

SECTION 07212

SPRAYED THERMAL INSULATION

PART 1 - GENERAL

1.0 WORK INCLUDED

1.1 Related Documents

- A. Drawings and general provisions of the contract, including contractual conditions and division 01 specification sections, apply to this section.

1.2 Summary

- A. Section includes: light density, open celled, flexible, 100 percent water blown polyurethane foam insulation & URE-K top coating by Icynene.
- B. Coordinate mechanical ventilation and fresh air supply with mechanical sections and ASHRAE guidelines for optimum indoor air quality.

1.3 References

- 1. ASTM c 518: standard test method for steady-state thermal transmission properties by means of the heat flow meter apparatus.
- 2. ASTM d 2863: standard test method for measuring the minimum oxygen concentration to support candle-like combustion of plastics (oxygen index)
- 3. ASTM e 84: test method for surface burning characteristics of building materials
- 4. ASTM e 96: standard test methods for water vapor transmission of materials
- 5. ASTM e 2178: standard test method for air permeance of building materials
- 6. ASTM e 283: standard test method for determining rate of air leakage through exterior windows, curtain walls, and doors under specified pressure differences across the specimen.

1.4 Submittals

- A. Product data for each type of insulation product specified.
- B. Product test reports performed by a qualified independent testing agency evidencing compliance of insulation products with specified requirements including those for thermal resistance, fire-test-response characteristics, water-vapor transmission, water absorption, and other properties, based on comprehensive testing of current products.
- C. Evaluation report: evidence of compliance of foam-plastic insulations with The International Building Code (IBC), International Residential Code (IRC), International Energy Conservation Code (IECC), International Association of Plumbing and Mechanical Officials (IAPMO)
- D. Manufacturer's certificate certifying insulation provided meets or exceeds specified requirements.
- E. Installer's certificate showing the Icynene installation certification.
- F. Sample warranty

1.5 Quality Assurance

- A. Manufacturer's qualifications: product produced in an iso9001 registered factory.
- B. Single source responsibility: single source product from one manufacturer.
- C. Installer qualifications: engage an Icynene licensed dealer (applicator) who has been trained and certified by Icynene.
- D. 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.
 - 1. Surface-burning characteristics: ASTM e 84

- E. Toxicity/hazardous materials
 - 1. Provide products that contain no urea-formaldehyde.
 - 2. Products and equipment requiring or using cfcs, hcfc, or hfc during the manufacturing or application process will not be permitted.
 - 3. Provide products that contain no pbdes.
 - 4. Provide products that are "low emitting".
- 1.6 Delivery, Storage, and Handling
 - A. Comply with manufacturers written instructions for handling and protection prior to and during installation.
 - B. Store both components in a temperature-controlled area between 50 deg f (15 deg c) and 100 deg F (32 deg C). do not allow product to freeze.
 - C. Use only those components that are supplied by the manufacturer.
- 1.7 Project Conditions
 - A. Do not expose to sunlight, except to the extent necessary for period of installation and concealment.
- 1.8 Warranty
 - A. Manufacturer's standard limited lifetime warranty.
 - B. Refer to www.icynene.com for full warranty terms

PART 2 – PRODUCTS

- 2.1 Manufacturers
 - A. Polyurethane spray foam insulation: Icynene Id-c-50tm by Icynene inc.
- 2.2 Materials
 - A. General: Provide insulating materials that comply with requirements and with referenced standards.
 - B. Icynene Id-c-50tm spray foam insulation: low-density, water-blown, conforming to the following:
 - 1. Thermal resistance (R-value/inch @75 deg f): ASTM C 518; 3.7 hr/sq ft/degree f/btu
 - A. heat flow reduction:
 - 1) through 1 inch: 75 percent
 - 2) through 3.5 inches 93 percent
 - 3) through 5.5 inches 95 percent
 - 4) through 10.5 inches 98 percent
 - 2. Provide URE-K spray coating by international cellulose corporation to provide a thermal barrier as required by IBC 2603. In that URE-K has an R-3.57 per inch rating, the thickness of polyurethane spray can be reduced. If Icynene is used, 1" URE-K over 7" Icynene will provide r-30. Provide materials in thicknesses necessary to achieve R-30 and meet thermal barrier code requirements.
 - C. Product description:
 - 1) ICC/ES evaluation report no. esr 1826
 - 2) lapmo-es report no. 0165
 - 3) Collaborative for high-performance schools (chps) "low-emitting material" per CA 01350 criteria
 - 4) Effective "breathing," (vapor permeable), air barrier material that can move with the building to maintain the air barrier characteristic for the life of the building.

- 2.3 Source Quality Control
1) Product produced in an ISO 9001 registered factory.

PART 3 – EXECUTION

- 3.1 Examination
A. Examine substrates and conditions, under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected.
1. Review placement area to determine final location will not be within 3 inches of any heat source where the temperature will exceed 200 deg F per astm c 411 or in accordance with authorities having jurisdiction.
- 3.2 Preparation
A. Clean substrates and cavities of loose materials capable of interfering with insulation placement.
- 3.3 Application
A. Site mix liquid components manufactured by Icynene and supplied by independent Icynene licensed dealer.
B. Apply insulation to substrates in compliance with manufacturer's written instructions.
C. Apply insulation to produce thickness required for indicated Rvalue.
1. R-13 is achieved at 3 1/2 inches
2. R-20 is achieved at 5 1/2 inches
3. R-30 is achieved at 8 1/2 inches
D. Extend insulation in thickness indicated to envelop entire area to be insulated.
E. Water-piping coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- 3.4 Repairs
A. Any repairs must be affected by an Icynene licensed dealer.
- 3.5 Protection
A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse.

END OF SECTION 07212