)

Reinspection

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Sectioning

Section the Sales Area separately. Start the Section Name with “SALES AREA” and then any other pertinent location info if needed, examples are SALES AREA - SUSHI, SALES AREA - PRODUCE, etc. This does not include refrigerant piping or other building-wide Sections.

Additions or major renovations likely require identifying separate sections with different ages.

Put a location in the Section Name so future assessors can locate the item. Use room name, room number or area name when possible/applicable, for example: DAIRY CHILL, CASHIER, TRAINING RM, BAY 8, etc.

Typical section names used to describe the major areas of the building can include: SALES AREA, MEZZ, ROOF, WHSE, ADMIN, FL1, FL2, etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

F101001 METAL BUILDING SYSTEMS - General



Typical Application and General Component Guidance:

This component is used to inventory metal storage buildings.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory buildings that are less than 1500 SF, unless specifically identified in the SOW.

Do not inventory prefabricated mechanical enclosures here. Use F101001 Mechanical Enclosure.

If existing buildings are in the current inventory that do not meet the rule(s) listed here, delete them from inventory or move them to an appropriate component type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF

F101001 METAL BUILDING SYSTEMS - Mechanical Enclosure



Typical Application and General Component Guidance:

This component is used to inventory the enclosure for prefabricated refrigeration equipment centers.

Lessons Learned/Business Rules/General Comments

General

The UOM is SF, and these enclosures are typically 40 ft x 8 ft = 320 SF.

These enclosures typically contain refrigeration system equipment and are located on the roof or outside at ground level.

Lesson Learned

Potential distresses include deteriorated floor structure or damaged doors/door hardware.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Mechanical Enclosure	Yes	No	Yes	No	No	20	SF

F101002 EXTERIOR UTILITY BUILDINGS - General



Typical Application and General Component Guidance:

This component is used to inventory utility buildings.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory buildings that are less than 1500 SF, unless specifically identified in the SOW.

Do not inventory buildings that are not used/occupied by DeCA.

Do not inventory prefabricated mechanical enclosures here. Use F101001 Mechanical Enclosure.

If existing structures are in the current inventory that do not meet the rule(s) listed here, delete them from inventory or move them to an appropriate component type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF

F101090 OTHER SPECIAL CONSTRUCTION - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing structures are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F101090 OTHER SPECIAL CONSTRUCTION - Other

Typical Application and General Component Guidance:

This component is used to inventory special construction that does not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the structure being inventoried.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily identify it.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	20	EA

F101090 OTHER SPECIAL CONSTRUCTION - Cold Storage Doors - Bi-parting, Electric Operated - CDCs



Typical Application and General Component Guidance:

This component is used to inventory electrically operated insulated doors for coolers and freezers in Central Distribution Centers.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name must include the location and name or ID (BAY 8 - CHILL STG, FL2 - FROZEN STG 5, etc.) so the next assessor can easily identify and find it.

General

These are commonly found on larger cold storage rooms in Central Distribution Centers. The insulated panel walls and ceiling are captured in F102001.

Lesson Learned

Common distresses include damage to the door and door closer hardware by lift truck, forklift, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cold Storage Doors - Bi-parting, Electric Operated - CDCs	Yes	No	Yes	No	No	20	EA

F101090 OTHER SPECIAL CONSTRUCTION - Cold Storage Doors - Slide



Typical Application and General Component Guidance:

This component is used to inventory sliding insulated doors for coolers and freezers.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name must include the location and name or ID (WHSE - PRODUCE, OUTSIDE REAR - FZBX, etc.) so the next assessor can easily identify and find it.

General

Manually operated, insulating sliding doors are commonly found on medium sized walk-in coolers and freezers. The insulated panel walls and ceiling are captured in F102001.

Lesson Learned

Common distresses include damage to the door and door closer hardware by lift truck, forklift, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cold Storage Doors - Slide	Yes	No	Yes	No	No	20	EA

F101090 OTHER SPECIAL CONSTRUCTION - Cold Storage Doors - Swing



Typical Application and General Component Guidance:

This component is used to inventory swinging insulated doors for coolers and freezers.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name must include the location and name or ID (DELI/BAKE - DELI COOLER, DELI/BAKE - BKFZ, etc.) so the next assessor can easily identify and find it.

General

Swinging insulated doors are commonly found on smaller walk-in coolers and freezers. The insulated panel walls and ceiling are captured in F102001.

Lesson Learned

Common distresses include damage to the door and door closer hardware by lift truck, forklift, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cold Storage Doors - Swing	Yes	No	Yes	No	No	20	EA

F102001 SPECIAL PURPOSE ROOMS - Bakery Chill

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Bakery Chill	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Bakery Frozen

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in freezers are to be inventoried under Component Type Low Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Bakery Frozen	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Bakery Prep

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This area is not special/integrated construction and should be inventoried under C10 Interior Construction.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Bakery Prep	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Blast Freezer

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

Frozen food storage rooms, blast freezers, etc. are to be inventoried under Component Type Low Temperature Storage w/ Insulated Panels - CDCs.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Blast Freezer	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Bulk Meat Chill

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Bulk Meat Chill	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Candy Storage

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If insulated panel construction is used, this room is to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If standard construction is used, this room is not considered special/integrated construction and should be inventoried under C10 Interior Construction.

If unit coolers are used for cooling/dehumidification, inventory them under R101004 Unit Coolers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Candy Storage	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Controlled Temperature Storage

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If insulated panel construction is used, this room is to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If standard construction is used, this room is not considered special/integrated construction and should be inventoried under C10 Interior Construction.

If unit coolers are used for cooling/dehumidification, inventory them under R101004 Unit Coolers.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Controlled Temperature Storage	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Dairy Chill

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

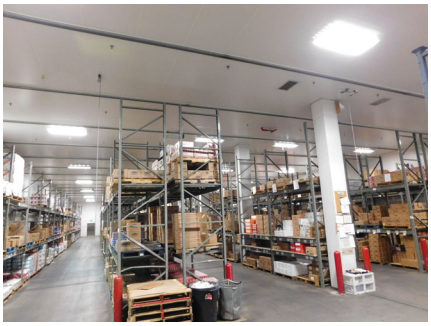
All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Dairy Chill	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Dehumidified Storage w/ Insulated Panels - CDCs



Typical Application and General Component Guidance:

This component is used to inventory dehumidified storage rooms with insulated panels in Central Distribution Centers.

Lessons Learned/Business Rules/General Comments

Business Rule

If standard construction is used, this room is not considered special/integrated construction and should be inventoried under C10 Interior Construction.

The Section Name should include the location and name/ID (Dehumidified Storage, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Dehumidified Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Deli Chill Storage

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Deli Chill Storage	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Deli Prep

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This area is not special/integrated construction and should be inventoried under C10 Interior Construction.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Deli Prep	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Fat & Bones

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fat & Bones	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Fish Chill

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Fish Chill	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Frozen Food

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in freezers are to be inventoried under Component Type Low Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Frozen Food	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Frozen Meat

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in freezers are to be inventoried under Component Type Low Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Frozen Meat	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	20	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Ice Cream

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in freezers are to be inventoried under Component Type Low Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Ice Cream	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Low Temperature Storage w/ Insulated Panels - CDCs



Typical Application and General Component Guidance:

This component is used to inventory low temperature storage rooms in Central Distribution Centers.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name should include the location and name/ID (Frozen Storage, Blast Freezer, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temperature Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Low Temperature Walk-in w/ Insulated Panels, Indoors



Typical Application and General Component Guidance:

This component is used to inventory low temperature walk-in freezers that are located indoors.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name must include the location and name/ID (FROZEN FOOD, BAKERY FREEZER, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temperature Walk-in w/ Insulated Panels, Indoors	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Low Temperature Walk-in w/ Insulated Panels, Outdoors



Typical Application and General Component Guidance:

This component is used to inventory low temperature walk-in freezers that are located outdoors.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory temporary or portable or mobile freezers that are not owned by DeCA.

The Section Name must include the location and name/ID (REAR - FRZN FD, S SIDE - FZBX, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temperature Walk-in w/ Insulated Panels, Outdoors	Yes	No	Yes	No	No	20	SF

F102001 SPECIAL PURPOSE ROOMS - Meat Holding

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Meat Holding	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Meat Prep

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Meat Prep	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Meat Wrapping (if separate)

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Meat Wrapping (if separate)	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Medium Temperature Storage w/ Insulated Panels - CDCs



Typical Application and General Component Guidance:

This component is used to inventory medium temperature storage rooms in Central Distribution Centers.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name should include the location and name/ID (Chill Storage, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temperature Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Medium Temperature Walk-in w/ Insulated Panels, Indoors



Typical Application and General Component Guidance:

This component is used to inventory medium temperature walk-in coolers that are located indoors.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name must include the location and name or ID (PRODUCE, PRODUCE PREP, DAIRY, MEAT, MEAT PROCESSING, DELI, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temperature Walk-in w/ Insulated Panels, Indoors	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Medium Temperature Walk-in w/ Insulated Panels, Outdoors



Typical Application and General Component Guidance:

This component is used to inventory medium temperature walk-in coolers that are located outdoors.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory temporary or portable coolers that are not owned by DeCA.

The Section Name must include the location and name or ID (PRODUCE, PRODUCE PREP, DAIRY, MEAT, MEAT PROCESSING, DELI, etc.) so the next assessor can easily identify and find it.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temperature Walk-in w/ Insulated Panels, Outdoors	Yes	No	Yes	No	No	20	SF

F102001 SPECIAL PURPOSE ROOMS - Other

Typical Application and General Component Guidance:

This component is used to inventory special purpose rooms that do not match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the room being inventoried.

Do not inventory coolers/freezers, preparation rooms, mechanical enclosures, etc. here.

The Section Name should include the location and name/ID so the next assessor can easily identify and find it.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	No	Yes	Yes	No	20	SF

F102001 SPECIAL PURPOSE ROOMS - Other Room w/ Insulated Panel Construction

Typical Application and General Component Guidance:

This component is used to inventory rooms constructed with insulated panels that are not used for cold storage, cooler, freezer, cooler vestibule, etc.

Lessons Learned/Business Rules/General Comments

Business Rule

All insulated panel cooler/freezer/dehumidified storage rooms should be inventoried in the other available Component Types.

The Section Name should include the location and name/ID (Admin Storage, etc.) so the next assessor can easily identify and find it.

Use this only for rooms with insulated panel construction and non-standard use. Example could be a previous cooler that is now used for general material storage, office, etc.

General

The UOM is SF of floor area.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other Room w/ Insulated Panel Construction	Yes	No	Yes	No	No	25	SF

F102001 SPECIAL PURPOSE ROOMS - Poultry Chill

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Poultry Chill	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Pre Pack Meat

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Pre Pack Meat	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Produce Ambient Storage

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Produce Ambient Storage	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Produce Chilled Storage

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Produce Chilled Storage	No	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Produce Chilled Storage (Gas)

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Produce Chilled Storage (Gas)	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F102001 SPECIAL PURPOSE ROOMS - Produce Prep

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

All walk-in coolers are to be inventoried under Component Type Medium Temperature Walk-in w/ Insulated Panels.

If existing areas are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Produce Prep	**No**	No	No	No	No	25	SF

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F105002 BUILDING AUTOMATION SYSTEMS - General

Typical Application and General Component Guidance:

This component is used to inventory automatic centralized systems that control a building's HVAC, lighting, Access Control, Security Systems, and other interrelated systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory building automation systems that are not owned by DeCA.

Do not use this component type for HVAC only control systems, inventory them under D3060.

Do not use this component type for RMCS, inventory them under R101011.

Some RMCS have an additional panel that controls and/or monitors some HVAC systems, lighting systems and utility meters, however, they are considered part of the RMCS and not a separate BAS.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	EA

F105002 BUILDING AUTOMATION SYSTEMS - Other

Typical Application and General Component Guidance:

Only use this component type as a temporary placeholder for systems that do not match the BAS - General component type.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the control system being inventoried.

