SECTION  – sprayed polyurethane foam insulation

1. General
   1. SUMMARY
      1. Spray application of medium-density, closed-cell polyurethane foam insulation to provide continuous thermal insulation and air/vapour barriers to substrates indicated on drawings and specified herein.
      2. Related Requirements:
         1. Section 04 20 00 – Unit Masonry.
         2. Section 05 12 00 – Structural Steel.
         3. Section 05 40 00 – Cold-Formed Metal Framing.
         4. Section 05 50 00 – Metal Fabrications.
         5. Section 07 21 00 – Thermal Insulation.
         6. Section 09 29 00 – Gypsum Board.
   2. reference standards
      1. American Society for Testing and Materials (ASTM):
         1. ASTM C 518-10: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
         2. ASTM E 96-10: Standard Test Methods for Water Vapor Transmission of Materials.
         3. ASTM E 283-04(2012): Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
      2. Underwriters Laboratories of Canada (ULC):
         1. CAN/ULC S705.1, Standard for Thermal Insulation - Spray-applied Rigid Polyurethane Foam, Medium Density: Material Specification.
         2. CAN/ULC S770-09, Standard Test Methods for Determination of Long-term Thermal Resistance of Closed-Cell Thermal Insulating Foams.
   3. SUBMITTALS
      1. Provide required information in accordance with Section 01 33 00 – Submittal Procedures.
      2. Product Data for each type of insulation product specified.
      3. Product test reports performed by a qualified third-party testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, and other properties, based on comprehensive testing of current products.
      4. Manufacturer's certificate certifying insulation provided meets or exceeds specified requirements.
      5. Installer's certificate showing manufacturers installation certification for quality assurance.
   4. QUALITY ASSURANCE
      1. Contractor executing Work of this Section shall have a minimum of five (5) years continuous Canadian experience in successful installations. Provide proof of experience to Consultant upon request.
      2. Single Source Responsibility: Single source product from one manufacturer.
      3. The insulating material must be applied by personnel who are certified by manufacturer. These certified individuals must have their certification cards in their possession and available for presentation upon request.
      4. A copy of the manufacturer's installation manual or guide for the application of sprayed on polyurethane foam must be kept on site.
      5. Tests must be conducted daily on both core density and cohesion/adhesion to the substrate, following procedures established by the manufacturer. The results of these tests must be entered in the daily report forms provided by the manufacturer.
      6. Fire-Test-Response Characteristics: Provide materials specified as determined by testing identical products per test method indicated below by a testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
      7. Submit copy of all completed forms to Consultant prior to making application for payment.
      8. Toxicity/Hazardous Materials:
         1. Provide products that contain no urea-formaldehyde.
         2. Provide products that contain no PBDEs.
         3. Provide products that are "Low-emitting".
   5. sequencing and scheduling
      1. Co-ordinate the Work of this Section with installation of associated work specified under other sections.
   6. DELIVERY, STORAGE, HANDLING and protection
      1. Co-ordinate deliveries to comply with construction schedule. Comply with manufacturers written instructions for handling and protection prior to and during installation.
      2. Store material as recommended by manufacturers written instructions in original, undamaged containers with manufacturers seals and labels intact. During cold weather, store raw materials in heated storage.
      3. Protect adjacent surfaces and equipment from damage by overspray.
2. Products
   1. materials
      1. Sprayed Polyurethane Foam Insulation:
         1. CFC free formulation, closed-cell sprayed polyurethane foam type insulation and conforming to CAN/ULC 705.1.
            1. Basis of Design Product: Walltite ECO by BASF, as represented by Building Resource Inc, or ICYNENE MD-C-200 by Icynene Inc.
         2. Provide primers in accordance with manufacturers recommendations if required for surface conditions.
   2. EQUIPMENT
      1. Use equipment as recommended by sprayed polyurethane foam insulation manufacturer for types of applications required.
3. Execution
   1. examination
      1. Verify that surfaces and conditions are suitable to accept Work of this Section.
      2. Report in writing, defects in surfaces or conditions which may adversely affect the performance of products installed under this section to the Contractor, prior to commencement of Work of this Section.
      3. Do not commence Work of this Section until defects have been corrected.
      4. Commencement of Work of this Section implies acceptance of surfaces and conditions.
   2. PREPARATION
      1. Mask and cover adjacent areas to protect from overspray.
      2. Apply primers for special conditions as required by sprayed polyurethane foam manufacturer.
      3. Clean work area prior to commencing spray operations.
      4. Coordinate with work of other Sections.
   3. APPLICATION
      1. Apply sprayed polyurethane foam insulation to clean surfaces in accordance with manufacturers written instructions. Use primers where recommended by manufacturer.
      2. Thicknesses of sprayed polyurethane foam insulation shall be minimum 2-5/8" and thicker as indicated on drawings, with a maximum tolerance from required thickness of 1/4". Fill in gaps and spaces around structural steel, steel deck and other locations with sprayed polyurethane foam insulation to form continuous air/vapour and thermal barriers.

END OF SECTION