1. Section 072100   
   Thermal Insulation
   1. PART 1  GENERAL
      1. REFERENCE STANDARDS
         1. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2023.
         2. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
         3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
         4. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024.
   2. PART 2  PRODUCTS
      1. APPLICATIONS
         1. Insulation at Perimeter of Foundation:  Extruded polystyrene (XPS) board.
         2. Insulation in Wood Framed Walls:  Batt insulation with ​integral​ vapor retarder.
         3. Insulation in Wood Framed Ceiling Structure:  Batt insulation with ​integral​ vapor retarder.
         4. Insulation over Roof Deck:  ​Extruded polystyrene (XPS)​ board.
      2. FOAM BOARD INSULATION MATERIALS
         1. Extruded Polystyrene (XPS) Board Insulation:  Comply with ASTM C578 with either natural skin or cut cell surfaces.
            1. Flame Spread Index (FSI):  Class A - 0 to 25, when tested in accordance with ASTM E84.
            2. Smoke Developed Index (SDI):  450 or less, when tested in accordance with ASTM E84.
            3. Type and Thermal Resistance, ​R-value​:  ​Type IV, 5.0 (0.88)​, minimum, per ​1 inch​ thickness at ​75 degrees F​ mean temperature.
            4. Board Edges:  Square.
      3. MINERAL FIBER BLANKET INSULATION MATERIALS
         1. Flexible Glass Fiber Blanket Thermal Insulation:  Preformed insulation, complying with ASTM C665; friction fit.
            1. Flame Spread Index:  75 or less, when tested in accordance with ASTM E84.
            2. Smoke Developed Index:  450 or less, when tested in accordance with ASTM E84.
            3. Combustibility:  Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
            4. Thickness:  \_\_ inch.
            5. Facing:  ​Asphalt treated  Kraft paper​, one side.
         2. Mineral Wool Blanket Thermal Insulation:  Flexible or semi-rigid preformed insulation, complying with ASTM C665.
            1. Flame Spread Index:  25 or less, when tested in accordance with ASTM E84.
            2. Smoke Developed Index:  450 or less, when tested in accordance with ASTM E84.
            3. Thermal Resistance:  ​R-value​ of ​See Drawings​.
      4. ACCESSORIES
         1. Flashing Tape:  Special reinforced film with high performance adhesive.
            1. Application:  Window and door opening flashing tape.
            2. Width:  As required for application.
         2. Nails or Staples:  Steel wire; electroplated or galvanized; type and size to suit application.
         3. Wire Mesh:  Galvanized steel, hexagonal wire mesh.
   3. PART 3  EXECUTION
      1. BOARD INSTALLATION AT FOUNDATION PERIMETER
         1. Adhere a 6 inches wide strip of polyethylene sheet over construction, control, and expansion joints with double beads of adhesive each side of joint.
         2. Install boards horizontally on foundation perimeter.
         3. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
      2. BOARD INSTALLATION AT EXTERIOR WALLS
         1. Adhere 6 inches wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
         2. Install boards horizontally on walls.
         3. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.
      3. BOARD INSTALLATION OVER LOW SLOPE ROOF DECK
         1. Board Installation Over Roof Deck, General:
            1. See applicable roofing specification section for specific board installation requirements.
            2. Fasten insulation to deck in accordance with roofing manufacturer's written instructions and applicable Factory Mutual requirements.
            3. Do not apply more insulation than can be covered with roofing on the same day.
      4. BATT INSTALLATION
         1. Install insulation and vapor retarder in accordance with manufacturer's instructions.
         2. Install in exterior wall and roof spaces without gaps or voids.  Do not compress insulation.
         3. Trim insulation neatly to fit spaces.  Insulate miscellaneous gaps and voids.
         4. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.
2. END OF SECTION