PART 1 GENERAL

1.1 SECTION INCLUDES

A. Spray-in-place, medium-density, semi-rigid, closed-cell polyurethane foam insulation in assemblies indicated on the Drawings, to provide an air barrier and insulation. (ThermoSeal CCX)

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.
B. Section 03 41 16 - Precast Concrete Slabs.
C. Section 04 20 00 - Unit Masonry.
D. Section 05 30 00 - Metal Decking.
E. Section 05 40 00 - Cold-Formed Metal Framing.
F. Section 06 10 00 - Rough Carpentry.
G. Section 07 10 00 - Dampproofing and Waterproofing.
H. Section 07 26 23 - Below-Grade Gas Retarders.
I. Section 07 42 00 - Wall Panels.
J. Section 07 65 26 - Self-Adhering Sheet Flashing.
K. Section 07 80 00 - Fire and Smoke Protection.
L. Section 07 84 13 - Penetration Firestopping.
M. Section 09 22 16 - Non-Structural Metal Framing.
N. Section 09 28 13 - Cementitious Backing Boards.

1.3 REFERENCES

A. ASTM International (ASTM):
12. ASTM E 413 - Classification for Rating Sound Insulation.

B. Greenguard Certification from UL Environment.


E. ICC Evaluation Service.


1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Before commencing work, submit in accordance with local code:
   1. Technical data sheet from the manufacturer showing the test results from the ASTM E84 (Surface Burning Characteristics).
   2. Other technical data sheets and samples as required by local code officials.

C. 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.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Contractor performing work under this section shall be trained and certified by ThermoSeal, LLC in the art of application of spray polyurethane foam insulation.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until installation is approved by Architect.
   3. Rework mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered in manufacturer's original containers clearly labeled with manufacturer's name, product identification, safety information, net weight of contents and expiration date.
B. Material shall be stored in a safe manner and where the temperatures are in the limits specified by the material manufacturer.

C. Empty containers shall be removed from site on a daily basis.

1.7 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 recommended limits.

B. Ventilate insulation application area in accordance with the Spray Foam Coalition’s Guidance on best practices for the installation of Spray Polyurethane Foam.

C. Protect workers as recommended by the standards of the Spray Foam Coalition's Guidance on best practices for the installation of Spray Polyurethane Foam.

D. Protect adjacent surfaces, windows, equipment and site areas from damage of overspray.

1.8 WARRANTY

A. Manufacturer’s Warranty: ThermoSeal, LLC warrants spray-in-place urethane foam insulation, when installed by authorized contractors using factory-trained applicators and applied in accordance to the Installation Instructions, will perform as stated in the Product Technical Data Sheet.

1. This warranty is in effect throughout the life of the building provided the original purchaser registers with the Warranty Department of the Manufacturer within thirty days of occupancy.

2. Manufacturer’s sole responsibility under this Limited Lifetime Warranty shall be to repair or replace any defective Product at the cost of the material only.

3. Manufacturer shall not be responsible for labor cost or any other costs whatsoever related to, or in connection with the removal or installation of either the original or replacement product.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: ThermoSeal, LLC, which is located at: P. O. Box 32; New Canaan, CT 06840; Toll Free Tel: 800-853-1577; Email: info@thermosealusa.com; Web: www.thermosealusa.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 SPRAY FOAM INSULATION


1. Product: Thermoseal CCX manufactured by ThermoSeal, LLC.

2. Product Approval:
   a. Approved for use in wall cavities, floor assemblies, ceiling assemblies or attics and crawl spaces in Type VB construction (IBC) and dwellings under the IRC.
   b. Approved for use in building types I, II, III, IV, and V construction under IBC and
dwellings for IRC.

c. Passed AC 377 Appendix X compliant NFPA 286.