The Section Name should include the location and ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

F105090 OTHER SPECIAL CONTROLS AND INSTRUMENTATION - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

F105090 OTHER SPECIAL CONTROLS AND INSTRUMENTATION - Other

Typical Application and General Component Guidance:

This component is used to inventory control systems that do not match available control Component Types in D30, D50, F10 and R10.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the control system being inventoried.

The Section Name should include the location and ID so the next assessor can easily identify and find it.

General

Examples are central lighting control systems or daylighting/dimming control systems that are independent of the RMCS or BAS.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

Complete Component Catalog Breakdown

F10 SPECIAL CONSTRUCTION

F101001 METAL BUILDING SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF
Mechanical Enclosure	Yes	No	Yes	No	No	20	SF

F101002 EXTERIOR UTILITY BUILDINGS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	SF

F101090 OTHER SPECIAL CONSTRUCTION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	No	Yes	Yes	No	20	EA
Cold Storage Doors - Bi-parting, Electric Operated - CDCs	Yes	No	Yes	No	No	20	EA
Cold Storage Doors - Slide	Yes	No	Yes	No	No	20	EA
Cold Storage Doors - Swing	Yes	No	Yes	No	No	20	EA

F102001 SPECIAL PURPOSE ROOMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	SF
Other	Yes	No	Yes	Yes	No	20	SF
Bakery Chill	No	No	No	No	No	25	SF
Bakery Frozen	No	No	No	No	No	25	SF
Bakery Prep	No	No	No	No	No	25	SF
Blast Freezer	No	No	No	No	No	25	SF
Bulk Meat Chill	No	No	No	No	No	25	SF
Candy Storage	No	No	No	No	No	25	SF
Controlled Temperature Storage	No	No	No	No	No	25	SF
Dairy Chill	No	No	No	No	No	25	SF
Dehumidified Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF
Deli Chill Storage	No	No	No	No	No	25	SF
Deli Prep	No	No	No	No	No	25	SF
Fat & Bones	No	No	No	No	No	25	SF
Fish Chill	No	No	No	No	No	25	SF
Frozen Food	No	No	No	No	No	25	SF
Frozen Meat	No	No	No	No	No	25	SF
Ice Cream	No	No	No	No	No	25	SF
Low Temperature Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF
Low Temperature Walk-in w/ Insulated Panels, Indoors	Yes	No	Yes	No	No	25	SF
Low Temperature Walk-in w/ Insulated Panels, Outdoors	Yes	No	Yes	No	No	20	SF
Meat Holding	No	No	No	No	No	25	SF
Meat Prep	No	No	No	No	No	25	SF
Meat Wrapping (if separate)	No	No	No	No	No	25	SF
Medium Temperature Storage w/ Insulated Panels - CDCs	Yes	No	Yes	No	No	25	SF
Medium Temperature Walk-in w/ Insulated Panels, Indoors	Yes	No	Yes	No	No	25	SF
Medium Temperature Walk-in w/ Insulated Panels, Outdoors	Yes	No	Yes	No	No	20	SF
Other Room w/ Insulated Panel Construction	Yes	No	Yes	No	No	25	SF
Poultry Chill	No	No	No	No	No	25	SF
Pre Pack Meat	No	No	No	No	No	25	SF

Produce Ambient Storage	No	No	No	No	No	25	SF
Produce Chilled Storage	No	No	No	No	No	25	SF
Produce Chilled Storage (Gas)	No	No	No	No	No	25	SF
Produce Prep	No	No	No	No	No	25	SF

F105002 BUILDING AUTOMATION SYSTEMS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	Yes	Yes	Yes	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA

F105090 OTHER SPECIAL CONTROLS AND INSTRUMENTATION

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	20	EA
Other	Yes	Yes	Yes	Yes	No	20	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.

This Page Intentionally Left Blank

DECA BUILDER™ SMS INVENTORY AND ASSESSMENT GUIDE

R10 SUPERMARKET REFRIGERATION



RS&H

Safety

Safety is of the utmost concern and should always be on the forefront of any activities that are taking place in the field. There are many potential safety hazards associated with building assessment site visits. Prior to performing building assessments, the assessment staff/team must ensure that field activities are in accordance with the 1) Safety plan, 2) OSHA, and 3) Installation safety guidelines. The following recommendations do not supersede any OSHA, agency, base safety requirements or contractor safety plan.

Safety Preparation Activities
Do not perform a task that you are not comfortable with or that may endanger your own safety and health or that of others.
Visit with the installation safety representative to review installation-specific safety requirements.
Conduct a daily "stand-up" safety meeting to discuss potential site hazards.
Ensure new assessors have been properly trained.
Go over the assessment plan/schedule for the day.
Ensure proper hydration throughout the work day in both hot and cold weather.
Ensure proper Personal Protective Equipment (PPE) is available. This includes but is not limited to hearing protection and head covering (net, hat, etc.) for food prep areas (Meat, Produce, Deli/Bakery).
Prior to each day's assessments, the team leader needs to check with the safety office or building POC to determine if there are any building/site-specific safety rules or hazards. For instance, some construction areas may require additional PPE.

Safety Recommendations
Do not walk and write or talk on a mobile phone at the same time; this can lead to trips/falls.
Do not review documents or write while walking.
Do not enter posted or suspected confined spaces such as crawl spaces, tanks, chases, or pits.
Mechanical rooms or other areas with piping/ductwork may present head bumping hazards. Be aware of surroundings and potential hazards.
Do not enter areas with hazard material signs posted or that appear to contain hazardous materials (asbestos, gases, visible mold, etc.).
Be careful when walking through/across vehicle maintenance or staging areas.
Be aware of loose-fitting clothing and lanyards that may get caught in tight areas, on piping, or in fans when in mechanical/electrical rooms, etc.
Be careful of wildlife and insects when walking around a building or opening seldom-entered equipment rooms. Assessors may encounter snakes, spiders, stray cats/dogs, rats/mice, etc. Do not enter or place hands in spaces that are not completely visible.
If you see a life safety problem, do not try to fix it. Take a photograph of the issue and report it to the proper authority or building manager prior to leaving the building or area.
Before the assessment team leaves a building and moves to the next, ensure all team members are accounted for.
Roofs and elevated equipment should only be accessed via fixed ladder or stairs. Consult local safety POC for any particular access rules.
Designate a safety POC to enforce the safety accident prevention plan.
Perform a daily safety briefing before field work and document the attendees and the topic covered.
Halt outdoor field operations at the sign of lightning or thunder and wait until it is safe to resume the assessment.

BUILDER™ Safety and Site Preparation Guidance

Safety Recommendations
Do not access pitched roofs. They may be able to be assessed from a nearby building or using binoculars.
Use proper techniques to place, secure, and climb ladders. Never climb a ladder while holding anything. Always use the three-point technique for climbing. Equipment should be placed in a backpack or over-the-shoulder satchel to free hands for climbing.
Do not operate powered equipment, Weight Handling Equipment (WHE)/cranes, or remove access covers from powered equipment to perform assessments.
Do not use electrical test equipment to test circuits or equipment. Only open panel box doors or enter electrical/mechanical rooms following proper training. Consult the local safety representative.

Site Preparation

Site Preparation Activities
Coordinate with the base to determine if escorts are required, if camera passes are required, or if there are any access issues (classified/secure areas or the need for keys from other individuals).
Locate buildings on a map and develop a schedule. Coordinate with the base to identify the appropriate building manager from the POC list. Notify the building managers of the upcoming assessment as needed.
Obtain a set of mechanical/electrical room master keys from the Location POC.
Extract all BRED™ files from BUILDER™ and have them loaded onto tablets (if using tablets). Verify all tablets are charged.
If multiple buildings are going to be assessed by one team, confirm with the team leader the schedule and the plan of action for the day. A building may have scheduled start times detailed to the hour.
Review the building names for the types/sizes of buildings that will be assessed to determine/confirm the needed tools and safety equipment. If the facilities are not heated or contain cold storage rooms, prepare accordingly and bring coats/hats/gloves.

Recommended Assessor Gear/Tools	
Hearing Protection	Digital Camera with Extra Battery(s)
Appropriate Footwear	Paper/Assessment Forms
Other Required Personal Protection Equipment (PPE)	Laser Measuring Device/Flash Light
Cell Phone and Team Cell Phone List	Refillable Water Bottle
Assessment Schedule	Backpack
Building Floor Plans/Map	Graph Paper
Flash Light	Pen/Pencils
Sun Screen/Bug Spray	Clipboard
Charging cables for computer/tablet	Battery chargers for devices

BUILDER™ Execution Guidance

Operating in the field in an efficient manner is key to the success of the assessment. The following guidance is broken down by 1) Team Leader and 2) Assessor roles. **Bold items are drivers for client deliverables.**

Team Leader

Upon arrival at the building, check in with the building manager (if present).

Conduct the building manager interview. The entire team should be present for the building manager interview. The following questions should be asked:

Question 1:	Are there any mission-related deficiencies in the building?
Question 2:	Are there any safety-related deficiencies in the building?
Question 3:	Have there been any upgrades or remodels of the building?
Question 4:	Are there any building deficiencies (HVAC not working, electrical breakers tripping, maintenance issues, roof leaks, etc.) present?

The team leader (ONLY the team leader!) should populate the building level comment with the following information: 1) Missing systems, 2) Renovation dates, 3) Areas of the building not accessible during the assessment, and 4) If drawings were/were not provided. Below are some example building level comments:

Comment 1:	No A20, D10, or D40 systems present. 2016: Vault room not accessible. Drawings not provided.
Comment 2:	No A20 systems present. Renovated in 2010. 2016: 5% of building not accessible. Drawings provided.

The team leader should review the real property data in BRED™ and compare it to what is found during the assessment. The following should be confirmed: 1) Number of stories, 2) Building square footage, and 3) Building install date and 4) Building number in BRED™ matches what is on the building. Variances between real property data and actual field data should be recorded for inclusion into the client deliverable.

Team Leader and Assessors

Each assessor should first take a photo of the building number to identify the subsequent photos associated with the building when they are downloaded. Take a second picture that captures the overall building view with respect to nearby buildings/streets. This should help refresh/remind you on what the building looks like, while performing data-entry.

Team caucus should be held to verify which side of the building is north. This is key for consistent sectioning.

Each assessor should have a consistent approach from building to building. Assessors should move around the building exterior and interior in a clockwise (or counterclockwise} manner making notes and taking photos.

If a safety item is found, notify the team lead. The team lead will notify the building manager. Photograph the safety item for inclusion in the safety log. Follow any other project-specific procedures when a safety item is found.

Upon return to the office perform the following steps:

Step 1:	Download all photos from the day to a building-specific folder. Review the photos and delete any that are fuzzy or unreadable.
Step 2:	Complete all calculations and counts. Complete all data entry into BRED™.

Data Entry

With the powerful tablets that are available today, the need to use forms in the field and do data entry at the office has been mitigated. Tablets can be used to run BRED™ to complete data entry while in the field. It is understood that there are challenges to accomplish this for certain disciplines. It is only mentioned here as a best practice recommendation and is not a requirement to execute the work. There will be instances where electronics will not be allowed in a facility. Assessors should have a paper/pen data collection system ready as a backup.

General

This section presents common refrigeration inventory component sections found in commissaries and central distribution centers as a guide for entering into the BUILDER™ or BUILDER Remote Entry Database (BRED™) software. Inventory items are arranged by BUILDER™ System with Material/Equipment Category, Component Type, Unit of Measure, and Inventory Notes.

R1010 - Refrigeration: This subsystem includes all significant components of the facility refrigeration systems and associated controls.

R1020 - Refrigeration Specialty: This subsystem includes refrigeration heat reclaim systems that provide or supplement heating domestic hot water and/or space heating.

