



# OptiLiner<sup>®</sup> Banded Liner System, Thermal, Metal Building

## Guide Specifications

**PROJECT ENGINEER RESPONSIBILITY:** This is a general specification guide, intended to be used by experienced construction professionals, in conjunction with good construction practice and professional judgment. This guide is to aid in the creation of a complete building specification that is to be fully reviewed and edited by the engineer. Sections of this guide should be included, edited, or omitted based on the requirements of a specific project. It is the responsibility of both the specifier and the purchaser to determine if a product or system is suitable for its intended use. Neither Owens Corning, nor any of its subsidiary or affiliated companies, assume any responsibility for the content of this specification guide relative to actual projects and specifically disclaim any and all liability for any errors or omissions in design, detail, structural capability, attachment details, shop drawings or other construction related details, whether based upon the information provided by Owens Corning or otherwise.

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## SECTION 07 21 16

### PRE-ENGINEERED BUILDING BLANKET INSULATION

#### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. Section Includes: Provide insulation system for pre-engineered metal buildings – new construction and existing construction.
- B. Related Sections:
  - 1. Section 13 34 00 - Fabricated Engineered Structures.
  - 2. Division 21 - Fire Suppression
  - 3. Division 22 - Plumbing; Rough-in utilities.
  - 4. Division 23 - HVAC; Rough-in utilities.
  - 5. Division 26 - Electrical; Rough-in utilities.

##### 1.2 REFERENCES

- A. Materials shall meet the property requirements of one or more of the following specifications as applicable to the specific product or end use:
  - 1. American Society for Testing of Materials (ASTM):
    - a. ASTM C991 - Standard Specification for Flexible Fibrous Glass Insulation for Metal Buildings.
    - b. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
    - c. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
    - d. ASTM E 96 - Standard Test Method for Water Vapor Transmission of Materials in Sheet Form (Procedure A).
  - 2. North American Insulation Manufacturers Association (NAIMA):
    - a. NAIMA 202-96(R) (Rev. 2000) STANDARD For Flexible Fiberglass Insulation to be Laminated for Use in Metal Buildings
  - 3. National Fire Protection Association (NFPA):
    - a. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
  - 4. Underwriters Laboratories (UL):
    - a. UL 723 - Test for Surface Burning Characteristics of Building Materials.



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### 1.3 DESIGN REQUIREMENTS

- A. Insulation R-Value of \_\_\_\_\_ for installed roof system.
- B. Insulation R-Value of \_\_\_\_\_ for installed wall system.
- C. The installed roof and wall systems shall provide a continuous vapor barrier.

### 1.4 SUBMITTALS

- A. Product Data: Provide manufacturer's data for each of the following including:
  - 1. Roof installation instructions
  - 2. Wall installation instructions
  - 3. Product data sheet
  - 4. Design considerations guide
  - 5. Recycle content certification for fiberglass insulation products – minimum 50% recycled content for all fiberglass insulation materials.
- B. Shop Drawings: Provide shop drawings that indicate the following:
  - 1. Liner fabric layout
  - 2. Insulation Layout and cut list
  - 3. Customer and project information

### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Companies shall be familiar with the installation practices associated with banded liner systems.

### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors or in a dry, covered area.
- B. Do not open products until ready to use.
- C. Protect products from potential construction site damage.
- D. Use care when opening products as pallets may shift during shipment.
- E. Banding has sharp edges. Wear cut proof gloves when handling.
- F. Wear safety glasses when unpacking materials.

### 1.7 PROJECT CONDITIONS

- A. For best results, do not install this system outside of the temperature, humidity, ventilation and environmental limits recommended by the manufacturer. Products should be kept covered and dry at temperatures less than 100°F prior to installation.



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### PART 2 - PRODUCTS

#### 2.1 MANUFACTURER

- A. Owens Corning Insulating Systems, LLC, Toledo, OH 43659; www.owenscorning.com.

#### 2.2 MATERIALS

Note: Owens Corning shall approve all materials used in the OptiLiner<sup>®</sup> Banded Liner System. Contact Owens Corning for specific materials approved for use within the OptiLiner<sup>®</sup> Banded Liner System.

