



INNOVATIONS FOR LIVING®

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Guide Specifications

PROJECT ARCHITECT 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 architect of record (specifier). 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.

SECTION 07 21 16 - PRE-ENGINEERED BUILDING BLANKET INSULATION

PART 1.00 - GENERAL

1.01 Scope

- A. Work covered by this specification consists of furnishing all labor, equipment, materials, and accessories, and performing all operations required for correct installation of thermal insulation applied to pre-engineered steel building roof structural assemblies in accordance with applicable project specifications and drawings using Owens Corning's™ ELAMINATOR® Insulation system with either the 100 or 300 Series machines for roof installation, in compliance with Owens Corning's published installation procedures, subject to all of the terms and conditions of the contract:
1. Faced Certified-R Metal Building Insulation with the 100 Series machines or unfaced MBI Plus Insulation with the 300 Series machines is installed parallel with the purlins beneath the roof.
 2. MBI Plus Insulation installed as a second layer across the purlin structure, over the first layer of insulation to provide two layers.
 3. On buildings with standing seam roofs, FOAMULAR® 250 PINK thermal spacer blocks installed over the purlins where faced metal building insulation will be compressed.
 4. MBI Plus Insulation installed as one layer perpendicular, or parallel, to the purlins with separate facing parallel to the purlins beneath the roof.
 5. ELAMINATOR® Insulation System is limited to low slope roofs. 100 Series or 300 Series machines can install the ELAMINATOR® Insulation System on slopes 3:12 or lower.
 6. ELAMINATOR® Insulation System is NOT to be installed in buildings of high moisture, e.g. enclosed swimming pools.
- B. Roof insulation shall be installed using the Owens Corning™ ELAMINATOR® system with 100 or 300 Series machines in accordance with Owens Corning published installation procedures in one of the following modes, selection of which shall be at the discretion of the contractor:
1. Two-layer installation - the ELAMINATOR® system and machines shall be used to apply the first layer of faced Certified-R or unfaced MBI Plus Insulation parallel to and between the purlins. The unfaced second insulation layer shall be installed manually across the purlins, parallel to the roof sheets. If the roof is of standing seam design, thermal spacer blocks shall be installed by the roof sheeting crew on top of the purlins, immediately prior to installation of roof sheets, after both layers of metal building insulation are in place.
 2. Single-layer installation - the ELAMINATOR® Insulation System machines shall be used to install the vapor retarder facing ahead of and separately from the unfaced MBI Plus Insulation, parallel to the purlins, after which MBI Plus Insulation is installed manually across the purlins.



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1.02 References

- A. Thermal insulation materials shall meet the property requirements of current issues of the following specifications as applicable to the specific product:
 - 1. North American Insulation Manufacturers' Association (NAIMA) Standard 202-96. "Standard for Flexible Fiber Glass Insulation Used in Metal Buildings."
 - 2. American Society for Testing and Materials Specification ASTM C 991, Type I (Unfaced) or Type II (Faced). "Standard Specification for Flexible Glass Fiber Insulation for Metal Buildings."
- B. Facing materials shall be tested for water vapor permeance in accordance with American Society for Testing and Materials Standard ASTM E 96, "Standard Test Methods for Water Vapor Transmission of Materials."
- C. Thermal insulation materials furnished and installed hereunder shall comply with the U-value requirements of the following:
 - 1. National Voluntary Consensus Standard 90.1 - 1989. "Energy-Efficient Design of New Buildings (Except Low-Rise Residential Buildings)," of the American Society of Heating, Refrigerating and Air- Conditioning Engineers (ASHRAE). However, if other factors such as condensation control are to be considered, selection of insulation thickness must satisfy the controlling factor.
- D. Assembly U-values shall be determined in accordance with:
 - 1. American Society for Testing and Material Standard ASTM C 976 "Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box."
 - 2. As an alternate, American Society for Testing and Materials Standard ASTM C 236. "Standard Test Method for Steady- State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box."
 - 3. As an alternate, finite-element analysis, validated by hot box test.
- E. Insulation materials furnished and installed hereunder shall meet the fire hazard requirements of any one of the following standards:
 - 1. American Society for Testing of Materials ASTM E 84, "Standard Test Method for Surface Burning Characteristics of Building Materials."
 - 2. Underwriters' Laboratories, Inc., UL 723, "Tests for Surface Burning Characteristics of Building Materials."
 - 3. National Fire Protection Association NFPA 255. "Standard Method of Test of Surface Burning Characteristics of Building Materials."

