

# Product Guide Specification

## BioBased<sup>®</sup> 1701s Spray Foam Insulation System

*Specifier notes: This Product Guide Specification follows the Construction Specification Institute's MasterFormat<sup>™</sup>, SectionFormat<sup>™</sup>, PageFormat<sup>™</sup>.*

*This Section must be carefully reviewed and edited by the user to meet the requirements of the project and local building codes. Coordinate with other specification Sections and the drawings.*

*Delete all "Specifier Notes" when editing this Section. Delete unused text below after selecting one or none of the choices. Specifier Notes:*

### **FOAMED-IN-PLACE INSULATION - Section 07 21 19.05**

**Specifier Note:** *This Section incorporates BioBased<sup>®</sup> 1701s (1.7 lb/ft<sup>3</sup>) closed cell spray formula insulation. Insulation may be applied on an open wall or ceiling surface. Consult local codes, jurisdictional authority and your BioBased<sup>®</sup> Insulation representative for assistance in editing this Section.*

## **PART 1: GENERAL**

### **1.01 Description of Work**

- A. This Section of Specifications, the related drawings and applicable portions of Division 01 collectively describe requirements to provide labor, equipment and materials for installation and application of foamed-in-place insulation

### **1.02 Related Work Specified Elsewhere**

**Specifier Note:** *Add other Sections containing work that is directly related to the insulation. Edit the following list as required for the project.*

- A. Section 03300 – Cast-in-Place Concrete.  
B. Section 04200 – Unit Masonry  
C. Section 06100 – Rough Carpentry  
D. **Section xxxxx** – [\_\_\_\_\_]

### **1.03 Quality Assurance**

#### **A. Qualifications:**

1. Material manufacturer shall be a company specializing in the manufacture of foamed-in-place insulation for a period of minimum 3 years.
2. The Applicator shall be currently certified to apply materials of this Section by the material manufacturer.

#### **B. Referenced Standards:**

ASTM C518-02, Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.  
ASTM D2856, Test Method for Open-Cell Content of Rigid Cellular Plastics by the Air Pycnometer.  
ASTM D1622, Test Method for Apparent Density of Rigid Cellular Plastics.  
ASTM D1623, Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.  
ASTM D1621, Test Method for Compressive Properties of Rigid Cellular Plastics.

ASTM C1338, Test Method for Determining Fungi Resistance of Insulation Materials and Facings.  
ASTM E84-04, Test Method for Surface Burning Characteristics of Building Materials.  
ASTM D2126-04, Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.  
ASTM E96, Test Method for Water Vapor Transmission of Materials.  
ASTM 2842-01, Test Method for Water Absorption of Rigid Cellular Plastics.

- C. Certified Dealer shall construct a mock-up of spray foam insulation [4] feet long by [4] feet wide, including designed framing and substrates, at a location on the project site designated by the general contractor. This mock-up shall remain on the project site until all operations of this Section are complete and shall serve as minimum requirements for installation in the final project.

#### **1.04 Submittals**

- A. The following shall be submitted in accordance with requirements of Division 01;
1. Certification of the following;
    - a. Manufacturer's years of experience in manufacture of materials of this Section.
    - b. Copy of Applicator current certificate issued by manufacturer.
    - c. Certificate certifying that products provided meet or exceed requirements of this project Specification.
- B. Product data on materials:
1. Product Data: Provide data on materials, describing insulation properties, surface burning characteristics.
  2. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special treatment.

#### **1.05 Environmental Considerations**

- A. Toxicity/Hazardous Materials—Out gassing/Reactivity
1. Formaldehyde: Products containing urea-formaldehyde will not be permitted.
  2. Chlorofluorocarbons (CFCs)/HCFCs: Products and equipment requiring or using CFCs or HCFCs during the manufacturing or installation process will not be permitted.

#### **1.06 Product Delivery, Storage and Handling**

- A. Observe all safety precautions and handling instructions on Material Safety Data Sheets for products.
- B. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.
- C. Store materials in a dry area protected from precipitation, freezing and overheating, at temperatures not lower than 60 F (16 C) or above 90 F (32 C).
- D. Protect materials during handling and application to prevent damage and contamination.

