

## Thermasote® & N.C.F.R. Thermasote® Nailbase Roof Insulation

**R**

**Roofing  
Applications**

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### Product Presentation

Thermasote is a composite of strong, asbestos-free, insulating, weather resistant, nailable 440 Homasote plus isocyanurate foam and a bottom facer of glass fiber-reinforced felt. Thermasote is Underwriters Laboratories Classified, as listed in Report #R13614, as a Shingle Decking Accessory for Class A, B or C shingles.

N.C.F.R. Thermasote® is a composite of strong, asbestos-free, insulating, weather-resistant, nailable UL Class "A" N.C.F.R. Homasote plus an isocyanurate foam core with glass fiber-reinforced facer, for use in FM approved Class 1 construction as listed in Factory Mutual Report #J.I.-1JOA9.AM. N.C.F.R. Thermasote® is Underwriters Laboratories Classified, as listed in Report #R17116.

### Packaging, Storage & Protection

Thermasote and N.C.F.R. Thermasote come to the jobsite in weather-resistant, plastic covered units. However, all materials must be stored at jobsite above ground on wood pallets and covered by tarpaulins. Packaging material is not intended for exterior job site protection.

### Architectural Specification (Short Form): N.C.F.R. Thermasote

All nail base insulating roof panels shown in drawing shall be \_\_\_ thick FM-1 approved and listed N.C.F.R. Thermasote as manufactured by the Homasote Company, West Trenton, NJ and shall be installed in accordance with current instructions issued by Homasote Company.

## Material Specifications

Thermasote & N.C.F.R. Thermasote Size: 4' x 8' (nominal)

THERMASOTE			
Overall Nominal Thickness	Nominal Foam Thickness	Nominal Weight Per Square Foot (lbs)	R-Factor AGED (LTTR)
1.5"	1.0"	1.4	7.1
2.0"	1.5"	1.5	10.1
2.5"	2.0"	1.6	13.2
3.0"	2.5"	1.7	16.6
3.5"	3.0"	1.8	19.6
4.0"	3.5"	1.9	22.8
4.5"	4.0"	2.0	26.1

NCFR THERMASOTE			
Overall Nominal Thickness	Nominal Foam Thickness	Nominal Weight Per Square Foot (lb)	R-Factor AGED (LTTR)
1.5"	1.0"	1.4	6.9
2.0"	1.5"	1.5	9.9
2.5"	2.0"	1.6	13.0
3.0"	2.5"	1.7	16.4
3.5"	3.0"	1.8	19.4
4.0"	3.5"	1.9	22.6
4.5"	4.0"	2.0	25.9

## Read This Before You Buy

### What you should know about R-values:

The charts shown indicate the R-value of the insulation. R-value means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy.

There are additional factors to consider. The amount of insulation you need depends mainly on the climate, in which you live. Your fuel savings from insulation will depend upon the climate, the type and size of your building, the amount of insulation already in your building, and your fuel use patterns. If you buy too much insulation, it will cost more than you will save on fuel. To get the marked R-value it is essential that the insulation be installed properly.

### What is LTTR (Long-Term Thermal Resistance)?

A new method (CAN/ULC-S770) for determining R-values of certain foam plastic insulations, which

originate in, Canada and is intended to bring consistency to specification language. It provides a long-needed definition of "aged" R-value, predicting both a five-year aged value and a fifteen-year time-weighted thermal design value. Since plastic foam insulations manufactured with blowing agents other than air experience "aging" (slow changes in R-value over time), the need for standardized sample conditioning before testing for R-value became apparent. As a result, the polyiso, polyurethane and extruded polystyrene industries adopted a six-month conditioning procedure required before R-values are measured, this practice was known in the industry as PIMA 101. Improving on that procedure, CAN/ULC-770, "Standard Test Method for Determination of Long-Term Thermal Resistance of Closed Cell Thermal Insulating Foams", based on ASTM C 1303-95, accelerates the aging by a method called "slicing and scaling." Thin slices of foam [1/4" to 1/2" (6mm to 12mm)] age very quickly and are used to determine the number of days required before testing to predict the R-value of thicker materials. This slicing and scaling method is the only consensus test method recognized in the U.S. and Canada for predicting long-term values for foam-plastic insulating products. In December 2000, CAN/ULC-S770-00 was adopted as a national standard for determining R-value in Canada. This method applies to polyurethane, permeably faced polyiso, and extruded polystyrene, all of which "age". In May 2001, it was also included in the national standard for faced polyiso insulation in Canada, CAN/ULC-S704-01, "Standard for Thermal Insulation, Polyurethane and Polyisocyanurate, Boards, Faced." These new standards (especially CAN/ULC-S704-01) are already appearing in specifications in Canada and some northern areas of the U.S. ASTM C 1289-02 was revised and approved as of April 16, 2002 to include the requirement of LTTR testing based on CAN/ULC-S770.

