

BLOW-IN-BLANKET[®] HP

hybrid performance insulation system

Specifier Notes:

This Product Guide Specification is intended for use as a reference by construction specifiers in the preparation of construction project specifications incorporating the BLOW-IN-BLANKET[®] HP insulation system. Users must review and edit this specification for compliance with local building codes, the requirements of the project design, and for coordination with related specification sections and other construction documents.

This Product Guide Specification follows the 2004 edition of the Construction Specifications Institute (CSI) MasterFormat[™], the 2008 edition of SectionFormat[™], and the 2007 edition of PageFormat[™]. A complete listing of assigned section numbers and titles for this edition of the MasterFormat may be viewed online at www.MasterFormat.com. For use in project specifications that follow the 1995 edition of MasterFormat[™], alternate section numbers are indicated with brackets.

BIBS[®] is a proprietary insulation system that blows dry white fiberglass insulation into walls, floors, attics and cathedral ceilings. The BIBS[®] HP hybrid performance insulation system combines the performance benefits of BIBS[®] and spray polyurethane foam in a hybrid system to achieve a high-performance, economical insulation solution.

SECTION 07 21 28 [07219]

BLOW-IN-BLANKET[®] FIBERGLASS AND SPRAYED FOAM INSULATION SYSTEM

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: High-performance, hybrid insulation and air barrier system for stud cavity assemblies in walls, ceilings and floors of commercial and residential structures, consisting of following components, listed in order of application:
 - 1. Closed cell spray polyurethane foam (SPF) insulation.
 - 2. Blown-in fiberglass insulation installed with retention fabric or netting, utilizing the Blow-In-Blanket[®] (BIBS[®]) System.
 - 3. System manufacturer approved interior "smart" vapor retarder, where required by project climate zone.

- B. Related Requirements:
 - 1. Section 09 21 16 [09260] Gypsum Board Assemblies: Interior gypsum board wall finish completely covering insulation.

1.02 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. BIBS: Blow-in-Blanket® System.
 - 2. BIBCA: Blow-in-Blanket® Contractors Association. www.bibca.org.
 - 3. BIBS-HP: Blow-In-Blanket-System-Hybrid Performance.
 - 4. SPF: Sprayed Polyurethane Foam.

- B. Reference Standards:
 - 1. ASTM International Standard Specifications and Test Methods:
 - a. ASTM C518 - Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - b. ASTM C665 – Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - c. ASTM C764 - Mineral Fiber Loose-Fill Thermal Insulation.
 - d. ASTM C1104 - Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
 - e. ASTM C1338 - Determining Fungi Resistance of Insulation Materials and Facings.
 - f. ASTM D1621 - Compressive Properties Of Rigid Cellular Plastics.
 - g. ASTM D1622 - Apparent Density of Rigid Cellular Plastics.
 - h. ASTM D1623 - Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
 - i. ASTM D2126 - Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - j. ASTM D6226 - Open Cell Content of Rigid Cellular Plastics.
 - k. ASTM E84 - Surface Burning Characteristics of Building Materials.
 - l. ASTM E96 / E96M - Water Vapor Transmission of Materials.
 - m. ASTM E136 - Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C.
 - n. ASTM E283 - Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - o. ASTM E970 - Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.
 - p. ASTM E2178 - Air Permeance of Building Materials.
 - 2. Underwriters Laboratories Inc. (UL): Building Materials Directory, current edition as of date of Construction Contract.

1.03 ACTION SUBMITTALS

- A. Procedures: Submit for review, acceptance and return in accordance with Section 01 33 00. [01330.]

- B. Product Data: Manufacturer’s technical data sheets for all system components to be installed, including:
 - 1. Blow-in-Blanket® System.
 - 2. Fiberglass blowing insulation.
 - a. Include acceptable applied density range.
 - 3. Spray Polyurethane Foam insulation.
 - a. Include current ICC Evaluation Service (ICC-ES) Report.

Delete the following subparagraph, If not applicable per Project climate zone or design requirements.

- 4. Vapor retarder.

1.04 INFORMATIONAL SUBMITTALS

- A. Procedures: Submit for information and verification in accordance with Section 01 33 00. [01330.]
- B. Certifications:
 - 1. Product Certification: Spray Polyurethane Foam Alliance accreditation program documentation for materials.
 - 2. Manufacturer Certification: If manufacturer's published data sheets do not indicate compliance with all specification requirements, provide letter of certification that all products comply with the specification requirements.
 - 3. Contractor Certification: Submit written certification that applicator is approved by Blow-in-Blanket, LLC for installation of specified system.
- C. Manufacturer's Instructions: Submit, and maintain additional copies of the following on site until installation of insulation system is complete.
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
 - 4. Manufacturer's Safety Data Sheets (MSDS).

1.05 SUSTAINABLE DESIGN SUBMITTALS

For projects designed to qualify for U.S. Green Building Council's (USGBC) LEED (Leadership in Energy & Environmental Design) certification, this Product Guide Specification includes sustainable design submittal requirements, special project procedures, and material and product evaluations to assist the designer to determine the contribution of BIBS[®] to achieving certain LEED prerequisites and credits. For projects not intended for LEED certification, these references should be deleted, though specific sustainable design requirements may be retained at the designer's option.

- A. LEED Submittals: Submit the following in accordance with Section 01 33 29 Sustainable Design Reporting:
 - 1. Submit invoices and documentation from each manufacturer of the amounts of post-consumer and pre-consumer recycled content by weight for products with recycled content. Recycled Content is required for LEED MR Credit 4 documentation.

In the following paragraph, insert regional material percentage goal chosen for the Project.

- 2. Submit invoices and documentation showing manufacturing locations and origins of materials for products manufactured and sourced within 500 miles of the building site. Regional Materials are required for LEED MR Credit 5 documentation. The regional material goal is [] percent of materials to be extracted, processed, and manufactured regionally.
 - a. Indicate location of manufacturing facility; indicate distance between manufacturing facility and the Project site.
 - b. Indicate location of extraction and recovery; indicate distance between extraction and recovery and the Project site.

1.06 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer Qualifications: Installations shall be performed exclusively by contractors certified by Blow-in-Blanket LLC.
 - a. SPF Installer: Certified or approved by SPF manufacturer or approved designee.
- B. Field Sample: Complete field sample area for evaluation of surface preparation techniques and application workmanship.
 - 1. Install system in 4-foot wide by full height section of exterior wall at location designated by Architect.
 - a. Exterior sheathing and stud framing of sample area shall be complete before installation of field sample.
 - b. Include all components of the system assembly. Do not install interior gypsum board.
 - 2. Do not proceed with remaining work until field sample is approved by Architect.
 - 3. Accepted Sample Areas: May remain part of completed Project.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. General: Protect insulation materials from excessive moisture and damage during shipment, storage, and handling.
- B. Delivery and Acceptance Requirements:
 - 1. Deliver material in original, unopened containers bearing the manufacturer and product name.
- C. Storage and Handling Requirements:
 - 1. Storage:
 - a. Protect material and installation equipment while stored at the site to prevent damage.
 - b. Store products in manufacturer's unopened packaging until ready for installation.
 - c. Comply with protection requirements of each product manufacturer. Store materials under cover in a secure, dry area protected from weather, and where the temperature is within limits specified by product manufacturer.
 - 2. Handling: Strictly adhere to detailed safety requirements and all health, environmental, handling and processing precautions published by the insulation manufacturer, including, but not limited to, MSDS.

1.08 AMBIENT CONDITIONS

- A. Do not apply materials when temperature, humidity, ventilation and other ambient conditions are outside limits recommended by manufacturer.
- B. Insulation shall be protected from weather during and after application.