1.03 Quality Assurance

- A. Insulation materials and accessories furnished and installed hereunder shall, where required, be accompanied by manufacturers' current submittal or data sheets showing compliance with applicable specifications listed in Section 1.02 above.
- B. Insulation materials and accessories shall be installed in a workmanlike manner by skilled and experienced workers regularly engaged in metal building insulation work who follow the guidelines in the ELAMINATOR® Insulation System Installation 100 or 300 Series Machine Manuals.

1.04 Delivery and Storage of Materials

- A. All of the insulation materials and accessories covered by this specification shall be delivered to the job site and stored in a clean, dry place with all appropriate labels and/or other product identification as supplied by the manufacturer.
- B. The contractor shall use whatever means necessary to protect the insulation materials and accessories before, during, and after installation. No insulation material shall be installed that has become damaged to the point of requiring major rework or repair, or in a manner which would adversely affect its in-place thermal performance or appearance.
- C. If any insulation material has become wet because of transit or job site exposure to moisture or water, the contractor shall not install such material.
- D. The contractor shall also use all means necessary to protect the installed system from damage.



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PART 2.00 - PRODUCTS

2.01 Roof Insulation Using ELAMINATOR® Insulation System

- A. The contractor shall provide a roof insulation system using Owens Corning's™ ELAMINATOR® Insulation System which installs a double layer application with an R-value of _____ for the first layer between the structure members and R-value of _____ for the second layer, perpendicular and across the structure members OR for single layer application with an R-value _____ for the layer perpendicular and across the structure members.

2.02 Accessory Materials

- A. Accessory materials installed as part of the roof and/or wall insulation work under this specification shall include (but not be limited to) the following:
1. Double-sided tape used to adhere facing to end rafters (rake angles) or trim strips.
 2. Pressure-sensitive vapor retarder tape used to mend or repair tears or punctures in facing - must be compatible with type of facing specified in 2.01.A.I.
 3. Thermal spacer blocks shall be FOAMULAR® 250 PINK extruded polystyrene, 1" thick.
- B. Accessory materials shall be furnished and installed in accordance with Owens Corning's installation instructions.

PART 3.00 - EXECUTION

3.01 Site Inspection

- A. Before starting work under this section, carefully inspect the job site and installed work of other trades and verify that such work is complete to the point where installation of materials and accessories under this section can begin.
- B. Verify that all materials and accessories can be installed in accordance with project drawings and specifications, and material manufacturers' recommendations.
- C. Verify, by inspecting product labeling, submittal data, and/or certifications accompanying shipments, that insulation materials and accessories to be installed on the project comply with applicable specifications and standards as called for in this specification and meet all specified thermal and physical properties.

3.02 Preparation

- A. Ensure that the insulation is clean, dry, and in good mechanical condition with the vapor retarder facing intact and undamaged. Wet, dirty, or damaged insulation, whether faced or unfaced, shall not be acceptable for installation.
- B. Do not begin installation when weather conditions (rain, wind, low temperature) might cause moisture damage to the insulation, impede proper installation, or endanger persons working on the roof structure.

3.03 Installation

- A. Roof Insulation
1. Installation shall be in accordance with Owens Corning's™ published ELAMINATOR® Insulation System Installation Manual for the 100 or 300 Series machines. At least one machine operator shall be a certified or apprentice operator who has met the requirements of the Owens Corning™ Certified ELAMINATOR® Operator Program. Installation shall be done without banding for 300 Series machines only.
 2. Facing flanges shall overlap above purlin to ensure that roof fasteners will secure the facing as roof sheets are installed and to maintain vapor retarder integrity across the purlins.
 3. Wherever possible, facing splices or seams shall be located above rafters where they will be least noticeable.
 4. All tears or punctures in facing shall be repaired with pressure-sensitive tape compatible with and recommended by the manufacturer of the vapor retarder facing.



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5. Certified-R Metal Building Insulation or unfaced MBI Plus Insulation shall be installed without voids or cavities between the insulation.
6. On standing seam roofs, install thermal spacer blocks over the insulation between roof fasteners in accordance with the metal building or component manufacturer's recommendations.
7. It is the responsibility of the building contractor to install the roof so that it is weathertight, to prevent water damage to the insulation after it is installed.

3.04 Field Quality Assurance

- A. During the course of insulation work covered by this specification, visually inspect the job to verify that the insulation and the facing are being correctly installed and that finished appearance viewed from below or within meets specified standards for uniform appearance.

3.05 Safety Precautions

- A. The insulation contractor's employees shall at all times be properly protected during installation of all insulation. All job site operations shall be conducted in compliance with applicable provisions of the Occupational Safety and Health Act, as well as with all state and/or local safety and health codes, and regulations that may apply to the work.
- B. The ELAMINATOR® Insulation System 300 Series machines enable the contractor to comply with OSHA fall protection standards.