



INNOVATIONS FOR LIVING®

OptiLiner™

Pre-Engineered Metal Building Insulation System

3-Part Specification

2004 MasterFormat™ Division 7 - Thermal and Moisture Protection

CSI Section 07 21 00 - Pre-Engineered Building Insulation

This specification is offered as a guide to specifiers and should be employed at the discretion of the user. The ultimate design and installation are the responsibility of the engineer or architect.

PART 1.0 – GENERAL

1.1 SECTION INCLUDES

- A. Insulation System or Pre-Engineered Metal Buildings - New Construction.
- B. Insulation System for Pre-Engineered Metal Buildings - Existing Construction.

1.2 RELATED SECTIONS

- A. Section 13 34 00 - Fabricated Engineered Structures.
- B. Section 13 90 00 - Fire Suppression
- C. Division 15 - Mechanical; Rough-in utilities.
- D. Division 16 - Electrical; Rough-in utilities.

1.3 REFERENCES

- 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).

E. NAIMA 202-96(R) (Rev. 2000) STANDARD For Flexible Fiber Glass Insulation to be Laminated for Use in Metal Buildings

F. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

G. UL 723 - Test for Surface Burning Characteristics of Building Materials.

1.4 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.

1.5 SUBMITTALS

- A. Submit under provisions of section 01 30 00.
- B. 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.
- C. Shop Drawings: Provide shop drawings that indicate the following:
 - 1. Liner fabric layout
 - 2. Insulation Layout and cut list
 - 3. Customer and project information

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company must participate in the fabrication of fiberglass insulation systems used in metal building roof and wall systems and have a minimum of 5 years experience in the industry.
- B. Installer Qualifications: Companies shall be familiar with the installation practices associated with banded liner systems.

1.7 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.

1.8 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 2.0 – PRODUCTS

2.1 MANUFACTURERS

A. Acceptable manufacturer:

Owens Corning
One Owens Corning Parkway
Toledo, Ohio 43659
System information at:
www.owenscorning.com
Questions: 1-800-GET-PINK®

B. Substitutions: Not permitted.

2.2 MATERIALS

Note: Owens Corning shall approve all materials used in the OptiLiner™ System. Contact Owens Corning for specific materials approved for use within the OptiLiner™ System.

A. The OptiLiner™ system consists of the following materials:

I. 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 I.
- 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) Minimum 50% recycled content (20% post consumer and 30% pre consumer).
- 5) Thermal Resistance: Available R-Values = R10, R11, R13, R16, R19, R25 or R30.
- 6) Unfaced.

- 7) GREENGUARD Indoor Air Quality Certified®.
 - 8) GREENGUARD Children & SchoolsSM 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) Minimum 50% recycled content (20% post consumer and 30% pre consumer).
 - 3) Thermal Resistance: Available R-Values = R10, R11, R13, R16, R19, R25 or R30.
 - 4) Unfaced.
 - 5) GREENGUARD Indoor Air Quality Certified®.
 - 6) GREENGUARD Children & SchoolsSM 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) Minimum 50% recycled content (20% post consumer and 30% pre consumer).
 - 3) Thermal Resistance: Available R-Values = R7.
 - 4) Unfaced.
 - 5) GREENGUARD Indoor Air Quality Certified®.
 - 6) GREENGUARD Children & SchoolsSM 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

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



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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 3.0 – EXECUTION

3.1 EXAMINATION

- A. Ensure that building structure including bracing and any concealed building systems are completed and approved before installing a roof or wall liner system.
- B. Contact the appropriate personnel to correct any unsatisfactory conditions before proceeding.

3.2 INSTALLATION – GENERAL

- A. Install liner system in accordance with appropriate Owens Corning roof or wall installation instructions and job specific shop drawings.
- B. Avoid gaps, voids and any excess compression of the light density fiberglass insulation.
- C. Purlin and girt attachment surfaces should be clean and dry prior to attaching two-faced tape or sealing adhesive.
- D. Installed fiberglass insulation should fit snugly against purlin and girt walls in the cavity space.

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.

APPENDIX

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.

OptiLiner™ Product Data Sheet – Owens Corning Publication 10011681

OptiLiner™ Roof Installation Instructions – Owens Corning Publication 10011267

OptiLiner™ Wall Installation Instructions – Owens Corning Publication 10011266

OptiLiner™ Bi-Directional Banding Option – Owens Corning Publication 10011602



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