

CARLISLE

# GOLDEN SEAL Total Roofing System Warranty

SERIAL NO. 10061259

276

DATE OF ISSUE: November 22, 2010

BUILDING OWNER: CITY OF ROCHESTER

NAME OF BUILDING: 88 ELM STREET

BUILDING ADDRESS: 88 ELM STREET, ROCHESTER, NY

DATE OF COMPLETION OF THE CARLISLE TOTAL ROOFING SYSTEM: 11/17/2010

DATE OF ACCEPTANCE BY CARLISLE: 11/22/2010

(EB Warranty)

AB#1083588

Carlisle Roofing Systems, Inc., warrants to the Building Owner (Owner) of the above described building, that: subject to the terms, conditions, and limitations stated in this warranty, Carlisle will repair any leak in the Carlisle Golden Seal™ Total Roofing System (Carlisle Total Roofing System) installed by a Carlisle Authorized Roofing applicator for a period of 20 years commencing with the date of Carlisle's acceptance of the Carlisle Total Roofing System installation. However, in no event shall Carlisle's obligations extend beyond 20.5 years subsequent to the date of substantial completion of the Carlisle Total Roofing System. See below for exact date of warranty expiration.

The Carlisle Total Roofing System is defined as the following Carlisle brand materials: Membrane, Flashings, Counterflashings, Adhesives and Sealants, Insulation, Recovery Board, Fasteners, Fastener Plates, Fastening Bars, Metal Edging, Metal Termination Bars, and any other Carlisle brand products utilized in this installation.

## TERMS, CONDITIONS, LIMITATIONS

- Owner shall provide Carlisle with written notice within thirty (30) days of the discovery of any leak in the Carlisle Total Roofing System. Owner should send written notice of a leak to Carlisle's Warranty Services Department at the address set forth at the bottom of this warranty. By so notifying Carlisle, the Owner authorizes Carlisle or its designee to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of this Warranty, investigation and repair costs for this service shall be paid by the Owner.
- If, upon inspection, Carlisle determines that the leak is caused by a defect in the Carlisle Total Roofing System's materials, or workmanship of the Carlisle Authorized Roofing Applicator in installing the same, Owner's remedies and Carlisle's liability shall be limited to Carlisle's repair of the leak.
- This warranty shall not be applicable if, upon Carlisle's inspection, Carlisle determines that any of the following has occurred:
  - The Carlisle Total Roofing System is damaged by natural disasters, including, but not limited to, lightning, fire, insect infestations, earthquake, tornado, hail, hurricanes, and winds of peak gust speeds of 55 mph or higher measured at 10 meters above ground; or
  - The Carlisle Total Roofing System is damaged by any intentional or negligent acts, accidents, misuse, abuse, vandalism, civil disobedience, or the like
  - Deterioration or failure of building components, including, but not limited to, the roof substrate, walls, mortar, HVAC units, non-Carlisle brand metal work, etc. occurs and causes a leak, or otherwise damages the Carlisle Total Roofing System; or
  - Acids, oils, harmful chemicals and the like come in contact with the Carlisle Total Roofing System and cause a leak, or otherwise damage the Carlisle Total Roofing System
- This Warranty shall be null and void if any of the following shall occur:
  - If, after installation of the Carlisle Total Roofing System by a Carlisle Authorized Roofing Applicator there are any alterations or repairs made on or through the roof or objects such as, but not limited to, structures, fixtures, or utilities are placed upon or attached to the roof without first obtaining written authorization from Carlisle; or
  - Failure by the Owner to use reasonable care in maintaining the roof, said maintenance to include, but not be limited to, those items listed on Carlisle's Care & Maintenance Information sheet which accompanies this Warranty.Only Carlisle brand insulation products are covered by this warranty. Carlisle specifically disclaims liability, under any theory of law, for damages sustained by or caused by non-Carlisle brand insulation products.
- During the term of this Warranty, Carlisle shall have free access to the roof during regular business hours.
- Carlisle shall have no obligation under this Warranty while any bills for installation, supplies, service, and warranty charges have not been paid in full to the Carlisle Authorized Roofing Applicator, Carlisle, or material suppliers.
- Carlisle's failure at any time to enforce any of the terms or conditions stated herein shall not be construed to be a waiver of such provision.
- Carlisle shall not be responsible for the cleanliness or discoloration of the Carlisle Total Roofing System caused by environmental conditions including, but not limited to, dirt, pollutants, or biological agents.
- Carlisle shall have no liability under any theory of law for any claims, repairs, restoration, or other damages including, but not limited to, consequential or incidental damages relating, directly or indirectly, to the presence of any irritants, contaminants, vapors, fumes, molds, fungi, bacteria, spores, mycotoxins, or the like in the building or in the air, land, or water serving the building.
- This warranty is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures including, but not limited to, an inspection of the Roofing System by a Carlisle representative and fees will apply to any reissuance. Carlisle reserves the right, in its sole discretion, to refuse to reissue this warranty.

CARLISLE DOES NOT WARRANT PRODUCTS UTILIZED IN THIS INSTALLATION WHICH IT HAS NOT FURNISHED; AND SPECIFICALLY DISCLAIMS LIABILITY, UNDER ANY THEORY OF LAW, ARISING OUT OF THE INSTALLATION AND PERFORMANCE OF, OR DAMAGES SUSTAINED BY OR CAUSED BY, PRODUCTS NOT FURNISHED BY CARLISLE.

THE REMEDIES STATED HEREIN ARE THE SOLE AND EXCLUSIVE REMEDIES FOR FAILURE OF THE CARLISLE TOTAL ROOFING SYSTEM OR ITS COMPONENTS. THERE ARE NO WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, WHICH EXTEND BEYOND THE FACE HEREOF. CARLISLE SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR DAMAGE TO THE BUILDING OR ITS CONTENTS UNDER ANY THEORY OF LAW.