The refrigeration system cools (removes heat from) product display cases and cooler/freezer food storage and preparation rooms to maintain the required temperatures.

Inspection

Component sections are assessed using Direct Condition Rating (DCR) or Age-Based Modeling. Rule of thumb: If you can see it, you should inspect it. There are some caveats to this rule. See Detailed Inventory Guidance and Complete Component Catalog Breakdown for items that must be age-based.

The following conditions or events can accelerate refrigeration component deterioration and should be considered by the assessor: 1) Improper construction or installation, 2) Improper maintenance or service, 3) Weather exposure and/or coastal environment, 4) Damage or misuse, 5) Overloading, 6) Improper humidity control in the Sales Area, 7) Water or chemical treatment issues, and 8) Corrosion.

When component sections are not visible, inventory should be entered, but no assessment is entered. In this case, BUILDER™ will use the inventory, year installed, and degradation curves built in to the software to establish the CI.

When component sections are visible, they should be assessed and given a DCR. When determining the rating, the assessor should consider the quantity and severity of conditions or distresses observed.

When equipment is found that has been abandoned and is no longer functional, it should not be inventoried. If the equipment is abandoned but is still able to be put back in service, it should be inventoried and assessed. An example would be operational unit coolers or condensing unit for a walk-in cooler that is not currently being used.

Inventory

It is critical to confirm the year installed (default will be from real property records), or estimate the year installed. BUILDER™ uses the install date, degradation curves, and assessment observations to establish a CI for each component section. If the assessor suspects the default install date is not accurate or an addition, renovation, or replacement has taken place, check the real property record for year renovated or check as-built or renovation drawings to help estimate the year installed.

Do not inventory: 1) Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle); 2) Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

If the building area is calculated to be between +/- 10% of the building area shown in the BRED™ file, then the building area shown in BRED™ is to be used. If the calculated area is outside of +/- 10% of the building area shown in the BRED™ file, then the calculated area should be used.

In some cases, refrigeration equipment sections may be replaced as an individual repair or replacement. This equipment would have a different age. The real property construction and renovation/replacement dates should be confirmed, if they are not appropriate, the component age must be estimated. The building occupants or other facilities staff may be able to provide some information.

Most refrigeration system components inventoried are visible with exception of piping and distributed system condensing units. When components are not visible (or an area of the building is not accessible), as-built drawings can be used to identify and quantify the components. If as-built drawings are not available, the assessor may use experience to make an assumption for the component types and quantities based on similar construction, consultation with local staff, and other reputable online resources.

The model number or serial number of a piece of equipment can help determine the age. Assessors can also use record drawings, facility staff interviews, manufacturer websites, etc.

When a component is concealed/hidden, the inventory comment is used to indicate the reason for no inspection taking place. Standard comments should be used.

When performing an assessment, the 'PAINTED' box should only be selected for components that have local or field applied paintings/coatings. DO NOT mark 'PAINTED' for manufacturer- or factory-applied coatings as they tend to age consistently with the components.

When selecting an equipment component type, assessors should always select the correct size. If the correct size is not available, assessors should round up to the next available size and note the actual size in the Section Details. If the size exceeds the largest selection, assessors should select the largest available size and note the actual size in the Section Details.

Photography

General comment: Photos are captured to document the following: 1) Inventory, 2) Condition (deficiency), 3) Historical record of the asset, 4) QC, and 5) Life safety issues.

All components where an 'Other' component type is selected must have a photo attached at the Inventory/Section level. (Required)

Assessors should take a photo of the building number at the start of the building assessment to delineate the start/stop of the photos between buildings. (Best Practice)

Assessors should take photos to allow for quality control (QC) confirmation and data backup. It is a good practice to have a photo of every component type encountered in an assessment. (Best Practice)

Components that are required to have section details populated should also have a single photo attached at the Inventory/Section level. This photo should be a step back photo showing the component in relation to its surroundings. Follow on assessments and base operations can use this to see what was inventoried in case there is any confusion on the section name or location field in the section details. If the component is hidden, no photo is necessary. (Required)

Components that have a DCR (component rating only) of A+ or worse must have a photo taken that shows the deficiency identified in the inspection comment. The photo should be attached to the record at the Inspection level. (Required)

Life Safety issues should be photographed for documentation of the safety item and used in safety reports. The photo should be sent to the team lead and all required steps outlined in the safety plan are to be completed. (Required)

Paint DCR does not drive the requirement for a photo to be attached at the inspection level. Example: A component has a DCR of 'G-' and a paint DCR of 'A' would result in no photo attached to the inspection.

See the Field Assessment Calibration Plan (FACP) for other photo requirements.

The Architectural Assessor is required to take one landscape photo of the front elevation, or a representative elevation view, and attach the photo to the building record at the building level. (Required)

Reinspection

Assessors must not delete/edit components and sections that are not within their discipline.

BRED™ functions such as 'Copy Building' and 'Copy Section' should not be used unless their ramifications are fully understood. Copy building: The entire building will be copied. Copy section: All items with the same section name will be copied (If a D50 assessor uses copy section on the section name FL1, the assessor may copy/paste interior doors, mechanical equipment, etc. without knowing it). If there is no existing data, these functions are more easily used.

Existing data should be deleted if 1) The component is no longer present, 2) The correct component type exists, 3) There are duplicate components with the same section name, or 4) The component is correct but has the wrong install date (requires deletion and re-entry with correct date).

If a component type in the existing data is no longer in scope it must be updated to an in-scope item or deleted if no longer applicable.

Past inspection comments are not required to be revised to current standards.

Section names, component types, and quantities must be verified and updated.

Section Details

Collect nameplate/component data to, at minimum, populate the following Section Details fields: Equipment ID, Manufacturer, Model (not required for unit coolers), Serial Number (not required for display cases or unit coolers). If information is not visible, legible, or easily accessible, place 'NA' in the section detail field to indicate it was not available. Obtain a photo of nameplate where possible.

For refrigeration compressor racks, condensing units, and distributed system display cases, the refrigerant type designation ('R-744', 'R-22', 'R-404A', etc.) should be included in the Inventory Comment at the Section level.

If a capacity is estimated, the capacity field should include 'ESTIMATED' to delineate that an estimation took place.

If the component has a DeCA asset ID tag (DE#######), that should be used in the Section Details 'Equipment ID' (FLOW) field or 'ID Number' (BUILDER) field. If there is no DeCA asset tag present, the posted ID designation (ACC-1, etc.) should be used. Verify how the ID Number field should be used before performing the assessment.

Section detail fields should be capitalized. It is understood that if previous data has been entered in lowercase, BRED™ limitations can prevent new data from being capitalized.

The Section Details comment box is used to identify specific characteristics on the component that are not captured in the Section Details fields. This can be extra information on location or material type for example. Also, any reasons why Section Detail fields could not be populated should be highlighted (not found/damaged nameplate/sun washed tag/etc.) and should be noted by using the standard comments.

Sectioning

Group like items that are the same type and same age into one Section except for major refrigeration equipment. Compressor racks, condensers, large condensing units, etc. should be sectioned separately. Examples: Four unit coolers of the same type and age and in the same walk-in, should be in one Section with a quantity of four. Use separate sections when different unit cooler types (low profile and low velocity) or different ages are in the same room. Three compressor racks should be in three separate Sections with a quantity of one each.

If a component has a quantity of 1, the Section Name can include the equipment designation such as SYSTEM-1, Rack A, ACC-1, ACCU-2, etc.

It is required for all equipment on the roof to have the section name 'ROOF - XXX' so future assessments can easily differentiate equipment located on the roof from equipment on the ground level, mechanical room, etc. When applicable, section by roof level (I.e. UPPER, MAIN, LOWER, etc.), and ensure the MEP designations are consistent with the architectural roof inspections.

Put a location in the Section Name so future assessors can locate the item. Use room name, room number or area name when possible/applicable, for example: DAIRY CHILL, CASHIER, TRAINING RM, BAY 8, etc.

Section the Sales Area separately. Start the Section Name with “SALES AREA” and then any other pertinent location info if needed, examples are SALES AREA - SUSHI, SALES AREA - PRODUCE, etc. This does not include refrigerant piping or other building-wide Sections.

Sections with multiple quantities need the same Section Detail information included for each item. If there are five 12-foot produce display cases, five Section Details would be entered in that Section.

Typical section names used to describe the major areas of the building can include: SALES AREA, MEZZ, ROOF, WHSE, ADMIN, FL1, FL2, etc.

How to Perform a Direct Condition Rating (DCR) Assessment

The most critical part to an assessment is having all assessors aligned on how to perform an assessment.
To reach an accurate DCR of a component follow the steps below:

Step 1: Consider the level of degradation and the performance of the component:

OPERATIONAL CAPABILITY	OPERATIONAL CONDITION RATING	DEGRADATION	DCR
Fully Operational	Green	Free of observable or known degradation.	Green (+)
		Normal wear requiring normal preventative maintenance.	Green
		Normal degradation requiring corrective maintenance.	Green (-)
Impaired Operation	Amber	Minor degradation requiring corrective maintenance.	Amber (+)
		Moderate degradation requiring corrective repair.	Amber
		Significant degradation requiring moderate repair.	Amber (-)
Inoperable	Red	Extensive degradation requiring major repair.	Red (+)
		Severe degradation requiring major rehabilitation or partial replacement.	Red
		Complete degradation requiring full replacement.	Red (-)

Step 2: Consider the maintenance requirements of the component:

Type	Green (G+/G/G-)	Amber (A+/A/A-)	Red (R+/R/R-)
Dynamic (Equipment)	Distresses present are of no impact to the components operation.	Distresses present are of impact to the components operation. A repair is needed to bring the component back to proper operating condition	Distresses present are of impact to the components operation. The component needs to be replaced.
	Example: The fan component is fully operational.	Example: A fan has corrosion on the housing. A sand and paint would remove the distress.	Example: A fan motor has overheated and no longer functions. Replacement of the component is required.
Non-Dynamic	The architecture component is in good condition requiring no maintenance outside of normal operations.	The architecture component has a distress that requires an extra level of maintenance outside of normal operations. This extra maintenance (or repair) would be an action such as a cleaning or a painting of a surface.	The architecture component has a distress where a maintenance operation will not fix the problem at hand. A replacement of the component is required.
	Example: The carpet component is fully operational.	Example: A carpet component has stains. A cleaning would remove the distress.	Example: A carpet component is damaged (ripped). The component needs to be replaced to fix the distress.

Dynamic: Refers to equipment in the D10, D20, D30, D40, D50, and E10 systems.
Non-Dynamic: Refers to architectural components in the A10, A20, B10, B20, B30, C10, C20, and C30 systems.
Note: There are some Non-Dynamic components (for instance, toilets under D20) in the Dynamic systems.

Step 3: Adhere to the following requirements:

Requirements
Maintainability and obsolescence should not be the driving factor when conducting a condition assessment unless it has led to actual deterioration of condition that can be observed or reasonably inferred.
G+ ratings should only be given to inventory that is in pristine condition and is free of any observable defects.
Do not downgrade an assessment rating simply because an item is dirty.
Do not downgrade an assessment rating due to age or belief that the item is outdated.
Do not downgrade an assessment rating because the item does not meet current code compliance standards
Do not downgrade an assessment rating because the item is not deemed energy efficient.
Do not downgrade an assessment rating because the item is deemed to be a safety violation/hazard unless otherwise directed.
Do not downgrade an assessment rating because of a code violation.
Ratings should not be anticipated based on planned repairs or replacement.
Assessors should not expend field time and effort to determine the cause of a deficiency. If the cause is easily identified it should be included in the inspection comment.
Ratings shall be based upon the observable and documentable condition of the component at the time of the assessment.
A component should be downgraded if its operational capability, performance, reliability, etc. is compromised according to the direct rating definitions.
Incorporate user interviews, work order histories, or other information sources when determining the condition of the component. Include this information in the inspection comment.

