Dow Building Solutions

Installation Procedures for THERMAX™ Insulation in High-Humidity Metal Buildings

Metal building interiors subjected to prolonged high-humidity conditions, such as buildings that house swimming pools, ice rinks or food processing services, are often damaged by dew point condensation. A two-layer system of THERMAX™ Sheathing along with THERMAX™ Metal Building Board, THERMAX™ Light Duty, THERMAX™ Heavy Duty, THERMAX™ Heavy Duty Plus or THERMAX™ White Finish insulation products will help control moisture vapor and energy loss in high-humidity metal buildings (relative humidity greater than 50 percent), as well as buildings with dark roofs. All varieties of THERMAX™ insulation are non-structural, 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.

General Information

- Store insulation inside or protect with a tarp to keep dry until use. Prolonged exposure to water 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. (Sherwin-Williams DTM acrylic coating B66-W201 semi-gloss will provide a good match.) 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.

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 QUIK Cap, Buildex Multi-Diameter Insulation Teks or equivalent (For recommended fastener lengths, see Table 2. Minimum 1" poly washer recommended.)
- Safety glasses

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(1)	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 aluminum/ 1 mil embossed aluminum

(1) THERMAX™ Heavy Duty Plus Insulation is designed for use on walls only.

Installing First Layer

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.

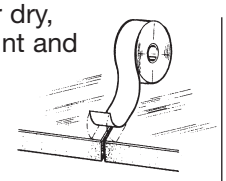

Figure 1

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, 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.

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* To produce a continuous air- and moisture-resistant seal, use Vulkem 116, Sikaflex 201, Dow Corning 790 or equivalent sealant. Your Dow representative can recommend an appropriate sealant for your application.

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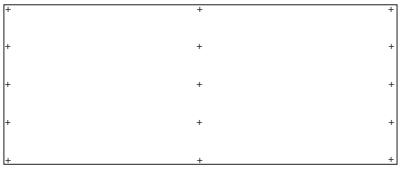
Each board should span at least three framing members. The maximum span is 5'. Fasteners should be spaced 12" on center in three rows of five fasteners per 48" board width (Figure 2).



Note: Space fasteners 12" o.c. for wood, metal or concrete attachment.

FIGURE 2: FASTENING PATTERN

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.

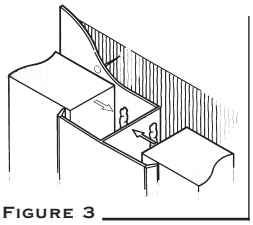


FIGURE 3

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 shiplap edge:***

1. Apply a compatible construction-grade sealant to shiplap 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'. Fasteners should be spaced 12" on center in three rows of five fasteners per 48" board width (Figure 2).
3. Fit next board firmly into the sealant-lined shiplap edge and fasten.
4. Center 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'. 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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THERMAX™ products should be used only in strict accordance with product application instructions. THERMAX™ products, when used in a building containing combustible materials, may contribute to the spread of fire. For more information, consult MSDS and/or call Dow at 1-866-583-BLUE (2583). In an emergency, call 1-989-636-4400.

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 Dow can give assurance that mold will not develop in any specific system.

R-DETECTOR
Ask your Dow representative about R-Detector Life Cycle Energy Analysis Software.

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