BY: Robert H. McNeill

AUTHORIZED SIGNATURE

TITLE: Director, Technical and Warranty Services

This Warranty Expires: November 21, 2030

Investing in Roofing Solutions for Over 45 Years

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WA-F0001 (12/07)

**CARLISLE**

Carlisle SynTec

**CARLISLE PRE-KLEENED SURE-SEAL® SURE-TOUGH 75-mil  
REINFORCED EPDM MEMBRANE**

**GENERAL:**

PRE-KLEENED Sure-Seal Sure-Tough Reinforced roofing membrane is a 75-mil thick (1.9mm) polyester reinforced Ethylene Propylene Diene Terpolymer (EPDM) based elastomeric roof covering which may be used for new single-ply roof construction and reroofing applications. The membrane is available in 10' widths (3 m) and 100' lengths (30 m). Sure-Tough Reinforced has added thickness and a specialized reinforcement to generate higher resistance to puncture (as measured by ASTM D5635 and Federal Method 2031).

**TYPICAL PROPERTIES AND CHARACTERISTICS:**

See table on reverse side.

**CAUTIONS AND WARNINGS:**

1. Use proper stacking procedures to ensure sufficient stability of the materials.
2. Exercise caution when walking on wet membrane. Membranes are slippery when wet.

**INSTALLATION:**

Sure-Seal Sure-Tough Reinforced EPDM membrane is utilized in Design MFS, Mechanically-Fastened; Design MR, Metal Retrofit and Design A, Fully-Adhered Roofing Systems.

For Design MFS, Mechanically-Fastened and Design MR, Metal Retrofit Roofing Systems: Insulation is mechanically attached to the roof deck and membrane is secured with seam fastening plates and fasteners. Splicing Cement and In-Seam Sealant™ are applied. Alternate membrane splicing can be accomplished with HP-250 or LV-600 Primer and 6" SecurTAPE™. Lap Sealant is applied to the splice edge of the splices made using Splice Cement.

For Design A, Fully-Adhered Roofing System: Insulation is mechanically attached to the roof deck. The substrate and membrane are coated with Carlisle bonding adhesive. The membrane is then rolled into place and broomed down. Splicing Cement and In-Seam Sealant are applied to the splice area and Lap Sealant is used on the splice edge. As an alternate, HP-250 or LV-600 Primer and SecurTAPE may be used for splicing.

CONSULT CARLISLE SPECIFICATIONS FOR COMPLETE INSTALLATION INFORMATION.

Sure-Seal Sure-Tough			
Property (Metric-SI Units)	Test Method	Specification	Typical Properties
Tolerance on Nominal Thickness, %	ASTM D 751	± 10	± 10
Thickness over Scrim, min, in. (mm)	ASTM D 4637 Annex	0.015 (0.381)	.032 (0.81)
Weight, 1bm/ft <sup>2</sup> (kg/m <sup>2</sup> )		...	0.48 (2.3)
Color			Gray/Black
Breaking Strength, min, lbf (N)	ASTM D 751 Grab Method	90 (400)	230 (1023)
Elongation, Ultimate, min, %	ASTM D 412	250 **	500 **
Tearing Strength, min, lbf (N)	ASTM D 751 B Tongue Tear	10 (45)	70 (311)
Brittleness point, max, °F (°C)	ASTM D 2137	-49 (-45)	-60 (-51)
Resistance to Heat Aging * Properties after 4 weeks @ 240°F Breaking Strength, min, lbf (N) Elongation, Ultimate, min, % Linear Dimensional Change, max %	ASTM D 573  ASTM D 751 ASTM D 412 ASTM D 1204	80 (355) 200 ** ± 1.0	250 (1112) 250 ** -0.7
Ozone Resistance * Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F Specimen wrapped around 3" mandrel	ASTM D 1149	No Cracks	No Cracks
Resistance to Water Absorption * After 7 days immersion @ 158°F Change in mass, max, *	ASTM D 471	+8, -2 **	2.0 **
Hydrostatic Resistance, min, psi (MPa)*	ASTM D 751	380 (2.6)	440 (3.0)
Static Puncture Resistance, lbf (N)*	FTM 101C Method 2031	...	>250 (1112)
Resistance to outdoor (ultraviolet) Weathering * Xenon-Arc, 7560 kJ/m <sup>2</sup> total radiant exposure at 0.70 W/m <sup>2</sup> irradiance, 80° C black panel temp.	ASTM D4637 Conditions	No Cracks No Cracking	No Cracks No Cracking
<p>* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.</p> <p>** Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.</p>			

CARLISLE

# GOLDEN SEAL TOTAL ROOFING SYSTEM WARRANTY

SERIAL NO.

DATE OF ISSUE:

BUILDING OWNER:

NAME OF BUILDING:

BUILDING ADDRESS:

DATE OF COMPLETION OF THE CARLISLE TOTAL ROOFING SYSTEM:

DATE OF ACCEPTANCE BY CARLISLE:

# SAMPLE

Carlisle Roofing Systems, Inc., warrants to the Building Owner (Owner) of the above described building, that; subject to the terms, conditions, and limitations stated in this warranty, Carlisle will repair any leak in the Carlisle Golden Seal™ Total Roofing System (Carlisle Total Roofing System) installed by a Carlisle Authorized Roofing applicator for a period of (2.0) years commencing with the date of Carlisle's acceptance of the Carlisle Total Roofing System installation. However, in no event shall Carlisle's obligations extend beyond (2.0) years subsequent to the date of substantial completion of the Carlisle Total Roofing System. See below for exact date of warranty expiration.

