



SECTION (07212) 072119.19

InsulBloc® FOAM-IN-PLACE EXTERIOR CAVITY WALL INSULATION

**** NOTE TO SPECIFIER ** This section is based on the product of NCFI Polyurethanes, which is located at:
1515 Carter Street P. O. Box 1528 Mount Airy, NC 27030-1528
Toll Free Tel: 800-346-8229
Tel: 336-789-9161
Email: [request info \(info@ncfi.net\)](mailto:info@ncfi.net)
Web: www.NCFI.com [Click Here] for additional information.
This specification is for the InsulBloc® (SPF) closed-cell, spray-in-place polyurethane foam Insulation/Air Barrier/Water Resistive Barrier/Moisture Vapor Retarder membrane for application to the exterior side of base walls in cavity wall designs with brick, stone or stucco veneers.**

PART 1 GENERAL

1.1 SECTION INCLUDES

**** NOTE TO SPECIFIER ** Delete items below not required for project. The section numbers shown are the MasterFormat [2004](#) six digit format Numbers in parenthesis are MasterFormat 95 to be used if required for the project.**

- A. Spray Polyurethane Foam (SPF) Cavity Wall Insulation.

1.2 RELATED SECTIONS

**** NOTE TO SPECIFIER ** Delete any sections below not relevant to this project; add others as required.**

- A. Section (04800) 042000 - Unit Masonry assemblies: Cavity wall assemblies.
- B. Section (04080) 040519 - Masonry Anchorage and Reinforcement: Requirements for special anchors.
- C. Section (04060) 040500 - Masonry Mortar and Grout: Product requirements for Mortar and grout.
- D. Section (04850) 044300 - Mortar-Placed Stone Assemblies: Stone bonded to masonry.
- E. Section (05120) 051200 - Structural Steel: Product requirements for steel anchors.
- F. Section (05500) 055000 - Metal Fabrications: Product requirements for loose steel lintels.
- G. Section (07620) 076200 - Sheet Metal Flashing and Trim: Requirements for flashings.
- H. Section (07840) 078400 - Firestopping: Firestopping at penetrations of masonry work.

- I. Section (07900) 079200 - Joint Sealers: Rod and sealant at control and expansion joints.

1.3 REFERENCES

**** NOTE TO SPECIFIER ** Delete references from the list below that are not actually required by the text of the edited section.**

- A. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- D. 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.
- E. ASTM E 2178 Standard Test Method for Air Permeance of Building Materials.
- F. ASTM D 1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
- G. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- H. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- I. ASTM E 119 – Standard Test Method for Fire Test of Building Construction and Materials
- J. AATCC 127 - Water Resistance: Hydrostatic Pressure Test.
- K. NFPA 285 – Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus
- L. NFPA 259 Standard Test Method for Potential Heat of Building Materials

1.4 SUBMITTALS

- A. Submit under provisions of Section (01300) 013300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Sample of Manufacturers one year material warranty.
- C. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing polyurethane foam products and systems of this section with minimum ten years documented experience.

- B. Installer Qualifications: Company specializing in performing Work of this section with minimum three years documented experience.
 - 1. Installer must be an NCFI GoldStarSM certified insulation contractor or have manufacturer's certification for the application.
 - 2. Installer shall provide the equipment required by the manufacturer for proper installation including high pressure plural component proportioning pump, heated hoses of suitable length, spray gun, drum pumps or other material feeding system, and other ancillary equipment required for the Work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Storage for the chemicals should be between 65°F and 80°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time in moderate temperature storage to stabilize back in the proper application range. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. Storing chemicals above 90°F should be avoided as much as possible. Excessively warm chemicals should be cooled prior to opening the drums. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

**** NOTE TO SPECIFIER ** Include a mock-up if the project size and/or quality warrant taking such a precaution. Coordinate construction of masonry mock-up with Section <BBRR><MF SQ 04800#04 40 00 - Stone Assemblies>. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.**

- C. Mock-Up: Provide SPF application to wall mock-up specified in Section 04800. Provide insulation for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
 - 4. Accepted mock-ups shall be comparison standard for remaining Work

1.7 PRE-INSTALLATION MEETINGS

- A. Convene pre-installation meeting a minimum of two weeks prior to commencing work of this section.
- B. Attendance: Architect, General Contractor, mason/wall finish applicator and SPF applicator.
- C. Agenda: Review installation sequence, safety requirements, warranty requirements, inspections and application procedures, and scheduling.