- A. The OptiLiner<sup>®</sup> System consists of the following materials:
1. Unfaced light density fiberglass metal building insulation in the one of the following product categories:
    - a. Owens Corning Certified R Metal Building Insulation
      - 1) Complies with ASTM C991 Type 1.
      - 2) Complies with NAIMA 202-96-REV 2000.
      - 3) Flame Spread Index <25 and Smoke Developed Index <50 when tested in accordance with ASTM E84, NFPA 255 and UL 723.
      - 4) Certified by SCS Global Services to contain a minimum of 65% recycled glass content, 18% pre-consumer and 47% post-consumer.
      - 5) Thermal Resistance: Available R-Values = R10, R11, R13, R16, R19, R25 or R30.
      - 6) Unfaced.
      - 7) GREENGUARD Indoor Air Quality Certified<sup>®</sup>.
      - 8) GREENGUARD Gold Certified.
    - b. Owens Corning MBI Plus Metal Building Insulation
      - 1) Flame Spread Index <25 and Smoke Developed Index <50 when tested in accordance with ASTM E 84, NFPA 255 and UL 723.
      - 2) Certified by SCS Global Services to contain a minimum of 65% recycled glass content, 18% pre-consumer and 47% post-consumer.
      - 3) Thermal Resistance: Available R-Values = R10, R11, R13, R16, R19, R25 or R30.
      - 4) Unfaced.
      - 5) GREENGUARD Indoor Air Quality Certified<sup>®</sup>.
      - 6) GREENGUARD Gold Certified.
    - c. Owens Corning Metal Building Utility Blanket
      - 1) Flame Spread Index <25 and Smoke Developed Index <50 when tested in accordance with ASTM E 84, NFPA 255 and UL 723.
      - 2) Certified by SCS Global Services to contain a minimum of 65% recycled glass content, 18% pre-consumer and 47% post-consumer.
      - 3) Thermal Resistance: Available R-Values = R7.
      - 4) Unfaced.
      - 5) GREENGUARD Indoor Air Quality Certified<sup>®</sup>.
      - 6) GREENGUARD Gold Certified.
  2. Fabric liner facing/vapor barrier composed of woven high-density polyethylene coated on both sides with polyethylene. Complies with the following:
    - a. ASTM C1136, Types I through Type VI
      - 1) Type I-IV exception for dimensional stability (value is < 2.0%).
    - b. Perm rating: ≤ 0.02 when tested in accordance with ASTM E 96 Procedure A.
    - c. Flame Spread Index < 25 and Smoke Developed Index < 50 when tested in accordance with ASTM E 84.
    - d. Color:
      - 1) White
      - 2) Black
  3. Vapor barrier adhesive. Complies with the following:
    - a. Application temperature 10°F to 110° F



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4. Double sided vapor barrier tape. Complies with the following:
  - a. Width 0.75"
  - b. Rubber based and free film
5. Patch tape. Complies with the following:
  - a. Adhesive added to one side
  - b. Installation temperature from 10°F to 110°F
  - c. 3" width
6. Metal Banding/Straps. Complies with the following:
  - a. Coated steel
  - b. 1.0" wide
  - c. Structural Steel Grade 50 per ASTM C 653
  - d. Exposed color to match vapor barrier
    - 1) White
    - 2) Black
  - e. Backing – gray
7. Thermal breaks
  - a. Closed cell polyethylene foam tape for wall applications. Complies with the following:
    - 1) 0.125" thick to 0.375" thick
    - 2) 3.0" wide
  - b. Thermal spacer blocks. Complies with the following:
    - 1) Extruded or expanded polystyrene
    - 2) Minimum width 3.0"
    - 3) Thickness 0.5" – 1.0"
8. Light gage steel fasteners
  - a. Zinc plated cold forged steel
  - b. Head color to match vapor barrier
    - 1) White
    - 2) Black
  - c. Contain rubber sealing washer
9. Heavy gage steel fasteners
  - a. Zinc plated cold forged steel
  - b. Head color to match vapor barrier
    - 1) White
    - 2) Black
  - c. Contain rubber sealing washer
10. Insulation Hangars
  - a. Insul-hold insulation hangars

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine the areas and conditions under which work of this section will be installed. Verify that adjacent materials are dry and ready to receive insulation. Verify structure, bracing, and concealed building systems have been tested and inspected.
- B. Provide written report listing conditions detrimental to performance of work in this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION

- A. Install liner system in accordance with manufacturer's installation instructions and approved Shop Drawings.



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- B. Purlin and girt attachment surfaces should be clean and dry prior to attaching two-faced tape or sealing adhesive.
- C. Installed fiberglass insulation should fit snugly against purlin and girt walls in the cavity space. Avoid gaps, voids and any excess compression.

### 3.3 CLEANING

- A. Clean dirt from vapor barrier fabric using a soft cloth with soap and water or non-abrasive household cleaner. Solvent-based cleaners and abrasive pads should be avoided.

### 3.4 SAFETY PRECAUTIONS

- A. Installation contractor must have a site-specific safety plan and comply with all OSHA applicable local rules and regulations when installing this system.
- B. Workers must use OSHA required fall protection when installing the banded liner system at heights (see OSHA regulations at 29 CFR 1926, Subpart M).
- C. Banding has sharp edges and cut proof gloves should be worn when handling.

### 3.5 APPENDIX

- A. Refer to the Owens Corning publications listed below for product information, including uses, descriptions, physical properties, performance, specification compliance and application recommendations. Copies of these documents can be found at [www.owenscorning.com](http://www.owenscorning.com).
  1. OptiLiner<sup>®</sup> Banded Liner System Product Data Sheet – Owens Corning Publication 10011681
  2. OptiLiner<sup>®</sup> Wall Installation Instructions – Owens Corning Publication 10011266
  3. OptiLiner<sup>®</sup> Roof Installation Instructions – Owens Corning Publication 10011267
  4. OptiLiner<sup>®</sup> Bi-Directional Banding Option – Owens Corning Publication 10011602

END OF SECTION

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