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## TERMS, CONDITIONS, LIMITATIONS

1. Owner shall provide Carlisle with written notice within thirty (30) days of the discovery of any leak in the Carlisle Total Roofing System. Owner should send written notice of a leak to Carlisle's Warranty Services Department at the address set forth at the bottom of this warranty. By so notifying Carlisle, the Owner authorizes Carlisle or its designee to investigate the cause of the leak. Should the investigation reveal the cause of the leak to be outside the scope of this Warranty, investigation and repair costs for this service shall be paid by the Owner.
2. If, upon inspection, Carlisle determines that the leak is caused by a defect in the Carlisle Total Roofing System's materials, or workmanship of the Carlisle Authorized Roofing Applicator in installing the same, Owner's remedies and Carlisle's liability shall be limited to Carlisle's repair of the leak.
3. This warranty shall not be applicable if, upon Carlisle's inspection, Carlisle determines that any of the following has occurred:
  - (a) The Carlisle Total Roofing System is damaged by natural disasters, including, but not limited to, lightning, fire, insect infestations, earthquake, tornado, hail, hurricanes, and winds of peak gust speeds of (120) mph or higher measured at 10 meters above ground; or
  - (b) The Carlisle Total Roofing System is damaged by any intentional or negligent acts, accidents, misuse, abuse, vandalism, civil disobedience, or the like.
  - (c) Deterioration or failure of building components, including, but not limited to, the roof substrate, walls, mortar, HVAC units, non-Carlisle brand metal work, etc., occurs and causes a leak, or otherwise damages the Carlisle Total Roofing System; or
  - (d) Acids, oils, harmful chemicals and the like come in contact with the Carlisle Total Roofing System and cause a leak, or otherwise damage the Carlisle Total Roofing System.
4. This Warranty shall be null and void if any of the following shall occur:
  - (a) If, after installation of the Carlisle Total Roofing System by a Carlisle Authorized Roofing Applicator there are any alterations or repairs made on or through the roof or objects such as, but not limited to, structures, fixtures, or utilities are placed upon or attached to the roof without first obtaining written authorization from Carlisle; or
  - (b) Failure by the Owner to use reasonable care in maintaining the roof, said maintenance to include, but not be limited to, those items listed on Carlisle's Care & Maintenance Information sheet which accompanies this Warranty.
5. Only Carlisle brand insulation products are covered by this warranty. Carlisle specifically disclaims liability, under any theory of law, for damages sustained by or caused by non-Carlisle brand insulation products.
6. During the term of this Warranty, Carlisle shall have free access to the roof during regular business hours.
7. Carlisle shall have no obligation under this Warranty while any bills for installation, supplies, service, and warranty charges have not been paid in full to the Carlisle Authorized Roofing Applicator, Carlisle, or material suppliers.
8. Carlisle's failure at any time to enforce any of the terms or conditions stated herein shall not be construed to be a waiver of such provision.
9. Carlisle shall not be responsible for the cleanliness or discoloration of the Carlisle Total Roofing System caused by environmental conditions including, but not limited to, dirt, pollutants, or biological agents.
10. Carlisle shall have no liability under any theory of law for any claims, repairs, restoration, or other damages including, but not limited to, consequential or incidental damages relating, directly or indirectly, to the presence of any irritants, contaminants, vapors, fumes, molds, fungi, bacteria, spores, mycotoxins, or the like in the building or in the air, land, or water serving the building.
11. This warranty is not assignable by operation of law or otherwise. Application may be made by a new building owner for reissuance of the warranty during the original warranty period. Certain procedures including, but not limited to, an inspection of the Roofing System by a Carlisle representative and fees will apply to any reissuance. Carlisle reserves the right, in its sole discretion, to refuse to reissue this warranty.

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**CARLISLE**  
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WA-F0001 (12/07)

**CARLISLE 725 SELF-ADHERING  
AIR AND VAPOR BARRIER**

**GENERAL:**

Carlisle 725 Air and Vapor Barrier is a 40-mil composite consisting of 32 mils of self-adhering rubberized asphalt laminated to an 8-mil spunbonded polyester fabric. A siliconized release liner prevents the material from bonding to itself in the roll and is easily removed for installation. 725 is available in a 225 square foot roll with dimensions of 36" x 75'. The factory-controlled thickness of the membrane ensures uniform barrier properties on the job, and the polyester fabric increases strength as well as providing an excellent surface for the bonding of subsequent layers. Suitable Carlisle adhesives for use with 725 are:

- FAST™ adhesives
- OlyBond 500™ adhesives
- One Step
- VersiGrip®

725 Air and Vapor Barrier is used on concrete, exterior gypsum, Dens-Deck Prime or other approved substrates in conjunction with Carlisle SynTec roofing systems. Use of CCW-702 primer is required on all substrates. **Carlisle 725 Air and Vapor Barrier must be covered with roofing membrane within 30 days. When Carlisle 725 will not be covered by the end of the workday, the seams must be primed with CCW-702 primer and T-joints sealed with an internal bead of Lap Sealant. Carlisle does not accept responsibility for the watertight integrity of the Carlisle 725 vapor barrier related to workmanship issues or physical damage. For special situations contact the Project Review and Warranty Services Group prior to specifying this material.**

**TYPICAL PROPERTIES AND CHARACTERISTICS**

See table below.

**CAUTIONS AND WARNINGS:**

- Use proper stacking procedures to ensure sufficient stability of the materials.
- Exercise caution when walking on wet membrane. Membranes are slippery when wet.
- Carlisle 725 Air and Vapor Barrier membrane must be dry prior to installation of subsequent layers. If fabric gets wet, use a wet vacuum system to help remove the moisture.
- Carlisle 725 should be installed at temperatures above 40° F (air and substrate).
- Avoid moving or stacking heavy loads on the installed membrane, particularly in hot weather. This could thin out the self-adhering barrier layer.
- Refer to applicable Material Safety Data Sheets before using these products.
- Do not apply primer or membrane to damp or contaminated surfaces.
- Do not apply primer or membrane to frozen substrates.
- Do not allow Carlisle 725 to be exposed for more than 30 days.

## INSTALLATION:

**Surface Preparation:** Concrete shall be in place for 14 days minimum. The substrate must be completely dry. The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance, and form release agents. Some curing compounds may interfere with proper adhesion and an adhesion test is recommended. In the event of rain, concrete must be allowed to dry before the application of primer.

**Primer:** Surfaces to receive 725 Air and Vapor Barrier must be clean and dry. Prime the substrate with CCW-702 Primer. Apply primer by spray, brush, or with a long nap roller at 250 to 300 ft<sup>2</sup> per gallon for smooth structural concrete decks or 75 ft<sup>2</sup> per gallon for porous substrates. Dens-Deck Prime will require a coverage rate of 150 ft<sup>2</sup> per gallon. Primer will require 1-hour minimum to dry at a temperature of 75° F. Primer has sufficient cure when it will not transfer when touched. Prime only those areas that will be covered with membrane the same day. Re-prime any areas that become wet or dirty.