1.8 COORDINATION

- A. Ensure that the installation of products of this section is coordinated with affected trades to prevent interruption of construction progress.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not install spray polyurethane foam during precipitation or when precipitation is imminent. Do not install when the ambient temperature is less than authorized by the manufacturer application guidelines or without specific authorization of the manufacturer. Do not install when the ambient humidity exceeds the manufacturer's limits.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: NCFI Polyurethanes, which is located at: 1515 Carter Street P. O. Box 1528 ; Mount Airy, NC 27030-1528; Toll Free Tel: 800-346-8229; Tel: 336-789-9161; Email: [request info \(info@ncfi.net\)](mailto:info@ncfi.net); Web: www.ncfi.com
- B. Requests for substitutions will be considered in accordance with provisions of Section (01600) 016000

2.2 MATERIALS

- A. Spray Polyurethane Foam (SPF) Cavity Wall Insulation: NCFI's InsulBloc closed cell spray-in-place polyurethane foam (SPF) insulation:
 - 1. Physical Properties:
 - a. Core Density: 1.9 to 2.2 lbs/ft³ when tested in accordance with ASTM D 1622.
 - b. Water Vapor Transmission: Less then or equal to 1.0 perms at 2 inches thick when tested in accordance with ASTM E 96.
 - c. Compressive Strength: 20 psi minimum when tested in accordance with ASTM D 1621.
 - d. Flame Spread: Equal to or less than 25 when tested in accordance with ASTM E 84.
 - e. Smoke Developed: Equal to or less than 450 when tested in accordance with ASTM E 84.
 - f. Air Leakage: 0.004 CF /min/SF at 1.57 psf cfm/sf when tested in accordance with ASTM E 283 or ASTM 2178.
 - g. Certified as Water Resistive Barrier per - AATCC 127 and ASTM E331.
 - h. Potential Heat value per NFPA 259
 - i. Report tested and approved substrates and exterior covering materials per NFPA 285 testing
 - j. Report Fire Resistive Wall Assembly rating per ASTM E 119 (as required by design)
 - 2. R-Value: R-Value when tested in accordance with ASTM C 518.

**** NOTE TO SPECIFIER ** Select one of the following paragraphs for the R Value required.**

- a. R-Value: 6.4. Average Thickness 1 inch (25 mm). Minimum Thickness ¾ inch (19 mm).
- b. R-Value: 9.6. Average Thickness 1½ inches (38 mm). Minimum Thickness 1¼ inches (32 mm).
- c. R-Value: 13. Average Thickness 2 inches (51 mm). Minimum Thickness 1½ inches (38 mm).
- d. R-Value: 16. Average Thickness 2½ inches (64 mm). Minimum Thickness 2 inches (51 mm).

2.3 MISCELLANEOUS MATERIALS

- A. Foam Repair Kit: Foam Repair Kit: Handi-Foam two part kits from Fomo Products, or Touchn'Seal 2 component systems from Convenience Products, or equivalent kits.
- B. Mineral Wool: Delta Safing Mineral Wool Board, 4 lb./cu. ft. density, manufactured by Rock Wool Manufacturing Co., Leeds, AL or equivalent.
- C. Moisture Detection Paper (MDP) Strips: MDP Strips manufactured by NCFI Polyurethanes, Mount Airy, NC.
- D. Prosoco FastFlash liquid-applied air barrier flashing
- E. Carlisle Barrier Seal liquid-applied air barrier flashing
- F. Tremco liquid-applied air barrier flashing
- G. Blueskin TWF by Henry.
- H. Other approved air barrier transition materials as approved by NCFI Polyurethanes

