

Facility Name

Location

Owner’s Project Requirements Template

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# Revision History

Version Author Date Adjustments Made

NA Name MM/DD/YYYY Original Document

# Definition of Document Terms

*Basis of Design (BOD)*: The Basis of Design is a document that describes in narrative form the designer's intent to meet the Owner's Project Requirements (OPR).

*Commissioning Agent (CxA):* The Commissioning Agent (CxA) coordinates and oversees the Commissioning Process.

*Commissioning Plan:* The Commissioning Plan is a document issued by the CxA that provides all pertinent information regarding the Commissioning Process including, but not limited to Commissioning Team members, project schedule, communication protocols, and other information critical to the Commissioning Process.

*Commissioning Process:* The Commissioning Process is he process throughout the project’s life of ensuring the quality of production from responsible parties, focusing on Owner’s requirements, design intent, component installation, and system performance.

*Commissioning Report:* The Commissioning Report is the closeout document presented to the owner and Commissioning Team upon completion of the Commissioning Process. The document will detail activities and findings during the Commissioning Process. Additionally a systems operation manual will be provided for efficient operation and maintenance of the facility.

*Commissioning Team:* Key project members responsible to and for the Commissioning Process.

*Owner's Project Requirements (OPR):* Documented set of goals, cost considerations, benchmarks, criteria of success, support information, and quantifiable goals as defined by the owner. This document will detail expectations, functional requirements, and project prospects from the owner. This document is intended to modify as the project adjusts and owner’s requirements modify.

# Purpose of Document

*Overview and Definition*

The Owner’s Project Requirements (OPR) provide an explanation of the ideas, concepts and criteria that are considered to be very important to the owner, coming out of the programming and conceptual design phases and which are desired to be tracked throughout design and construction. The OPR is developed by the owner, not the design team. The OPR provides the direction for the design team. The OPR document sets the functional goals that the design is judged against and establishes the basis of the criteria used during construction to verify actual performance. The OPR does not list items that are already required by code. The OPR is generally not a description of what specifically will be included in the project design, but is the more general feature and categorical performance criteria to be met by the design. Where practical and known, the OPR includes measurable indicators used to verify that the performance requirements were met.

The OPR will be followed by the basis of design or design narrative written by the design team and included with design package submissions. The basis of design documents the primary thought processes and assumptions behind the design decisions and describes the design elements being incorporated to meet the OPR.

This document is not a comprehensive project OPR, and does not include all project requirements and directives to the design team which could include: other disciplines such as fire protection, structural, landscaping, civil, geotechnical and other earth work, utilities, specification division 1 requirements, demolition, all the materials, furnishings and special construction disciplines, drawing, specification and calculation requirements, codes and references, etc.

This document focuses on the mechanical, energy and comfort related systems and on the sustainability requirements of the project.

A comprehensive design criteria handbook for DeCA Commissaries has been developed for Architect-Engineers (A/E) reference and can be located on the DeCA facilities website. The DeCA design guidance is updated quarterly and describes the detailed requirements the design should meet. This OPR document summarizes the requirements listed in the design guide related to the systems included in the commissioning process. A thorough review the design guide should be completed before the design is started.

In the event this OPR document conflicts with the requirements listed in the DeCA Commissary Design Guide. The design guide will take precedence.

# Regulatory Directives & Goals

Codes

The facility design is to be compliant with all applicable codes and is the responsibility of the design professionals. Project design shall conform to national codes and regulations for building construction and safety, including but not limited to the following:

* International building code
* international plumbing code
* international mechanical code
* international fuel gas code
* national Electric code
* national fire protection associaiton
* osha regulations
* ashrae standards
* all applicable federal,state, and local environmental regulations
* aba accessibility standard for departement of denfense faciliteis
* [Etc]

Energy Efficiency Goals

The efficiency of the project is important to the building owner in design and operation. Increased efficiency will result in an anticipated reduced cost of energy during operation as well as a reduced burden of pollutants assumed by the environment as a result of energy consumption. New construction projects will implement aggressive energy efficiency strategies to achieve an energy efficiency of 30% savings when compared to the baseline building performance rating per ASHRAE 90.1-2004. Major renovations reduce the energy cost budget by 20% below pre-renovations baseline.

*Life Cycle Cost*

Provide a computer analysis justifying the selection of systems and materials as the least life cycle cost alternative, taking into account building aesthetics, geographic location, etc. BLAST, TRACE or other similar computer programs which perform this analysis are acceptable. The analysis should result in the selection of materials with the least building cost over the life cycle of the building.

