SECTION 07 2119

FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes foamed-in-place insulation at southmost freezer.

1. Sprayed-applied closed-cell polyurethane.

B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. Other Documents and Sections that directly relate to work of this Section include, but are not limited to:

1. General provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections.
2. Section 07 2100 - BUILDING INSULATION.

1.2 SYSTEM DESCRIPTION

A. Performance Requirements:

1. The foam plastic insulation shall exhibit a flame spread index of 75 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E 84 or UL 723 at the thickness and density intended for use or be separated from the plenum by a listed thermal barrier as required by Code.

1.3 SUBMITTALS

A. Product Data: Manufacturer’s specifications and installation instructions for each type of insulation required.

B. Certifications: R-value.

C. Quality Assurance Submittals:

1. Evaluation Report: Evidence of compliance of foam-plastic insulations with International Building Code (IBC), International Residential Code (IRC), International Energy Conservation Code (IECC).
2. Manufacturer’s Certificate: Certify that products meet or exceed specified requirements.
3. Qualification statements.

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three (3) years documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum three (3) years documented experience and certified by the manufacturer.

C. Comply with requirements of IBC Section 719.

D. R-Value: As per Drawings.

E. Toxicity/Hazardous Materials:

1. Outgassing/Reactivity:
   a. Formaldehyde: Products containing urea-formaldehyde will not be permitted.
   b. Chlorofluorocarbons (CFCs)/HCFCs: Products and equipment requiring or using CFCs or HCFCs during the manufacturing process will not be permitted.

F. Fire and Insurance Ratings: Comply with fire-resistance and flammability ratings as indicated; and comply with code interpretations by governing authorities.

1.5 CONTRACTOR'S FOAM SPRAY EQUIPMENT

A. Applicator

1. Use an airless foam spray gun of the mechanical, self-cleaning type, that does not require a flushing solvent during the spray operation.

B. Equipment Calibration

1. Fully calibrate the foam metering equipment to monitor each liquid component to within 2 percent of the foam material manufacturer's required metering ratio. Calibrate spray equipment each day at start of operations, after each restart if spraying operations have been terminated for more than one hour, whenever there is a change in fan pattern or pressure, whenever slow curing areas are noticed, whenever a change is made in hose length or working height, and after changeover between materials. Calibration shall consist of demonstrating that the equipment is adjusted to deliver components in proper mix and proportion. Calibration test shall be done on cardboard or plywood adjacent to the are to be sprayed.

C. Metering Equipment Requirements

1. Use foam metering equipment capable of developing and maintaining the foam manufacturer's required liquid component pressures and temperatures. Foam metering equipment shall have gages for visual monitoring. Equipment shall provide temperature control of foam components to within the temperature ranges recommended by the foam manufacturer's printed instructions.

D. Moisture Protection

1. Protect the surfaces of component supply containers or tanks used to feed the foam metering equipment from moisture.

E. Compressed Air

1. Supply compressed air in contact with foam components during mixing or atomization through moisture traps that are continuously bled.

F. Dispense Excess Materials

1. Do not deposit materials used for cleaning of equipment or materials dispensed for calibration purposes and establishment of spray gun pattern on the surfaces to be sprayed. Dispense such materials into scrap containers or onto plastic film, or cardboard, and dispose of in compliance with safety requirements and jobsite regulations.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

B. Store materials in an area protected from freezing and overheating damage and in accordance with manufacturer’s instructions.

C. Protect materials during handling and application to prevent damage and contamination.

PART 2 PRODUCTS

2.1 CLOSED-CELL POLYURETHANE FOAM INSULATION

A. Description: A combination insulation and air barrier system comprised of a foam base and blowing agent; conforming to the following:

1. Minimum Aged Thermal Resistance (R-Value/inch): ASTM C518; 6.4 hr/sq ft/degree F/BTU. In.
2. Air Permeance: 0.02 L/s/m2 @ 7.5 Pa at 1-inch thickness.
3. Blowing Agent: Non-destructive to stratospheric ozone.
4. Approved by the Air Barrier Association of America to meet the Commercial State Energy Codes of MA, WI and MI.

B. Available Manufacturers – Closed-Cell Foam:

1. HeatLok Soy-200+ as manufactured by Demilec.
2. PolyFoam System 190 or 191 by GACO Western, Inc.
3. SprayTite as manufactured by BASF.

2.2 THERMAL BARRIER

A. Where required by Code, furnish thermal barrier that has been tested and approved for the insulation to which it is intended to be applied.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that cavities are free of any foreign material that will impede application.

C. Verify that other work on and within spaces to be insulated is complete prior to application.

D. Notify Architect of conditions that would adversely affect the application.

E. Beginning of installation means applicator accepts existing conditions.

3.2 PREPARATION

A. Comply with manufacturer's written installation instructions for preparing cavities indicated to receive insulation.

B. Mask and protect adjacent surfaces from overspray or damage.

C. Remove foreign materials, dirt, grease, oil, paint, laitance, efflorescence, and other substances

that will affect application.

1. Prior to applying coating, check polyurethane foam with a moisture resistance meter to ensure that foam is dry. Apply thermal barrier coating between the temperature ranges of 50 and 110 degrees F, ambient.

3.3 APPLICATION - FOAM

A. Apply insulation in accordance with manufacturer's written application instructions.

B. Apply insulation to a reasonably uniform monolithic density without voids.

C. For open cavity applications, apply insulation to minimum cured thickness as scheduled.

D. For closed cavity applications, apply insulation to completely fill cavities as much as is possible.

E. Apply insulation to fill voids around doors and windows.

F. Apply insulation to fill voids around accessible service and equipment penetrations as indicated on Drawings.

3.4 APPLICATION - THERMAL BARRIER

A. Prior to applying coating, check polyurethane foam with a moisture resistance meter to ensure that foam is dry. Apply thermal barrier coating between the temperature ranges of 50 and 110 degrees F, ambient.

3.5 FIELD QUALITY CONTROL

A. Inspect application for insulation thickness and density.

3.6 PROTECTION OF FINISHED WORK

A. Do not permit subsequent work to disturb applied insulation

END OF SECTION