PART 2 PRODUCTS

2.01 SYSTEM

- A. Basis of Design Hybrid Insulation System:
 - 1. System Manufacturer: Blow-in-Blanket LLC, Aurora, Colorado.
 - a. Phone: 800/525-8992.
 - b. Web: www.bibs.com.
 - 2. System: Blow-in-Blanket[®] HP System.
 - 3. Substitutions: Not permitted.

or

- 4. Requests for Substitutions: In accordance with Section 01 25 00.[01630.]
 - a. Systems proposed as substitutes must have documentation demonstrating compliance with all non-proprietary material and performance requirements specified for basis-of-design system.
- B. Description: High-performance, hybrid insulation and air barrier system for stud cavity assemblies, consisting of following components.
 - 1. Closed-cell polyurethane foam insulation spray applied in stud cavities.
 - 2. Fiberglass insulation blown-in over the foam insulation supported by a proprietary BIBS® mesh or netting, and completely filling the stud wall cavities.

Delete the following subparagraph, If not applicable per Project climate zone or design requirements.

- 3. Completely cover the inside surface with system manufacturer approved interior “smart” vapor retarder before covering with gypsum board, where required by project climate zone.
- C. Thermal Performance of System:
 - 1. System Applied In 2x4 Wood Stud Wall: Thermal resistance rating of R-16 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 0.5 inches.
 - b. BIBS® Fiberglass: 3 inches.

or

- 2. System Applied In 2x4 Wood Stud Wall: Thermal resistance rating of R-17 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 1 inch.
 - b. BIBS® Fiberglass: 2.5 inches.
- 3. System Applied In 2x6 Wood Stud Wall: Thermal resistance rating of R-24 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 0.5 inches.
 - b. BIBS® Fiberglass: 5 inches.

or

- 4. System Applied In 2x6 Wood Stud Wall: Thermal resistance rating of R-25 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 1 inch.
 - b. BIBS® Fiberglass: 4.5 inches.
- 5. System Applied In 2x8 Wood-Framed Roof: Thermal resistance rating of R-32 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 1 inch
 - b. BIBS® Fiberglass: 6.25 inches.

or

- 6. System Applied In 2x10 Wood-Framed Roof: Thermal resistance rating of R-43 for components installed at following thicknesses.
 - a. Closed-Cell SPF: 2 inches.
 - b. BIBS® Fiberglass: 7.25 inches.

or

- 7. System Applied In 2x12 Wood-Framed Roof: Thermal resistance rating of R-51 for components installed at following thicknesses.

- a. Closed-Cell SPF: 2 inches.
- b. BIBS® Fiberglass: 9.25 inches.

2.02 SPRAYED POLYURETHANE FOAM INSULATION

- A. Blow-in-Blanket® HP System Approved Manufacturers and Products:
 - 1. BASF Polyurethane Foam Enterprises, LLC; www.basf-pfe.com – SPRAYTITE® 178 Series.
 - 2. CertainTeed Corporation; www.certainteed.com - CertainTeed CertaSpray™ Closed Cell Foam.
 - 3. Convenience Products; www.touch-n-seal.com - CPD System™.
 - 4. Fomo Products, Inc.; www.fomo.com – The Magnum™ Heated System.
 - 5. Johns-Manville, www.jm.com - Corbond Polyurethane Foam.
- B. Fire Performance:
 - 1. ASTM E84.
 - a. Flame Spread Index: 25 or less.
 - b. Smoke Developed Index: Less than 450.
 - 2. NFPA 286: Pass when covered with 15-minute thermal barrier, for walls, applied 8 inches or less, and ceilings, applied 12 inches or less.
- C. Material: Two-component, closed-cell, polyurethane foam thermal insulation, formulated for spray application utilizing an EPA approved blowing agent, and having the following physical properties under laboratory testing.
 - 1. Nominal Core Density: ASTM D1622, 2.0 lbs. per cubic foot.
 - a. Minimum Core Density: 1.75 lbs. per cubic foot.
 - 2. Compressive Strength: ASTM D1621, 20 to 25 psi.
 - 3. Tensile Strength: ASTM D1623, 23 to 30 psi.
 - 4. Closed-Cell Content: ASTM D6226, 88 percent or higher.
 - 5. Thermal Resistance (R-Value): ASTM C518, at mean temperature of 75 degrees F, for 1-inch thickness.
 - a. Initial: 6.7 h-ft²-deg F/Btu.
 - b. Aged: 5.8 to 6.8 h-ft²-deg F/Btu.
 - 6. Vapor Permeability: ASTM E96, 1.51 to 1.82 perm inches.
 - 7. Vapor Permeance: ASTM E96.
 - a. At 1/2-Inch Thickness: 3.5 perms.
 - b. At 1-Inch Thickness: 1.5 to 1.8 perms.
 - c. At 2-Inch Thickness: 0.8 to 0.9 perms.
 - 8. Air Permeance: ASTM E2178, 0.00025 L/s/M² at 75Pa, for 1-inch thickness..

