



Camp San Luis Obispo, Bldg. 632

San Luis Obispo, CA

June 2021

PART 1 GENERAL

1.01 DESCRIPTION

- A. The Camp San Luis Obispo Project is located at 10 Sonoma Ave. in San Luis Obispo, CA. The Contracting Officer's Representative (COR), Project Manager is David Gonzales the COR he may be reached via email at David.gonzales167.nfg@mail.mil. or by telephone at 805-594-6577. The Military Department shall provide a Job walk date with the formal solicitation documents.
- B. The project consists of installing Versico's VersiWeld (TPO) Mechanically Attached Roofing System or a proposed equivalent (All equivalents shall be required to be approved by the COR) as outlined below:

Apply the VersiWeld Mechanically Attached Roofing System over the existing 45-mil TPO and 1" Polyiso roof system. All existing Polyiso and/or coverboard to be inspected and replaced as needed before new membrane is installed.

1.02 EXTENT OF WORK

- A. Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of the VersiWeld reinforced TPO (Thermoplastic Polyolefin) membrane Mechanically-Fastened Roofing System or equivalent including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.
- B. The Contractor shall be fully knowledgeable and a Certified installer of the product by the Manufacturer of the product. It is assumed the Contractor is fully aware of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.
- C. The Contractor shall confirm all given information and notify the building owner, prior to bid, of any conflicts that will affect their cost proposal.
- D. Any contractor who intends to submit a bid using a roofing system other than the approved manufacturer must submit for pre-qualification in writing fourteen (14) days prior to the bid date. Any contractor who fails to submit all information as requested will be subject to rejection.

1.03 SUBMITTALS

- A. Prior to starting work, the roofing contractor must submit the following:
 - 1. Shop drawings showing layout, details of construction and identification of materials.
 - 2. Sample of the manufacturer's Membrane System Warranty. Any proposed equivalent shall match or exceed the specified product warranty.
 - 3. Submit a letter of Certification from the manufacturer which Certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received and provide a certificate from the Manufacturer listing the individual's name.
 - 4. Certification from the membrane manufacturer indicating the fasteners are capable of providing a static backout resistance of 10 inch pounds minimum is required.
 - 5. Certification from the membrane manufacturer indicating the membrane thickness over the reinforcing scrim (top ply membrane thickness) is nominal .15-mil or thicker.

6. Certification of the manufacturer's warranty reserve.
- B. Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient quantity to permit work to continue without interruption.
- B. Comply with the manufacturer's written instructions for proper material storage.
1. Store VersiWeld membrane in the original undisturbed plastic wrap in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. VersiWeld membrane that has been exposed to the elements for approximately 7 days must be prepared with Versico Weathered Membrane Cleaner prior to hot air welding.
 2. Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
 3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.
- C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
- D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.05 WORK SEQUENCE

- A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.
- B. Do not disrupt activities in occupied spaces.

1.06 USE OF THE PREMISES

- A. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following:
1. Areas permitted for personnel parking.
 2. Access to the site.
 3. Areas permitted for storage of materials and debris.
 4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.
- B. Interior stairs or elevators may not be used for removing debris or delivering materials, except as authorized by the COR.

1.07 EXISTING CONDITIONS

If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify

the owner's representative by phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.08 PRE-CONSTRUCTION JOBWALK

- A. Prior to bid submittal, the roofing contractor should schedule a job site inspection to observe actual conditions and verify all dimensions on the roof. The Military Department shall provide a formal Job walk date with the Solicitation documents.
- B. Any conditions which are not shown on the shop drawings should be indicated on a copy of the shop drawing and included with bid submittal if necessary to clarify any conditions not shown.

1.09 TEMPORARY FACILITIES AND CONTROLS

- A. Temporary Utilities:
 - 1. Water and power for construction purposes are available at the site and will be made available to the roofing contractor.
 - 2. Contractor to provide all hoses, valves and connections for water from source designated by the owner when made available.
 - 3. When available, electrical power should be extended as required from the source. Contractor to provide all trailers, connections and fused disconnects.
- B. Temporary Sanitary Facilities

Sanitary facilities will not be available at the job site. The roofing contractor shall be responsible for the provision and maintenance of portable toilets or their equal.
- C. Building Site:
 - 1. The roofing contractor shall use reasonable care and responsibility to protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the contract.
 - 2. The roofing contractor shall remove all debris from the job site in a timely and legally acceptable manner so as to not detract from the aesthetics or the functions of the building.
- D. Security:

Obey the owner's requirements for personnel identification, inspection and all other security measures.

1.10 JOB SITE PROTECTION

- A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.
- B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.
- C. Do not overload any portion of the building, either by use of or placement of equipment, storage of debris,

or storage of materials.

- D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- E. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas **where work is in progress**. Install flags or other telltales on plugs. Remove plugs each night and screen drain.
- F. Store moisture susceptible materials above ground and protect with waterproof coverings.
- G. Remove all traces of piled bulk materials and return the job site to its original condition upon completion of the work.

1.11 SAFETY

The contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. **Safety shall be the responsibility of the contractor.** All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.12 WORKMANSHIP

- A. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.
- B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.
- C. There shall be a designated in advance of the job start named supervisor on the job site at all times while work is in progress.