Include a complete analysis for structural, mechanical, refrigeration, electrical, plumbing, and pavements in the analyses. Consider the total life cycle cost where the LCC includes all costs associated with a system over its expected life, including but not limited to construction/procurement, energy, maintenance, operation, repair, alteration, and disposal costs. Use the present value discounting approach described in DOD criteria: Economic Analysis and Program Evaluation for Resource Management and DOD criteria: Economic Procedures Handbook. Specific criteria:

1. Discount rate: 6% net. DeCA prefers use of mid-year factors for cost/savings occurring in a steady stream but end-of-year factors are acceptable.
2. Analysis period: 12 to 15 years from the Beneficial Occupancy Date.
3. Base cash flow used in the analysis on the actual calendar dates on which events and costs are projected or scheduled to occur.
4. Neglect general rate of inflation of the economy as a whole. Calculate rates for energy costs.
5. Base estimates for all costs on actual prices in effect on the date of study (constant date-of study dollars).

**Refer to Section 01 33 29.51 Computer Energy Analysis of the DeCA Commissary Design Criteria Handbook for additional specific requirements computer energy analysis and reporting.**

*Sustainability Goals*

The facility’s impact on and responsibility to the environment and society is an important concern to the owner. Project members will keep the facility’s sustainability in mind during design, construction, and operational phases. In an effort to recognize the steps taken for sustainability, the project will be design to LEED silver certification standards with an initial design target of 55 points. The design team shall submit a completed LEED scorecard to DeCA during the early design phase of the project indicating the credits to be pursued as part of the design process. At the end of the project, the design team shall submit a report showing compliance with the targeted LEED credits to DeCA.

The Defense Commissary Agency is committed to sustainable design and construction practices that comply with the Guiding Principles for Sustainable Federal Buildings and Associated Instructions (CEQ – Feb 2016), the Energy Policy Act of 2005, and EO 13693 *Planning for Federal Sustainability in the Next Decade*. Consistent with the above, EO 13693 directs Federal Agencies to ensure that new construction and major renovation of federal facilities comply with the Guiding Principles for Sustainable Federal Buildings. These principles require designers to incorporate the following goals during project design:

1. Reflect the evolution of sustainable building design, construction, and operating practices since 2008,

2. Incorporate other building-related EO 13693 requirements,

3. Increase the economic and environmental benefits of Federal investments in facilities,

4. Enhance occupant health, wellness, and productivity

5. Include climate resilience in building design, construction, and operations, and protect Federal facilities investments from the potential impacts of climate change.

6. Provide information on tracking agency green building performance.

These principles are to be followed in order to reduce the total ownership cost of facilities; improve the energy efficiency and water conservation; provide safe, healthy, and productively built environments; and, to promote sustainable environmental stewardship.

As an Agency of the Department of Defense, DeCA fully recognizes the economic and environmental benefits of sustainable design and construction practices. The Agency also recognizes that certain objectives for the sustainability goals may be harder to achieve than others. The designer of DeCA facilities is to identify the sustainable design features and requirements early in the design process so that these features can be incorporated into the design at the lowest possible cost. A 30% energy reduction over ASHRAE 90.1-2004 **must** be achieved in all new building projects. LEED Silver Design requires comparison with ASHRAE 90.1-2007 for energy savings results. Since ASHRAE 90.1-2007 has stringent energy design requirements, the energy reduction over ASHRAE 90.1-2007 may be less than 30%. Design teams must provide DeCA with predicted energy savings thresholds from an energy model compared to both the ASHRAE 90.1-2004 and 2007 baselines for the building to validate compliance.

**Refer to Section 01 33 29 Sustainable Design Reporting of the DeCA Commissary Design Criteria Handbook for additional specific requirements for sustainable design.**

# Project Directives

Project Schedule

The project will maintain key dates milestone dates for completion. The contractor will be responsible to meet these dates. While the schedule may be dynamic, consultation with the owner is requested for adjustments. The following are the anticipated milestones for the project schedule.

[\*\*\*Edit the milestones and dates below as necessary]

Milestone Date

Program completed [date]
OPR completed [date]
Schematic design [date]
Design development [date]
1st construction document review [date]
2nd construction document review [date]
Final construction documents [date]
Pre-bid meeting [date]
Award contract [date]
Pre-construction meeting [date]
All submittals approved [date]
Facility sealed [date]
Major HVACR equipment installed [date]
Startup [date]
Testing [date]
Substantial completion [date]
Warranty start date [date]

# Occupant Directives

Occupancy Profile

Of particular note in this project is the occupancy profile during the anticipated life of the facility. The owner requires the occupant profile be considered in design and throughout the project. Occupancy hours per day and days per week may vary. Occupancy schedule is bases on 12 hours per day and 6 days per week.

The following schedule is anticipated, all time unaccounted for should be considered unoccupied.