2.03 FIBER GLASS BLOWING INSULATION

- A. Blow-in-Blanket® HP System Approved Manufacturers and Products:
 - 1. CertainTeed Corporation; www.certainteed.com - InsulSafe® SP Fiber Glass Blowing Insulation.
 - 2. CertainTeed Corporation; www.certainteed.com - Optima®.
 - 3. Johns Manville, www.jm.com – Climate-Pro®.
 - 4. Johns Manville, www.jm.com – JM Spider® Fiberglass Blowing Insulation.
 - 5. Knauf Insulation; www.knaufusa.com – Perimeter Plus™ Fiber Glass Blowing Insulation.
- B. Performance:
 - 1. Thermal Performance:
 - a. Thermal Resistance per Inch: R-4.23.
 - 2. Fire Performance:
 - a. Flame Spread Index: ASTM E84, 25 or less.
 - b. Smoke Developed Index: ASTM E84, 50 or less.
 - c. Combustibility: ASTM E136, no temperature rise above 54 degrees F.

- C. Material: ASTM C764 Type 1. .Unbonded, virgin fibrous glass insulation designed for pneumatic application.
 - 1. Physical Properties:
 - a. Moisture Vapor Absorption: ASTM C1104, 5 percent maximum by weight.
 - b. Critical Radiant Flux: ASTM E970, flame propagation resistance greater than or equal to 0.12 W/sq cm.
 - c. Fungal Resistance: ASTM C1338, no growth.
 - 2. 3.35
 - 3. Formaldehyde-free.

For projects not intended for LEED certification, include the following.

- 4. Recycled Content: Minimum 20 percent total glass cullet recycled content.
- D. Blow-in-Blanket® System Insulation Supports and Accessories: Supplied by Blow-in-Blanket LLC or authorized distributor.
 - 1. Fabric: Spun bond polypropylene.
 - a. Product: BIBS HP Isomesh™ fabric.

or

- 2. Netting: Polypropylene.
 - a. Product: Insul Net.

Include the following for Climate Zones 4 through 7. Reference Climate Zone Map included in Blow-in-Blanket® HP System Technical Data Sheet, www.bibs.com. Vapor retarder must be utilized in those climate zones where the SPF thickness is not sufficient to control dew point within the assembly. The SPF thickness may be increased to the point that the interior vapor retarder may be eliminated. Please consult the SPF and/or fiber manufacturer for these guidelines.

2.04 VAPOR RETARDER

- A. Blow-in-Blanket® HP System Approved Manufacturer and Product: CertainTeed Corporation; www.certainteed.com - CertainTeed MemBrain™ Smart Vapor Retarder.
- B. Description: Polyamide film that changes its permeability with the ambient humidity condition by altering its pore size, allowing the closed building envelope systems to increase their drying potential with seasonal climatic changes.
- C. Performance:
 - 1. Fire Hazard Classification: ASTM E84.
 - a. Flame Spread Index: 20 or less.
 - b. Smoke Developed Index: 55 or less.
- D. Material: Polyamide film.
 - 1. Thickness: 2 mils.
 - 2. Physical Properties Under Laboratory Testing:
 - a. Water Vapor Permeance, ASTM E96 Desiccant Method: Less than or equal to 1.0 perms.
 - b. Water Vapor Permeance, ASTM E96 Water Method: Greater than 10 perms.
 - c. Fungal Resistance: ASTM C1338, no growth.

