DESIGN CRITERIA

1. Related Sections: See Division 03 Section Insulated Freezer Floors, Division 04 Section Unit Masonry, Division 07 Section Exterior Insulation and Finish Systems (EIFS), and Division 07 Sections Ethylene-Propylene-Diene-Monomer Roofing, and Division 09 Section Gypsum Board for sound attenuation insulation.

2. This Section specifies common types of general building insulation installed in commissary facilities as separate elements rather than as components of prefabricated or field-assembled systems.

3. Insulate above grade exterior wall systems to meet or exceed current IECC (International Energy Conservation Code) requirements, unless climatic conditions or the local Installation energy code requirements dictate otherwise. Current Federal Energy Reduction Mandates may require the use of increased insulation thicknesses. This will be determined through energy usage calculations prepared as part of project development.

4. If climatic conditions warrant below slab foundation insulation, a geotechnical report will typically indicate this requirement. Design foundation insulation in full compliance with the recommendations contained in the Project Geotechnical Report. If climatic conditions indicate that foundation insulation would be appropriate and the geotechnical report does not indicate same, consult with engineer responsible for preparation of report.

5. Moisture Protection:

   A. As a constituent part of the atmosphere, water vapor migrates by diffusion through air and materials according to its own pressure differentials. Accordingly, the control of diffusion is more important with improved construction techniques controlling air leakage in commissaries. Overall control of moisture within a pressurized building envelope requires a vapor retarder.

      1. Where summer design dew point is above 70 degrees locate vapor retarder on outside of wall insulation.

      2. Where winter design temperature is below 65 degrees locate vapor retarder on inside of wall insulation.

   B. A commissary has a pressurized building envelope with specific temperature and humidity requirements for refrigeration systems to function properly.

      1. The sales area is maintained at 75 degrees with 40 percent relative humidity.

      2. Cold storage rooms are maintained at various temperatures required for proper storage and processing of food products.

      3. Staging and receiving areas, as well as other non-refrigerated storage areas, typically have heat and ventilation only.

   C. **It is important that walls surrounding the staging and receiving areas extend to the underside of the roof deck, and that all penetrations through these walls are sealed air tight.** This is necessary to prevent warm humid air from entering into the temperature and humidity-controlled sales area and attic spaces above sales area and cold storage rooms. If warm humid air is allowed to enter these spaces, condensation can occur that will damage other construction and impact proper operation of mechanical systems.

D. In particularly warm and humid locations it may be appropriate to insulate the full height wall surrounding the staging and receiving area, in addition to sealing penetrations air tight.

E. **In facilities with exposed roof structure in sales area, the perimeter walls / soffits shall extend to the underside of the roof deck with all penetrations sealed air tight.** This is necessary to maintain proper temperature and humidity control of sales area, eliminate requirement for sprinklers in attic space above cold storage rooms and other adjacent areas, and aesthetic appearance.

END OF SECTION