**Application:** Apply 725 Air and Vapor Barrier from low to high points, in a shingle fashion, so that the laps will shed water. Overlap all edges by at least 2 ½ inches. End laps should be staggered. Position membrane carefully so as to avoid fish-mouths and wrinkles. Roll the 725 membrane immediately after installation with a 100-150 pound roller wrapped in a resilient material. When Carlisle 725 will not be covered by the end of the workday, apply a medium to heavy coat of CCW-702 Primer over the polyester fabric in the seam area. Install a 2" long bead of Lap Sealant along any T-joints or step-offs. Allow primer to flash off and then use a hand roller to mate the seam area together paying particular attention to any T-joints or step-offs.

**Repairs:** Following application, inspect all membrane for tears, punctures, fish-mouths, blisters, and voids due to misalignment at seams. Remove damaged membrane. Prime exposed substrate and allow primer to dry. Apply a new section of 725 Air and Vapor Barrier to primed substrate, extending at least 6 inches on to underlying adhered membrane on all sides. Firmly roll repaired area with a 2" hand roller to ensure a good seal. Slit fish-mouths and overlap the edges. Prime the repair area with CCW 702 and place a section of 725 Air and Vapor Barrier over the repair allowing it to extend at least 6 inches in all directions. Firmly roll repair section to ensure a good seal.

TEST	METHOD	TYPICAL PROPERTIES
Thickness		40 mils
Tensile Strength	ASTM D-412	200 psi min.
Elongation*	ASTM D-412	200 %
Pliability	ASTM D-146	- 15° C
Peel Adhesion	ASTM D-903	5 lbs./in.
Puncture Resistance	ASTM E-154	20 lbs.
Permeability	ASTM E-96	0.05 perms
* Rubberized asphalt compound only.		

Carlisle, Sure-Seal, FAST and VersiGrip are trademarks of Carlisle.

OlyBond 500 is a trademark of OMG Roofing Products.

Dens-Deck Prime is a trademark of G-P Gypsum Corporation.

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## CCW-PRIMERS

FOR USE WITH  
SHEET MEMBRANE

### CCW-702 PRIMER

CCW-702 is a quick drying, solvent based, high-tack primer specifically designed to promote maximum adhesion of CCW Sheet Membrane Waterproofing products.

Apply by long nap roller or brush in an even film at 300 to 350 square feet per gallon. Allow Primer to dry for 1 hour minimum at 75° F. Primer has a satisfactory cure when surface is tacky, but will not transfer when touched. Prime only areas to be waterproofed the same day. Reprime if area becomes dirty or wet.

#### TECHNICAL DATA

PROPERTY	RESULTS
Weight per Gallon	7.5 lbs.
VOC Content	450 g/l
Color	Blue
Flash Point	-4° F, -20° C
Adhesion to concrete	7 lb./lin. in. min.

#### PACKAGING

5 Gallon pails, 45 pails per pallet

**CAUTION:** Flammable liquid and vapors. Use only with adequate ventilation and avoid breathing vapors. Refer to MSDS for other important warnings and product safety information.

### CCW-714 WATER-BASED PRIMER

A single component, water-based primer specifically designed to condition surfaces and to promote adhesion of CCW Sheet Membrane Waterproofing products.

Apply by spray or long nap roller in an even film at 400 to 600 square feet per gallon. Porous substrates will require more primer. CCW Sheet Membrane will not adhere properly to uncured primer; all moisture must be allowed to leave the primer. Allow 2-4 hours minimum at 75°F. In humid or cool conditions, an overnight cure may be required.

#### TECHNICAL DATA

PROPERTY	RESULTS
Weight per Gallon	8.2 lbs.
Solids Content	32% by wt.
Color	Blue
Flash Point	N/A
Adhesion to concrete	7 lb./lin. in. min.

#### PACKAGING

1 Gallon pails, 100 pails per pallet

5 Gallon pails, 45 pails per pallet

Store at 40° to 90°F (4° to 32°C)

**CAUTION:** Avoid contact with eyes and skin. In the event of contact, wash off immediately. Refer to MSDS for other important warnings and product safety information.

## CCW-715 DAMP CONCRETE PRIMER

CCW-715 Primer is designed to allow adhesion of CCW Sheet Membranes to damp or partially cured concrete surfaces. This allows installation of membrane as soon as forms are removed. Do not apply where visible water is present. Trapped water may cause blistering, keep direct sunlight off membrane and backfill immediately.

Apply by long nap roller or brush in an even film at 300 to 350 square feet per gallon. Allow Primer to dry for 1 hour minimum at 75° F. Primer has a satisfactory cure when surface is tacky, but will not transfer when touched. Prime only areas to be waterproofed and backfilled the same day. Reprime if area becomes dirty or wet.

### TECHNICAL DATA

PROPERTY	RESULTS
Weight per Gallon	7.5 lbs.
VOC Content	450 g/l
Color	Green
Flash Point	-4° F, -20° C
Adhesion to concrete	7 lb./lin. in. min.

### PACKAGING

5 Gallon pails, 45 pails per pallet

**CAUTION:** Flammable liquid and vapors. Use only with adequate ventilation and avoid breathing vapors. Refer to MSDS for other important warnings and product safety information.

## LIMITED WARRANTY

CARLISLE COATINGS & WATERPROOFING INCORPORATED (CARLISLE) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any CARLISLE materials prove to contain manufacturing defects that substantially effect their performance, CARLISLE will, at its option, replace the materials or refund its purchase price.

This limited warranty is the only warranty extended by CARLISLE with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. CARLISLE specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever.