1.13 QUALITY ASSURANCE

- A. The VersiWeld Roofing System must achieve a UL Class A.
- B. Contractor to provide the specified roofing assembly to have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to

ANSI/SPRI WD-1 "Wind Design Standard Practice for Roofing Assemblies"
American Society of Civil Engineers (ASCE 7)
International Building Code (IBC)
DORA (Directory of Roof Assemblies)
- C. The membrane must be manufactured by the material supplier. Manufacturer's supplying membrane made by others are not acceptable.
- D. Unless otherwise noted in this specification, the contractor must strictly comply with the manufacturer's current specifications and details.
- E. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (5) years successful experience installing single-ply TPO roofing systems and having installed at least one (1) roofing application or several similar systems of equal or greater size within one year.
- F. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in

the application techniques of the materials specified. Provide at least one thoroughly trained, certified and experienced superintendent on the job at all times roofing work is in progress.

- G. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the specifier's consideration.
- H. The VersiWeld TPO White membrane meets CRRC (Cool Roof Rating Council) for reflectance and emittance. When tested in accordance with ASTM C1549, the VersiWeld White material has an initial solar reflectance of 0.79 and a 3-year aged reflectance of 0.70. The material has also been tested for emittance in accordance with ASTM C1371; an initial emittance of 0.90 and a 3-year aged emittance of 0.86 were achieved.
- I. The VersiWeld White TPO membrane meets the emittance requirements set forth by the USGBC (U. S. Green Building Council) for their LEED (Leadership in Energy and Environmental Design) Program. The VersiWeld White TPO material has an emittance of 0.90 (when tested in accordance with ASTM E408) and an SRI (solar reflectance index) of 99 (calculated using ASTM E 1980).
- J. Upon completion of the installation, the applicator shall arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the building owner seventy-two (72) hours prior to the manufacturer's final inspection. A letter of compliance shall be issued by the manufacturer upon satisfactorily meeting the installation requirements.

1.14 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Versico's VersiWeld Roofing System specification for General Job Site Considerations.

- A. Safety Data Sheets (SDS) must be on location at all times during the transportation, storage and application of materials.
- B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- C. When loading materials onto the roof, the Versico Authorized Roofing Contractor must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.
- D. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- E. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- F. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- G. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- H. New roofing shall be complete and watertight at the end of the work day.
- I. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.15 WARRANTY

- A. Provide manufacturer's 30 year Membrane Material Only Warranty. The maximum wind speed coverage shall be peak gusts of 55 MPH measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.
- B. Contractor to provide a certification of acceptance from the manufacturer validating the installation is compliant with the Manufacturers' requirements for proper installation.

PART 2 PRODUCTS

2.01 GENERAL

- A. All components of the specified roofing system shall be products of Versico or accepted by Versico as compatible. Acceptance by Manufacturer shall be in a written document.
- B. All products (including insulation, fasteners, fastening plates, prefabricated accessories and edgings) must be **manufactured and/or supplied** by the roofing system manufacturer and covered by the warranty.

2.02 MEMBRANE

Furnish VersiWeld 80-mil thick white reinforced TPO (Thermoplastic Polyolefin) membrane as needed to complete the roofing system. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal .015-mil or thicker. Membrane sheets in rolls 12', 10' or 8' wide by 100' long.

2.03 INSULATION/UNDERLAYMENT

- A. When applicable, insulation shall be installed in multiple layers. The first and second layer of insulation shall be mechanically fastened to the substrate in accordance with the manufacturer's published specifications.
- B. Insulation, if needed, shall be Polyiso to match existing as supplied by Versico. Minimum R-value required is to match existing.
 - 1. **Versico Versicore MP-H Polyiso** – A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289-06, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4' x 8' standard size with a thickness from 1 to 4 inches. 4' x 4' tapered panels are also available.
 - 2. **Dens Deck Cover Board** – gypsum core that incorporates glass-mat facings on the top and bottom side for use as a cover board. 5/8" X 4' x 8' size boards.

2.04 ADHESIVES AND CLEANERS

All products shall be furnished by Versico and specifically formulated for the intended purpose.

- A. **Cut-Edge Sealant:** A white or clear colored sealant used to seal cut edges of reinforced VersiWeld membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied.
- B. **Water Cut-Off Mastic:** Used as a mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).
- C. **Universal Single-Ply Sealant:** A 100% solids, solvent free, voc free, one part polyether sealant that provides a weather tight seal to a variety of building materials. It is white in color and is used for general caulking

such as above termination bars and metal counter flashings and at scuppers.

- D. **Weathered Membrane Cleaner:** Used to prepare membrane for heat welding that has been exposed to the elements or to remove general construction dirt at an approximate coverage rate of 400 square feet per gallon (one surface).
- E. **TPO Low VOC Primer::** A solvent-based, low solids primer used to prepare the surface of VersiWeld Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS. This low VOC product is ideal for use in states where environmental issues are a concern.
- F. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: bonding VersiWeld membrane to various surfaces, enhancing the bond between Versico's VapAir Seal 725TR and various substrates, priming unexposed asphalt prior to applying Flexible DASH Adhesive and for adhering VersiGard FleeceBACK and VersiGard EPDM membrane to vertical walls. Coverage rate is approximately 2,000-2,500 sq. ft. per 40 lb. cylinder and 4,000-5,000 sq. ft. per 85 lb. cylinder as a primer, in a single-sided application and 750 sq. ft. per 40 lb. cylinder and 1,500 sq. ft. per 85 lb. cylinder as an adhesive for vertical walls, in a double-sided application.