## Fire Resistance Ratings

### Thermasote:

Isocyanurate foam -Flame Spread: 25  
Smoke Density: 250 Tested according to ASTM E-84 (80).  
Homasote substrate: Flame Spread: Class III (or C)

### N.C.F.R. Thermasote:

Has both an isocyanurate foam core and a fire-retardant nailbase substrate that carries a Class "A" (0-25) Flame Spread Rating (ASTM E-84 (80)) and is approved for use in FM-1 construction.

WARNING: While the Homasote® portion of Thermasote and NCFR Thermasote panel provides a satisfactory nail base, the isocyanurate (an organic material) will decompose above 450° F and will ignite and burn at 600° F -700° F, or when exposed to open flame. Therefore, the isocyanurate side should not be exposed.

## Typical Physical Properties

Property	Test Method	Result
Dimensional Stability (Foam)	150 Deg.F 90-100 RH	Less than 2% linear change
Compressive Strength	ASTM D-1621	20-25
Nominal Foam Density	ASTM D-1622	2.0
Moisture Absorption	ASTM C-209	1
Moisture Vapor Transmission	ASTM E-96	1.0 (Perm-in)

## Installation Requirements

Moisture protection is the responsibility of the contractor. Thermasote and N.C.F.R. Thermasote panels must be protected from weather and/or standing water at all times. No moisture from any source should be sealed into a roof system. Roofing felts, insulation, or vapor retarders that become wet or water laden during construction should be removed and replaced before the application of finish roofing materials.

Vapor retarders in general are based on many and varied factors. Their use depends on architectural or engineering evaluation of existing conditions. Consult a licensed design professional, architect or engineer to establish whether or not a vapor retarder is necessary and to specify its type and location. The Homasote Company recommends that a dew point calculation be performed. This calculation is based on the building's interior relative humidity, interior temperature conditions and outside temperature fluctuations. Thermasote and N.C.F.R. Thermasote are not intended to be a substitute for a vapor retarder. Excessive moisture migration will potentially destroy the system and cause unwanted condensation. However, a vapor retarder is required over newly poured structural concrete as well as lightweight insulation concrete decks. Vapor retarders are generally recommended in areas of the country where the average mean temperature in January is less than 40° F and the relative humidity in the building is greater than 45%. If a vapor retarder is needed in your area, it should be added to your roof system by applying No.30 felt or 4 - 6 mil polyethylene film over the structural decking before application of Thermasote or N.C.F.R. Thermasote. Care should be taken to assure that the joints of vapor retarder are overlapped 4 to 6 inches and all tears/holes are repaired.

## Assembly Installation

1. Apply wood nailers of same thickness as Thermasote or N.C.F.R. Thermasote to decking at all eaves and rake edges of roof to provide starter strip and nailing for trim and fascia.
2. Starting at low or outside edge of the roof, place the Thermasote or N.C.F.R. Thermasote panel with Homasote face up on roof deck spacing 1/8" from blocking at eave and rake to provide expansion.
3. For panel attachment instructions to structural deck, see "Fastening Specifications" listed below.
4. Place subsequent panels in like manner, lightly abutting the adjacent panel. Stagger panel joints in adjacent courses to avoid through joints and assist in diaphragm action.
5. As Thermasote or N.C.F.R. Thermasote panels are installed, cover immediately with roofing felt and finish roofing.

NOTE: Apply vapor retarder over structural decking in areas of the country requiring a vapor retarder before application, Thermasote or N.C.F.R. Thermasote as per "Installation Requirements" on earlier page.

NO MOISTURE FROM ANY SOURCE SHOULD BE SEALED INTO A ROOF SYSTEM. ROOFING FELTS, INSULATION OR VAPOR RETARDERS THAT BECOME WET OR WATER LADEN DURING CONSTRUCTION SHOULD BE REMOVED AND REPLACED BEFORE THE APPLICATION OF FINISH ROOFING MATERIALS.

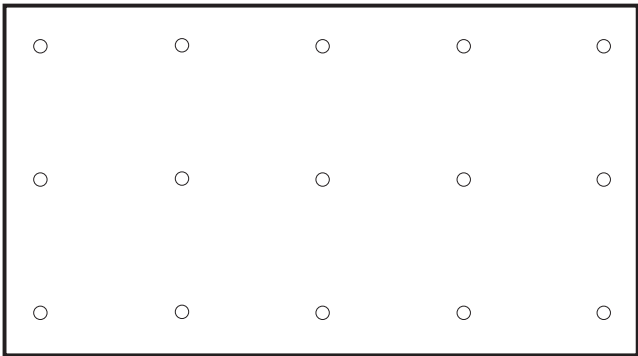
## Fastening Specifications For Thermasote & N.C.F.R. Thermasote

1. To Homasote EasyPly or Firestall Roof Deck: Nail panel to deck 6" o.c. along all edges (hold nails back 1/2" from panel edge) and 12" o.c. through field of board. Use galvanized nail (3/8" head, annular threaded shank) of sufficient length to penetrate a minimum of 1" into deck.
2. To Wood Decking: Nail panel to deck, 12" o.c. along all edges (hold nail back 1/2" from panel edge) and through the field of the board. Use a common galvanized nail of sufficient length to penetrate a minimum of 1" into deck.

3. To Metal Decking: Fasten panel to deck with appropriate self-drilling metal deck screw. Consult metal screw manufacturer for proper length and gauge to penetrate specific metal deck, in accordance with fastener pattern.
4. To Structural Concrete Deck:
  - a. Roof pitch of 2" in 12" or greater - Fasten the panel to the deck using appropriate "Tapcon" type fastener, or equal, in accordance with fastener pattern; or
  - b. Roof pitch of less than 2" in 12" but not less than 1/4" in 12" Attach panel by method outlined in (a) or by setting panel in 25 to 30 lbs./square of steep asphalt in a 100% coverage fashion.
5. To Cementitious or Other Fiber Decks: Attach panel to deck in manner prescribed by the roof deck manufacturer.

**\*\* NOTE:** Always fasten Thermasote panels starting from center out.

**Metal Deck Fastener Application Pattern for 4' x 8' Panel**



Fasteners must be installed at all panel corners and at a maximum of 24" o.c. in both directions throughout the entire panel surface. In panels where a splice occurs, additional fasteners must be installed on both sides of splice at a maximum of 6" from splice and 24" o.c. Fasteners must be held back 1 1/2" from edge of panel. 1-90 Classification is achieved without roofing plates.

To make sure you have the most current installation instructions visit <http://www.Homasote.com/installation> to see if newer instructions are online. If online is newer, print out and use the Internet version. These instructions were printed August 10, 2005.

## Roofing Application

1. Asphalt/fiberglass shingles: Apply roofing felt and asphalt/fiberglass strip shingles directly to the Thermasote or N.C.F.R. Thermasote panels. Use 3/8" head, 1 1/4" long, annular threaded, galvanized roofing nails (Maze Nails CLWR102A, CLWR103A; or Bostitch Nail No. CR3DGAL (3/8" head, 1 1/4" long) shot with N12B Roofing Nailer) or equivalent.

**NOTE:** Homasote Company requires the use of premium or laminated roofing shingles over Thermasote & N.C.F.R. Thermasote.

2. Wood Shingles or Shakes: For wood shingles, attach roofing felt to the Thermasote or N.C.F.R. Thermasote and apply shingle directly over the roofing paper with annular-threaded, corrosion-resistant nails of sufficient length to penetrate 1" into the Thermasote or N.C.F.R. Thermasote. Apply shingles following the procedure outlined by the Cedar Wood Shingle Manufacturer's Association.
3. Roofing Tiles or Slate: For rigid type, non-wood, cement, clay tile, or slate shingles over roofing felt, use corrosion-resistant annular-threaded roofing nails with 3/8" diameter head and of sufficient length to assure 1" penetration into the Thermasote or N.C.F.R. Thermasote. In all cases, follow the recommendations of the roofing materials manufacturer. Contact the Homasote Co. at 1-800-257-9491 Ext. 1332 concerning load requirements.
4. BUR: Apply according to BURS1 standards for attachment to wood-fiber insulation.
5. Single- Ply Membranes: Apply to the Thermasote or N.C.F.R. Thermasote in accordance with single ply manufacturer's recommendation. Consult Homasote Company for most recent single-ply manufacturers approval list.
6. Metal Roofing: Contact Homasote Company for metal roofing application recommendations.

## Code Compliances:

Thermasote and N.C.F.R. Thermasote conform to Federal Specification HHO~1972/Gen.



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