# DENSDECK™ / DENSDECK PRIME® - Distributed by Carlisle

## GENERAL:

DensDeck and DensDeck Prime are exceptional fire barriers, thermal barriers and recover boards used in various commercial roofing systems. The patented design employs glass mat facings on top and bottom. The facers are embedded into a water resistant gypsum core providing excellent fire resistance, moisture resistance and wind uplift properties. DensDeck Prime utilizes a non-asphaltic primer applied to the top glass mat facer. Both products are manufactured to conform to ASTM C 1177.

## PRIMARY USAGE:

DensDeck is used primarily in mechanically fastened membrane roofing applications as an overlayment board in lieu of high-density wood fiberboard. DensDeck is used over insulations such as extruded polystyrene or EPS and over polyisocyanurate insulation when additional compressive strength is desired for roofs subjected to increased foot traffic or for increased resistance to hail damage. DensDeck is also used in wood deck constructions to achieve various fire ratings.

DensDeck Prime is primarily used in adhered EPDM and TPO membrane applications as an overlayment board in lieu of high-density wood fiberboard. DensDeck Prime is used over insulations such as extruded polystyrene or EPS and over polyisocyanurate insulation when additional compressive strength is desired for roofs subjected to increased foot traffic or for increased resistance to hail damage. DensDeck Prime is compatible with solvent-based bonding adhesives as well as hot asphalt.

## TYPICAL PROPERTIES:

Physical Properties:				
Property	ASTM (method)	DensDeck or DensDeck Prime		
Thickness, nominal inches		1 1/4"	1 1/2"	5/8"
Width, standard		4'	4'	4'
Length, standard		8' ±1/4"	8' ±1/4"	8' ±1/4"
Weight, (based on nominal)		1.1	1.95	2.5
Surfacing		Glass Mat*	Glass Mat*	Glass Mat*
Flexural Strength, Parallel, lbs. min.	D 473 E 1177 minimums	40	80	100
Flexural Strength, Perpendicular, lbs. min.	D 473 E 1177 minimums	50	100	140
Flute Spanability	E 681 (400 lb. conc. load)	2-5/8"	5"	8"
Permeance Perms	D 335 (cyclop method)	50	35	32
R-Value	D 518 (heat flow meter)	28	55	57
Coefficient Thermal Expansion in./in./°F		8.5 x 10 <sup>-6</sup>	8.5 x 10 <sup>-6</sup>	8.5 x 10 <sup>-6</sup>
Linear Variation with Change in Moisture in./in./% RH		6.25 x 10 <sup>-6</sup>	6.25 x 10 <sup>-6</sup>	6.25 x 10 <sup>-6</sup>
Absorption, % max.	D 473	10.0	10.0	10.0
Compression, psi		500	500	500
Surface Water Absorption, grams	D 473	2.5	2.5	2.5
Flame Spread - Smoke Developed	D 84	0	0	0
Fire Classification		UL Class A ULC S-102 UL 1256 ULC S-125 UL 780	FMRC Class 1 UL Class A ULC S-102 UL 1256 ULC S-125 UL 780	FMRC Class 1 UL Classified "P" Assemblies ULC S-1D1

\* DensDeck Prime incorporates a glass mat/primed surface.

## LIMITATIONS:

- Panels must be kept dry before, during and after installation. Apply only as much roof board as can be covered by the roof membrane in the same day.
- When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to polystyrene roofing components.
- 1/4" thick DensDeck is not recommended for vertical parapet applications.
- DensDeck or DensDeck Prime is not recommended for ballasted roofing systems.

Carlisle, Brite-Ply, Sure-Weld and Sure-Seal are trademarks of The Carlisle Corporation.

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9/03

**CARLISLE SURE-SEAL® FAST™ 100 ADHESIVE****GENERAL:**

FAST 100 Adhesive is a two-component construction-grade insulating polyurethane adhesive. The low-rise, expanding characteristics of FAST 100 are designed to securely bond Carlisle's FleeceBACK® membranes and insulations to a variety of substrates. FAST Adhesive is compatible with: HP Fiberboard, HP Polyiso, Extruded Polystyrene, EPS, SPF, DensDeck®, and OSB. Compatible deck types include concrete, cellular LWC, gypsum, cementitious wood fiber, wood, and painted or galvanized steel. FAST is also compatible with the following roofing materials: smooth or gravel-surfaced BUR, mineral cap sheet, weathered smooth or granule-surfaced Mod-Bit, coal tar pitch, aged EPDM, aged Hypalon and Carlisle's-725 Vapor Barrier. FAST 100 is spray- or bead-applied to produce a strong, low-rise adhesive with superior wind uplift resistance and a nominal free-rise core density of 1.9 pounds per cubic foot.

**TYPICAL PROPERTIES AND CHARACTERISTICS:**

<b><u>Base</u></b>	<b><u>100-Part A</u> <u>Polymeric Isocyanate</u></b>	<b><u>100-Part B</u> <u>Polyols, Surfactants &amp; Catalysts</u></b>
Mixing Ratios by Volume	1:1 Part A to Part B	
Viscosity (CPS@25°C)	250	150-300
Avg. Net Weight	10.25 lbs/gal	8.75 lbs/gal
Packaging	50 gal drum (190 L) 15 gal drum (57 L)	50 gal. drum (190 L) 15 gal. drum (57 L)
Shelf Life	1 year	9 months*

Typical R-value added for the use of FAST adhesive over smooth surfaces is 0.2 to 0.5 R

R-value may be higher as more adhesive is used on uneven surfaces.

\* Can be extended to one year by adding FAST Catalyst after 9 months.