- d. Corrosivity: ASTM C665, no unusual aspect of corrosion such as pitting, cracking, and adhesive cure inhibition.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Examine areas to receive insulation to ensure conditions are satisfactory for installation.
 - 1. Verify surfaces are clean and dry, free of oil, grease, frost or ice, loose scales, rust, dust and debris.
 - 2. Verify substrate temperature and ambient conditions are within limits recommended by manufacturer.
 - 3. Verify that there are no voids, projections, foreign substances, or other items that might interfere with the integrity of the insulation.
 - 4. Verify that rough plumbing, electrical conduit, outlet boxes, and other items required to penetrate the insulation are installed prior to the application of the SPF insulation.
- B. Acceptance: Do not proceed until surfaces are satisfactory. Beginning of installation means acceptance of substrate by the installer.

3.02 PREPARATION

- A. Block all openings that would permit the material to flow into undesired areas.
- B. Cleaning: Clean surfaces to receive insulation of loose dirt, grease, oil, and other materials that could prevent good adhesion.
- C. Protection: Protect adjacent surfaces from over-spray.

3.03 POLYURETHANE FOAM INSULATION INSTALLATION

- A. General:
 - 1. Spray-apply in accordance with SPF manufacturer's written installation instructions, using manufacturer supplied equipment. Strictly adhere to detailed safety requirements and handling precautions published by the insulation manufacturer.
 - 2. Comply with all conditions of use stipulations of product's ICC-ES Report.
- B. Thickness: Completely cover interior face of exterior sheathing between studs and adjacent surfaces to 1/2-inch thickness..

or

- C. Thickness: Completely cover interior face of exterior sheathing between studs and adjacent surfaces to 1-inch thickness..

or

- D. Thickness: Completely cover interior face of exterior sheathing between studs and adjacent surfaces to 2-inch thickness..
- E. Fill spaces around all hose bibbs penetrating exterior walls.
- F. Do not apply in electrical outlet or junction boxes.
- G. Curing: Ventilate in accordance with manufacturer's recommendations. Allow SPF to fully expand and cure prior to application of additional passes of SPF or BIBS[®] materials.

H. Remove all overspray after cavities have been filled to specified thicknesses.

3.04 FIBER GLASS INSULATION INSTALLATION

- A. Blow-in-Blanket® System Insulation Fabric or Netting Installation:
 - 1. Steel Framed Construction: Install retention fabric with specified adhesive applied in a continuous bead or by spray-applied application on tracks and studs.
 - 2. Wood Framed Construction: Install net or fabric with staples spaced at approximately 1-inch (25mm), or with specified adhesive applied in a continuous bead or by spray-applied application.

- B. Fiber Glass Blowing Insulation: Pneumatically place loose fiber glass insulation into voids in accordance with fiber glass insulation manufacturer's written installation instructions for product application in the Blow-in-Blanket® HP System, using manufacturer supplied or approved blowing equipment.. Strictly adhere to detailed safety requirements and handling precautions published by the insulation manufacturer.
 - 1. Completely cover SPF insulation layer between studs and adjacent surfaces, filling stud cavities behind fabric or netting to uniform density.
 - a. Thickness In 2x4 Wood Stud Wall: 3 inches.
 - ***or***
 - b. Thickness In 2x4 Wood Stud Wall: 2.5 inches.
 - c. Thickness In 2x6 Wood Stud Wall: 5 inches.
 - ***or***
 - d. Thickness In 2x6 Wood Stud Wall: 4.5 inches.
 - ***or***
 - e. Thickness: As specified In Part 2 Article, "System".
 - 2. Fill completely around obstructions leaving no voids.
 - 3. Density: Install insulation to a minimum density of 1.8 to 2.3 pounds per cubic foot (29 to 37 kg/cubic meter). Actual required density is based on specific products and R-value specified. Comply with manufacturer's coverage chart. Install insulation to initially bulge 1/2-inch (13mm) to 1-inch (25mm) past face of studs to ensure proper density. Roll back material flush to studs.