Step 4: Using the 3 steps above, arrive at the DCR inspection of the component.

The assessor has now calibrated their mindset on what the expected DCR should be based on condition.
The assessor has considered the maintenance requirements of the component in the current condition.
The assessor has factored in the requirements/business rules for completing an inspection.

The assessor should use these 3 factors to arrive at the condition of the component.

One factor that can play into an assessment is if the assessor receives information from a POC that results in a lower rating. For instance, an assessment takes place in July and there is a heating water pump that looks brand new, but has a blown motor. The assessor would assume the pump is supposed to be off due to being off season, but if the POC informs the assessor about the blown motor, this can be factored into the assessment (and indicated in the inspection comment).

One factor that should not play into an assessment is pending replacements of components. Assessors should rate components in the condition they are at the time of assessment. If the carpet is being replaced next month, that should not factor into a rating. Now, if the carpet contractor is on site (the work is currently taking place), this could be factored into the rating and a G+ rating provided with the current date of inspection chosen as the install date.

How to Write an Inspection Comment

Step 1: Understand the 5 parts of the inspection comment:

Part #	Part Type	Type Description
1	Front End	[First Last-AE-Date] OR [First Last-DPW-Date] (ex: [John Doe-AE-7/4/2017]
2	Distress	Identifies the distress of the component
3	Severity	Identifies the amount of the distress.
4	Location	Identifies the location of the distress
5	Quantity	Identifies the quantity of the distress

Step 2: Use the DCR of the component as the basis for the severity.

DCR	Severity
Amber (+)	Minor/Mild
Amber	Moderate
Amber (-)	Significant/Major
Red (+)	Extensive
Red	Severe
Red (-)	Complete/Total

To aid in the inspection comments reading correctly the severity can be modified slightly. For instance, 'moderately' can be used for an 'A' DCR comment. This approach also applies to the distresses where one of the 23 MUST be selected. If 'Cracked' is selected as the distress, the wording 'cracks' may be used.

Step 3: Identify the distress of the component:

23 Distresses			
Blistered	Displaced	Overheated	Capability/Capacity Deficient
Broken	Efflorescent	Patched	Animal/Insect Damaged
Clogged	Holes	Rotten	Moisture/Debris Contaminated
Corroded	Leaks	Stained/Dirty	Noise/Vibration Excessive
Damaged	Loose	Cracked	Operationally Impaired
Deteriorated	Missing		Electrical Ground Inadequate or Unintentional

Step 4: Location and Quantity

Location on non-dynamic assets - 'lobby area' or 'northwest corner'.

Quantity on a SF UOM will typically be a %. On an EA UOM will typically be a count.

Step 5: Put all 5 components together to form an inspection comment (colors correspond to

A+	Front End	CRACKED.	The	walls have	minor	cracks	present on	10% of the	gym.			
A	Front End	DETERIORATION.	The	carpet has	moderate	deterioration	over	50%	of the	lobby.		
A-	Front End	DAMAGED.	The	door has	major	damage	to the	lower half	of the door.			
R+	Front End	CRACKED.	The	windows have	significant	cracks	present in	4	panes.			
R	Front End	LEAKS.	The	roof has	severe	leaking	around the	HVAC	penetrations.			
R-	Front End	OPERATIONALLY IMPAIRED.	The	3	north	doors are	completely	operationally impaired.				

Inspection/Inventory Comments: The Rules

Inspection Comments

Rule #	Rule
1	Required on all inspections with a DCR of A+ and below.
2	Paint DCRs do not have an inspection comment requirement. Only the component DCR A+ and below.
3	Should include any component specific information obtained from the base or POC interview.
4	Should be in complete sentences and use industry standard terminology. Comments can be typed into MS Word for spelling/grammar checks and then pasted into the comments box.
5	Do not use all capital letters for the entire comment. The distress should be all capital letters.
6	Do not use abbreviations, jargon, or slang.
7	Should give enough information for a follow-on assessor to locate the problem area/equipment.
8	Should accurately describe the problem/observation that is the basis for the rating. Someone unfamiliar with the particular item should have an accurate picture of the components current condition and the justification for the assigned rating.
9	Should accurately describe the location of the distress if the component is only showing a distress in a single location. For instance, if an office has a stain in the carpet, it would be necessary to call out the room number of the office.
10	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. For instance, assessor John Doe at firm AE: [John Doe-AE-7/4/2017].
11	After #10 front end information in the brackets one of the 23 distresses should be provided in capitalized form. Building on #10 for an example if stained carpet: [John Doe-AE-7/4/2017] - STAINED.
12	After #10 and #11 a sentence should be provided that provides the distress, severity, location, and quantity. Quantity/Location refers to the amount/location of the distress present.

Inventory Comments

Rule #	Rule
1	Used to identify components that were not visible for inspection. See standard comments.
2	Used as a bread crumb for follow-on inspections. Can provide useful additional information such as location or type to help the next assessor understand what was being inventoried. Ex: This component is the stone wall located behind the receptionist in the lobby area.
3	Should describe the component inventoried where 'OTHER' is used to allow follow-on assessments to understand what was inventoried in the previous assessment.
4	Used to provide the location of the component (especially used for architecture components where there are no Section Details provided that have a location): Roof, NW Corner, Room Number
5	Do not use all capital letters, abbreviations, jargon, or slang.
6	Used to further describe an asset if it is not adequately described in the component type selection.
7	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Section Detail Commen

Rule #	Rule
1	Used to identify data that was not able to be populated in the Details fields. See standard comments.
2	Used to provide information that is specfic to just that component section detail field. This can be a location of the specific section or something that the section services.
4	Do not use all capital letters, abbreviations, jargon, or slang.
5	Each comment should start with the assessor name (First Last), assessor affiliation/company, and date within square brackets. Example: [John Doe-AE-7/4/2017].

Inspection/Inventory Comments: The Rules

Standard Inventory Comments

When	Use Standard Comment
Assets are not visible for inspection.	Component was not visible for inspecQon. Component condition will be age-based by BUILDER™ program degradation curves.
Assets are not visible for inspection that also require Section Details to be populated.	The component is not visible for inspection or population of Section Details. The component will be age-based by BUILDER™ program degradation curves and no nameplate data or inventory photo will be provided.
Assets are not visible for inspection that require quantities to be assumed. Hidden mechanical equipment, ductwork, and # of control points are common occurrences.	The component is not visible for inspection and quantity was estimated based on architect/engineering judgment. The component will be age-based by BUILDER™ program degradation curves.
Assets are located in an area where no electronics area allowed. This prevents an assessor from taking inventory/inspection photos.	The component is located in a secure area of the facility that did not allow electronic devices to be used. Photos were not obtainable.
Assets are visible for inspection but are a system that is not tested (HVAC controls, security system, etc.) so an age-based BUILDER™ CI is desired.	The component condition will be age-based by BUILDER™ program degradation curves.

Standard Section Detail Comments

When	Use Standard Comment
Nameplate is not found on the component.	Nameplate not found on the component. All fields with "NA" represent data not found.
Nameplate is found on the component but it is partial/completely unreadable.	Nameplate on the component was dirty/corroded/damaged/sunwashed. Section Detail fields with "NA" represent data that was not found.
Nameplate is found on the component that is readable but is missing certain Section Details fields.	Nameplate on the component was missing certain Section Detail fields. Section Detail fields have been populated and fields with "NA" represent data not found.

Comment Front-End Clarification

A front end refers to the bracketed information at the start of an inspection/inventory/section detail comment. The front end must have to following 3 pieces of information: 1) assessor name, 2) assessor company or affiliation, and the date. The BRED™ stamp may also provide the time of inspection which is acceptable.

BRED™/BUILDER™ Clarification

The terms BRED™ and BUILDER™ are used interchangeably throughout this document.

Sectioning: The Rules

Sectioning Business Rules

Rule #	Rule
1	Components are divided into sections when a significant variation exists in material/equipment category, age, or construction history, which impacts the life cycle characteristics of the component.
	Example 1 - If a wing or addition was added to a much older building, the two areas of the building should be sectioned differently because the age and construction history is different.
	Example 2 – If the building roof has multiple levels of similar materials in different conditions, these levels should be sectioned differently to capture the difference in condition.
	Example 3 – If the building has more than one of a particular type of component, separate component sections. For example: There is a 5,000 and 10,000 CFM air handler.
2	Multi-wing buildings are always sectioned by wing if the installation date of the wings vary. If a building is an 'E' shape and all wings have the same install date only sectioning by floor is required.
3	Multi-story buildings are always sectioned vertically by floor or level (in the case of a basement or mezzanine).
4	There may be unique instances where sectioning by an area of a building is required. For instance, if a building is split between two companies an installation may request sectioning by company 1 and 2.
5	An on-site discussion must occur at each building among all team members to determine the cardinal direction of the building. All assessors should have North as the same side of the building.
6	An on-site discussion must occur at each building among all team members on how the building should be sectioned. The goal is to avoid one assessor calling it a toilet, one calling it a restroom, and another calling it a bathroom. Standard sectioning naming is important for a consistent data set.
7	The section name should not be repetitive of the component type or material. If the floor is wood, do not have a section name 'WOOD'. Incorporation of the location into the section name is very helpful to be used for follow on assessments. If the wood floor has the section name 'LOBBY', it provides great value.

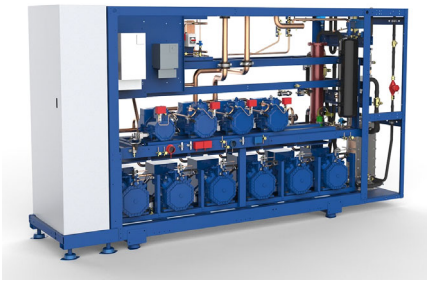
Standard Section Names and Format Rules

Use	Standard Section Name
Section by Floor (Business Rule)	FL1 – 1st Floor, FL2 – 2nd Floor, FL3 – 3rd Floor, etc.
Section by Floor (Business Rule)	BASEMENT, MEZZANINE, ATTIC, etc.
Section by Wing (applicable if different construction histories or condition only)	MAIN, WING A, WING B, WING C, ADDITION, etc.
Section by Direction (applicable if different construction histories or condition only)	NORTH, EAST, WEST, SOUTH, etc.
Section by Roof Level (applicable if different construction histories or condition only)	UPPER, LOWER, MAIN, etc.
When an equipment tag is included in the section name it should match exactly what was found in the field. Example: if the boiler ID number is B-1, the section name equipment tag portion should read B-1. If the boiler is tagged B1, the equipment tag portion should read B1. See equipment sectioning for further guidance.	
Dashes are not required in the section name other than the instance in regards to equipment ID tags above.	
The section name field is always entered in all capital letters.	

R101001 CO2 COMPRESSOR RACKS - 10 Compressor Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 10 compressors.



Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
10 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 2 Compressor Low Temp Booster Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration racks with 2 low temperature booster compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Inventory racks that contain only low temperature booster compressors.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
2 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 2 Compressor Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 2 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
2 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 3 Compressor Low Temp Booster Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration racks with 3 low temperature booster compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Inventory racks that contain only low temperature booster compressors.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
3 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 3 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 3 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
3 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 4 Compressor Low Temp Booster Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration racks with 4 low temperature booster compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Inventory racks that contain only low temperature booster compressors.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
4 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 4 Compressor Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 4 compressors.



Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
4 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 5 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 5 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
5 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 6 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 6 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
6 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 7 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 7 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
7 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 8 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 8 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
8 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - 9 Compressor Racks

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks with 9 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

If separate rack systems are used that contain only low temperature booster compressors, the low temperature booster racks are to be inventoried under component type (4, 3, or 2) Compressor Low Temp Booster Racks in R101001.

