**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 ELAMINATOR Insulation with the 300 Series machines is installed parallel with the purlins beneath the roof.

2. **ELAMINATOR 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. **ELAMINATOR 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.

7. **ELAMINATOR** 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 **ELAMINATOR 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 **ELAMINATOR Insulation**. Insulation is installed manually across the purlins.

**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:


**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:


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:


**1.03 Quality Assurance**

**A.** Insulation materials and accessories furnished and installed hereunder shall be in accordance with 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
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ELAMINATOR® Insulation System

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.1.

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.

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 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 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.

   5. Certified-R Metal Building Insulation or unfaced ELAMINATOR 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.

*ELAMINATOR Insulation not to be laminated.