Day Occupancy

Monday [6:00 AM] – [6:00 pm]
Tuesday [6:00 AM] – [6:00 pm]
Wednesday [6:00 AM] – [6:00 pm]
Thursday [6:00 AM] – [6:00 pm]
Friday [6:00 AM] – [6:00 pm]
Saturday [6:00 AM] – [6:00 pm]
Sunday [closed]

The facility is to be occupied by various user groups. This is of important note as the facility design and operation should be catered to these user groups. Listed below are the anticipated user groups and corresponding quantity within that group.

User Group Size

Visitors [##]
Workers [##]

Janitorial Staff [##]
Maintenance Staff [##]

Peak occupancy it a critical determinant for comfort design. The owner identifies the following criteria regarding peak occupancy for the facility.

Peak Occupancy Profile

Total Peak Occupants [##]
Anticipated Peak Time [6:00 AM] – [6:00 pm]

Holiday and extended breaks in operation are considered for operation and design. The following breaks are provided.

Holiday Date

New Year’s Day January 1
Memorial Day Last Monday in May
Independence Day July 4
Labor Day First Monday in September
Thanksgiving Third Thursday & Friday in November
Christmas December 24 & 25
New Year’s Eve December 31

# Operational Directives

*Benchmarking Requirements*

Benchmark building performance at least annually, preferably using ENERGY STAR Portfolio Manager. Regularly monitor building energy performance against historic performance data and peer buildings to identify operating inefficiencies and conservation opportunities. The measurement and verification period shall cover a period of no less than one year post-construction occupancy.

Sub-metering needs to be discussed in the early stages of the design and made part of the overall design appropriate to the scope of the project. Sub-metering capabilities, their potential benefits and costs need to be discussed during the design process.

*Utility Providers & Rates*

The project utility providers are electric company for electricity and gas company for natural gas. Anticipated rates are provided below.

**Company Name** **Rate**

Electric Company XX ¢/ kWh
Electric Company $XX / kW
Natural Gas $XX / therm

Target Annual Utility Costs

Based on Target Finder provided by ENERGY STAR®, the facility owner anticipates the utility billing to approximate the targets below.

Utility Annual Cost

Electric Costs $$$
Natural Gas $$$
Water Costs $$$
Total Utility Costs $$$

# Cx Requirements

The project scope will include commissioning. An independent commissioning agent will be designated to lead the commissioning process. The CxA will be responsible to manage the commissioning process as defined in the project specifications.

Key project team members will be required to provide authoritative representatives to the commissioning team. The team members will attend scheduled commissioning meetings as led by the CxA for coordination of the commissioning process.

Duties of the CxA include, but are not limited to:

* Clearly document the owner’s project requirements and the basis of design for the building’s energy related systems. Updates to these documents shall be made during the design and construction phases.
* Develop and incorporate commissioning requirements into the construction documents.
* Review and comment on the design documents and design energy model
* Develop and use a commissioning plan
* Verify that the installation and performance of systems being commissioned meet the owner’s project requirements and basis of design.
* Issuing and verifying Functional Performance Tests (FPT) with contractor
* Providing and maintaining an issues log to the contractor
* Verifying training of the owner’s personnel by the contractor
* Issuing the Commissioning Report

**System included in the Commissioning process:**

* Division 08 Openings
* Division 11 Equipment
* Division 21 Fire Suppression
* Division 22 Plumbing
* Division 23 HVAC
* Division 26 Electrical
* Division 27 Communication Systems
* Division 28 Electronic Safety and Security Systems
* Division 32 Exterior Improvements
* Division 33 Utilities

Additional commissioning requirements are listed in the commissioning guide specification sections and the commissioning plan.

*TRAINING REQUIREMENTS*

The owner will require training of maintenance and operations personnel by the contractor. A training plan must be developed which identifies all training required by specification sections associated with commissioned systems. The contractor will submit the training plan to the CxA for review and approval prior to scheduling the training sessions. The Contractor will be responsible for coordination and implementation of the training sessions after the training plan is approved.

The written training plan will include the following at a minimum:

* Schedule and location of the training sessions
* List of training instructors
* Equipment included in the training
* Use of O&M manuals
* Start up, normal operation, shutdown, troubleshooting of equipment
* Contact information and procedure for warranty issues
* Suggested spare parts to stock

Training sessions shall include hands-on training including startup, operations in all modes, alarm and power failure, preventative maintenance.

The RMCS system will have a separate training session that provides an overview of the intent of the system, operator interface, scheduling, alarms, trending and troubleshooting.

After all training is complete the contractor will provide an attendance list and documentation of the training that occurred to the CxA for the final commissioning report.