**CAUTIONS AND WARNINGS:**

- REVIEW THE APPLICABLE MATERIAL SAFETY DATA SHEET FOR COMPLETE SAFETY INFORMATION PRIOR TO USE.**
- The foam produced is an organic material. It must be considered as combustible and may constitute a fire hazard. The foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- Do not smoke during application.
- Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH or MSHA approved respirator for organic vapors with prefilters and solvent-resistant cartridges or supplied airline respirators while spraying. Proper safety training is essential for all persons involved in the installation process. If vapor is inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- Avoid contact with eyes. Safety glasses or goggles are required.
- If FAST adhesive is splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- Avoid contact with skin. Wear long sleeved shirts and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil. NOTE: Carlisle's special solvent resistant Hycron® or nitrile gloves are required when handling Part A.
- Job site storage temperatures in excess of 90°F (32°C) may affect product shelf life. Should the components be stored at temperatures lower than 70°F (21°C), restore to room temperature prior to use. Do not allow FAST 100 to freeze (storage below 0°F (-18°C) for at least 3 days).
- Use spray booths, windscreens, and/or lower spray pressure with spatter tips when spraying in windy conditions.
- Precautions must be taken to prevent FAST 100 vapors or overspray from entering buildings during application. All air intake vents on roofs must be closed during application of FAST 100.
- KEEP OUT OF THE REACH OF CHILDREN.**

**COVERAGE RATE:** (may vary due to job site conditions)

	per set of 50's	per set of 15's
FleeceBACK with FAST to a smooth flat surface	9,000 - 10,000 sq.ft.	2,700 - 3,000 sq. ft.
Spray application – full coverage	9,000 - 10,000 sq.ft.	2,700 - 3,000 sq. ft.
Bead application 12" on center	17,500 – 18,500 sq. ft.	5,000 – 5,500 sq. ft.
Insulation attachment to:		
Smooth Gypsum, LWC, Concrete, Wood, Steel, Smooth BUR, Mod-Bit, Mineral Cap or Multiple layers of insulation	8,500 - 9,000 sq.ft.	2,500 - 2,700 sq. ft.
Fibrous Cement	5,500 - 6,500 sq.ft.	1,650 - 2,000 sq. ft.
Gravel BUR	5,000 - 6,000 sq.ft.	1,500 - 1,800 sq. ft.

**APPLICATION: \*\***

1. The surface to which adhesive is to be applied shall be dry, free of fins, protrusions, sharp edges, loose and foreign materials, oil, and grease. Depressions greater than 1/4" (6 mm) shall be filled with FAST Adhesive or other approved patching material. All sharp projections shall be removed.
2. For re-roofing sprayed-in-place (SPF) urethane roofs, all wet areas must be removed. The surface must then be scarfed or perforated, depending on the coating, before applying FAST 100 Adhesive.
3. Apply FAST 100 when the substrate and ambient temperature are 25°F (-4°C) or above when spraying with heated equipment or 60°F (16°C) when spraying with unheated equipment.
4. Set pre-heater and hose temperature to 120°F (49°C). Temperature settings will vary with conditions.

**FleeceBACK Installation**

1. Unroll FleeceBACK sheet and position. Fold sheets in half width-wise.
2. Apply FAST 100 Adhesive to the substrate.
  - a) For fully adhered applications spray adhesive to obtain full coverage (approx. 1/8" to 1/4" thick after foaming).
  - b) For bead-applied applications the adhesive should be applied at 6" or 12" on center with the spray rig pressure set between 40-60 psi.
3. **Allow adhesive to rise and develop string/body (approx. 1.5-2 minutes), then place FleeceBACK membrane into FAST 100 Adhesive. The time it takes for the adhesive to develop string will vary based on environmental conditions (temperature and humidity).**
4. Roll membrane with a roller (not to exceed 150 lbs.) to insure fleece embedment. If adhesive contaminates the splice area immediately remove with splice cleaner or splice primer.

**Insulation Attachment**

1. Spray FAST 100 Adhesive on the substrate obtaining full coverage (approx. 1/8" – 1/4" thick after foaming).
2. **Place insulation boards into FAST 100 Adhesive after allowing it to rise and develop string/body (approx. 1.5-2 min. unless using FAST Catalyst). The time it takes for the adhesive to develop string will vary based on environmental conditions (temperature and humidity).**
3. Designate one person to walk and/or roll boards into place using the roller. Boards may be weighted or slit where necessary to keep flat until adhesive sets-up.
4. Adding FAST Catalyst is recommended for insulation attachment to speed set-up time. Catalyst should be added according to the chart provided on the FAST Catalyst can.

For a listing of drum reconditioners/recyclers in your area contact the Reusable Industrial Packaging Association at (301)-577-3786 or [www.reusablepackaging.org](http://www.reusablepackaging.org)

\* General properties. Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specifications or specification ranges for any particular property of this product.

\*\* REVIEW CURRENT CARLISLE SPECIFICATIONS AND DETAILS FOR APPLICATION REQUIREMENTS.

Carlisle, Sure-Seal, FAST and FleeceBACK are trademarks of Carlisle.

Hycron is a trademark of Becton Dickinson & Company.

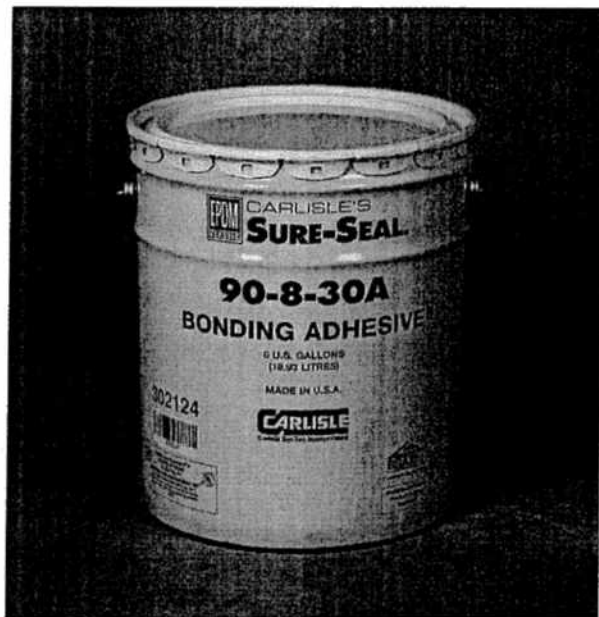
DensDeck is a registered trademark of G-P Gypsum Corporation

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## CARLISLE'S **SURE-SEAL 90-8-30A** **BONDING ADHESIVE**



### Overview

Let Carlisle simplify your next Sure-Seal® EPDM installation with their 90-8-30A Bonding Adhesive. 90-8-30A Bonding Adhesive is a high-strength, solvent-based contact adhesive that allows quick bonding of cured flashings and membranes to various substrates. This adhesive is specially formulated for application with a ½" (13 mm) medium nap roller. This Bonding Adhesive is designed for bonding Sure-White EPDM and Sure-Seal EPDM to various substrates.