Inventory racks that contain medium temperature compressors and racks that contain a combination of both medium temperature compressors and low temperature booster compressors.

Refrigeration racks that contain both medium temperature compressors and low temperature booster compressors are to be inventoried as one rack.

The refrigeration compressor racks often contain heat exchangers that are part of a heat reclaim system. The heat exchangers/heat reclaim system are to be inventoried under component type R102004.

General

CO2 compressor racks can contain only medium temperature compressors, both medium temperature compressors and low temperature booster compressors, or only low temperature booster compressors.

The different compressor types can usually be distinguished by their physical size. Low temperature booster compressors are typically smaller than the medium temperature compressors.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
9 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 CO2 COMPRESSOR RACKS - Other

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigeration compressor racks that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

The Section Name should include the location and Equipment ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

R101001 CO2 COMPRESSOR RACKS - Refrigerant Distribution Piping

Typical Application and General Component Guidance:

This component is used to inventory CO2 refrigerant distribution piping.

Lessons Learned/Business Rules/General Comments

Business Rule

Rating for the piping system should be age-based. If significant issues are observed or indicated/documented during an interview, the assessor can direct rate the piping system.

The UOM used for determining cost is building SF.

General

It is preferred to inventory using the correct floor area and install date and let BUILDER™ degrade the asset.

The piping system will typically not be visible because it is fully insulated and mostly installed behind walls, under the floor or above the ceiling.

Lesson Learned

Assessors will commonly collect all the refrigeration components and forget the piping system, which can have a significant impact on the component replacement value (CRV).

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will have less piping per SF.

When entering the area, assessors can use judgment and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Refrigerant Distribution Piping	Yes	No	No	No	Yes	20	SF

R101001 HFC COMPRESSOR RACKS - 2 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 2 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
2 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - 3 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 3 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
3 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - 4 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 4 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
4 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - 5 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 5 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
5 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - 6 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 6 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
6 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - 7 Compressor Racks



Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks with 7 compressors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
7 Compressor Racks	Yes	Yes	Yes	No	No	20	EA

R101001 HFC COMPRESSOR RACKS - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101001 HFC COMPRESSOR RACKS - Other

Typical Application and General Component Guidance:

This component is used to inventory HFC refrigeration compressor racks that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system compressor racks here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

The Section Name should include the location and Equipment ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

R101001 HFC COMPRESSOR RACKS - Refrigerant Distribution Piping

Typical Application and General Component Guidance:

This component is used to inventory HFC refrigerant distribution piping.

Lessons Learned/Business Rules/General Comments

Business Rule

Rating for the piping system should be age-based. If significant issues are observed or indicated/documented during an interview, the assessor can direct rate the piping system.

The UOM used for determining cost is building SF.

General

It is preferred to inventory using the correct floor area and install date and let BUILDER™ degrade the asset.

The piping system will typically not be visible because it is fully insulated and mostly installed behind walls, under the floor or above the ceiling.

Lesson Learned

Assessors will commonly collect all the refrigeration components and forget the piping system, which can have a significant impact on the component replacement value (CRV).

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will have less piping per SF.

When entering the area, assessors can use judgment and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Refrigerant Distribution Piping	Yes	No	No	No	Yes	20	SF

R101002 CONDENSERS & FLUID COOLERS - Adiabatic Hybrid Fluid Cooler



Typical Application and General Component Guidance:

This component is used to inventory adiabatic hybrid fluid coolers for refrigeration systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system fluid coolers here, they are to be inventoried in D30 HVAC.

General

These are typically located on building roof or outside at ground level.

Lesson Learned

Typical distresses include broken fans, leaks, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Adiabatic Hybrid Fluid Cooler	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Air Cooled Condenser - 1 to 4 fans



Typical Application and General Component Guidance:

This component is used to inventory air cooled refrigeration system condensers with 1 to 4 fans.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensers here, they are to be inventoried in D30 HVAC.

Do not inventory refrigeration condensing units (compressor(s) and condenser in the same unit) under this component type, they are to be inventoried in R101003.

General

These are typically located on building roof or equipment enclosure roof or outside at ground level. Occasionally they are located inside equipment rooms.

Lesson Learned

Typical distresses include broken fans, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Cooled Condenser - 1 to 4 fans	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Air Cooled Condenser - 5+ fans



Typical Application and General Component Guidance:

This component is used to inventory air cooled refrigeration system condensers with 5 or more fans.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensers here, they are to be inventoried in D30 HVAC.

Do not inventory refrigeration condensing units (compressor(s) and condenser in the same unit) under this component type, they are to be inventoried in R101003.

General

These are typically located on building roof or equipment enclosure roof or outside at ground level. Occasionally they are located inside equipment rooms.

Lesson Learned

Typical distresses include broken fans, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Cooled Condenser - 5+ fans	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Cooling Tower



Typical Application and General Component Guidance:

This component is used to inventory cooling towers for refrigeration systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system cooling towers here, they are to be inventoried in D30 HVAC.

General

Cooling towers typically have a fan on top pulling air across coils or fill.

These are typically located on building roof or outside at ground level.

Lesson Learned

Typical distresses include broken fans, leaks, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Cooling Tower	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Distributed System Condenser Loop Piping

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system condenser loop piping.

Lessons Learned/Business Rules/General Comments

Business Rule

Rating for the piping system should be age-based. If significant issues are observed or indicated/documented during an interview, the assessor can direct rate the piping system.

The UOM used for determining cost is building SF.

General

Distributed refrigeration systems have multiple small water cooled condensing units located inside or on top of display cases and above walk-in coolers/freezers.

It is preferred to inventory using the correct floor area and install date and let BUILDER™ degrade the asset.

The condenser water piping system will typically not be visible because it is fully insulated and mostly installed behind walls, under the floor or above the ceiling.

Lesson Learned

Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Assessors will commonly collect all the refrigeration components and forget the piping system, which can have a significant impact on the component replacement value (CRV).

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will have less piping per SF.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Distributed System Condenser Loop Piping	Yes	No	No	No	Yes	20	SF

R101002 CONDENSERS & FLUID COOLERS - Evaporative Fluid Cooler



Typical Application and General Component Guidance:

This component is used to inventory evaporative fluid coolers for refrigeration systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system fluid coolers here, they are to be inventoried in D30 HVAC.

General

These are typically located on building roof or outside at ground level.

Lesson Learned

Typical distresses include broken fans, leaks, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Evaporative Fluid Cooler	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Other

Typical Application and General Component Guidance:

This component is used to inventory refrigeration system condensers and fluid coolers that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensers or fluid coolers here, they are to be inventoried in D30 HVAC.

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

The Section Name should include the location and Equipment ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Pump Station



Typical Application and General Component Guidance:

This component is used to inventory fluid cooler pump stations for refrigeration systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory pump stations for HVAC systems here.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Pump Station	Yes	Yes	Yes	No	No	20	EA

R101002 CONDENSERS & FLUID COOLERS - Water Treatment



Typical Application and General Component Guidance:

This component is used to inventory water treatment systems for refrigeration systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory water treatment for HVAC systems here.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Water Treatment	Yes	Yes	Yes	No	No	20	EA

R101003 CONDENSING UNITS - Air Cooled - Large Compressor(s) & Fans



Typical Application and General Component Guidance:

This component is used to inventory large packaged air cooled condensing units for refrigeration.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of compressors and condenser fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensing units here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

General

Large condensing units typically serve several walk-in coolers/freezers and/or multiple display case lineups.

Refrigeration condensing units include compressor(s) and condenser fan(s)/coils in the same unit.

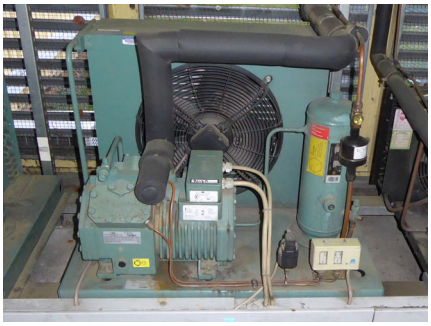
These are typically located on building roof or outside at ground level. Occasionally they are located inside equipment rooms.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, broken fans, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Cooled - Large Compressor(s) & Fans	Yes	Yes	Yes	No	No	20	EA

R101003 CONDENSING UNITS - Air Cooled - Small Compressor & Fans



Typical Application and General Component Guidance:

This component is used to inventory small packaged air cooled condensing units for refrigeration.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of compressors and condenser fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensing units here, they are to be inventoried in D30 HVAC.

Record refrigerant type in the Inventory Comment at the Section level.

General

Refrigeration condensing units include compressor(s) and condenser fan(s)/coils in the same unit.

Small condensing units typically serve one walk-in cooler/freezer or one to two display cases.

These are typically located on building roof or outside at ground level. Occasionally they are located inside equipment rooms.

Lesson Learned

Common distresses include corroded, leaks, operationally impaired, broken fans, corroded or damaged coil fins, corroded or damaged casing/mounting structure, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Air Cooled - Small Compressor & Fans	Yes	Yes	Yes	No	No	20	EA

R101003 CONDENSING UNITS - Other

Typical Application and General Component Guidance:

This component is used to inventory condensing units that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, Model, Serial Number.

Do not inventory HVAC system condensing units here, they are to be inventoried in D30 HVAC.

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

The Section Name should include the location and Equipment ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

R101004 UNIT COOLERS - Distributed System Low Profile / Draw Through



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system low profile (draw through) unit coolers used in walk-in coolers and freezers.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

An associated water cooled condensing unit that serves the unit coolers is typically mounted above the walk-in cooler/freezer and not accessible to the assessor. The condensing unit and unit cooler(s) are considered to be one unit for this inspection.

Record refrigerant type in the Inventory Comment at the Section level.

General

These unit coolers are typically mounted near the ceiling and wall of a walk-in cooler or freezer. The fan(s) draw air through the coil in back of the unit and discharges cold air out into the room.

Lesson Learned

Common distresses include operationally impaired, broken fans, corroded or damaged coil fins, damaged casing, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Distributed System Low Profile / Draw Through	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS - Distributed System Low Velocity / Blow Through



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration low velocity (blow through) unit coolers used in walk-in coolers.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

An associated water cooled condensing unit that serves the unit coolers is typically mounted above the walk-in cooler/freezer and not accessible to the assessor. The condensing unit and unit cooler(s) are considered to be one unit for this inspection.

Record refrigerant type in the Inventory Comment at the Section level.

General

These unit coolers are typically mounted near the ceiling of a walk-in cooler. The fan(s) pull air from the bottom and blow it through coils on the side(s) of the unit. The air is discharged at low velocity to minimize discomfort to occupants in the room.

This type of low velocity unit cooler is typically used in walk-in coolers that are frequently occupied like Dairy, Produce Processing, Meat Processing, etc.

Lesson Learned

Common distresses include operationally impaired, broken fans, corroded or damaged coil fins, damaged casing, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Distributed System Low Velocity / Blow Through	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS - Large Profile / Draw Through - CDCs



Typical Application and General Component Guidance:

This component is used to inventory large profile (draw through) unit coolers used for large cold storage rooms in Central Distribution Centers.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

Fabric ducts are used at some locations to distribute the air. If ducted, note as such in Inventory Comment, and consider as one unit for rating.

General

These unit coolers are typically mounted near the ceiling and wall of a cold storage room. The fan(s) draw air through the coil in back of the unit and discharges cold air out into the room.

Lesson Learned

Central distribution center cold storage rooms typically have very high ceilings which makes it difficult to assess this equipment. In these cases, use zoomed in photos to look for signs of distress and ask personnel if there are known issues.

Common distresses include operationally impaired, broken fans, corroded or damaged coil fins, damaged casing, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Large Profile / Draw Through - CDCs	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS - Low Profile / Draw Through



Typical Application and General Component Guidance:

This component is used to inventory low profile (draw through) unit coolers used in walk-in coolers and freezers.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

General

These unit coolers are typically mounted near the ceiling and wall of a walk-in cooler or freezer. The fan(s) draw air through the coil in back of the unit and discharges cold air out into the room.