# System Requirements

DAYLIGHTING REQUIREMENTS

The introduction of daylight has the potential to provide a more comfortable environment for the occupants as well as reduce the building energy use. Good daylight is soft and cool, both in temperature and color. The ultimate goal is to control the admission of natural light into the building while balancing heat gain and loss, glare control and variations in daylight availability.

Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building. Use a combination of side-lighting and top-lighting to achieve a total daylighting zone that is at least 75% of regularly occupied sales and customer service areas, and any employee administration spaces occupied for critical task, including receiving and staging areas.

**Side-lighting Daylight Zone**

Achieve a value, calculated as the product of the visible light transmittance (VLT) and window-to-floor area ratio (WFR) of daylight zone, between 0.150 and 0.180. The window area included in the calculation must be the portion of the window at least 30 inches above the floor.

The ceiling should not obstruct a line in section that joins the window-to-head to a line on the floor that is parallel to the plane of the window is twice the height of the window-head above the floor in distance from the plane of the glass as measured perpendicular to the plane of the glass.

Provide sunlight redirection and/or glare-control devices to ensure daylight effectiveness.

**Top-lighting Daylight Zone**

Achieve skylight roof coverage of 4% of the roof area within a minimum 0.5 VLT for the skylights. The distance between the skylights must not be more than 1.4 times the ceiling height. The skylight diffuser must have a measured haze value of greater than 90% when tested according to ASTM D1003.

Provide the integration of automatic dimming, daylight-sensing electric lighting controls to include appropriate glare control measures. Daylighting design shall be accomplished in accordance with UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (latest issue). Use of extensive store front glazing, skylights and other daylighting features need to be reconciled with force protection entry and blast resistance standards.

Skylights shall comply with OSHA regulations. 29 CFR 1910.23 requires skylights in roofs of completed buildings, through which persons may fall while walking or working, be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.

**Refer to Division 08 Openings and Section 08 62 00 Daylighting of the** **DeCA Commissary Design Criteria Handbook for additional specific requirements for the Openings System**

FIRE-SUPRESSION SYSTEMS REQUIREMENTS

The fire protection system shall be an automatic wet pipe sprinkler system. Fire protection design requirements shall be per the Unified Facilities Criteria UFC 3-600-01 Fire Protection Engineering for Facilities except as noted below. Comply with NFPA 101 Life Safety Code) and NFPA 13, Latest Edition, except where Unified Facilities Criteria UFC 3-600-01 is indicated. The following table shows commodity class, hazard class, densities and areas to be used for the various parts of the building. Per UFC 3-600-01 Tables 9-3 and 9-4, FM 3-26 is used for non-storage hazards and NFPA 13 is used for storage and miscellaneous storage areas.



DeCA’s policy is that storage height in staging areas will not exceed 12'-0”. If storage height exceeds 12'-0”, the system shall be designed in accordance with NFPA 13 taking into account the height and conditions of storage. This may entail higher densities, higher flow rates, in rack sprinklers, and other expensive modifications to the design which can be avoided by limiting storage to 12'-0” for Class I-IV and 8’-0” for plastics.

The Receiving/Staging area will conform to UFC and NFPA 13, latest edition, Commodity Class I-IV, non-encapsulated product and the design requirements indicated in the table above. No racks will be provided in the remaining Staging/Receiving Area. For Add/Alter projects, all rack storage will be limited in height to a maximum of 8' high top shelf and the entire area will be protected to Commodity Class I-IV protection standards. In-rack sprinklers will not be required.

Sprinkler the entire building interior excluding concealed spaces exempted by NFPA 13, latest edition.

Canopies shall have sprinkler protection if they are large enough to store materials beneath them. Canopies that are in place for weather protection over doors do not need sprinkler protection if they are of wholly non-combustible construction and meet the exceptions of NFPA 13. Canopies and covered docks at the rear of the store and the front of the store where materials may be stored for special sales or temporary staging must have sprinkler protection. Canopy sprinklers shall be dry pendant, sidewall dry pendant, or where mains are not in heated areas, dry pipe systems.

Rooftop Mechanical Centers need sprinkler protection, fire alarm notification, and detection.

Sprinkler protection for walk-in freezers and coolers, where unit cooler discharge temperature is below 32 deg F, shall be per NFPA 13, latest edition, with dry pendent heads. Insulate sprinkler drops into freezer and cold storage rooms per design plate.

**Design Drawings**. At a minimum, indicate the service entrance, proposed design approaches, sprinkler densities and hazards, and type of sprinkler and finish for the different areas.

Verify that no wet pipe sprinkler lines pass through unheated soffits, canopies, etc. Where this is unavoidable provide a dry pipe zone or antifreeze loop.

Verify that no mains or branch lines are run above electrical panels or gear.

Locate inspectors test stations and drains in utility or unfinished areas, not in public areas or offices. Drains shall discharge to floor sinks when located within the building. Floor drains are not acceptable.

