

DuPont™ Thermax™ Insulation in High-Humidity Metal and Commercial Buildings

Installation Procedures

Description

Metal and commercial building interiors subjected to prolonged high-humidity conditions, such as buildings with swimming pools, ice rinks or food processing services, are often damaged by dew point condensation (relative humidity levels greater than 50%). A two layer system of **DuPont™ Thermax™ insulation** products can help control moisture vapor and energy loss in high-humidity metal and commercial buildings (relative humidity greater than 50 percent), as well as buildings with dark roofs.

DuPont™ Thermax™ Brand insulation products are lightweight and easy to install. They help reduce thermal bridging, air infiltration and moisture migration into the building envelope. All varieties of **Thermax™ insulation** are nonstructural, rigid boards consisting of a glass-fiber-reinforced polyisocyanurate foam core laminated with various solid aluminum foil facers. The uniform, closed-cell core foam is exceptionally resistant to heat flow, while the noise dampening facers help provide an effective barrier to moisture and air infiltration.

There are three methods that can be used to install **Thermax™ insulation** products in two layers. Each method is outlined here.

TABLE 1: Thermax™ Product Recommendations

Boards	Surface Facers
Thermax™ Sheathing	1 mil smooth aluminum foil on both sides
Thermax™ Metal Building Board	1.25 mil embossed aluminum foil on both sides
Thermax™ Light Duty	1.25 mil white acrylic-coated aluminum/ 1.25 mil embossed aluminum
Thermax™ Heavy Duty	4 mil white acrylic-coated aluminum/ 1.25 mil embossed aluminum
Thermax™ Heavy Duty Plus**	16.5 mil white acrylic-coated aluminum bonded to 1 mil aluminum/1 mil embossed aluminum
Thermax™ White Finish	1.25 mil white acrylic-coated embossed aluminum/ 1 mil smooth aluminum foil

General Information

- Store insulation inside or protect with a tarp to keep dry until use. Prolonged exposure to water or moisture environments may turn the painted surface gray.
- **Thermax™ insulation** can be installed vertically or horizontally.
- **Thermax™ insulation** board joints that are not closed with PVC Clip Strips must be sealed with foil tape. Taping serves as a protection against air infiltration and moisture migration and gives the exterior of the boards a continuous surface.
- Minor scratches and/or nicks may occur during installation. Also, the edges of the foil facer may become slightly curled. These do not affect the product's overall performance. A coat of good-quality latex acrylic or latex enamel paint can be used for touch-ups of the boards. Use the following scan information to match **Thermax™ insulation white facer** for touch up paints L: 81 A: -1.5 B: -3.0 Delta E 2.0 Gloss @ 60°=10 to 15. Although no primer is required, follow paint manufacturer recommendations for best results.
- There are two ways to cut **Thermax™ insulation** boards:
 - Use a straight edge and a utility knife, cutting all the way through the facing.
 - Cut with a small handsaw. Always use caution and proper protective equipment for cutting.

Materials Checklist

To install **Thermax™ insulation**, you will need:

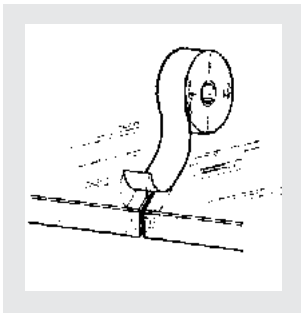
- Utility knife or small handsaw
- Straight edge
- Measuring tape
- Pencil
- **Thermax™ White Foil Tape**
- **Thermax™ Aluminum Foil Tape**
- Squeegee or stiff bristle brush
- Construction-grade sealant*
- Clip Strips
- Fasteners and poly washers, such as Multi-Diameter Insulation Teks or equivalent (For recommended fastener lengths, see Table 2. Minimum 1" poly washer recommended.)
- Safety glasses

* Thermax™ Insulation is a former product of The Dow Chemical Company.

