

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 Bay Insulation Systems, 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 Bay Insulation Systems or otherwise.

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**SECTION 07 21 16  
BLANKET INSULATION FOR METAL BUILDINGS**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Thermal insulation and moisture control system for metal buildings for the following applications:
  - 1. Walls.
  - 2. Roofs, with OSHA Compliant, leading-edge fall protection.
- B. Related Sections:
  - 1. Section 13 34 00 – Fabricated Engineered Structures.
  - 2. Section 13 34 19 – Metal Building Systems.
  - 3. Division 21 – Fire Suppression.
  - 4. Division 22 – Plumbing; Rough-in utilities.
  - 5. Division 23 – HVAC; Rough-in utilities.
  - 6. Division 26 – Electrical; Rough-in utilities.

**1.2 REFERENCES**

- A. American Society for Testing of Materials (ASTM):
  - 1. ASTM C991 - Standard Specification for Flexible Fibrous Glass Insulation for Metal Buildings.
  - 2. ASTM C1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
  - 3. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 4. ASTM E 96 - Standard Test Method for Water Vapor Transmission of Materials in Sheet Form (Procedure A).
  - 5. ASTM E 2178 – Standard Test Method for Air Permeance of Metal Buildings.
- B. North American Insulation Manufacturers Association (NAIMA):
  - 1. NAIMA 202-96(R) (Rev. 2000) STANDARD For Flexible Fiberglass Insulation to be Laminated for Use in Metal Buildings.
- C. National Fire Protection Association (NFPA):
  - 1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- D. Underwriters Laboratories (UL):
  - 1. UL 723 - Test for Surface Burning Characteristics of Building Materials.

**1.3 DESIGN REQUIREMENTS**

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

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**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 consideration 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.
- B. Bay Insulation shall approve all materials used in the SkyLiner® Insulation System. Contact Bay Insulation for specific materials approved for use with the SkyLiner® Insulation System.
  - 1. Substitution of any original components will nullify compliance with OSHA standards for fall protection.

**1.6 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 banding and fabric system at heights (see OSHA regulations at 29 CFR 1926, Subpart M).
- C. The SkyLiner® Insulation System meets:
  - 1. OSHA 29 CFR 1926.502(c)(4)(i) – Except as provided in paragraph (c)(4)(ii) of this section, safety nets and safety net installations shall be drop-tested at the jobsite after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The drop test shall consist of a 400-pound (180 kg) bag of sand 30" ± 2" (76 cm ± 5 cm) in diameter dropped into the net from the highest walking/working surface at which employees are exposed to fall hazards, but not less than 42" (1.1 m) above that level.
  - 2. OSHA 29 CFR 1926.502(i)(2) – All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment and materials that may be imposed on the cover at any one time.
  - 3. OSHA 29 CFR 1926.754(e)(3) – covering roof and floor openings.
  - 4. OSHA 29 CFR 1926.754(e)(3)(i) – Covers for roof and floor openings shall be capable of supporting, without failure, twice the weight of the employees, equipment and materials that may be imposed on the cover at any one time.
- D. Banding has sharp edges. Cut proof gloves should be worn when handling.

**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.

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- 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.

**PART 2 – PRODUCTS**

**2.1 MANUFACTURER**

- A. Bay Insulation Systems, Inc., Green Bay, WI, 54311; [www.bayinsulation.com](http://www.bayinsulation.com).

**2.2 MATERIALS**

Note: Bay Insulation Systems shall approve all materials used in the SkyLiner® Insulation System. Contact Bay Insulation for specific materials approved for use within the SkyLiner® Insulation System.

- A. The SkyLiner® System consists of the following materials:
  - 1. Unfaced light density fiberglass metal building insulation in one of the following product categories:
    - a. 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®.
      - 8) GREENGUARD Gold Certified.
    - b. Metal Building Filler Blanket 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®.
      - 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 VI.
      - 1) Type 1-IV exception for dimensional stability (value is <2.0%).
    - b. Perm rating: 0.02 or 0.03 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) Bright White, Sky Blue Backing.
      - 2) Black.
      - 3) Silver Grey.

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3. Vapor barrier adhesive. Complies with the following:
  - a. BayGrip™ Contact Adhesive; CA Compliant.
  - b. BayGrip™ Fast Dry Pressure Sensitive Adhesive; CA Compliant.
4. Double sided vapor barrier tape. Complies with the following:
  - a. SkyLiner Double-Faced Tape.
  - b. 2" width.
5. Patch tape. Complies with the following:
  - a. SkyLiner Repair Tape.
6. Metal Banding/Straps. Complies with the following:
  - a. SkyLiner® Banding, 1" x 0.023 continuous length metal banding.
  - b. Exposed color to match vapor barrier.
    - 1) White.
    - 2) Black.
    - 3) Silver Grey.
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" to 1.0".
8. Fasteners & Clips.
  - a. SkyLiner® Safety Clip System, to include offset clip + fastener + banding, 16" either side of each frame. (Required for fall protection installation.)
  - b. Tek 2 and Tek 4.5.
9. Insulation Hangars.
  - a. SkyLiner® SkyHook™ for Walls.
  - b. SkyLiner® Insul-Hold for Walls, 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.
- 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.

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**3.4 APPENDIX**

- A. Refer to the Bay Insulation Systems 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.bayinsulation.com](http://www.bayinsulation.com).
1. SkyLiner® New Construction Installation Instructions – Bay Publication 13290508.
  2. SkyLiner® New Construction Walls Installation Instructions – Bay Publication 13290509.
  3. SkyLiner® White Fabric Specification Sheet – Bay Publication 13290216.
  4. SkyLiner® Black Fabric Specification Sheet – Bay Publication 13290211.
  5. BayGrip™ for SkyLiner® Data Sheet– Bay Publication 13290306.
  6. BayGrip™ Spray for SkyLiner® Data Sheet– Bay Publication 13290307.

**END OF SECTION**