### Intended Uses

90-8-30A Bonding Adhesive is ideal for bonding cured flashings and membranes to various substrates.

### Features and Benefits

- High-strength adhesive that allows quick bonding
- Can be applied with a medium nap roller for ease of application
- Provides excellent adhesion between various substrates and EPDM membrane

### Application \*\*

1. The surface, on or against which adhesive is to be applied, shall be clean, smooth, dry, and free of fins, sharp edges, loose and foreign materials, oil and grease. Depressions greater than 1/4" (6 mm) shall be feathered, using epoxy, mortar or other approved patching material. All sharp projections shall be removed by sweeping, blowing or vacuum cleaning.
2. After thorough stirring (minimum 5 minutes), apply Bonding Adhesive to substrate and membrane using a 9" (230 mm) wide 1/2" (13 mm) medium nap roller. Application shall be continuous and uniform avoiding globs or puddles. An open time of 5 to 50 minutes is recommended before assembly. Bonding Adhesive must be allowed to dry until it does not string or stick to a dry finger touch. Any coated area that is rained on should be allowed to dry and then recoated. Do not apply Adhesive to splice areas.
3. Mate the membrane with the adhesive-coated substrate while avoiding wrinkles. Immediately brush down the bonded portion of the sheet with a soft bristle push broom or a clean dry roller applicator to achieve maximum contact. In some applications, swelling of the membrane may occur initially, but this will disappear after several days' exposure. Do not re-broom membrane in an attempt to remove swelling.

\* General properties. Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification or specification range for any particular property of this product.

\*\* REVIEW CURRENT CARLISLE SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.



CARLISLE'S

## SURE-SEAL 90-8-30A BONDING ADHESIVE

### Precautions

1. Review the applicable Material Safety Data Sheet for complete safety information prior to use.
2. Bonding Adhesive is **EXTREMELY FLAMMABLE** - It contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or sparks. Store and use away from all sources of heat, flame or sparks. Do not smoke while applying. Do not use in a confined or unventilated area. Vapors are heavier than air and may travel along ground to a distant ignition source and flash back. A red caution label is required when shipping.
3. Avoid breathing vapors. Keep container closed when not in use. Use with adequate ventilation. If inhaled, remove to fresh air. If not breathing, perform artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately. During application, efforts must be made to prevent fumes from entering the building via air ventilation ducts. Do not place open containers or mix adhesive near fresh air intake units. When possible, shut down or seal off the closest units.
4. If swallowed, **DO NOT INDUCE VOMITING**. Call a physician immediately.
5. Avoid contact with eyes. Safety glasses or goggles are recommended. If splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
6. Avoid contact with skin. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
7. Do not thin Bonding Adhesive. Thinning will affect performance. Excessively thick or gelled material should be discarded.
8. Job site storage temperatures in excess of 90°F (32°C) may affect product shelf life. Should the Bonding Adhesive be stored at temperatures below 60°F (15°C), restore to room temperature prior to use.
9. These materials are sensitive to atmospheric moisture; heat will accelerate the effect of moisture. Opened containers of Bonding Adhesive should be used within 48 hours. Adhesive will begin to thicken after this point, making it difficult, and eventually impossible, to control adhesive thickness. In hot weather, do not leave sealed containers on roof for prolonged periods of time. In cold weather, keep material at room temperature until ready to use. Stir adhesive occasionally while using.
10. Coverage rates are average and may vary due to conditions on the job site.
11. **KEEP OUT OF THE REACH OF CHILDREN.**

Note: Carlisle's special solvent resistant Hycron gloves are recommended to be worn when using this product to protect hands from irritating ingredients.

### Mixing

Stir thoroughly until all settled pigments are dispersed and the cement is uniform in color. Minimum five (5) minutes stirring is recommended.

### Coverage Rates

Sure-Seal 90-8-30A Bonding Adhesive - 60 square feet (56 sq m) per gallon (finished surface). Porous surfaces and substrates may require more bonding adhesive than the typical coverage rate.

#### Typical Properties and Characteristics

Base	Synthetic Rubber
Color	Yellow
Solids	18-22%
Flash Point	-4° F (-20° C) Closed Cup
Average Brookfield Viscosity	3500 Centipoise
VOC	660 grams/liter
Average Net Weight	7.10 lbs./gal (3.2 Kg)
Packaging	5 gallon pail
Shelf Life	1 year

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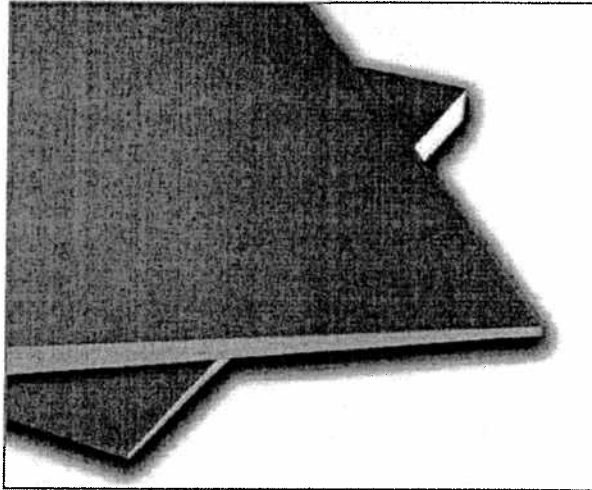
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## CARLISLE HP-H TAPERED POLYISO



### PRODUCT DESCRIPTION

HP-H Tapered is a sloped, rigid roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded during the manufacturing process to fiber-reinforced facers. HP-H Tapered is designed to promote positive drainage and prevent ponding water. For best results, use Carlisle's Tapered Shop Drawings.