2.05 FASTENERS AND PLATES

To be used for mechanical attachment of insulation and to provide additional membrane securement:

- A. **HPV Fasteners (Insulation and/or coverboard attachment only):** a threaded, #14 fastener with a #3 phillips drive used with steel and wood roof decks.
- B. **HPVX Fasteners (Insulation, coverboard and membrane attachment):** A heavy duty #15 threaded fastener with a #3 phillips drive used for membrane or insulation securement into steel, wood plank or minimum 15/32 inch thick plywood when increased pullout resistance is desired.
- C. **HPVX Plates:** A 2-3/8" diameter metal barbed fastening plate used with Versico HPVX Fasteners for membrane securement. .
- D. **Insulation/coverboard Fastening Plates:** A nominal 3 inch diameter plastic or metal plate used for insulation/coverboard attachment.

2.06 METAL EDGING AND MEMBRANE TERMINATIONS

- A. **General:** All metal edging s shall be tested and meet ANSI/SPRI ES-1 standards and comply with International Building Code.
- B. **Drip Edge:** A metal edge system with a 22 or 24 gauge continuous anchor cleat and .032 inch thick aluminum or 24 gauge steel fascia. Metal fascia color shall be as designated by the Owner's Representative.
- C. **VersiTrim Coping:** Existing coping metal to remain in place.
- D. **Termination Bar:** A 1" wide and .098" thick extruded aluminum bar pre-punched 6" on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.

2.07 WALKWAYS

Protective surfacing for roof traffic shall be VersiWeld TPO Walkway Rolls installed per manufacturer's requirements or concrete pavers loose laid over an approved slip sheet (pavers not recommended for slopes greater than 2" in 12").

PART 3 EXECUTION

3.01 GENERAL

- A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, jobsite considerations and weather restrictions.
- B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 INSULATION PLACEMENT AND ATTACHMENT

- A. Existing insulation and/or coverboard to remain in place. Existing insulation and/or coverboard to be inspected and replaced as needed before new membrane is installed. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch. Stagger joints both horizontally and vertically if multiple layers are provided.
- B. Secure insulation to the substrate with the required Versico fasteners and plates in accordance with manufacturers specifications.

3.03 MEMBRANE PLACEMENT AND ATTACHMENT

- A. Existing membrane to be relief cut in large x's at approx. 1 per 100 sq. ft.
- B. Unroll and position membrane. Provide and secure both perimeter and field membrane sheets in accordance with the manufacturer's most current specifications and details.
- C. Secure the membrane with the required Versico Fasteners and Plates spaced a maximum of 12 inches on center depending on project conditions (centered over the pre-printed marks approximately 1-1/2 inches from the edge of the membrane sheet).
- D. Install adjoining membrane sheets in the same manner in accordance with the manufacturer's specifications.

3.04 MEMBRANE HOT AIR WELDING PROCEDURES

- A. Hot air weld the VersiWeld membrane using an Automatic Hot Air Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller immediately after welder crossed the membrane step-off to ensure a continuous hot air welded seam.

Note: When using 60-mil thick or thicker membrane, all splice intersections shall be overlaid with VersiWeld non-reinforced flashing or TPO T-Joint covers.

- B. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
- C. Repair all seam deficiencies the same day they are discovered.
- D. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut edge sealant is not required on vertical splices.

3.06 FLASHING

- A. All existing flashings must be cut out and removed and replaced with new flashing.
- B. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using VersiWeld reinforced membrane. VersiWeld non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, scuppers, as well as inside and outside corners when the use of pre-fabricated accessories is not feasible.
- C. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.07 WALKWAYS

- A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the specifier's drawing.
- B. Hot air weld walkway material to the membrane in accordance with the manufacturer's specifications.

3.08 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- B. Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

3.09 CLEAN UP

- A. Perform daily clean-up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SPECIFICATION