Clearly delineate on the drawings those areas to be protected with wet pipe systems, with dry pipe systems, and by dry pendent heads. Show approximate area by square feet protected by each system riser. If systems are existing, identify type and design (hydraulically designed with appropriate information or “pipe schedule”).

Do not locate risers on the exterior of the building. (Force Protection Requirements)

**Construction Type**: The construction type and fire areas shall be Type IIB, Noncombustible,

Mercantile Occupancy as described by the International Building Code (IBC).

**Fire Flow Test:** Per UFC 3-600-01 Section 4-1.3, the Fire Protection Engineer of Record must perform or witness a Fire Flow Test prior to the first submission. This information must be presented as an appendix in the Design Analysis in order to determine the necessity of a fire pump or the viability of the existing sprinkler system.

Document the following in the test report:

a. Address and GIS coordinates of the building or site.

b. Locations and GIS coordinate of the individual flow and gauge hydrants.

c. Static pressure at the gauge hydrant.

d. Residual pressure at the flow hydrant.

e. Calculated flow at the flow hydrant.

f. Calculated flow at 20psi (138kPa).

g. Date and Time of the test.

h. Names of all persons performing and witnessing the test.

i. Satellite map with the building/site and the hydrants labeled.

**New Store Concept:**

Current marketing trend eliminates suspended ceiling in Sales Area and renders ceiling structure visible. This impact on the fire-suppression system is immediate. The design Engineer shall provide guidance to the design Architect for appropriate visual appearance of the fire-suppression system. Accomplish this by camouflaging fire sprinkler systems and paralleling structural support runs with piping runs.

**Remodel Concept:**

Incorporate new store concepts during major remodeling of existing facilities. Many will not apply. The design Engineer shall coordinate with the design Architect on those marketing concepts to include in the construction documents. The same requirements for new store projects shall apply for remodel projects to the extent feasible.

Phasing of work to accomplish the desired changes will be an important consideration to incorporating the changes. Clearly discuss the effect of the work on the mechanical systems in the design analysis. Discuss any conflicts or problems with attempting to incorporate the new marketing concept application.

**Refer to Division 21 and Section 21 13 00 Fire-Suppression Sprinkler Systems of the** **DeCA Commissary Design Criteria Handbook for additional specific requirements for the Fire Suppression System**

*PLUMBING SYSTEM REQUIREMENTS*

Plumbing shall comply with The International Plumbing Code, NFPA Fuel Gas Codes 54 and 58, current editions, and Unified Facilities Criteria (UFC).

**Domestic Hot Water**

In addition to normal domestic hot water requirements, provide adequate 140 degree F hot water for preparation room wash down and hose stations used for wash down purposes (Fish Market, Meat Processing, Meat Wrapping and Deli/Bakery Rooms).

Provide a source of heat available for domestic hot water system year round. Ensure any installation central system used for heat source is available throughout the year.

Equip the hot water system with adjustable, but automatic (thermostatically controlled) water mixing valve(s) that will meter water to supply 115 degree F hot water to all hose bibs, lavatories and hand wash sinks

For economy, consider using point-of-use water heaters for remote store areas such as restrooms, break rooms, Medical Food Inspector’s office, etc. which require hot water service

**Heat Reclaim**

Domestic water supplied to the hot water heater shall be preheated with reclaimed waste heat from the low temperature refrigeration system(s).

Heat recovered from the refrigeration system for water preheating shall be 25 percent of the total heat of rejection of the compressor system.

**Meat Processing/Wrapping Washdown Load**

In addition to normal building hot water requirements, incorporate the following meat processing/wrapping wash down load into the building hot water heater load:

On facilities of 60,000 SF and larger, use a meat prep wash down load of 400 gallons of 140 degree F water used during a two hour period in building hot water load calculations.

On facilities less than 60,000 SF, use a meat prep wash down load of 200 gallons 140 degree F water used during a two hour period in building hot water load calculations.

Water heater shall be sealed or separated combustion type with ducted combustion air and not utilizing a draft hood or barometric damper when located in refrigeration equipment rooms.

Small remote loads (i.e. toilet rooms, janitor’s closets, etc.) may utilize instantaneous electric heaters where substantial reduction of piping installed cost would result.

**Water Meter:** Provide one on building service. Water meters shall conform to American Water Works Association (AWWA) C700. Meters shall be positive displacement, oscillating piston, or disc nutation type.

Meter features:

* Magnetic drive, with magnetic shielding
* Straight reading sealed register graduated in cubic feet.
* All bronze split case
* Integral strainer
* Threaded ends
* Pulse switch initiator
* Meter shall be suitable for accurately measuring and handling water at pressure, temperatures, and flow rates to be encountered.
* Pulse initiator shall provide maximum number of pulses up to 500 per minute that is obtainable from the manufacturer.
* It shall not provide less than 1-pulse per 100-gallons.

