SECTION 07 21 00

THERMAL INSULATION

PART 1 – GENERAL

1.1 PURPOSE

A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

A. The use of spray foam insulation is as-permitted by UTA EH&S.

1.3 SECTION INCLUDES

A. Board insulation at cavity wall construction.
B. Batt insulation in exterior wall construction.
C. Board insulation at floors above crawlspaces.

1.4 RELATED REQUIREMENTS

A. Section 05 40 00 – Cold-Formed Metal Framing: Board insulation as wall sheathing.
B. Section 09 21 16 – Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.5 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; current edition.
B. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; current edition.
C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; current edition.
D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; current edition.
E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; current edition.

1.6 SUBMITTALS

A. See Section 01 33 23 – Submittals, Shop Drawings and Product Data, for submittal procedures.
B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.
C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.7 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 – PRODUCTS

2.1 APPLICATIONS

A. Insulation Inside Masonry Cavity Walls: mineral wool board.
B. Insulation in Metal Framed Walls: Batt insulation with no vapor retarder.

2.2 FIBER BOARD INSULATION MATERIALS

A. Mineral Fiber Board Insulation: Rigid or semi-rigid mineral fiber, ASTM C612 or ASTM C553; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
   1. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
   2. Board Size: 16 by 48 inches.
   3. Board Thickness: Refer to Drawings.

4. Thermal Resistance: R-value of 4.2 deg F sq ft/Btu at 75 degrees F, minimum, when tested according to ASTM C518.
5. Maximum Density: 8.0 lb/cu ft.
6. Manufacturers:
   a. Thermafiber, Inc.; RainBarrier: www.thermafiber.com.
   b. ROXUL, Inc; CavityRock MD: www.roxul.com.
   c. Substitutions: See Division 01.

2.3 BATT INSULATION MATERIALS

A. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
   1. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
   2. Thickness: Refer to Drawings.
   3. Manufacturers:
      a. Johns Manville; MinWool Sound Attenuation Fire Batts: www.jm.com.
      b. Thermafiber, Inc.; SAFB: www.thermafiber.com.
      c. ROXUL, Inc; ComfortBatt: www.roxul.com.
      d. Substitutions: See Division 01.

2.4 ACCESSORIES

A. Insulation Fasteners: Impaling clip of galvanized steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
B. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 – EXECUTION

3.1 BOARD INSTALLATION AT CAVITY WALLS

A. Secure impale fasteners to substrate at a frequency as follows:
   1. 6 per insulation board.
B. Apply adhesive to back of boards:
   1. Three continuous beads per board length.
   2. Full bed 1/8 inch thick.
C. Install boards to fit snugly between wall ties.
D. Install boards horizontally on walls.
   1. Place boards to maximize adhesive contact.
   2. Install in running bond pattern.
   3. Butt edges and ends tightly to adjacent boards and to protrusions.
E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
F. Coordinate installation with stone panel anchors, metal panel support clips and masonry anchors.

3.2 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.
B. Install in exterior wall spaces without gaps or voids. Do not compress insulation.
C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

3.3 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION