



The Dow Chemical Company
Dow Building Solutions

April 2006

RE: What is THERMAX?

There has been a lot of confusion generated recently with the sales force as to THERMAX and what it is and where can I use it? I thought I would try to clarify some of the confusion about THERMAX.

What is Thermax?

The Dow Chemical Company produces THERMAX® Sheathing and THERMAX® Insulation/Finish Boards, including White Finish (formerly AgTherm), Metal Building Board, Light Duty, Heavy Duty and Heavy Duty Plus, all are manufactured to meet the following specifications. Compliance to ASTM C-1289-06 "**Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board**", Type I, Class 2 and Federal Specification HH-I-1972/1, Class 2.

What Does Type 1 / Class 2 mean?

- Type 1 means *Faced with Aluminum foil on both major surfaces of the foam core*
- Class 2 means *Glass fiber reinforced core foam*
- **NOTE:** Dow currently is the only Polyiso foam insulation board manufacturer that makes Type 1 / Class 2 products which are THERMAX, Tuff RC and Super Tuff RC...**the only ones !**

THERMAX Sheathing Insulation / Finish Boards are recommended for **exposed applications** for wall /roofs and/or ceilings in agricultural, commercial and industrial buildings such as factories, warehouses, agricultural structures, parking garages, mercantile establishments, aircraft hangers, cold storage structures, tennis courts, skating rinks, swimming pools, etc. **THERMAX is NOT to be used in plenum areas that are used as air return ventilation nor is it a replacement for duct insulation.**

Specific Approval in IRC & IBC for exposed use without a thermal barrier:

In the 2003 IRC section R 318.3 "**Specific Approval**" section which states "Plastic foam not meeting the requirements of Sections R 318.1. and R 318.2 may be specifically approved on the basis of one of the following approved tests: ASTM E 84, FM 4880, UL 1040, ASTM E 152, or UL 1715, or fire tests related to actual end-use configurations. The specific approval maybe based on the end use, quantity, location and similar considerations where such tests would not be applicable or practical. Below THERMAX meets the majority of those tests listed in the IRC.

In the IBC 2003 THERMAX meets the requirements of Chapter 26 Plastics, specifically under section 2603.5.3 "Potential Heat" per NFPA 259 and section 2603.8 "**Special Approval**" for use without a thermal barrier covering.



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Thermax Fire Summary

UNDERWRITERS LABORATORIES, INC.

The Dow Chemical Company THERMAX Insulation/Finish Board products comply with Underwriters Laboratories UL Class 90 wind uplift when properly installed in an approved system. See UL Roofing Materials and Systems Directory.

The Dow Chemical Company THERMAX Insulation/Finish Board products are Classified by Underwriters Laboratories Inc. per ANSI / UL 1256 for “Roof Deck Constructions” (TGKX).

UL 723 (ASTM E 84) based on the Steiner Tunnel test where by a product is ignited in a 24 ft tunnel that is also 24 inches wide, the flame spread is measured in distance and smoke is determined via an electronic eye which determines opacity

FACTORY MUTUAL RESEARCH CORP.

The Dow Chemical Company THERMAX Insulation/Finish Board products, in thicknesses of 4-1/4" (108mm) and less, have been approved by **Factory Mutual Research Corporation Standard 4880 for use as Class 1 Wall and Ceiling** 30 ft height maximum, panels when installed as described in the current edition of the FMRC Approval Guide.

KEY NOTE: *THERMAX was tested as both wall and ceiling in the same room.*

NFPA Approval:

THERMAX has passed the **NFPA 285 (UBC 26-9)** testing “**Fire performance Evaluation of an Exterior Masonry Wall System**” Incorporating Dow THERMAX Sheathing Tested in Accordance with NFPA 285, 1998 edition”. Multi-story approval. 1-inch thickness was tested and approval granted for **up to 2.5” board**. A brick veneer is placed next to a 3/4” air space, then THERMAX sheathing mechanically attached to steel studs in two story applications, the passing is if the flames do not pass to the second story via channeling or reach a certain heat capacity during the testing.

NFPA Approval:

NFPA 259 – Standard Test Method for the Potential Heat of Building Materials

Fire Test Summary:

ASTM E 84 Surface Burning Characteristics of Building Materials (Flame Spread Index & Smoke
UBC 8-1 Developed Index)
UL 723

<u>Flame Spread(FSI)</u>	<u>Class Rating</u>	<u>Smoke Developed (SDI)</u>
0 – 25	Class 1	< 450 = Class 1,2,3
26 –75	Class 2	
76 – 200	Class 3	

THERMAX is a Class 1 product classification

THERMAX is tested on Foam core material and has a FSI of 25 and a SDI of 225



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THERMAX Fire Summary

ASTM E 119 Fire Tests of Building Construction and Materials (Fire resistance Ratings or Time-Rated Assemblies) ...example UL "U" Designs- this determines **hourly ratings** of wall assemblies. Currently THERMAX has 10 UL approved Hourly Rated assemblies Including: 7 @ 1 hour; 2 @ 2 hour and 1 @ 4 hour

UL 1256 Fire Test of Roof Deck Constructions (Classifies roof systems as to spread of flame below the roof deck).

Note: in FM Roof Nav software program; THERMAX has 292 approved FM roof assemblies mostly SSR (Standing Seam Roofs) with metal building suppliers

FM 4880 Class 1 Insulated Wall and Ceiling Panels (Thermax approval for exposed applications, both residential, commercial and industrial up to 30 ft height)

ASTM D 1929 Test method for Determining Ignition Properties of Foam Plastics

Mass Transportation: Docket 90

ASTM E 162 Test Method for Surface Flammability of Materials using Radiant Heat Energy Source

ASTM E 662 Test Method for Specific Optical Density of Smoke Generated by Solid Materials

NER 681- National Evaluation Report for THERMAX products

WHAT THERMAX IS NOT?

- **THERMAX is NOT a 15 minute Thermal Barrier**
- **THERMAX is NOT a structural sheathing**
- **THERMAX can NOT replace gypsum wallboard or Densglass in approved fire rated or hourly rated assemblies because THERMAX is NOT a thermal barrier**
- **THERMAX is NOT to be used in plenum areas that are used as air return ventilation nor is it a replacement for duct insulation**

THERMAX Fast Facts:

- THERMAX is the only Polyiso foam insulation board with 6 different facer configurations and a glass reinforced foam core.
- THERMAX has a PVC and tape board joint offering to provide a low perm system
- There is No Other Polyiso foam insulation board currently out there like THERMAX

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