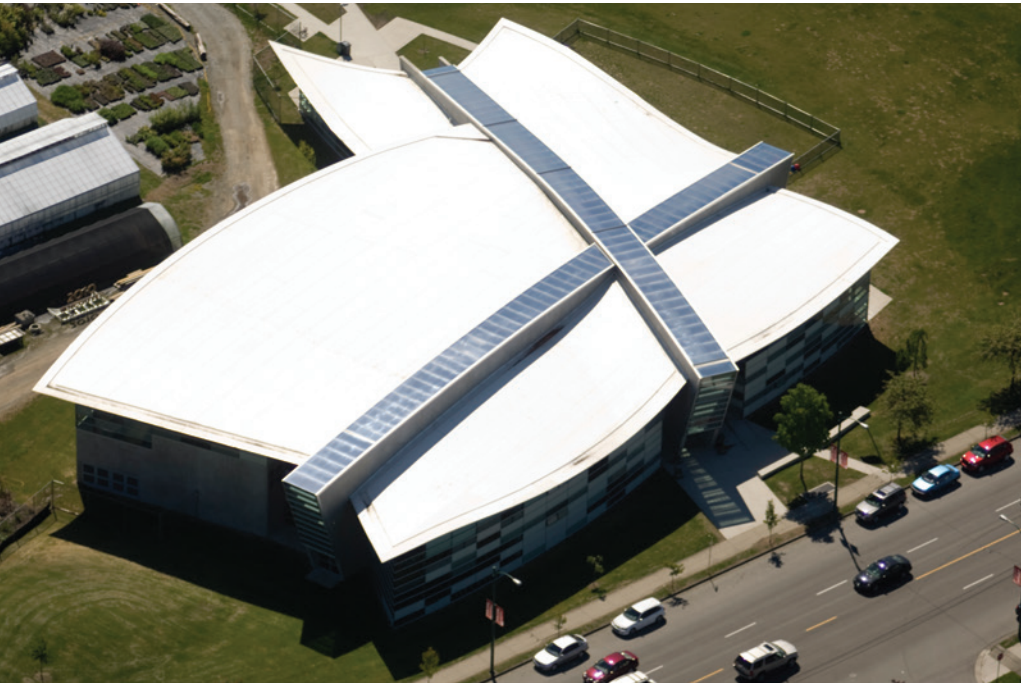


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TPO Roofing Systems





Why Choose TPO?

Thermoplastic polyolefin (TPO) membranes are the fastest-growing segment in the commercial roofing industry and are highly reflective and heat/UV resistant. TPO membranes first became commercialized for roofing membranes in the late 1980's and since 2007 has been the largest market segment of low-slope roofing.

Versico Roofing Systems' VersiWeld TPO membrane is comprised of three layers – a TPO polymer base; a strong, polyester-reinforced fabric center (scrim) and a tough thermoplastic polyolefin compounded top-ply. Because the top-ply is the most vital membrane component for long-term weathering characteristics, Versico manufactures all of its TPO membranes with an industry leading thicker top-ply over scrim. VersiWeld TPO is also packed with the industry leading OctaGuard XT™ weathering package, a combination of ingredients that allow VersiWeld TPO to stand up to the toughest weather conditions and stand the test of time.

WHY CHOOSE VERSIWELD® TPO?

Advantages of VersiWeld TPO



Cleaner Surface



Improved Long-term Performance



Long-term Energy Efficiency in Warm, Southern Climates



Excellent Heat and UV Resistance



Greater Weather Resistance



Industry Leading Weathering Package

Versico has been at the forefront of TPO development for nearly 20 years and continues to lead the industry with its high-performance OctaGuard XT weathering package that is incorporated into VersiWeld TPO membrane and accessories. OctaGuard XT weathering package technology is comprised of eight performance-enhancing ingredients, including three heat-stabilizing antioxidants and three UV light stabilizers as well as organic and inorganic UV absorbers. When combined, these eight ingredients provide a weathering package second to none in the TPO industry.



The Tests

TPO membrane samples from four manufacturers, including Versico, were recently subjected to accelerated heat aging in a controlled 240°F environment. Heat aging accelerates the impact that heat plays on TPO and evaluates its performance on the roof. Samples were removed when they showed signs of cracking or were deemed not suitable to perform as a waterproofing membrane. Extreme Xenon Arc Weatherometer testing also reveals that VersiWeld TPO can withstand twice the ASTM D6878 requirement of 10,080 kJ/m² without losing its desired physical properties.

The Results

Independent test results and a chemical analysis show that VersiWeld TPO with OctaGuard XT contains more weather-protecting ingredients than any other TPO membrane tested, which means Versico's TPO provides superior long-term protection against the dangers of heat and UV exposure.

With Versico's VersiWeld TPO, featuring OctaGuard XT weathering package, you get a whiter, cleaner and more energy-efficient, longer-lasting and weather-resistant TPO roofing system. Versico's VersiWeld TPO with OctaGuard XT weathering package technology has set a new standard in the thermoplastic single-ply industry.

Whiter, Longer

As a white membrane collects dirt, the cost savings associated with having a reflective roof are severely reduced and the higher associated temperatures can accelerate aging. The time-tested VersiWeld TPO compound, which includes OctaGuard XT along with Versico's state-of-the-art manufacturing process, produces one of the smoothest TPO sheets on the market. The extremely smooth top ply of Versico's TPO reduces the ability of dirt, mold, bacteria and other contaminants to collect on the membrane, keeping it whiter longer and increasing the efficiency and potential lifespan of your TPO roof.

Reflectivity Warranty

Versico backs their commitment to long-term performance and energy-efficiency with an industry-leading Reflectivity Warranty on all white TPO membranes. A warranty backed by a company with over 50 years of single-ply manufacturing experience.

Benefits of a Versico VersiWeld TPO roof system featuring the OctaGuard XT weathering package include:

- Cleaner surface
- Long-term energy efficiency in warm, southern climates
- Greater weather resistance
- Improved long-term performance
- Heat and UV resistance

Heat Aging Following ASTM D6878 Protocol



Versico VersiWeld – 60 Weeks (No Failure)

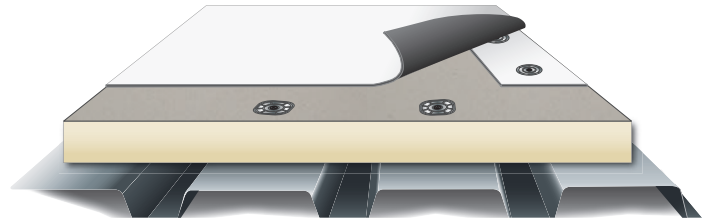


"Competitor C" TPO – 37 Weeks

SYSTEM OPTIONS

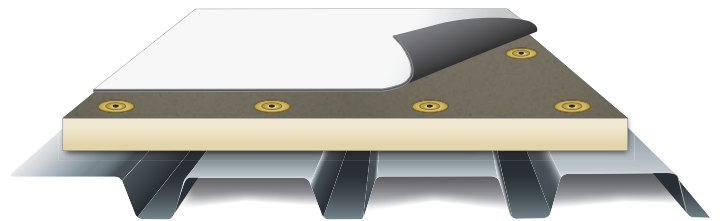
Mechanically Attached Systems

Mechanically Attached Systems require mechanical attachment of the insulation to the deck and mechanical attachment of the membrane within the seam area. Adjoining membrane sheets are overlapped and joined together by hot-air welding.