** Thermax™ Heavy Duty Plus Insulation is designed for use on walls only.

Installing First Layer
DuPont™ Thermax™ Sheathing:

- 1. With square edge joints abutting tightly, fasten **Thermax™ Sheathing** to framing members.
- 2. Center **Thermax™ Aluminum Foil Tape** over dry, clean edge joint and apply tape (Figure 1).
- 3. Use a squeegee or stiff bristle brush to press the tape firmly to the joint. Cut tape with a knife. Do not tear tape



Installing Finish Layer
METHOD A

Thermax™ Metal Building Board, Thermax™ Light Duty, Thermax™ Heavy Duty, Thermax™ Heavy Duty Plus or Thermax™ White Finish insulation with square edge:**

- 1. Apply a construction-grade sealant to the single long flange of the Clip Strip or PVC Joint treatment, following sealant manufacturer instructions.
- 2. Install Clip Strip over long edge of insulation board.
- 3. Offset board and fasten through first layer, penetrating 1” into framing members (i.e., girts or purlins) with corrosion-resistant fasteners and poly washers. Each board should span at least three framing members. The maximum span is 5’ for a 1” thick board (Contact DuPont Customer Information Group for additional thickness spannability). Fasteners should be spaced 12” on center in three rows of five fasteners per 48” board width (Figure 2).

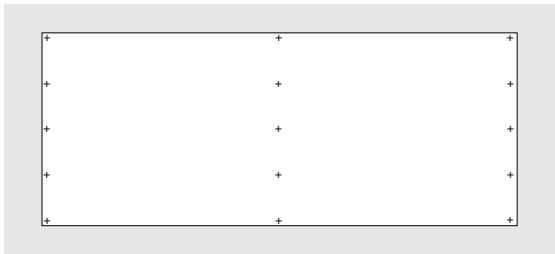


Figure 2: Fastening Pattern
Note: Space fasteners 12” o.c. for wood, metal or concrete attachment.

- 4. Slide next insulation board into Clip Strip flange and fasten through first layer into framing members (Figure 3).

Note: In all of the installation methods, it is important to seal the wall-to-ceiling junction. DuPont offers a Froth-Pak™ Foam Insulation product to help provide this sealing option.

TABLE 2: Recommended Fastener Lengths

Board Thickness Inches	Fastener Length, inches
1/2 to 5/8	1-7/16
3/4 to 1	1-7/8
1-1/8 to 1-1/2	2-3/8
1-5/8 to 2	3
2-1/4	3-1/4
2-1/2	3-1/2
3	4

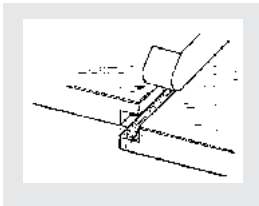
Note: Fastener length based on one layer of **Thermax™ insulation**. For the two-layer system, add board thickness of second layer to fastener length recommendation.

METHOD B

Thermax™ Metal Building Board, Thermax™ Light Duty, Thermax™ Heavy Duty, Thermax™ Heavy Duty Plus or Thermax™ White Finish insulation with shi lap edge:**

- 1. Apply a compatible construction-grade sealant to shi lap edge, following sealant manufacturer instructions.
- 2. Offset insulation board and fasten through first layer, penetrating 1” into framing members (i.e., girts or purlins) with corrosion resistant fasteners and poly washers. Each board should span at least three framing members. The maximum span is 5’ for a 1” thick board (Contact DuPont Customer Information Group for additional thickness spannability).

Fasteners should be spaced 12” on center in three rows of five fasteners per 48” board width (Figure 2).



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3. Fit next board firmly into the sealant-lined shiplap edge and fasten.
4. Center **DuPont™ Thermax™ White Foil Tape** over dry, clean edge joint and apply tape (Figure 1).
5. Use a squeegee or stiff bristle brush to press the tape firmly to the joint. Cut tape with a knife. Do not tear tape.

METHOD C

Thermax™ Metal Building Board, Thermax™ Light Duty, Thermax™ Heavy Duty, Thermax™ Heavy Duty Plus or Thermax™ White Finish insulation with square edge:**

1. Offset insulation board a minimum of 6" in both directions and fasten through the first layer, penetrating 1" into framing members (i.e., girts or purlins) with corrosion-resistant fasteners and poly washers. Each board should span at least three framing members. The maximum span is 5' for a 1" thick board (Contact DuPont Customer Information Group for additional thickness spannability). Fasteners should be spaced 12" on center in three rows of five fasteners per 48" board width (Figure 2).

Note: If applied above the purlin, lay **Thermax™ Sheathing** over the layer of insulation board with a minimum offset of 6" in both directions and fasten.

2. Center **Thermax™ White Foil Tape** over dry, clean edge joints and apply tape (Figure 1).
3. Use a squeegee or stiff bristle brush to press the tape firmly to the joint. Cut tape with a knife. Do not tear tape.

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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.

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