Lesson Learned

Common distresses include operationally impaired, broken fans, corroded or damaged coil fins, damaged casing, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Profile / Draw Through	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS - Low Velocity / Blow Through



Typical Application and General Component Guidance:

This component is used to inventory low velocity (blow through) unit coolers used in walk-in coolers.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment indicating number of fans.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

General

These unit coolers are typically mounted near the ceiling of a walk-in cooler. The fan(s) pull air from the bottom and blow it through coils on the side(s) of the unit. The air is discharged at low velocity to minimize discomfort to occupants in the room.

This type of low velocity unit cooler is typically used in walk-in coolers that are frequently occupied like Dairy, Produce Processing, Meat Processing, etc.

Lesson Learned

Common distresses include operationally impaired, broken fans, corroded or damaged coil fins, damaged casing, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Velocity / Blow Through	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS - Other

Typical Application and General Component Guidance:

This component is used to inventory unit coolers that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, and Manufacturer if easily located.

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

The Section Name should include the location and Equipment ID so the next assessor can easily identify and find it.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA

R101005 PRODUCE DISPLAY CASES - Island (System Refrigerated) 12-Ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 12-foot island display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 12-Ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Island (System Refrigerated) 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 8-foot island display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 12-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 8-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory Produce multi-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck Convertible display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 12-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 8-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Multi-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory Produce multi-deck display cases with doors, that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck Convertible display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101005 PRODUCE DISPLAY CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Produce display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101005 PRODUCE DISPLAY CASES - Single-Deck Convertible 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 12-foot single-deck convertible display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

Convertible produce cases are typically set up as single-deck, with the product display angled toward the patron. They can also be set up as multi-deck and display product on 2 shelves.

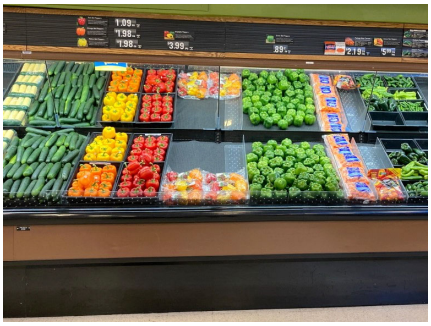
Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck Convertible 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Single-Deck Convertible 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Produce 8-foot single-deck convertible display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

Convertible produce cases are typically set up as single-deck, with the product display angled toward the patron. They can also be set up as multi-deck and display product on 2 shelves.

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck Convertible 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101005 PRODUCE DISPLAY CASES - Single-Deck Convertible Other

Typical Application and General Component Guidance:

This component is used to inventory Produce single-deck convertible display cases that that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Single-Deck Convertible display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

Convertible produce cases are typically set up as single-deck, with the product display angled toward the patron. They can also be set up as multi-deck and display product on 2 shelves.

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck Convertible Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES - Clerk Service Seafood 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory 12-foot clerk service seafood display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service Seafood 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Clerk Service Seafood 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory 8-foot clerk service seafood display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Clerk Service Seafood 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Clerk Service Seafood Other

Typical Application and General Component Guidance:

This component is used to inventory clerk service seafood display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other clerk service display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service Seafood Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck 12-ft/3.75-m

Typical Application and General Component Guidance:

This component is used to inventory Meat 12-foot multi-deck display cases.



Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Meat 8-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory Meat single-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Meat 12-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Meat 8-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Multi-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory Meat single-deck display cases with doors, that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

Multi-deck display cases for fresh meat and prepackaged meat are inventoried here.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases are located in and near the Meat Department, not the Deli/Bakery area.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Meat display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

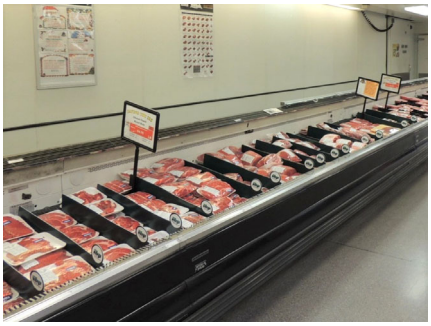
Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES - Single-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Meat 12-foot single-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases are typically used to display fresh meat.

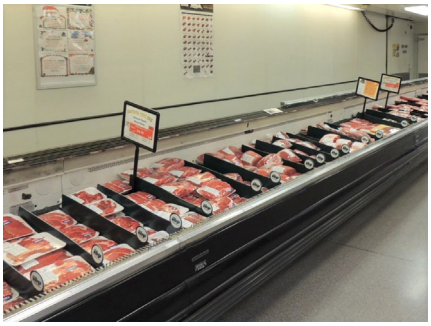
Lesson Learned

Nameplates are sometimes below the return air grate and not easily accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Single-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Meat 8-foot single-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases are typically used to display fresh meat.

Lesson Learned

Nameplates are sometimes below the return air grate and not easily accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101006 MEAT DISPLAY CASES - Single-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory Meat single-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Single-Deck display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases are typically used to display fresh meat.

Lesson Learned

Nameplates are sometimes below the return air grate and not easily accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY DISPLAY CASES - Island (System Refrigerated) 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 12-foot island display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Island (System Refrigerated) 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 8-foot island display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 12-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 8-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory Dairy multi-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

Open (no doors) roll-in dairy display cases should also be inventoried under this component type.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 12-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory multi-deck roll-in dairy display with doors here. They are to be inventoried under R101007 DAIRY REACH-IN DISPLAY DOORS.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Dairy 8-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory multi-deck roll-in dairy display with doors here. They are to be inventoried under R101007 DAIRY REACH-IN DISPLAY DOORS.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101007 DAIRY DISPLAY CASES - Multi-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory Dairy multi-deck display cases with doors, that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory multi-deck roll-in dairy display with doors here. They are to be inventoried under R101007 DAIRY REACH-IN DISPLAY DOORS.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY DISPLAY CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Dairy display cases that that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY REACH-IN DISPLAY DOORS - Per Glass Door



Typical Application and General Component Guidance:

This component is used to inventory Dairy reach-in display doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Do not inventory open (no doors) roll-in dairy display cases here. They are to be inventoried under Multi-Deck Other.

Unit of measure is per door.

General

Reach in dairy display doors are installed on the Sales Area side of the Dairy walk-in cooler.

Lesson Learned

Typical distresses can include corroded hinges, damaged hardware, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Per Glass Door	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Combination Multi/Single-Deck w/ Doors 12ft/3.75m



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food 3.75m combination multi/single-deck display cases found in some European stores.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

This case type is found in some European stores. The upper portion is multi-deck glass door cabinets and the lower portion is single deck either open or with sliding glass lids.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Combination Multi/Single-Deck w/ Doors 12ft/3.75m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Combination Multi/Single-Deck w/ Doors 8ft/2.50m



Typical Application and General Component Guidance:

This component is used to inventory 2.50m Frozen Food combination multi/single-deck display cases found in some European stores.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

This case type is found in some European stores. The upper portion is multi-deck glass door cabinets and the lower portion is single deck either open or with sliding glass lids.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Combination Multi/Single-Deck w/ Doors 8ft/2.50m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Combination Multi/Single-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory other Frozen Food combination multi/single-deck display cases found in some European stores.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to indicate the case length.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Combination Multi/Single-Deck frozen food display cases include 1880 mm (6 ft) and 2100 mm (7 ft) cases.

General

This case type is found in some European stores. The upper portion is multi-deck glass door cabinets and the lower portion is single deck either open or with sliding glass lids.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Combination Multi/Single-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101008 FROZEN FOOD CASES - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101008 FROZEN FOOD CASES - Multi-Deck 2-Door



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food / Ice Cream multi-deck 2-door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 2-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 2-Door	**Yes**	**Yes**	**Yes**	No	No	15	EA

R101008 FROZEN FOOD CASES - Multi-Deck 3-Door



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food / Ice Cream multi-deck 3-door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 3-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Multi-Deck 4-Door



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food / Ice Cream multi-deck 4-door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 4-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 4-Door	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Multi-Deck 5-Door



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food / Ice Cream multi-deck 5-door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 5-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 5-Door	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Multi-Deck Open

Typical Application and General Component Guidance:

This component is used to inventory Frozen Food multi-deck display cases without doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to indicate the case length.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck Open	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Frozen Food / Ice Cream display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

Examples of other frozen food / ice cream display cases include 8-door wrap around end-cap cases and other wrap-around or unusual end-cap cases.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food 12-foot single-deck wide island display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory narrow island (single width) or end cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck Other.

Inventory 12 foot single-deck wide island cases here. These are double width or back-to-back cases with a total width of about 6.7 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Single-deck wide island cases may have one nameplate per side, or one nameplate for both sides.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food 8-foot single-deck wide island display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory narrow island (single width) or end cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck Other.

Inventory 8 foot single-deck wide island cases here. These are double width or back-to-back cases with a total width of about 6.7 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Single-deck wide island cases may have one nameplate per side, or one nameplate for both sides.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck Other



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food single-deck narrow island cases and single-deck end cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to indicate the case length. Narrow island case lengths are 12 ft or 8 ft, end case length is 6.7 ft.

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory wide island (double width) display cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck 8-ft, or - Single Deck 12-ft.

Inventory single-deck narrow island cases and single-deck end cases here. These are single width cases, typically 3.5 feet wide, although some narrow island cases are as wide as 4.8 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food 12-foot single-deck wide island display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory narrow island (single width) or end cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck w/ Doors Other.

Inventory 12 foot single-deck wide island cases with glass doors (lids) here. These are double width or back-to-back cases with a total width of about 6.7 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Single-deck wide island cases may have one nameplate per side, or one nameplate for both sides.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food 8-foot single-deck wide island display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory narrow island (single width) or end cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck w/ Doors Other.

Inventory 8 foot single-deck wide island cases with glass doors (lids) here. These are double width or back-to-back cases with a total width of about 6.7 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Single-deck wide island cases may have one nameplate per side, or one nameplate for both sides.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Single-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES - Single-Deck w/ Doors Other



Typical Application and General Component Guidance:

This component is used to inventory Frozen Food single-deck narrow island cases with doors and single-deck end cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to indicate the case length. Narrow island case lengths are 12 ft or 8 ft, end case length is 6.7 ft.

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory wide island (double width) display cases here. They are to be inventoried under R101008 Frozen Food Cases - Single-Deck w/ Doors 8-ft, or - Single Deck w/ Doors 12-ft.

Inventory single-deck narrow island cases with doors (lids) and single-deck end cases with doors (lids) here. These are single width cases, typically 3.5 feet wide, although some narrow island cases are as wide as 4.8 feet.

General

Single-deck frozen food cases are sometimes called coffin cases.

Lesson Learned

Nameplates are often attached to the inside back of the case toward the left, and are often blocked by product. Sometimes the nameplate is inside the return air path at the front, left.

Typical distresses can include corroded casing, damaged, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Single-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - Clerk Service 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 12-foot clerk service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Clerk Service 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Clerk Service 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 8-foot clerk service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Clerk Service 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Clerk Service Other

Typical Application and General Component Guidance:

This component is used to inventory Deli clerk service display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other clerk service display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101009 DELI DISPLAY CASES - Island (System Refrigerated) 12-ft/3.75-m

Typical Application and General Component Guidance:

This component is used to inventory Deli 12-foot island display cases that are cooled by a centralized refrigeration system.



Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Island (System Refrigerated) 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 8-foot island display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Lesson Learned

Nameplates are often under the product and not accessible in this case type. Asset ID tags and/or Equipment ID tags are typical visible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 12-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 8-foot multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory Deli multi-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 12-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 8-foot multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Multi-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory Deli multi-deck display cases with doors, that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 6-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

Lesson Learned

Nameplates are typically attached to the inside top of the case. Sometimes they are below the return air grate and not easily accessible.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Deli display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - Sandwich Prep (System Refrigerated) 4-ft/1.22-m



Typical Application and General Component Guidance:

This component is used to inventory Sandwich Prep 4-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sandwich Prep (System Refrigerated) 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Sandwich Prep (System Refrigerated) 6-ft/1.83-m



Typical Application and General Component Guidance:

This component is used to inventory Sandwich Prep 6-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Sandwich Prep (System Refrigerated) 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Sandwich Prep (System Refrigerated) 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Sandwich Prep 8-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sandwich Prep (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Self Service 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 12-foot self service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Self Service 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Deli 8-foot self service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Self Service Other

Typical Application and General Component Guidance:

This component is used to inventory Deli self service display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

An examples of other self service display cases is a 6-foot case.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES - Sushi Prep (System Refrigerated) 4-ft/1.22-m



Typical Application and General Component Guidance:

This component is used to inventory Sushi Prep 4-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sushi Prep (System Refrigerated) 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Sushi Prep (System Refrigerated) 6-ft/1.83-m



Typical Application and General Component Guidance:

This component is used to inventory Sushi Prep 6-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sushi Prep (System Refrigerated) 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA

R101009 DELI DISPLAY CASES - Sushi Prep (System Refrigerated) 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Sushi Prep 8-foot display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

General

These are combination prep (rear) and self-service (front) cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Sushi Prep (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Clerk Service 4-ft/1.22-m



Typical Application and General Component Guidance:

This component is used to inventory Bakery 4-foot clerk service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Clerk Service 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Clerk Service 6-ft/1.83-m



Typical Application and General Component Guidance:

This component is used to inventory Bakery 6-foot clerk service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Clerk Service Non-Refrigerated Any Size



Typical Application and General Component Guidance:

This component is used to inventory Bakery clerk service non-refrigerated display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

The Section Name should include the location and case length so the next assessor can easily find it.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service Non-Refrigerated Any Size	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Clerk Service Other

Typical Application and General Component Guidance:

This component is used to inventory Bakery clerk service display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Examples of other clerk service display cases include corner wedge cases.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These cases typically have a glass front and patrons are served by a store associate from the back.

Lesson Learned

Nameplates are often located on the rear of the case and sometimes underneath folding counters used by clerks.

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Clerk Service Other	Yes	Yes	Yes	Yes	No	15	EA

R101010 BAKERY DISPLAY CASES - Frozen Multi-Deck 1-Door

Typical Application and General Component Guidance:

This component is used to inventory Bakery frozen multi deck 1 door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 1-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Frozen Multi-Deck 1-Door	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Frozen Multi-Deck 2-Door



Typical Application and General Component Guidance:

This component is used to inventory Bakery frozen multi deck 2 door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 2-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Frozen Multi-Deck 2-Door	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Frozen Multi-Deck 3-Door



Typical Application and General Component Guidance:

This component is used to inventory Bakery frozen multi deck 3 door display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 3-door case.

Lesson Learned

Nameplates are typically attached to the inside top of the case.

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Frozen Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101010 BAKERY DISPLAY CASES - Other

Typical Application and General Component Guidance:

This component is used to inventory Bakery display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained display cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Do not inventory small portable display cases that are self-contained (plugged into a receptacle).

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc. and are self-contained (plugged into a receptacle).

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This component type is intended to be used as a temporary placeholder. When the inventory item is properly identified, move it to the appropriate System and Component Type.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101010 BAKERY DISPLAY CASES - Self Service 4-ft/1.22-m



Typical Application and General Component Guidance:

This component is used to inventory Bakery 4-foot self service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Self Service 6-ft/1.83-m



Typical Application and General Component Guidance:

This component is used to inventory Bakery 6-foot self service display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Self Service Non-Refrigerated Any Size



Typical Application and General Component Guidance:

This component is used to inventory Bakery self service non-refrigerated display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

The Section Name should include the location and Inventory Comment should include the case length so the next assessor can easily identify it.

General

These cases are similar to the clerk service cases but there is no glass front and patrons serve themselves.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Self Service Non-Refrigerated Any Size	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES - Self Service Other

Typical Application and General Component Guidance:

This component is used to inventory Bakery self service display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

An examples of other self service display cases is a 6-foot case.

The Section Name should include the location and Inventory Comment should briefly describe the component so the next assessor can easily find it.

General

These are low profile (height is about 4.6 feet), open, multi-deck cases.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Self Service Other	Yes	Yes	Yes	Yes	No	15	EA

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM - Carel



Typical Application and General Component Guidance:

This component is used to inventory Carel Refrigeration Monitoring and Control Systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add RMCS Model to Section Details if the information is easily located.

Rating for the RMCS should be age-based. If significant issues with the control panels or front-end computer are observed or indicated/documented during an interview, the assessor can direct rate the RMCS.

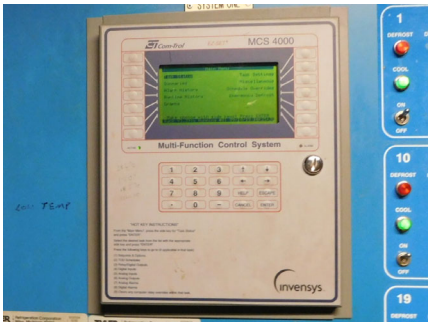
The UOM used for determining cost is building SF.

Lesson Learned

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will cost less per SF. Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Carel	Yes	Yes	Yes	No	Yes	15	SF

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM - ComTrol



Typical Application and General Component Guidance:

This component is used to inventory ComTrol Refrigeration Monitoring and Control Systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add RMCS Model to Section Details if the information is easily located.

Rating for the RMCS should be age-based. If significant issues with the control panels or front-end computer are observed or indicated/documented during an interview, the assessor can direct rate the RMCS.

The UOM used for determining cost is building SF.

Lesson Learned

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will cost less per SF. Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
ComTrol	Yes	Yes	Yes	No	Yes	15	SF

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM - Danfoss



Typical Application and General Component Guidance:

This component is used to inventory Danfoss Refrigeration Monitoring and Control Systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add RMCS Model to Section Details if the information is easily located.

If other brands of existing RMCS are inventoried here, change/move them to the appropriate Component Type before performing inspection.

Rating for the RMCS should be age-based. If significant issues with the control panels or front-end computer are observed or indicated/documented during an interview, the assessor can direct rate the RMCS.

The UOM used for determining cost is building SF.

Lesson Learned

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will cost less per SF. Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Danfoss	Yes	Yes	Yes	No	Yes	15	SF

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM - Eckelmann



Typical Application and General Component Guidance:

This component is used to inventory Eckelmann Refrigeration Monitoring and Control Systems.

Lessons Learned/Business Rules/General Comments

Business Rule

Add RMCS Model to Section Details if the information is easily located.

Rating for the RMCS should be age-based. If significant issues with the control panels or front-end computer are observed or indicated/documented during an interview, the assessor can direct rate the RMCS.

The UOM used for determining cost is building SF.

Lesson Learned

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will cost less per SF. Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Eckelmann	Yes	Yes	Yes	No	Yes	15	SF

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM - Other



Typical Application and General Component Guidance:

This component is used to inventory Refrigeration Monitoring and Control Systems by manufacturers that are not specifically listed in the other available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add RMCS manufacturer and model to Section Details if the information is easily located.

Do not inventory systems that are owned by others. Examples are Public Works, Base Maintenance contractor, etc.

Examples of other RMCS brands include RDM, Iconag, etc.

Rating for the RMCS should be age-based. If significant issues with the control panels or front-end computer are observed or indicated/documented during an interview, the assessor can direct rate the RMCS.

The UOM used for determining cost is building SF.

Lesson Learned

Cost per SF is based on a typical commissary. A commissary with a very large warehouse or refrigerated CDC without display cases will cost less per SF. Assessors can use judgment when entering the area and adjust the SF down based on their expertise.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	Yes	15	SF

R101012 SELF CONTAINED DISPLAY CASES (DECA OWNED, NOT VENDOR) - 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory 12-foot self-contained display cases owned by DeCA.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory small portable self-contained display cases.

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc.

If existing items are inventoried here incorrectly, change/move them to the appropriate System and Component Type before performing inspection.

Inventory Comment should include type (MULTI-DECK, LOW PROFILE, ISLAND, etc.), and use (GRAB-N-GO, SUSHI, DRINK, SANDWICH, etc.) so the next assessor can easily find and assess it.

Record refrigerant type in the Inventory Comment at the Section level.

The Section Name should include the location/department (PRODUCE, DELI, DAIRY, etc.).

General

Self contained display cases have their own refrigeration system (compressor and air-cooled condenser) within the case.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101012 SELF CONTAINED DISPLAY CASES (DECA OWNED, NOT VENDOR) - 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory 8-foot self-contained display cases owned by DeCA.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory small portable self-contained display cases.

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc.

If existing items are inventoried here incorrectly, change/move them to the appropriate System and Component Type before performing inspection.

Inventory Comment should include type (MULTI-DECK, LOW PROFILE, ISLAND, etc.), and use (GRAB-N-GO, SUSHI, DRINK, SANDWICH, etc.) so the next assessor can easily find and assess it.

Record refrigerant type in the Inventory Comment at the Section level.

The Section Name should include the location/department (PRODUCE, DELI, DAIRY, etc.).

General

Self contained display cases have their own refrigeration system (compressor and air-cooled condenser) within the case.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101012 SELF CONTAINED DISPLAY CASES (DECA OWNED, NOT VENDOR) - Other

Typical Application and General Component Guidance:

This component is used to inventory self-contained display cases that do not closely match available Component Types in this Material/Equipment Category.

Lessons Learned/Business Rules/General Comments

Business Rule

Add an Inventory Comment at the Section level to describe the equipment being inventoried and type abbreviation. Types can include multi-deck (MD), island, grab-n-go (GNG), etc.

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory small portable self-contained display cases.

Do not inventory Vendor (not DeCA owned) display cases that have a company name such as Pepsi, Kraft, etc.

Examples of other self contained cases include 6-feet, 4-feet, 3 feet, etc.

If existing items are inventoried here incorrectly, change/move them to the appropriate System and Component Type before performing inspection.

Record refrigerant type in the Inventory Comment at the Section level.

The Section Name should include the location/department (PRODUCE, DELI, DAIRY, etc.) so the next assessor can easily find it.

General

Self contained display cases have their own refrigeration system (compressor and air-cooled condenser) within the case.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA

R101012 SELF CONTAINED DISPLAY CASES (NOT VENDOR MERCHANDISER) - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	**No**	No	No	No	No	10	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101012 SELF CONTAINED DISPLAY CASES (NOT VENDOR MERCHANDISER) - Other

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	**No**	No	No	No	No	10	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101013 GRAB-N-GO DISPLAY CASES - System Refrigerated 6-ft/1.83-m



Typical Application and General Component Guidance:

This component is used to inventory Grab-N-Go 6-foot display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained Grab-N-Go cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Indicate location or department in the Section Name.

General

Grab-N-Go display cases are often located near the entrance and near deli/bakery area.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
System Refrigerated 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA

R101013 GRAB-N-GO DISPLAY CASES - System Refrigerated 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory Grab-N-Go 8-foot display cases that are cooled by a centralized refrigeration system.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained Grab-N-Go cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Indicate location or department in the Section Name.

General

Grab-N-Go display cases are often located near the entrance and near deli/bakery area.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
System Refrigerated 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101013 GRAB-N-GO DISPLAY CASES - System Refrigerated Other

Typical Application and General Component Guidance:

This component is used to inventory Grab-N-Go display cases that are cooled by a centralized refrigeration system and do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Do not inventory self contained Grab-N-Go cases here. They are to be inventoried under R101012 Self Contained Display Cases (DeCA owned, not Vendor).