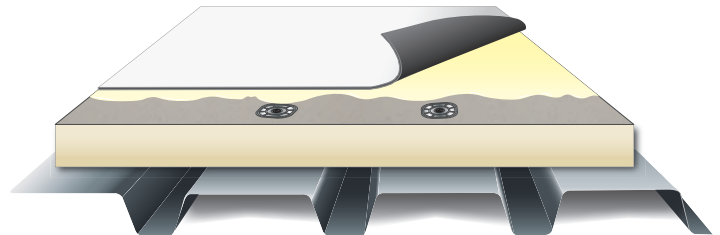
Induction Welded Systems

Induction welded systems use fasteners and specially coated plates to secure both the insulation and membrane. Each coated plate is heated with a special induction tool and then cooled using a magnet to secure the membrane to each plate. Adjoining membrane sheets are overlapped and joined together by hot air welding.



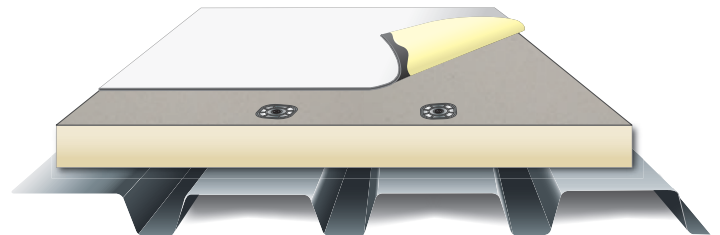
Fully Adhered Systems

Fully Adhered Systems require mechanical or adhesive attachment of the insulation to the roof deck. The TPO membrane and substrate are then coated with bonding adhesive and the membrane is rolled into place and seams are then hot-air welded.



Quick-Applied Systems

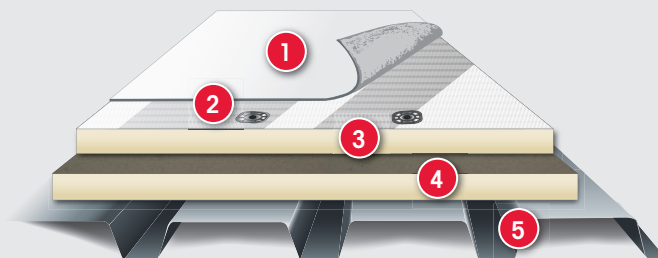
VersiWeld QA (Quick-Applied) TPO membrane is a 60- or 80-mil TPO membrane laminated to an elastomeric quick-applied adhesive. The pre-applied adhesive eliminates VOC and odor concerns typically associated with fully adhered systems.



Versico's RapidLock Roofing Systems

- 1 VersiFleece® RL™ TPO Membrane with RapidLock Technology
- 2 Insulation Fasteners and Plates
- 3 VersiCore MP-H® RL Polyiso, SecurShield® RL Polyiso or SecurShield HD RL Polyiso with RapidLock Technology
- 4 VersiCore MP-H Polyiso or SecurShield Polyiso
- 5 Steel Deck

Versico's RapidLock (RL) Roofing System is a revolutionary membrane attachment method that provides a fully adhered system without the use of adhesives. The RL system utilizes VELCRO® Brand Securable Solutions along with VersiFleece RL TPO to achieve performance on par with traditional fully adhered single-ply systems. Underlayment options include VersiCore MP-H RL, SecurShield RL Polyiso, or SecurShield HD RL Polyiso. The RL system is VOC- and odor-free, has no application temperature restrictions, and provides significant labor savings thanks to the simplicity of the system and ease of installation.



RapidLock
TECHNOLOGY

System Features & Benefits

- No application temperature restrictions
- VOC- and odor-free
- Adhesive-less system saves time and labor
- RL fleece is specifically designed to work with RL Insulation facer and features a removable slip sheet for ease of installation
- Excellent Wind uplift performance and ratings (up to FM 1-225), comparable to traditional fully adhered single-ply systems
- Fleece reinforcement adds toughness, durability, and enhanced resistance to hail and punctures

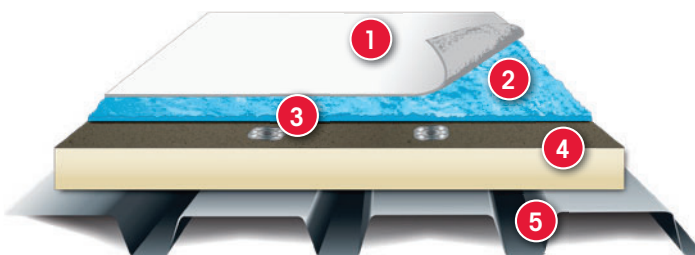
VersiFleece TPO

VersiFleece TPO membranes are manufactured using a hot-melt extrusion process for complete scrim encapsulation, are chlorine- and plasticizer-free, and provide excellent long-term reflectivity. Versico's VersiFleece TPO contains the OctaGuard XT weathering package, which provides excellent resistance to UV and extreme temperatures.

Membrane Options

Colors	White, Gray, Tan. *Special Colors: Medium Bronze, Rock Brown, Terra Cotta, Slate Gray, Patina Green
Thicknesses	TPO + Fleece: 100, 115, and 135 mils
Standard Widths	6' and 12'
Standard Lengths	50' and 100' (100- and 115-mil) 75' (135-mil)

*Special Colors available in limited thicknesses and sizes. Contact a Versico Representative for more details.



- 1 VersiFleece TPO Membrane
- 2 Flexible DASH Adhesive
- 3 Versico Fasteners and Plates
- 4 2" VersiCore MP-H Polyiso Insulation
- 5 Steel Deck

VERSIWELD TPO WITH APEEL™ PROTECTIVE FILM

Versico's patented APEEL Protective Film guards the surface of TPO membrane from scuffs and dirt accumulation during installation, eliminating the need to clean the roof once the project is complete. Durable and easy to remove, APEEL Protective Film helps save time and labor, improves aesthetics and increases customer satisfaction. VersiWeld TPO membrane with APEEL Protective Film is ideal for re-roofing, re-cover and new construction projects.

Features and Benefits:

- Tough protective film helps prevent scuffs and scratches on TPO membrane during the construction process
- Holes in the film can easily check for accidental cuts or punctures made during installation
- Eliminates the need to clean the roof after installation
- Perfect adhesion level keeps the film in place until you remove it
- Film is easily removed by one person due to its manageable 5-foot-wide size
- Gray color helps the surface dry quickly and cuts down on glare



Versico's APEEL 6" Cover Tape & APEEL Cover Tape Applicator

Versico's APEEL 6" Cover Tape and APEEL Cover Tape Applicator allow contractors to keep 100 percent of the TPO surface – including the seams and areas around details – clean during installation.



VERSIWELD PLUS TPO

VersiWeld Plus TPO is Versico's thickest, most durable, and longest-lasting TPO membrane. Available in standard and fleece-backed versions, VersiWeld Plus TPO provides excellent long-term durability and exceptional resistance to hail and punctures. VersiWeld Plus TPO also offers superb UV resistance due to the increased levels of Versico's OctaGuard XT Weathering Package that thicker membranes contain.

Versico's VersiWeld Plus TPO products include:

- 80-mil VersiWeld TPO
- 135-mil VersiFleece TPO
- 155-mil VersiFleece AC TPO

Dependability

Because of their unmatched performance, VersiWeld Plus membranes are available with a variety of enhanced warranty packages. The warranty packages available for VersiWeld Plus membranes include:

- Puncture warranty
- 10-year reflectivity warranty (available for white membranes)
- 30-year No Dollar Limit watertight warranty, which covers:
 - Membrane, insulation, fasteners, and terminations
 - Accidental puncture
 - Wind damage up to 120 mph
 - Hail damage (up to 2")

Each detail of a VersiWeld Plus TPO roofing system is meticulously engineered by Versico to ensure its long-term performance. Every square inch of VersiWeld Plus TPO is enhanced with the most advanced weathering package on the market: Versico's OctaGuard XT.

VERSIWELD Plus TPO Roofing Systems

Because thicker TPO membranes contain higher levels of the OctaGuard XT weathering package, Versico's 80-mil VersiWeld Plus TPO provides longer-lasting protection against the negative effects of UV degradation and heat exposure. The additional protection provided by an upgrade to VersiWeld Plus TPO often adds as little as 8% to the system's total installed costs, while increasing the lifespan of the roof by as much as 33%.

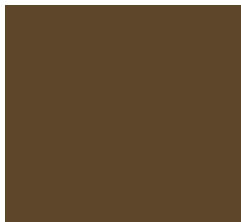
All of these dependable attributes lead to unmatched warranties for VersiWeld Plus TPO roof systems.



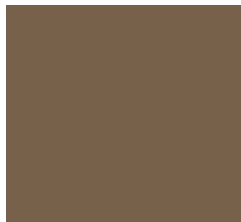
VERSIWELD HS TPO SPECIAL COLOR PROGRAM

Special Color Program

Turn your roof into a canvas with Versico's TPO Special Color Program. The leader in single-ply technology offers more pre-formulated colors than any other manufacturer in the marketplace with reinforced membrane available in 10' x 100' sheets, non-reinforced flashing available in 24" x 50' rolls, TPO Rib Profiles, custom accessories and flashings, and TPO coated metal available in 4' x 10' sheets.



Medium Bronze



Rock Brown



Slate Gray

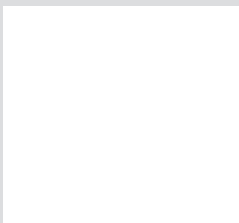


Terra Cotta



Patina Green

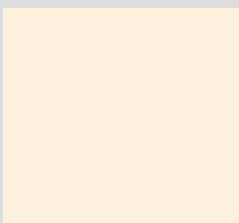
VersiWeld TPO Colors In Stock



White



Gray



Tan



* Color samples printed here are approximations. For actual colors, request a sample of TPO Special Color Membrane.

** Special Color membranes will 'fade' over time mainly due to the ultraviolet portion of sunlight. Since most roof surfaces are exposed to variable sunlight, some areas will be more susceptible to color changes caused by UV fading. Warranties for Special Color membranes do not cover fading of colors.

WHY CHOOSE A VERSIWELD TPO METAL RETROFIT SYSTEM?

Metal buildings are often chosen because of their cost-effective design and speed of construction. However, when the metal roof begins to leak and deteriorate replacement can be very costly. With decades of experience in single-ply roofing, Versico Roofing Systems has a wide range of metal retrofit options.

Versico's VersiWeld TPO can be installed over an existing standing seam metal roof to offer proven, long-lasting protection while increasing the energy efficiency of the building. This solution can be more cost effective than replacing the metal roof while proving to be a much longer-term solution compared to coatings.



Convenience, value, and performance are three critical considerations when it comes to the success of any re-roofing project. A VersiWeld TPO Metal Retrofit System offers the following features and benefits:

Convenience



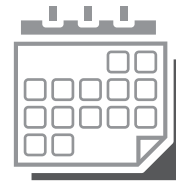
Installs directly over the existing metal roof eliminating costly and disruptive removal and replacement.

Value



Highly reflective TPO membranes offer additional energy savings.

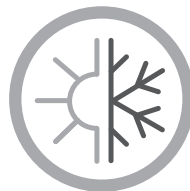
Performance



TPO's proven history of long-term performance provides a lasting solution compared to coatings and spray-applied restoration products.



Multiple membrane and insulation options to meet a variety of performance, budget, and efficiency needs.

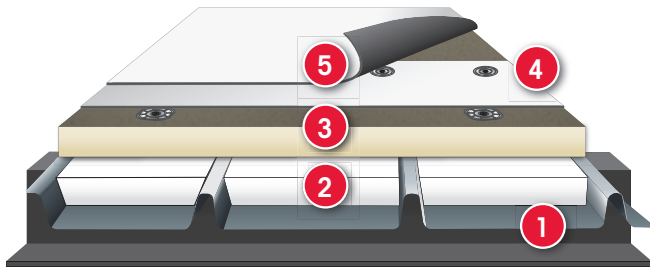


Improves R-value and energy efficiency of the building while reducing noise for occupants.



Backed by Versico's industry-leading Total System Warranty for up to 20 years, with optional hail, puncture and reflectivity warranties available upon request.

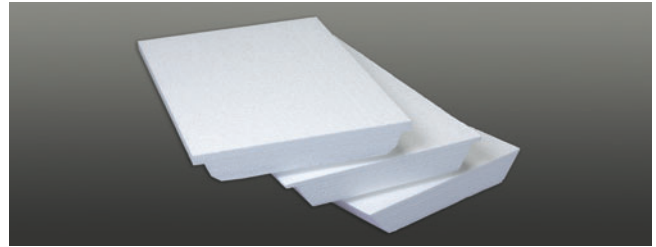
INSTALLING TPO METAL RETROFIT SYSTEMS



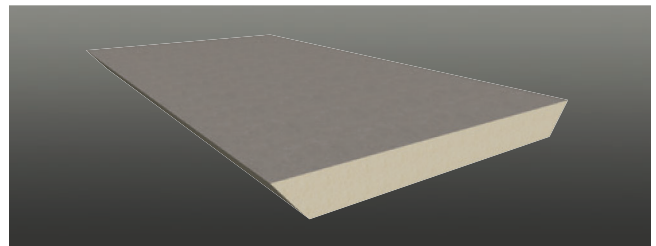
1 Existing Standing Seam Metal Roof

2 Flute Fill Insulation: a key component of a metal retrofit system is the addition of custom-fit insulation between the standing seams of the metal roof panels. Versico offers both EPS (expanded polystyrene – shown) and Polyiso flute-fill insulation that can be factory cut to fit between each metal panel. This insulation layer also adds R-value and can be loose-laid or adhered.

3 Additional insulation: once flute-fill has been installed, additional insulation ranging from a ¼-inch cover board to several inches of Polyiso insulation can be installed to create a smooth flat substrate for the membrane. Adding thicker Polyiso insulation and cover boards can add additional R-value to the system. Using a high-compressive strength Polyiso cover board or gypsum cover board can also enhance impact resistance and fire resistance.



EPS Flute Fill



Polyiso Flute Fill

4 Attachment: the VersiWeld TPO membrane can be mechanically attached using fasteners and plates, attached using induction welding plates, or fully adhered using a TPO bonding adhesive. See the back cover for more information on each attachment method.

5 VersiWeld TPO Membrane: the adjoining TPO membrane sheets are hot-air welded together using an approved hot-air welder.



