

**THERMAX® HEAVY DUTY PLUS (HDP)**  
**INSULATION/FINISH BOARD (TF665)**



Build On Our Knowledge™



**The Superior Design for  
Appearance and Durability In  
Exposed Interior Applications**

# Thermax<sup>®</sup> HEAVY DUTY

## Insulation/Finish Board **PLUS (HDP)**

### Thermax HDP

Thermax Heavy Duty Plus (HDP) Insulation / Finish board is a glass fiber reinforced polyisocyanurate foam core product faced with a nominal 16.5 mil embossed white acrylic coated aluminum sheet laminated to plain 1.0 mil aluminum on one side and 1.0 mil plain aluminum on the other side.

### Applications

**THERMAX HDP BOARD IS INTENDED AS AN INSULATION AND INTERIOR FINISH SYSTEM FOR METAL, WOOD POST FRAME AND CONCRETE OR MASONRY BUILDINGS** in manufacturing, mercantile, cold storage, warehouse, agricultural and other applications, as governed by building codes. Thermax HDP is the superior Thermax Insulation/Finish board with exceptional toughness and outstanding decorative surface.



### Thermax Heavy Duty Plus (HDP) Insulation/Finish Board

#### FEATURES:

- HIGH R-VALUES
- RUGGED 16.5 MIL FINISH
- OUTSTANDING DECORATIVE SURFACE

### 16.5 MIL Embossed Aluminum with White Acrylic Surface Finish

- ▼ The 16.5 mil white embossed surface can be pressure washed up to **2000 psi with any spray tip to allow for complete cleaning.**
- ▼ Thermax HDP is resistant to bird damage in agricultural building, **which eliminates the constant replacement of insulation and surface finish.**
- ▼ The coated surface helps protect the product and structure from long term degradation in harsh interior environments, **which reduces long term replacement costs.**
- ▼ The thick 16.5 mil white embossed aluminum faced product **is the most damage resistant of the Thermax insulation / Finish Boards. This product is the obvious choice to save replacement costs in high impact areas.**
- ▼ Thermax HDP with the white embossed surface has a maximum 65% light reflectance **which helps reduce light energy costs and enhances the work environment.**

### Strength (SPANABILITY)

Thermax HDP has an allowable clear span of 5 feet (1" or greater) over purlins and 8 feet (1" and greater) over girts which saves on installation time and design cost.

### Low Perm Product with Joint Closure System

Thermax HDP has an extremely low perm rating (vapor flow) of less than 0.03 and must be installed with one of the following joint closure systems:

- ▼ Matching Thermax white coated 2 mil aluminum tape adhered over the butt joint. Joint quality: **Good**
- ▼ Thermax white (PVC) Clip Strip Joint Closure system used with sealant. Joint quality: **Best**

**The low perm product / joint systems prevent moisture condensation within and behind the insulation and minimize structural wood decay, metal corrosion and condensation (rain) inside the structure.**

## Design Flexibility

Thermax HDP comes in a range of thicknesses and lengths up to 20 feet. **This allows for sizing to meet specific R-value requirements and to reduce installed costs.**

## Assured Thermal Performance

Thermax HDP is continually tested at the NAHB Research Center to verify thermal performance. **Accordingly, Celotex offers a 15 year limited warranty on R-value thermal resistance.**

## Fire and Wind Uplift Performance

### Fire Performance & Insurance

Thermax HDP is Classified by Underwriters Laboratories Inc. for the Insulated Wall-Ceiling Constructions Category and the Interior Building Constructions Category. **These classifications are recognized by the Insurance Services Office (ISO) and other insurance authorities as a basis to obtain the lowest possible insurance rates in insulated structures.**

Thermax HDP is also Approved by Factory Mutual Research Corporation as Class 1 Wall and Ceiling panels for use as an exposed insulation / interior finish when installed as described in the current edition of the FMRC Approval Guide. **This assures a basis to gain the lowest possible insurance rates through the Factory Mutual System.**

### Wind Uplift & Insurance

Thermax HDP is Classified by Underwriters Laboratories Inc. for Wind Uplift Resistance and is shown to be equal to or superior to glass fiber insulation in wind uplift performance. Moreover, Thermax HDP is listed in many UL roof deck construction numbers in the UL Roofing Materials and Systems Directory. **These classifications will allow for lower insurance premiums.**

