DISCLAIMER: The manufacturer has reviewed the product information contained in this short form specification. The information is organized and presented to assist the specification writer working on a construction project to select the appropriate products and to save time in writing the project specification Section. The specification writer is responsible for product selection as well as the use and application of this information, and should contact the manufacturer to ensure that all options are available and that the associated specification information is valid and correct.

SPEC NOTE: Insert the required paragraphs into the Section under the noted Articles, and make any required selections. Where selection is indicated with an [OR] statement, select the appropriate paragraph and delete the inappropriate statement. Delete all SPEC NOTEs and [OR] statements prior to final printing.

*01 4100: CONTINUOUS ENVELOPE AIR BARRIER*

*PART 1 GENERAL*

*1.01 SECTION INCLUDES*

*A. Administrative and procedural requirements to create an airtight building enclosure that controls infiltration / exfiltration of air.*

1. *The Prime Contractor shall ensure that the continuous air barrier around the building enclosure is achieved with the following characteristics:*
	1. *It must be continuous, with all joints, penetrations, and air paths sealed.*
	2. *It must be structurally supported.*
	3. *It must be connected and continuous between foundation & walls, walls & windows/doors, different wall systems, wall & roof.*

*1.02 RESPONSIBILITIES*

*A. Prime Contractor Responsibilities: Unless otherwise indicated, the Prime Contractor shall provide coordination of the trades, and the sequence of construction to ensure continuity of the air barrier system joints, junctures and transitions between materials and assemblies of materials and products, from substructure to walls to roof.*

*PART 2 – PRODUCTS – [not used]*

*PART 3 – EXECUTION – [not used]*

*END OF SECTION*

SECTION 07 2100

THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thermax™ Brand Polyisocyanurate Board Insulation.

1.02 REFERENCE STANDARDS

A. [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289) - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2016.

B. [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84) - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.

C. UL 1715 or NFPA 286 – Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2015.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. Warranty: Provide Manufacturer's Limited Thermal Warranty for polyisocyanurate insulation.

D. E. UL 1715 or NFPA 286 Compliance: Submit third party report showing compliance.

1.04 QUALITY ASSURANCE

A. Source Limitations: Obtain building insulation through one source from a single manufacturer.

1.05 FIELD CONDITIONS

A. Application Temperatures: Comply with Manufacturer's recommendations for product applications.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation Exposed at Interior of Walls: Polyisocyanurate board.

2.02 FOAM BOARD INSULATION MATERIALS

A. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289); Type I, aluminum foil both faces; Class 2, glass fiber-reinforced core.

1. Basis of Design:

a. DuPont de Nemours Inc.; **DuPont™ Thermax™ Heavy Duty Insulation\***: building.dupont.com/commercial.

2. Flame Spread Index (FSI): Class A - 0 to 25 for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

3. Smoke Developed Index (SDI): 450 or less for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

4. Front Facer: 4.0 mil white embossed aluminum.

5. Back Facer: 1.25 mil embossed aluminum.

6. Board Thickness: \_\_\_\_ inch (\_\_\_\_ mm).

7. Board Edges: Square.

8. Sustainability: Third party listed Environmental Product Declaration certificate.

 **[OR]**

B. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289); Type I, aluminum foil both faces; Class 2, glass fiber-reinforced core.

1. Basis of Design:

a. DuPont de Nemours Inc.; **DuPont™ Thermax™ Light Duty Insulation\***: building.dupont.com/commercial.

2. Flame Spread Index (FSI): Class A - 0 to 25 for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

3. Smoke Developed Index (SDI): 450 or less for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

4. Front Facer: 1.25 mil white embossed aluminum.

5. Back Facer: 1.25 mil embossed aluminum.

6. Board Thickness: \_\_\_\_ inch (\_\_\_\_ mm).

7. Board Edges: Square.

8. Sustainability: Third party listed Environmental Product Declaration certificate.

. **[OR]**

C. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289); Type I, aluminum foil both faces; Class 2, glass fiber-reinforced core.

1. Basis of Design:

a. DuPont de Nemours Inc.; **DuPont™ Thermax™ White Finish (WF)** **Insulation\*** building.dupont.com/commercial.

2. Flame Spread Index (FSI): Class A - 0 to 25 for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

3. Smoke Developed Index (SDI): 450 or less for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

4. Front Facer: 1.25 mil white embossed aluminum.

5. Back Facer: 1.0 mil plain aluminum.

6. Board Thickness: \_\_\_\_ inch (\_\_\_\_ mm).

7. Board Edges: Square.

8. Sustainability: Third party listed Environmental Product Declaration certificate.

 **[OR]**

D. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289); Type I, aluminum foil both faces; Class 2, glass fiber-reinforced core.

1. Basis of Design:

a. DuPont de Nemours Inc.; **DuPont™ Thermax**™ **Sheathing\***: building.dupont.com/commercial.

2. Flame Spread Index (FSI): Class A - 0 to 25 for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

3. Smoke Developed Index (SDI): 450 or less for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

4. Front Facer: 1.0 mil smooth aluminum.

5. Back Facer: 1.0 mil smooth aluminum.

6. Board Thickness: \_\_\_\_ inch (\_\_\_\_ mm).

7. Board Edges: Square.

8. Sustainability: Third party listed Environmental Product Declaration certificate.

. **[OR]**

E. Polyisocyanurate Board Insulation with Facers Both Sides: Rigid cellular foam, complying with [ASTM C1289](http://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20C1289); Type I, aluminum foil both faces; Class 2, glass fiber-reinforced core.

