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Standard Specification for Faced Rigid Cellular Polyisocyanurate Roof Insulation¹

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1. Scope

1.1 This specification covers the composition and physical properties for faced rigid cellular polyisocyanurate thermal insulation board used principally above structural roof decks, and as a base for roofing in building construction.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 When the installation or use of thermal insulation materials, accessories, and systems may pose safety or health problems, the manufacturer shall provide the user appropriate current information regarding any known problems associated with the recommended use of the company's products and shall also recommend protective measures to be employed in their safe utilization. The user shall establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.

2. Referenced Documents

2.1 ASTM Standards:

- C 165 Test Method for Measuring Compressive Properties of Thermal Insulations²
- C 168 Terminology Relating to Thermal Insulating Materials²
- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot Plate Apparatus²
- C 203 Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation²
- C 209 Test Methods for Cellulosic Fiber Insulating Board²
- C 236 Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box²
- C 390 Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots²
- C 518 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus²
- C 976 Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box²
- C 1045 Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements²

- C 1058 Practice for Selecting Temperatures for Evaluation and Reporting Thermal Properties of Thermal Insulation²
- C 1114 Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus²
- D 312 Specification for Asphalt Used in Roofing³
- D 450 Specification for Coal-Tar Pitch Used in Roofing, Dampproofing, and Waterproofing³
- D 1621 Test Method for Compressive Properties of Rigid Cellular Plastics⁴
- D 2126 Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging⁴
- E 84 Test Method for Surface Burning Characteristics of Building Materials⁵

3. Terminology

3.1 *Definitions*—For definitions of terms used in this specification, refer to Terminology C 168.

3.2 *Description of Term Specific to This Standard:*

3.2.1 *polyisocyanurate*—encompasses both polyurethane and polyisocyanurate.

4. Ordering Information

4.1 Orders for materials purchased under this specification shall include the following:

- 4.1.1 Designation and year of issue,
- 4.1.2 Product name,
- 4.1.3 Board dimensions,
- 4.1.4 Quantity of material,
- 4.1.5 Special packaging or package marking (14.1 and 14.2), if required, and
- 4.1.6 Thermal resistance (R-value).

5. Materials and Manufacture

5.1 Faced rigid cellular polyisocyanurate roof insulation shall consist of a rigid cellular polyisocyanurate core of essentially closed cell structure. It shall be faced during manufacture with membranes suitable for application of roofing asphalt in accordance with Specification D 312 or coal tar pitch in accordance with Specification D 450 or single ply roofing membranes.

6. Physical Properties

6.1 *Thermal Resistance*—The mean thermal resistance of the material tested shall not be less than the minimum value identified in Table 1. The thermal resistances of individual

¹ This specification is under the jurisdiction of ASTM Committee C-16 on Thermal Insulation and is the direct responsibility of Subcommittee C16.22 on Organic and Nonhomogeneous Inorganic Thermal Insulations.

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² *Annual Book of ASTM Standards*, Vol 04.06.

³ *Annual Book of ASTM Standards*, Vol 04.04.

⁴ *Annual Book of ASTM Standards*, Vol 08.01.

⁵ *Annual Book of ASTM Standards*, Vol 04.07.