### FEATURES AND BENEFITS

- HP-H tapered polyiso insulation provides the highest R-value per inch of commercially available insulation products.
- Environmentally friendly construction with 0% ozone depleting components and CFC free
- Approved for direct application to steel decks

### PANEL CHARACTERISTICS

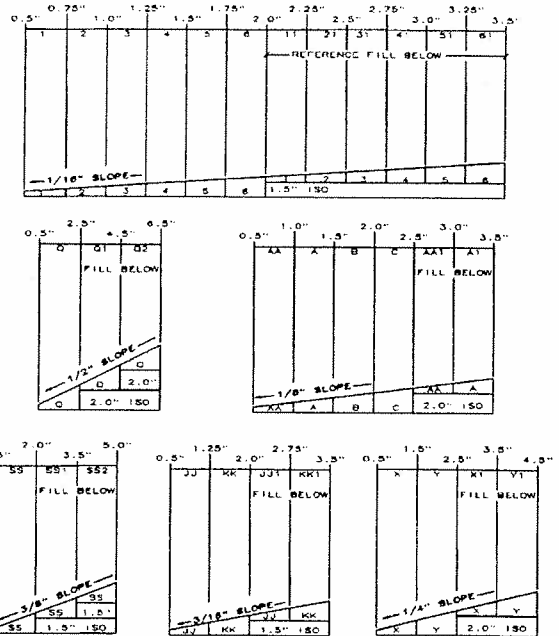
- Available in 4'x4' (1220mm x 1220mm) in thickness of 1/2" (12mm) minimum to 4.0" (102mm) maximum in a single layer
- Available slopes are 1/16" (2mm), 1/8" (3mm), 3/16" (5mm), 1/4" (6mm), 3/8" (10mm) and 1/2" (12mm) per foot.
- Available in two grades of compressive strengths per ASTM C1289-06a, Type II, Class 1, Grade 2 (20 psi), Grade 3 (25 psi)

### APPLICATIONS

- Constructions requiring FM Class 1 and UL Class A ratings

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- Single-Ply Roof Systems (Ballasted, Mechanically Attached, Fully Adhered)

### INSTALLATION

#### BALLASTED SINGLE-PLY SYSTEMS

- Each HP-H Tapered panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to the manufacturer's specifications.

#### MECHANICALLY ATTACHED SINGLE-PLY SYSTEMS

- Each HP-H Tapered panel must be secured to the roof deck with fasteners and plates (appropriate to the deck type). Butt edges and stagger joints of adjacent panels. Install the roof membrane according to the manufacturer's specifications.

#### FULLY ADHERED SINGLE PLY

- Each HP-H Tapered panel must be secured to the roof deck with fasteners and plates (appropriate to deck type). Butt edges and stagger joints of adjacent panels. Install the roof membrane according to manufacturer's specifications.
- HP-H Tapered 4' x 8' panels can be secured to the roof deck with Carlisle's FAST adhesive technology.

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## CARLISLE HP-H TAPERED POLYISO

### HP-H TAPERED CODES AND COMPLIANCES

- ASTM C1289-06, Type II, Class 1, Grade 2 (20 psi), Grade 3 (25 psi)
- International Building Code (IBC) Section 2603

NOTE: Please be aware the Federal Specification HH-I-1972/GEN has been replaced.

### UNDERWRITERS LABORATORIES, INC.

- Component of Class A Roof Systems (UL 790)
- Hourly Rated P series roof assemblies (UL 263) P 225, 230, 259, 302, 303, 508, 510, 514, 519, 701, 710, 713, 717, 718, 719, 720, 722, 723, 727, 728, 729, 730, 732, 734, 735, 739, 741, 742, 743, 819, 824, 827, 828
- Insulated metal deck assemblies - (UL 1256) nos. 120, 123, 292
- HP-H Tapered classified by ULC

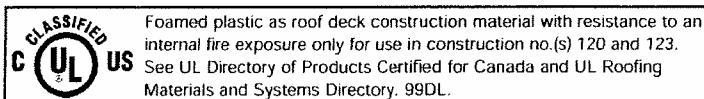
### FACTORY MUTUAL RESEARCH

- FM Class 1 approval for steel roof-deck constructions, (FM 4450)
- FM 4470

(Subject to the conditions of approval described in Roofnav.com)

### FLORIDA BUILDING CODE APPROVAL FL#1296

### MIAMI-DADE COUNTY, FLORIDA NOA NO: 04-1018.01



### WARNINGS AND LIMITATIONS

Insulation must be protected from open flame and kept dry at all times. Install only as much insulation as can be covered the same day by completed roof covering material. Carlisle will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the job site or for improper storage and handling. Technical specifications shown in this literature are intended to be used as general guidelines only and are subject to change without notice. Call Carlisle for more specific details, or refer to PIMA Technical Bulletin No. 109: Storage & Handling Recommendations for Polyiso Roof Insulation.

TYPICAL PHYSICAL PROPERTY DATA CHART POLYISO FOAM CORE ONLY		
PROPERTY	TEST METHOD	VALUE
Compressive Strength	ASTM D 1621	20 psi* minimum (138kPa, Grade 2)
Dimensional Stability	ASTM D 2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E 96	< 1 perm ((57.5ng/(Pa·s·m²))
Water Absorption	ASTM C 209	< 1% volume
Flame Spread (foam core)	ASTM E 84	< 50
Service Temperature		-100° to 250° F (-73°C to 122°C)
* Also available in 25 psi minimum, Grade 3		

### OTHER POLYISO PRODUCTS BY CARLISLE:

- SECURSHIELD POLYISO BONDED TO COATED GLASS FACER
- HP-CG POLYISO BONDED TO COATED GLASS FACER
- HP-F POLYISO BONDED TO FOIL
- HP-H FLAT POLYISO
- HP-NB POLYISO BONDED TO ORIENTED STRAND BOARD
- HP-WF POLYISO BONDED TO WOOD FIBERBOARD
- TAPERED HP-CG TAPERED POLYISO BONDED TO COATED GLASS FACER
- TAPERED HP-WF TAPERED POLYISO BONDED TO WOOD FIBERBOARD

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