**Gas meter:** Provide on building gas service. Gas meters shall conform to Federal Specification GG-M-2808, Style B.

Meters shall be suitable for accurately measuring and handling gas at pressures, temperatures and flow rates to be encountered.

Meters shall have a pulse switch initiator capable of operating up to speeds of 500-pulse per minutes with no false pulses and shall require no field adjustments.

Initiators shall provide the maximum number of pulses up to 500 per minute that is obtainable from the manufacturer.

It shall not provide less than 1-pulse per 100ft3 of gas.

Coordinate gas and water meter connections to RMCS, see Section 23 09 16.

**Refer to Division 22 and Section: 22 05 00 Common Work Results for Plumbing of the** **DeCA Commissary Design Criteria Handbook for additional specific requirements for the Plumbing System**

HVAC SYSTEM REQUIREMENTS

The HVAC system to be considered will be packaged rooftop DX cooling, indirect gas fired heating equipment as this equipment has been demonstrated to have the lowest life cycle costs in most instances. Where rooftop equipment is prohibited by Base of post policy, consider split system DX cooling and heat pump heating.

Where electric or gas utilities are abnormally high or climatic conditions are extreme, the use of boilers, desiccant dehumidifiers or other strategies may be considered. In these cases, provide a life-cycle cost economic analysis to evaluate alternative fuel sources and other energy reduction strategies.

Variable air volume systems shall not be used without prior approval from DeCA CIED.

Refrigerant: R410A shall be used in all HVAC systems

Preferred Equipment Manufacturers

The following list of equipment manufacturers are preferred by the owner. The designer and contractor should take note of the equipment providers and notify the owner before alternative selections are made.

Equipment Manufacturer

 Packaged DX units [MFG]

Split System Heat Pump Units [MFG]
Unit Heater [MFG]
DX Mini Split [MFG]
HVAC Control Systems [MFG]
Natural Gas Fired Boilers [MFG]
HVAC Pumps [MFG]
Switchgear [MFG]
Generator [MFG]
Lighting Controls [MFG]
Fire Alarm System [MFG]
Surge Protection Devices [MFG]
CCTV System [MFG]
Card Access System [MFG]

**INDOOR DESIGN CONDITIONS: SUMMER**

|  |  |  |
| --- | --- | --- |
| **SPACE** | **DRY BULB TEMPERATURE** | **WET BULB TEMPERATURE** |
| Sales Area | 75 DEG F | 52 DEG F DEW POINT (SUMMER AND WINTER) |
| Offices, CISIC Rooms, Alcove, Restrooms, Locker Rooms, and Break rooms | 15 deg F less than the 1% outside dry bulb weather condition not to exceed 78 deg F or be less than 75 deg | 50% RH min +/- 10% |
| Delivery, Dry storage, and mechanical equipment rooms | Fan forced ventilation |  |

**INDOOR DESIGN CONDITIONS: WINTER**

|  |  |
| --- | --- |
| **SPACE** | **TYPICAL REQUIREMENTS** |
| Sales AreaOffices, CISIC Rooms, Alcove, Restrooms, Locker Rooms, and Break rooms | 70 Degree F DB |
| Delivery, Dry storage, and mechanical equipment rooms | 55 Degree F DB |
| Entry/Exit, Cart Return Vestibules | 55 Degree F DB, Unless otherwise directed |

**Outside Design Temperatures**: Use the latest version of UFC 3-400-02 Engineering Weather Data:

Summer: 1% Occurrence

Winter: 99% Occurrence

**Outside Air Volumes:**

Sales/Checkout Area: In accordance with ASHRAE Standard 62.1-2010.

7.5 CFM per occupant + 0.06 CFM per SF.

The number of people for Sales/Checkout Area calculations will be based on 55 ft2 per person of net area.

Provide at a minimum a surplus of outside air to make-up exhaust air and keep the sales area positively pressurized with respect to the outdoors.

Other areas comply with ASHRAE 62.1-2010.

Zoning Preferences

Zoning will be a key consideration of design. No spaces with extreme diversions in usage should be zones together. No spaces with differing setpoints can be zoned together.