1. Basis of Design:

a. DuPont de Nemours Inc.; **DuPont™ Thermax**™ **Metal Building Board\***: building.dupont.com/commercial.

2. Flame Spread Index (FSI): Class A - 0 to 25 for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

3. Smoke Developed Index (SDI): 450 or less for both core AND finished product, when tested in accordance with [ASTM E84](https://global.ihs.com/doc_detail.cfm?rid=BSD&document_name=ASTM%20E84).

4. Front Facer: 1.25 mil embossed aluminum.

5. Back Facer: 1.25 mil embossed aluminum.

6. Board Thickness: \_\_\_\_ inch (\_\_\_\_ mm).

7. Board Edges: Square.

8. Sustainability: Third party listed Environmental Product Declaration certificate.

2.03 ACCESSORIES

A. Exposed Interior Insulation Joint Treatment

1. Thermax™ PVC Clip Strip System
**[OR]** DuPont™Thermax™ White Foil Tape;
**[OR]** DuPont™Thermax™ Aluminum Foil Tape.

 **[OR]** Ship-Lapped edge (boards must be 1.5 inch thick minimum).

B. Board Insulation Bonding Adhesive: Provide product as recommended by insulation Manufacturer that will not damage insulation or substrates. Adhesive not recommended as only attachment mechanism for Thermax on ceilings or on walls higher than 10 feet (due to fall protection).

1. Acceptable Products:

a. DuPont de Nemours Inc.; DuPont™ Great Stuff Pro™ Construction Adhesive\*.

C. Roof/Wall Juncture Sealing

1. Maintain continuity of air barrier by sealing the roof/wall juncture.

2. Acceptable Products:

a. DuPont de Nemours Inc.; DuPont™ Froth-Pak™ Foam Insulation\* (Class A).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

3.02 GENERAL INSTALLATION

A. Maintain continuity of air barrier by sealing the roof/wall juncture with Roof/Wall Juncture Sealing material.

3.03 BOARD INSTALLATION AT INTERIOR WALLS

A. Fasten insulation board per ICC ESR code report 1659 (section 4.1.1 application).

1. OPTIONAL and in addition to fastening: Apply adhesive to back of boards using horizontal continuous 3/8” beads placed 2 inches from edges in a zig zag pattern. Press board into adhesive pull back slightly to activate adhesive bond then push back in place.

2. Thermax™ brand insulation boards used in interior applications to be fastened at maximum of 24 inches (610mm) on center along the width of the board and a maximum 48 inches (1219 mm) on center along the length of the board.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

C. Verify that seams are clean, dust free, and dry before applying seam treatment (wipe down with damp cloth and then dry).

D. Install DuPont™ Thermax™ PVC Clip Strip System **[OR]** DuPont™ Thermax™ White Foil Tape with squeegee or stiff brush **[OR]** DuPont™ Thermax™ Aluminum Foil Tape with squeegee or stiff brush at seams.

3.04 BOARD INSTALLATION AT INTERIOR WALLS

A. See Section 01 4000 - Quality Requirements, for additional requirements.

3.05 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

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**DuPont™ Styrofoam™ Brand Spray Polyurethane Foam\*** contains isocyanate, hydrofluorocarbon blowing agent and polyol. Read the instructions and (Material) Safety Data Sheet ((M)SDS) carefully before use. Wear protective clothing (including long sleeves), gloves, goggles and proper respiratory protection. Supplied air or an approved air-purifying respirator equipped with an organic vapor sorbent and a P100 particulate filter is required to maintain exposure levels below ACGIH, OSHA, WEEL or other applicable limits. Provide adequate ventilation. Contents under pressure. Styrofoam™ Brand SPF should be installed by a trained SPF applicator.
**CAUTION**: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240ºF (116ºC). For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**DuPont™ Great Stuff Pro™ Polyurethane Foam Sealants and Adhesives\*** contain isocyanate and a flammable blowing agent. Read all instructions and (Material) Safety Data Sheet ((M)SDS), carefully before use. Eliminate all sources of ignition before use. Cover all skin. Wear long sleeves, gloves, and safety glasses or goggles. Not for use in aviation, or food/beverage contact, or as structural support in marine applications. Provide adequate ventilation or wear proper respiratory protection. Contents under pressure. Not to be used for filling closed cavities or voids such as behind walls and under tub surrounds.
**CAUTION**: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240ºF (116ºC). For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**DuPont Polyurethane Foam Insulation and Sealant\***
**CAUTION**: When cured, these products are combustible and will burn if exposed to open flame or sparks from high-energy sources. Do not expose to temperatures above 240ºF (116ºC). For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.
**CAUTION**: This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier. For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**DuPont™ LiquidArmor™ Flashing and Sealant\***Read the instructions and (Material) Safety Data Sheets ((M)SDS) carefully before use. It is recommended that spray applicators and those working in the spray area wear eye protection. Contact with exposed skin may cause skin discoloration and dryness. Gloves are recommended for prolonged exposures. Ensure adequate ventilation during spray applications.

**DuPont™ ThermaxTM Brand Polyisocyanurate Insulation\*
CAUTION**: This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier. For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583, or contact your local building inspector. In an emergency, call 1-989-636-4400.

**DuPont™ StyrofoamTM Extruded Polystyrene Foam Insulation\*
CAUTION**: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**WARNING**: Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including DuPont can give assurance that mold will not develop in any specific system.

\*A former product of The Dow Chemical Company

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