**Specifier Note:** *Include the following paragraph where the building is designed to meet the specific airtightness standards of the Energy Star Program:*

E. Airtightness: Meet specific standards of the Energy Star Program of 1.5 Air Changes/Hour at 50 Pa.

## PART 2: PRODUCTS

### 2.01 Manufacture

A. Products shall be BioBased® 1701s Insulation as manufactured by:

BioBased® Insulation, LLC  
 1315 N. 13<sup>th</sup> Street  
 Rogers, AR 72756  
 Phone: (800) 803-5189 or (479) 636-8582  
 Fax: (479) 636-5810  
 Email: [info@biobased.net](mailto:info@biobased.net)  
 Website: [www.biobased.net](http://www.biobased.net)

### 2.02 Materials

- A. Spray foam semi-open cell insulation shall be a spray-applied semi-rigid, low-density, air impenetrable cellular polyurethane foam plastic insulation produced in the field by combining a part A polymeric isocyanurate component with a part B resin-based component. The material shall be job-site mixed in and spray applied by and through equipment designed especially for this purpose.
- B. BioBased® 1701s Insulation™, 1.7 lb/ft<sup>3</sup> spray foam, a two-part, soy-based product, shall conform to the following:

TEST STANDARD	DESCRIPTION	VALUE
<b>ASTM C518-02</b>	Thermal Resistance	
	1" nominal	<b>R – 5.9</b>
	2" nominal	<b>R – 12</b>
	2.5" nominal	<b>R – 15</b>
	3" nominal	<b>R – 18</b>
	3.5" nominal	<b>R – 19</b>
	5" nominal	<b>R – 28</b>
	7" nominal	<b>R – 39</b>
	8" nominal	<b>R – 44</b>
9" nominal	<b>R – 50</b>	
<b>ASTM D2856</b>	Closed Cell Content	<b>&gt;90%</b>
<b>ASTM D1622</b>	Core Density (nominal)	<b>1.7 lbs/ft<sup>3</sup></b>
<b>ASTM D1623</b>	Tensile Strength	<b>19 p.s.i.</b>
<b>ASTM D1621</b>	Compressive Strength	<b>23 p.s.i.</b>
<b>ASTM C1338</b>	Criteria for Fungi Resistance	<b>Pass</b>
<b>ASTM E84-04</b>	Surface Burning Characteristics	<b>1.625"</b>
	Flame Spread	<b>&lt;25</b>
	Smoke Development Index	<b>&lt;450</b>
<b>ASTM D2126-04</b>	Dimensional Stability	
	82°C, Ambient Humidity	<b>Less than 1%</b>
	23°C, 50% Relative Humidity	<b>Less than 1%</b>
	-20°C, Ambient Humidity	<b>Less than 1%</b>

<b>ASTM E96</b>	Water Vapor Permeability 1" Thick Foam 2.5" Thick Foam	<b>2.06 perms</b> <b>0.73 perms</b>
<b>ASTM D2842-01</b>	Water Absorption	<b>0.2%</b>

**Specifier Note:** Delete one of the following two paragraphs; coordinate with Division 00 requirements.

- C. Substitutions are not acceptable.
- D. Submit requests for substitutions in accordance with provisions of Division 00.
- E. Product must be manufactured in the USA.
- F. Product must meet Federal BioBased Procurement standard for Bio-content.

## **PART 3: EXECUTION**

### **3.01 Examination**

- A. Verify that all members and substrates scheduled or intended to receive products of this Section are in place and suitable for application of products.
- B. Verify that all rough-ins for electric and plumbing or other work on and within spaces to be insulated is complete prior to application.
- C. Notify General Contractor of conditions that may adversely affect application of material.