Setpoints and Tolerances

While setpoints may be adjusted, the owner will identify the setpoint directives for design. HVAC thermostats should not be located in areas accessible to customers. If necessary to do so, provide lockable covers.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Area** | **Occ Cooling Temp setpoint** | **Unocc Cooling Temp setpoint** | **Occ Heating Temp setpoint** | **Unocc Heating Temp setpoint** | **Max Humidity %** |
| Receiving |  |  |  |  |  |
| Staging |  |  |  |  |  |
| Frozen Food Storage |  |  |  |  |  |
| Dairy Storage |  |  |  |  |  |
| Meat Storage |  |  |  |  |  |
| Meat Processing |  |  |  |  |  |
| Meat Wrapping |  |  |  |  |  |
| Produce Storage |  |  |  |  |  |
| Produce Processing |  |  |  |  |  |
| Sales Area |  |  |  |  |  |
| Checkout |  |  |  |  |  |
| Administration Areas |  |  |  |  |  |

Provide comprehensive HVAC control design review to insure that the RMCS and conventional controls are properly integrated, complete, and coordinated.

Ensure that all Specification Sections and Construction Drawings clearly reflect all control requirements and are consistent in the requirements that they indicate.

**Control of HVAC Units:**

1. Utilize the RMCS for control of all HVAC equipment including package rooftop units, split systems, ductless split systems, exhaust fans and unit heaters in the Staging/Receiving Area. Refer to Division 23 Section 23 09 16 Refrigeration Monitoring and Control Systems (RMCS).
2. Emergency HVAC shut down must be incorporated with the RMCS system to enable all applicable HVAC equipment to be shut down in the event of a hazardous emergency. Refer to UFC-4-010-01, Section B-4.3.
3. Smoke detectors are a part of the fire alarm and detection system and shall not be connected to or monitored by the RMCS.

**Refer to Division 23 and Sections: 23 05 00 Common Work Results for HVAC, 23 09 13 Instrumentation and Control Devices for HVAC, 23 09 16 Refrigeration Monitoring and Control Systems, 23 90 00 Product Refrigeration Systems of the DeCA Commissary Design Criteria Handbook for additional specific requirements for the HVAC System**

ELECTRICAL SYSTEM REQUIREMENTS

Electrical systems for large motors, compressors, and lighting for new commissaries: 277/480 volt, 3-phase. Receptacles, small motors, equipment loads and lighting not suitable for 277v: connect to 120/208V, 3-phase system.

Provide manual motor starters on all ½ HP and smaller motors unless indicated otherwise by applicable design standards

**Starters:** NEMA rated, using class 20 overloads.

**Light Switches:** Provide local control of lighting in each room. Provide light switches to control lights at each entry to the room inside the room and opposite the hinge side of the door, except as otherwise indicated for refrigerated processing rooms. Provide 3-way and 4-way switches, as appropriate, for spaces with more than one entry. Where multiple entrances would require a large number of 3- and 4-way switches, consider pilot control using relays. Provide multi-level control of lighting in the Training Room and Conference Room to facilitate use of audio-visual presentations; use separate switching of lamps or fixtures, or use dimmer controls for multi-level control. Use occupancy sensors in offices, breakrooms, training rooms, and rest rooms. Occupancy sensors can be considered in staging/receiving. It is not permitted to use occupancy control in meat processing area(s). Refer to Section 26 51 00 for further details.

**Lighting Power Monitoring:** Install current transformers and transducers associated with the

Refrigeration Monitoring and Control System (RMCS) in lighting power wiring to monitor interior lighting power consumption and demand. For remodel projects or where total lighting monitoring is impractical, monitor major general lighting in the sales and staging areas as a minimum.

**Energy Saving Devices:** Use energy saving devices in the design (e.g. providing RMCS based controls to enable the store manager to reduce the lighting intensity in the sales area to 50 percent during stocking and cleaning). Provide only state-of-the-art energy efficient lighting fixtures, drivers, electronic ballasts, and energy saving lamps and controls. Where specifically approved by DeCA daylight harvesting methods may be considered, with economic justification. Ensure that local switching is provided in all offices and areas; utilize occupancy sensors where appropriate. Illumination quality is not to be reduced for energy / cost benefits.

**RMCS Control**: Refer to Design Standards 26 51 00-01, 26 51 00-02, and 26 51 00-03. The

RMCS presents a closing maintained contact for "on" control of lighting. The number of control circuits required for the Sales Area is five – two for general lighting subject to 50 percent reduction for all Sales Areas and the Checkout Area; and one for all Accent and Décor lighting.

**Occupancy Sensors:** Provide occupancy sensors for control of the lighting in all offices, breakrooms, restrooms, training rooms, and other areas subject to intermittent use. Occupancy sensors shall not be used in meat processing area(s).

**Exterior Lighting:** Provide lighting powered from the commissary. Provide lighting in the employee and customer parking lots, access roads, service yard and general security lighting around the building perimeter. Fixtures shall provide cutoff angle to prevent spill light into adjacent areas. Coordinate with landscaping for tree locations and account for trees in lighting calculations. Coordinate with other site utilities and features for pole/fixture locations and underground conduit routing

1). Photoelectric Control: Provided by RMCS.