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Review NCFI Product Stewardship Manual for ventilation and Personal Protective Equipment requirements and ensure unauthorized workers are not in the area during the spray foam application
- B. Clean surfaces thoroughly prior to installation.
- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- D. Proceed with spray polyurethane foam application only after substrate construction, substrate penetration work, and related welding and other hot work has been completed.
- E. Verify that mortar has cured sufficiently for all masonry substrates and is dry by checking surface for moisture with Moisture Detection Paper (MDP) strips.
- F. Gaps in junctions of wall materials wider than 2" shall be covered with approved transition membrane or backer fill material and liquid applied flashing membrane (Prosoco Fast Flash).
- G. Fill voids between masonry and structural steel greater than 2 inches (51 mm), with mineral wool or a backer gypsum board cut to fit in the void, and then spray over the backer material.
- H. On metal stud/GWB wall assemblies install transition membranes around corners at window/door openings and around wall penetration for plumbing and electrical

conduit as stipulated in design details.

- I. For applications to CMU, concrete or masonry base walls, use transition membranes to seal junctions of dissimilar materials, such as window framing. Do not apply transition membranes at wall corners or changes of plane where the masonry/concrete construction is continuous. Backer material covered with transition membrane can be used to bridge between two masonry/concrete walls constructed independent of each other.
- J. Mask adjacent materials as needed to prevent overspray.
- K. Review NCFI Product Stewardship Manual for ventilation and Personal Protective Equipment requirements and ensure unauthorized workers are not in the area during the spray foam application.
- L. Cordon off area for spray foam application and post warning signs as necessary to prevent entry to the area by other persons not wearing appropriate Personal Protective Equipment (PPE).

**** NOTE TO SPECIFIER ** Delete the following paragraph if mock-up is specified above.**

- M. Prior to start of work, spray foam to an area of approximately 100 ft (9.29 m²) at the specified thickness. Proceed with work only after Architect's acceptance of test application. (not required if pre-construction wall mock-up has been approved)

3.3 INSTALLATION

- A. Apply SPF directly to the masonry block, concrete or exterior gypsum wall board in accordance to the manufacturer's installation instructions. Multiple layers of foam may be applied as required to achieve the required thickness. Total thickness to any area must be applied on the same day.
- B. All surfaces to be sprayed with SPF must be free of all forms of moisture and ice. Surfaces shall be checked with NCFI's MDP (Moisture Detection Paper) strips prior to and during foam application.
- C. Do not apply SPF during inclement weather or when ambient temperature and humidity are outside the ranges prescribed by the manufacturer.
- D. Apply the SPF to an average thickness indicated on the Drawings or specified in the schedule at the end of this section. Minimum thickness of SPF will be as indicated in the following table:

R-Value of Insulation	Average Thickness (inches)	Minimum Thickness (inches)
6.8	1	¾
9.6	1½	1¼
13	2	1½
16	2½	2
19	3	2½

- E. Excess thickness permitted up to point it does not interfere with the installation of the veneer system. The required 1" air space between the SPF surface and the back side of the veneer must be maintained for at least 90% of the wall area. Excess thickness may be trimmed or sanded from the SPF surface.

- F. Remove overspray from adjacent surfaces.
- G. Where damage occurs which violates the SPF's air seal and moisture seal, repair as needed using the specified spray polyurethane material or the specified foam repair kit material.
- H. If additional SPF layer is required to achieve the minimum thickness on days after the initial foam application, the area must be cleaned of any substance that may hinder proper adhesion of the new layer of foam (dust, dirt, water, etc.). High pressure air, spray water wash or physical brushing may be used as determined by the spray foam contractor to accomplish the cleaning.

3.4 PROTECTION

- A. Protect installed SPF until closure or completion of wall surfaces.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.5 CLEANING

- A. Remove excess insulation.
- B. Replace defective insulation.
- C. Clean soiled surfaces with cleaning solution.

**** NOTE TO SPECIFIER ** Retain Paragraph below if required to suit project requirements. Identify products by name, thickness and/or R Value on the Drawings or use this paragraph to define the location and values of each type of material to be used. Edit as required to suit project or delete and identify products on the Drawings.**

3.6 SCHEDULES

- A. (wall R value)
- B. (ceiling R value)
- C. (floor R value)

END OF SECTION