### **3.02 Preparation**

- A. Mask and protect adjacent surfaces from overspray or damage.
- B. Prepare all substrates scheduled or intended to receive material in accordance with manufacturer's written instructions.
  - 1. Prepare all surfaces to receive spray foam application.
  - 2. Properly seal all areas that require sealant to insure a proper air seal when complete.
  - 3. Properly mask all windows, doors and areas to be protected from overspray.
  - 4. Protect floors and drywall areas from overspray.
- C. Remove foreign materials from substrates that may affect application of products of this Section.
- D. Application of materials by spray foam contractor shall constitute acceptance of job-site conditions and substrates and therefore negate future claims of insulation failures due to those conditions or substrates.

### **3.03 Application**

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

1. Insure all equipment is clean and ready for spraying foam using safety guidelines as offered by the Spray Foam Insulation Association.
2. Turn on equipment and set temperature and pressure settings as required.
3. Spray foam to specified thickness.
4. Trim foam as necessary to framed wall thickness when filling cavity.

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

**Specifier Note:** *Site verification of applied insulation thickness is necessary. Where thickness varies with location, include a schedule at the end of this Section.*

C. Apply to a minimum cured thickness  $\frac{1}{2}$ " inch +/-  $\frac{1}{4}$  inch [or as scheduled].

D. Apply minimal expanding foam to fill voids around doors and windows.

E. Apply insulation to fill voids around accessible service and equipment penetrations [as noted on drawings].

F. Apply approved sealant where needed to fill small voids in areas to receive foam.

**Specifier Note:** *Delete paragraphs below which are not applicable to project. Add paragraphs as appropriate to specific conditions on encountered project.*

G. Apply insulation to seal voids at truss ends to prevent wind scouring of ceiling insulation.

H. Seal plumbing stacks, electrical wiring and other penetrations into attic to control air leakage

I. Apply insulation to fill voids around bathtubs to point of accessibility [as indicated on drawings].

**Specifier Notes:** *Verify whether local building codes require ventilation and air spaces in roofs and cathedral ceiling areas. If so, delete the following paragraph.*

J. Apply insulation in unvented roof spaces and cathedral ceiling areas [as indicated on drawings]

**Specifier Note:** *Include the following paragraph where the building is designed to meet the specific airtightness standards of the Energy Star Program.*

K. Where building is designed to meet the specific airtightness standards of the Energy Star Program, apply insulation as recommended by manufacturer to provide airtight construction. Apply caulking to seal joints between structural assemblies.

### **3.04 Field Quality Control**

A. Inspect application for proper density and thickness of insulation upon completion.

**Specifier Note:** *Include the following paragraph for LEED for Home projects.*

1. For LEED projects, General Contractor will provide a Certified HERS Rater or equivalent inspection to verify proper installation of materials.

### **3.05 Protection of Finished Work**

A. Do not permit subsequent work to disturb applied insulation.

- B. Any “hot work” repairs such as welding or soldering etc. must follow appropriate standards and practices (such as “fire watch”) to prevent fire.
- C. Exposed foam must be covered with wall board as soon as possible. Insulation shall be separated from the interior of the building by 1/2" (12.7 mm) gypsum board or equivalent approved 15 minute thermal barrier.

**3.06 Schedules**

**Specifier Note:** *Include schedules if project has different insulation thickness at different locations. Edit schedule below as appropriate to specific project.*

A. Schedule 1: Installation Thickness

- Interior surface of exterior basement walls above [and below] grade .....[ ] in [ ] cm
- Exterior above grade walls .....[ ] in [ ] cm
- Garage ceiling between joists and over air ducts .....[ ] in [ ] cm
- Cathedral ceilings .....[ ] in [ ] cm
- Unvented roof spaces .....[ ] in [ ] cm
- Voids in overhangs – such as bay windows and cantilevered floors.....[ ] in [ ] cm
- Floor headers .....[ ] in [ ] cm
- Other locations as specified.....[ ] in [ ] cm

**3.07 Clean Up**

- A. Upon completion of operations of this Section, remove all masking, trim excess material that may prevent final installation of other materials and remove all overspray that may be on adjacent surfaces.
- B. Clean all floor surfaces of set materials from resultant final trimming.
- C. Remove from the project site all refuse, cartons and other waste resultant from work of this Section of Specifications.

End of Section