2). Timer: Timing functions provided through RMCS.

**Control Circuiting:** Provide four separate control circuits: One circuit for Security Lighting; one for Employee Parking; one for Customer Parking; and one for Receiving Area pole lights. Each circuit shall be controlled “on” by photocell, and “off” by time switch with manual over-ride, all provided through RMCS. See Design Standard Plate 26 56 00-02, “Exterior Lighting Controls

Details”

Light customer parking, employee parking, front sidewalk and grade level receiving areas within 150 feet of the building to 5.0 FC (average) Beyond 150 feet from the building, illuminate all on-site paving (including depressed receiving docks) and sidewalk areas to 1.5 FC (average). The lighting for these areas shall be connected to and metered by the commissary watt-hour meter.

Provide service area lights with timer type switch with manual switching override all provided through RMCS.

**Refer to Division 26 and sections: 26 22 00 Low-Voltage Transformers, 26 23 00 Switches Boards, 26 24 16 Panel Boards, 26 24 19 Motor-Control Centers, 26 27 26 Wiring Devices, 26 28 16 Enclosed Switches and Circuit Breakers, 26 27 73 Processing Area Signaling Systems, 26 42 13 Passive Cathodic Protection, 26 36 00 Transfer Switches, 26 51 00 Interior Lighting, 26 56 00 Exterior Lighting of the DeCA Commissary Design Criteria Handbook for additional specific requirements for the Electrical system.**

COMMUNICATION SYSTEM REQUIREMENTS

**Layout of Datacom and POS Equipment:**

Data networks for POS and PC LAN are to be Category 6 networks, using 4 pair 23 AWG UTP Type CMP plenum cable.

No underfloor ductwork shall be used; all data and telephone lines shall be run overhead.

**Refer to Division 27 and section 27 15 00 – Communications Horizontal Cabling of the DeCA Commissary Design Criteria Handbook for locations and quantities of data outlets, cabling sizes and lengths, and other specific requirements for the communication system.**

ELECTRONIC SAFETY REQUIREMENTS

**Intrusion Detection Summary** - Provide commercial grade Intrusion Detection System (IDS) with duress (hold-up) switches. Detection devices shall include duress (hold-up) switches, magnetic switches at all accessible perimeter doors, windows, and roof hatch; motion detectors, and a vibration-sensing device for the cash safe. Coordinate complete design with Host Military Installation security, communications, and engineering personnel to ensure that all requirements unique to the Military Installation are considered. System operation shall be operator-programmable so as to selectively activate or de-activate specific system alarm points. Alarm annunciation shall identify each reporting alarm point separately at the monitoring office. Provide an alarm transmission interface with the Host Military Installation’s municipal-type alarm network; or, if the Host Military Installation does not monitor alarms from tenant facilities, provide a one-year monitoring contract with a local commercial alarm monitoring service provider. All circuits shall be electronically supervised. Contractor shall be responsible for coordinating the complete installation.

**Video Surveillance Summary -** When required by individual project guidance, provide a video surveillance system with cameras, monitoring station, and connecting wiring to provide surveillance of the locations identified. The monitoring station is to have recording capability, and ability to display multiple camera views simultaneously. Provide fixed public monitors at other locations than the monitoring station as required in individual project guidance.

**Fire Alarm/Mass Notification Systems Summary -** Design shall coordinate with the Host Military Installation fire and security, communications, and engineering personnel to ensure system is compatible with the existing system and that any requirements unique to the Military Installation are considered. Determine the identity of the site Authority Having Jurisdiction (AHJ), and ensure that the design is acceptable to the AHJ.

Fire Alarm/Mass Notification Systems use a combination of synchronized strobe lights and speakers for voice messages to alert occupants of any emergency or threat condition. See the most recent version of UFC4-021-01 and Guide Specification 28 39 00 for additional details. Read the UFC for Mass Notification carefully and coordinate design with local authorities. Each military service has unique requirements noted in the UFC. Each installation may have particular requirements for interface and testing with local mass notification systems which must be complied with. Unless the installation specifically prohibits this, the Fire Alarm and Mass Notification functions shall be a combined system controlled by a single panel.

System shall be connected to the existing Installation-Wide fire reporting system and provide interface thereto. If the Host Military Installation has an Installation-wide mass notification system, the commissary mass notification system shall be connected to it.

**Refer to Division 28 and Sections: 28 16 00 Intrusion Detection, 28 23 00 Video Surveillance, 28 31 76 Fire Alarm/Mass Notification Systems of the DeCA Commissary Design Criteria Handbook for additional specific requirements for this system.**

**END.**