## United States Department of Agriculture (USDA) & Food and Drug Administration (FDA)

Thermax Heavy Duty Plus meets the USDA/FSIS guideline requirements for use in federally inspected food processing establishments. **Based on the aforementioned Heavy Duty Plus can be used in food processing facilities where the product does not come in contact with food.**

## Installation

### Wall Application - Attached to Concrete or Masonry

Thermax Heavy Duty Plus (HDP) Insulation / Finish board system can be installed **EXPOSED** directly to the interior of masonry or concrete walls using the Thermax PVC Interlock Joint Closure System placed 4'-0" o.c. Wood or metal furring may also be used.

### Roof / Ceiling Application - Attached to Purlin or Truss

Thermax Heavy Duty Plus (HDP) Insulation/Finish Board can be installed **EXPOSED** to the interior on the inside or outside of wood or metal purlins or trusses.

### Wall Application - Attached to Girts

Thermax Heavy Duty Plus (HDP) Insulation/Finish board can be installed **EXPOSED** to the interior on the inside or outside of wood or metal girts.

## Heavy Duty Plus Technical Data

### TYPICAL PHYSICAL PROPERTIES

Property	Test Method	Value
Density (pcf)	ASTM D 1622	Nominal 2
Water Vapor Transmission as Permeance, In Perms	ASTM E 96 (Desiccant Method)	Less than 0.03
Modulus of Elasticity (1" product, MD/TD, PSI)	ASTM C 203	106 / 69
Modulus of Rupture (1" product, MD/TD, PSI)	ASTM C 203	109,200 / 60,600
Impact (lbs max)	ASTM D 1037 (Janka Ball)	188
Light Reflectance (%) Northern Light Incandescent Light Fluorescent Light	Visual Light Spectrophotometer	65 65 65
Operating Temp Range (°F)	—	-100 to +250
Liquid Water Absorption as Percent Increase by volume	ASTM C 209, 24-Hr Results	0.3 Max
Compressive Strength in Thickness Direction, psi	ASTM D 1621	25

### PRODUCT THICKNESS AND STABILIZED R-VALUE\*

Nominal Board Thickness (inches) (mm)	1/2" (12.7)	3/4" (19.1)	1" (25.4)	1 1/4" (31.8)	1 1/2" (38.1)	1 3/4" (44.5)
R-Value @ 40°F mean temp.	4	6	8	10	12	14
R-Value @ 75°F mean temp.	3.6	5.4	7.2	9	10.8	12.6

Nominal Board Thickness (inches) (mm)	2" (50.8)	2 1/4" (57.2)	2 1/2" (63.5)	2 3/4" (69.8)	3" (76.2)
R-Value @ 40°F mean temp.	16	18	20	22	24
R-Value @ 75°F mean temp.	14.4	16.2	18	19.8	21.6

Stabilized R-Values were determined by ASTM C 518 in accordance with the procedures in Federal Specification HH 1-1972, ASTM C 1289 and the State of California Insulation and Quality Standards.

\* To obtain RSI, multiply R-value x 0.1761.

## Washability Requirement

Heavy Duty Plus can be pressure washed up to 2000 psi with any spray tip at 1 inch minimum distance from the surface.

**CAUTION:** Prolonged pressure washing at the board joints will cause the facer to disbond from the insulation board. Always point spray nozzle at the surface no closer than the minimum distance.

## Compliances

**ICC:** International One- and Two Family Dwelling Code Sect. 317. International Building Code Section 2603

**BOCA:** Building Officials and Code Administrators International, Inc. Research Report No. 98-25 and National Building Code Sect. 2603.0.

**ICBO:** International Conference of Building Officials, Evaluation Report No. 3223 and Uniform Building Code, Sect. 2602.

**SBCCI:** Southern Building Code Congress International, Evaluation Report No. 9574 C and Standard Building Code, Sect. 2603.

## Performance Tests

### FACTORY MUTUAL (FMRC Standard 4880)

Subject to the conditions of Approval as Class 1 wall and ceiling panels when installed as described in the current edition of the FMRC Approval Guide. FACTORY MUTUAL SYSTEM APPROVED.

### UNDERWRITERS LABORATORIES, INC.

Classified Building Units - for insulated wall-ceiling constructions as to fire damageability only (UL 1040); for interior building constructions with regard to flame propagation and damageability under specified room fire conditions only (UL 1715, UBC 26-3).