Indicate location or department in the Section Name.

General

Grab-N-Go display cases are often located near the entrance and near deli/bakery area.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
System Refrigerated Other	Yes	Yes	Yes	Yes	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Low Temp Multi-Deck 2-Door

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, low temperature, multi-deck display cases with 2 doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 2-door case.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temp Multi-Deck 2-Door	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Low Temp Multi-Deck 3-Door

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, low temperature, multi-deck display cases with 3 doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 3-door case.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temp Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Low Temp Multi-Deck 4-Door



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, low temperature, multi-deck display cases with 4 doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 4-door case.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Cmnt?	Age Based?	Design Life	UOM
Low Temp Multi-Deck 4-Door	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Low Temp Multi-Deck 5-Door



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, low temperature, multi-deck display cases with 5 doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 5-door case.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temp Multi-Deck 5-Door	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Low Temp Single-Deck w/ Doors

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, low temperature, single-deck, display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

The Section Name should include the location and Inventory Comment should indicate case length so the next assessor can easily identify it.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Low Temp Single-Deck w/ Doors	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, 12-foot, multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, 8-foot, multi-deck display cases.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck Other

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, multi-deck display cases that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 4-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should include the case length/type so the next assessor can easily identify it.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck Roll-in 5-Door



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, multi-deck, roll-in display cases with 5 doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

Unit of measure is each 5-door case.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded hinges or casing, damaged hardware, noise/vibration of fans, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck Roll-in 5-Door	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck w/ Doors 12-ft/3.75-m



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, 12-foot, multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck w/ Doors 8-ft/2.45-m



Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, 8-foot, multi-deck display cases with doors.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE######## or Equipment ID, Manufacturer, and Model if easily located.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES - Medium Temp Multi-Deck w/ Doors Other

Typical Application and General Component Guidance:

This component is used to inventory distributed refrigeration system, medium temperature, multi-deck display cases with doors, that do not closely match available Component Types.

Lessons Learned/Business Rules/General Comments

Business Rule

Add data to Section Details, at minimum include DeCA asset tag number - DE####### or Equipment ID, Manufacturer, and Model if easily located.

Examples of other Multi-Deck display cases include 4-foot cases and corner wedge cases.

The Section Name should include the location and Inventory Comment should indicate case length so the next assessor can easily identify it.

General

Distributed refrigeration system display cases have small water cooled condensing units located inside or on top of the cases, not accessible to the assessor. The condensing unit(s) and display cases are considered to be one unit for this inspection.

Lesson Learned

Typical distresses can include corroded, damaged, noise/vibration, operationally impaired, etc.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Medium Temp Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R102003 CLERK SERVE SANDWICH DISPLAY CASE - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R102004 HEAT RECLAIM / RECOVERY SYSTEM - DHW - General



Typical Application and General Component Guidance:

This component is used to inventory heat reclaim/recovery systems that serve the domestic hot water system.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name should include the Rack ID and Tank ID so the next assessor can easily identify and find it.

General

DHW heat reclaim systems include valves/actuators at refrigeration rack, heat exchanger and associated pump(s) (for some systems), pipe and fittings, pipe insulation, and heat reclaim water tank.

Lesson Learned

Typical distresses include corroded, damaged, and leaks.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA

R102004 HEAT RECLAIM / RECOVERY SYSTEM - HVAC - General



Typical Application and General Component Guidance:

This component is used to inventory heat reclaim/recovery systems that serve the HVAC system.

Lessons Learned/Business Rules/General Comments

Business Rule

The Section Name should include the Rack ID and AHU ID so the next assessor can easily identify and find it.

General

HVAC heat reclaim systems include valves/actuators at refrigeration rack, heat exchanger and associated pump(s) (for some systems), pipe and fittings, pipe insulation, and heating coil in the air handling unit.

Lesson Learned

Typical distresses include corroded, damaged, and leaks.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA

R102005 SELF SERVE DELI CASE - General

Typical Application and General Component Guidance:

DO NOT use this Component Type. See Business Rules below.

Lessons Learned/Business Rules/General Comments

Business Rule

If existing items are inventoried here, change/move them to the appropriate System and Component Type before performing inspection.

This item is not in scope.

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	EA

If a component is listed as In Scope? - 'No' it is 1) being included for clarification purposes or 2) providing general guidance for all like kind component types that are better selections. See complete catalog at the end of the section.

R101001 CO2 COMPRESSOR RACKS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA
10 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
2 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA
2 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
3 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA
3 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
4 Compressor Low Temp Booster Racks	Yes	Yes	Yes	No	No	20	EA
4 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
5 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
6 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
7 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
8 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
9 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
Refrigerant Distribution Piping	Yes	No	No	No	Yes	20	SF

R101001 HFC COMPRESSOR RACKS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	20	EA
2 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
3 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
4 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
5 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
6 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
7 Compressor Racks	Yes	Yes	Yes	No	No	20	EA
Refrigerant Distribution Piping	Yes	No	No	No	Yes	20	SF

R101002 CONDENSERS & FLUID COOLERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA
Adiabatic Hybrid Fluid Cooler	Yes	Yes	Yes	No	No	20	EA
Air Cooled Condenser - 1 to 4 fans	Yes	Yes	Yes	No	No	20	EA
Air Cooled Condenser - 5+ fans	Yes	Yes	Yes	No	No	20	EA
Cooling Tower	Yes	Yes	Yes	No	No	20	EA
Distributed System Condenser Loop Piping	Yes	No	No	No	Yes	20	SF
Evaporative Fluid Cooler	Yes	Yes	Yes	No	No	20	EA
Pump Station	Yes	Yes	Yes	No	No	20	EA
Water Treatment	Yes	Yes	Yes	No	No	20	EA

R101003 CONDENSING UNITS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA
Air Cooled - Large Compressor(s) & Fans	Yes	Yes	Yes	No	No	20	EA
Air Cooled - Small Compressor & Fans	Yes	Yes	Yes	No	No	20	EA

R101004 UNIT COOLERS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	20	EA
Distributed System Low Profile / Draw Through	Yes	Yes	Yes	No	No	20	EA
Distributed System Low Velocity / Blow Through	Yes	Yes	Yes	No	No	20	EA
Large Profile / Draw Through - CDCs	Yes	Yes	Yes	No	No	20	EA
Low Profile / Draw Through	Yes	Yes	Yes	No	No	20	EA
Low Velocity / Blow Through	Yes	Yes	Yes	No	No	20	EA

R101005 PRODUCE DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA
Island (System Refrigerated) 12-Ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA
Single-Deck Convertible 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck Convertible 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck Convertible Other	Yes	Yes	Yes	Yes	No	15	EA

R101006 MEAT DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA
Clerk Service Seafood 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service Seafood 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service Seafood Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA
Single-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA
Island (System Refrigerated) 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101007 DAIRY REACH-IN DISPLAY DOORS

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Per Glass Door	Yes	Yes	Yes	No	No	15	EA

R101008 FROZEN FOOD CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	15	EA
Combination Multi/Single-Deck w/ Doors 12ft/3.75m	Yes	Yes	Yes	No	No	15	EA
Combination Multi/Single-Deck w/ Doors 8ft/2.50m	Yes	Yes	Yes	No	No	15	EA
Combination Multi/Single-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck 2-Door	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 4-Door	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 5-Door	Yes	Yes	Yes	No	No	15	EA
Multi-Deck Open	Yes	Yes	Yes	No	No	15	EA
Single-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Single-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Single-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R101009 DELI DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	15	EA
Clerk Service 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service Other	Yes	Yes	Yes	Yes	No	15	EA
Island (System Refrigerated) 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Island (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA
Sandwich Prep (System Refrigerated) 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA
Sandwich Prep (System Refrigerated) 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA
Sandwich Prep (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Self Service 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Self Service 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Self Service Other	Yes	Yes	Yes	Yes	No	15	EA
Sushi Prep (System Refrigerated) 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA
Sushi Prep (System Refrigerated) 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA
Sushi Prep (System Refrigerated) 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101010 BAKERY DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA
Other	Yes	Yes	Yes	Yes	No	15	EA
Clerk Service 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA
Clerk Service Non-Refrigerated Any Size	Yes	Yes	Yes	No	No	15	EA
Clerk Service Other	Yes	Yes	Yes	Yes	No	15	EA
Frozen Multi-Deck 1-Door	Yes	Yes	Yes	No	No	15	EA
Frozen Multi-Deck 2-Door	Yes	Yes	Yes	No	No	15	EA
Frozen Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA
Self Service 4-ft/1.22-m	Yes	Yes	Yes	No	No	15	EA
Self Service 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA
Self Service Non-Refrigerated Any Size	Yes	Yes	Yes	No	No	15	EA
Self Service Other	Yes	Yes	Yes	Yes	No	15	EA

R101011 REFRIGERATION MONITORING & CONTROL SYSTEM

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	Yes	15	SF
Carel	Yes	Yes	Yes	No	Yes	15	SF
ComTrol	Yes	Yes	Yes	No	Yes	15	SF
Danfoss	Yes	Yes	Yes	No	Yes	15	SF
Eckelmann	Yes	Yes	Yes	No	Yes	15	SF

R101012 SELF CONTAINED DISPLAY CASES (DECA OWNED, NOT VENDOR)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA
12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA

R101012 SELF CONTAINED DISPLAY CASES (NOT VENDOR MERCHANDISER)

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	EA
Other	No	No	No	No	No	10	EA

R101013 GRAB-N-GO DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
System Refrigerated 6-ft/1.83-m	Yes	Yes	Yes	No	No	15	EA
System Refrigerated 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
System Refrigerated Other	Yes	Yes	Yes	Yes	No	15	EA

R101014 DISTRIBUTED REFRIGERATION DISPLAY CASES

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
Other	Yes	Yes	Yes	Yes	No	15	EA
Low Temp Multi-Deck 2-Door	Yes	Yes	Yes	No	No	15	EA
Low Temp Multi-Deck 3-Door	Yes	Yes	Yes	No	No	15	EA
Low Temp Multi-Deck 4-Door	Yes	Yes	Yes	No	No	15	EA
Low Temp Multi-Deck 5-Door	Yes	Yes	Yes	No	No	15	EA
Low Temp Single-Deck w/ Doors	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck Other	Yes	Yes	Yes	Yes	No	15	EA
Medium Temp Multi-Deck Roll-in 5-Door	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck w/ Doors 12-ft/3.75-m	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck w/ Doors 8-ft/2.45-m	Yes	Yes	Yes	No	No	15	EA
Medium Temp Multi-Deck w/ Doors Other	Yes	Yes	Yes	Yes	No	15	EA

R102003 CLERK SERVE SANDWICH DISPLAY CASE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	15	EA

R102004 HEAT RECLAIM / RECOVERY SYSTEM - DHW

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA

R102004 HEAT RECLAIM / RECOVERY SYSTEM - HVAC

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	Yes	No	Yes	Yes	No	20	EA

R102005 SELF SERVE DELI CASE

Component Type	In Scope?	Details Req?	Inventory Pic?	Inventory Cmnt?	Age Based?	Design Life	UOM
General	No	No	No	No	No	10	EA

In Scope?	The component is in (yes) or out (no) of scope. Only 'yes' components should be used.
Details Req?	If 'Yes', all required section detail fields are to be populated.
Inventory Pic?	If 'Yes', an inventory level photo is to be provided. This is a step back photo showing the component.
Inventory Cmnt?	If 'Yes', an inventory comment is to be populated. This should describe the component.
Age Based?	If 'Yes', age based (do not provide an inspection) is the desired approach. If 'No' but upon inspection the component is not visible, then an age based approach is acceptable.
Design Life	Design life of the component.
UOM	Unit of measure.