3. Contains zero ozone depleting agents, catalysts, polyols, and fire retarding materials.

4. Fills cracks, crevices, and voids to form air seal and thermal insulation.

5. Physical Properties:
   b. Thermal Resistance (ASTM C 518): R-6.7 (sf.h degree F/ BTU) at 1 inch Summer, R-6.9 (sf.h degree F/ BTU) at 1 inch Winter.
   c. Closed Cell Content (ASTM D 6226): Greater than 93 percent.
   e. Air Leakage (ASTM E 283): Less than 0.002 L/sm².
   g. Tensile Strength (ASTM D 1623): 18 psi Summer, 54 psi Winter.
   h. Dimensional Stability (ASTM D 2126): 5.45 percent Summer, 4.14 percent Winter.
   i. Water Absorption by volume (ASTM D 2842): 0.87 percent Summer, 0.81 percent Winter.
   l. Surface Burning Characteristics (ASTM E 84): Class 1 Pass, Flame Spread Index 5, Smoke Developed Index 350 Summer, 450 Winter.

6. Equipment used to apply the foam insulation shall have fixed ratio positive displacement pumps and approved by ThermoSeal, LLC.

7. Equipment used to apply the water based intumescent coating shall be an airless sprayer approved by ThermoSeal, LLC.

8. Thermal Barrier: DC315 manufactured by International Fireproof Technology, Inc.
   a. Ignition Barrier AC 377 Appendix X compliant NFPA 286 (No Ignition Barrier required in attics and spaces.:
   b. Thermal Barrier (NFPA 286): Pass at 88.88 sq.ft./gal at 18 mils wet, 12 mils dry, coverage rate of 1.136 gallons (4.3 L) per 100 square feet (9.2 m²).

2.3 ACCESSORY PRODUCTS

A. Water Based Intumescent Coating:
   1. Product: DC315 Intumescent Coating, Manufactured by International Fireproof Technologies, Inc. (IFTI).
   3. Physical Properties:
      a. Surface Burning Characteristics (ASTM E 84): Class I. Flame Spread Index of 0, Smoke Developed Index less than 25
      b. Expands up to 2000 percent.
      c. Flash Point: None.
      d. Volatility/VOC: Less than 50 g/L.
      e. Non-toxic, drain safe, water based, non-fuming.
   4. Color: Dull flat / light gray or special order white and dark gray.
      a. Do not add tint.
      b. Wait minimum 24 hours prior to topcoating with quality latex paint. Verify dryness with moisture meter.
   5. Refer to products International Code Council Evaluation Services Report for additional Intumescent Coating information.

B. Water Based Intumescent Coating:
2. Application: Follow manufacturer’s application recommendations.
3. Physical Properties:
   a. Surface Burning Characteristics (ASTM E 84): Class I. Flame Spread Index of 10, Smoke Developed Index less than 25
   b. Flash Point: None.
   c. Volatility/VOC: Less than 50 g/L.
5. Refer to products International Code Council Evaluation Services Report for additional Intumescent Coating information.

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.
   C. Commencement of work outlined in this section shall be deemed as acceptance of existing work and conditions.

3.2 PREPARATION
   A. Clean surfaces thoroughly prior to installation.
   B. Apply only when surfaces and environmental conditions are within limits prescribed by the material manufacturer.
   C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION
   A. Install in accordance with manufacturer’s instructions and approved submittals. Apply as recommended by manufacturer to thickness as indicated on drawings.
   B. Apply thermal barrier as required by applicable codes noting the following:
      1. Except as provided in Section 314.5 and Section 314.6 of the 2006 International Residential Code, Section 316.5 and Section 316.6 of the 2009 International Residential Code and Section 2603.4.1 and Section 2603.9 of the International Building Code, all plastic insulation shall be separated from the interior of the building by an approved thermal barrier of 1/2 inch (13 mm) gypsum wallboard or equivalent thermal barrier material. Code compliant intumescent coating in lieu of a thermal barrier may be achieved with the use of DC 315. For more information contact ThermoSeal, LLC for assistance, (800) 853-1577.

3.4 PROTECTION
   A. Protect installed products until completion of project.
   B. Touch-up, repair or replace damaged products before Substantial Completion.