### SURFACE BURNING CHARACTERISTICS (UL 723, UBC 8-1, ASTM E 84)

	Core Material	Sheet Aluminum Face	Foil Back	
	4 1/4 in. Thick Maximum	4 1/4 in. Thick Maximum	3 in. Thick Maximum	4 1/4 in. Thick Maximum
Flame Spread	25	25	20	20
Smoke Developed	130-185	125	140	125-190

For products where the aluminum is adhered to both sides the following applies:

	4 1/4 in. Maximum Thickness	
	Core	Aluminum Faced
Flame Spread	25	25
Smoke Developed	130-185	125

The manufacturer makes the following statement. These numerical ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

## ASSURED THERMAL PROPERTIES

Thermax HDP carries the NAHB Research Center, Inc. label verifying insulating value and other product physical properties.

## UNDERWRITERS LABORATORIES INC. WIND UPLIFT CLASSIFICATION (UL 580)

Thermax Heavy Duty Plus (HDP) in thicknesses of 1" through 4 1/4" has been shown to be equal or superior to glass fiber insulation in wind uplift performance and bears the following Underwriters Laboratories Inc. Wind Uplift Classification.

Thermax foil-faced products in thicknesses from 1" through 4" may be substituted for glass fiber batts or blankets in any through-fastened metal roof deck construction classified by UL for wind uplift resistance without changing the specific classification. Refer to UL Roofing Materials and Systems Directory (TGKX and TJBX Product Category Codes) for details.

Classified as Roof Deck Construction Materials As To Wind Uplift Resistance Only Class 60 As Shown By Construction NOS. 26, 83A, 115, 127, 139 and 188; Class 90 As Shown By Construction NOS. 83A, 93, 112, 113, 113A, 115, 119, 126, 127, 130, 139, 165, 178, 180, 185, 185A, 189, 198, 199, 210, 224, 227, 245, 246 and 291.

ALSO CLASSIFIED for use in all roof deck construction Classified for wind uplift resistance in which the metal roof deck panels (TJPV) are directly fastened to structural members (purlins, bar joints, etc.) by means of self-drilling or self-tapping screws, or similar fastening products. The length of the fasteners shall be a minimum of 3/4" in. longer than the nominal thickness of the rigid insulation, such that full thread engagement is assured. When insulation with thickness greater than 3 1/2" in. is used, steel washers used with panel-to-purlin screws are to be 5/8" in. OD minimum.

The insulation shall be installed as follows: Butt joints to occur over structural members. Top surface of the insulation at all joints may be continuously sealed with a minimum of 2 in. wide pressure-sensitive tape.

SEE UL Roofing Materials and Systems Directory.



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## Additional Information

Further information concerning the products, systems, and test methods described in this publication can be obtained by contacting Celotex Corporation, Tampa, or one of its Regional Sales Offices listed below.

The systems in this book are for illustration purposes only. The structural integrity of such systems is the responsibility of the design engineers, architects, component manufacturers, applicators and erectors.

### WARNING:

Celotex® Thermax® products should be used only in strict accordance with Celotex Application Instructions. When Thermax products are used alone or used with non-combustible building components, they will burn if subjected to a fire of sufficient intensity, but will not contribute to the rapid spread of fire. Thermax products and other insulations, when used with exposed combustible materials may contribute to the rapid spread of fire.

All common building materials like wood and Thermax Insulation products release toxic smoke if ignited.

Thermax foil-faced products when applied in accordance with Celotex' instructions, meet requirements of the model building codes, various insurance authorities and other regulatory bodies in a wide variety of recommended applications.

Characteristics, properties or performance of materials manufactured by Celotex Corporation herein described are derived from data obtained under controlled test conditions. Celotex makes no warranties, express or implied, as to their characteristics, properties or performance under any variations from such conditions in actual construction. Celotex Corporation assumes no responsibility for the effects of structural movement.

### ANY DEVIATION FROM THESE INSTRUCTIONS VOIDS ALL WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Thermax Insulation Board products are protected by one or more of the following U.S. Patents:

3,903,346	4,028,158	4,169,921	4,346,133
3,940,517	4,043,719	4,284,683	4,386,983
4,411,949	4,572,865	RE30984	

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