- C. Clean over-spray, if any, from adjacent surfaces.

Delete following Vapor Retarder Installation article where vapor retarder is not used in the system.

3.05 VAPOR RETARDER INSTALLATION

- A. General: Install vapor retarder in strict accordance with manufacturer's written installation instructions. Install vapor retarder continuously over the interior, warm-in-winter side of the insulation. Secure in place and completely seal each wall area to surrounding construction.
- B. Take care to protect vapor retarder from puncture.
- C. Minimize wrinkles along the stud surfaces.
- D. Fastening to Wood Framing and Blocking: Staple to wood framing and blocking using minimum 1/2-inch long staples. Staple at 12 to 24 inches on center along studs, structural members and blocking and at 3 inches in from sheet edge.

- E. Fastening to Metal Studs and Framing: Fasten vapor retarder to metal studs and framing using one of the following methods approved by the vapor retarder manufacturer:
 - 1. Screw Fasteners: Fasten at maximum 12-inch intervals along the stud faces using #7 by 7/16 inch plated steel or stainless self-tapping or self-drilling cap-head sheet metal screws with low profile hex or pan drive heads and with a large, smooth-faced shoulder.
 - 2. Spray Adhesives: Begin by spraying the top plate. Place the stapling tab of the vapor retarder film in place along the top of the wall, without unfolding the material. Then spray the faces of the studs and bottom plate. Unfold the vapor retarder film without letting it contact the studs and bottom plate. Working from the edge, pull the sheeting downward allowing it to drape flat to the stud faces. Ensure contact of the sheeting with the stud faces by rubbing the contact area gently. Avoid allowing the sheeting material to sag.
 - a. Type: 3M Spray 90 photo-mount adhesive or similar product as recommended by vapor retarder manufacturer. Construction adhesives and water-based adhesives not acceptable.
 - b. Provide sufficient ventilation in work area when applying adhesive to control fumes emitted by adhesive. Follow the manufacturer's instructions carefully.
 - 3. Tape Adhesives: Fasten vapor retarder using double-sided carpet and foam tapes. Follow the same installation steps specified for spray adhesives.
- F. Seams: Where possible, install vapor retarder without seams on any single section of wall. Where installation in separate sections is unavoidable, locate seam over a stud or other continuous support and lap pieces minimum 3 inches.
- G. Repair of Tears: Repair cuts or tears using 2-inch wide cellophane tape.
 - 1. Tape: Scotch 610 or equivalent.
- H. Seal penetrations through vapor retarder immediately prior to installation of gypsum board using vapor resistant tape or adhesives as recommended by Manufacturer for this purpose. .

3.06 SITE QUALITY CONTROL

- A. Density Testing: Test installed density of blown fiberglass insulation by cutting out one cubic foot of installed material and weighing it on a scale. It must weigh between 1.8 and 2.3 pounds in order to meet specified R-values.
 - 1. Frequency: Test density of fiberglass insulation a minimum of once every 1000 square feet of wall area, but make no less than two tests per building.

3.07 CLEANING

- A. General: Clean areas after installation. Do not leave any insulation or associated items on Project Site.

END OF SECTION

(R Value Disclaimer)

This specification shows the R-value of the insulation specified. R-value means resistance to heat flow. The higher the R-value, the greater the insulating power. Ask your seller for the fact sheets on R-values. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation you need depends mainly on the climate you live in. Also, your fuel savings from insulation will depend upon the climate, the type and size of your house, the amount of insulation already in your house, and your fuel use patterns and family size. If you buy too much insulation, it will cost you more than what you'll save on fuel. To get the marked R-value, it is essential that this insulation be installed properly.