ACCESSORIES & ADHESIVES



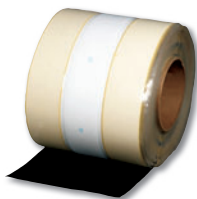
Non-Reinforced Flashing



Pressure-Sensitive Coverstrip



Yellow Pressure-Sensitive Warning Strip



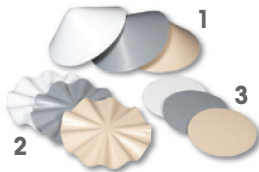
Pressure-Sensitive RUSS



Split Pipe-Seals



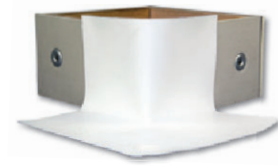
Molded Pipe Seals



1-TPO Inside Corners
2-TPO Outside Corners
3-TPO T-Joint Covers



Molded Sealant Pockets



Curb Wrap Corners



Universal Corners



TPO Rib Profile



TPO Bonding Adhesive



CAV-GRIP® 3V Low-VOC Adhesive/Primer



Low-VOC Primer

10 THINGS TO CONSIDER WHEN INVESTING IN A TPO ROOFING SYSTEM

- 1 Experience and Innovation:** Versico has led the industry in TPO research and development for over 20 years. Billions of square feet of TPO membrane have been installed on rooftops across the globe. That's more than any other manufacturer.
- 2 Weathering Package:** Versico's TPO membrane is enhanced with OctaGuard XT Weathering Package which results in the most dependable, long-term performance characteristics in the industry.
- 3 Seam Strength:** Independent tests show that Versico's TPO membrane exhibits far stronger seams than competing products. That means better wind uplift performance and fewer leaks.
- 4 Weldability:** VersiWeld TPO membranes can be welded at the widest temperature and humidity ranges resulting in strong welds without having to modify welder settings to compensate for changing climatic conditions.
- 5 Energy Efficiency:** Versico's White TPO membrane features an initial ENERGY STAR® solar reflectance of .79 and emissivity of .90.
- 6 Appearance:** a combination of our state-of-the-art manufacturing process and over 20 years of manufacturing experience creates a smoother top surface designed to resist dirt, debris, mildew and bacteria build-up. That means you get a cleaner, more solar reflective membrane throughout the life of your roof.
- 7 Diversity and Versatility:** Versico manufactures VersiWeld TPO membranes with a wide range of thicknesses, widths, lengths and colors, providing the ability to get the perfect TPO membrane for your roofing project.
- 8 Thickness over Scrim:** Versico's TPO features a typical thickness over scrim well above the ASTM minimum. This thickness leads to greater weathering resistance for added protection against solar heat and UV.
- 9 Warranties:** Versico's Total System warranties, as well as a large warranty reserve, reflect a commitment and ability to address any warranty issue.
- 10 Prefabricated Accessories:** Versico offers over a dozen prefabricated, in-stock, accessories and countless custom-order accessories. All carry a CFA (Certified Fabricated Accessory) stamp of approval, so you know they are manufactured to the highest standards.

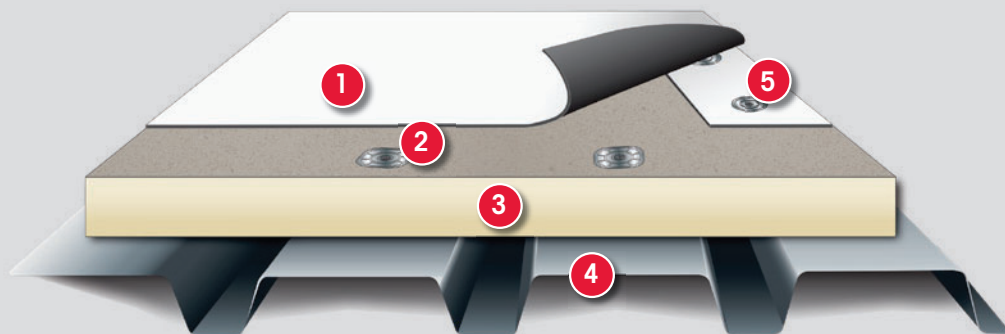


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Mechanically Attached Roofing System



Typical Application

- 1 VersiWeld® Reinforced TPO Membrane
- 2 Versico Insulation Fasteners and Plates
- 3 Acceptable Insulation
- 4 Approved Roof Deck
- 5 Membrane Fasteners and Plates

Colors	White, Gray and Tan
Standard Thicknesses	45-, 60- and 80-mil
Standard Widths	4', 6', 8', 10' and 12'
Standard Lengths	100'

System Features and Benefits

- Heat-weldable membranes
- High wind uplift performance
- Resistance to hail and accidental punctures
- Top ply membrane thickness adds improved long-term weatherability and durability
- White and tan membranes are ENERGY STAR qualified
- OctaGuard XT™ weathering package provides superior long-term performance

Installation

Versico's VersiWeld TPO Mechanically Attached Roofing System utilizes white, gray, or tan membranes in standard reinforced 45- or 60-mil thickness or 80-mil thick reinforced VersiWeld Plus membranes.

Insulation is mechanically attached to an acceptable roof deck. VersiWeld membrane sheets are mechanically attached to the deck with appropriate Versico fasteners and plates. Adjoining sheets are overlapped and joined together with a minimum 1½"-wide hot-air weld.

The above information represents a typical Versico VersiWeld TPO Mechanically Attached Roofing System. Refer to Versico's published specifications and details for more complete information.

VersiWeld TPO Membrane

Versico's VersiWeld TPO is a premium, heat-weldable, single-ply thermoplastic polyolefin membrane, engineered to provide outstanding long-term performance in new roof construction and re-roofing applications. All VersiWeld TPO membranes utilize the patented OctaGuard XT weathering package technology, which is able to withstand extreme durability testing intended to simulate exposure to several climates.





Optional APEEL Protective Film

- APEEL Protective Film guards the TPO membrane's surface from scuffs and dirt accumulation during installation, improving the roof system's appearance and long-term performance.
- APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat-and UV-resistance.



System Codes

- UL Class A, B and Universal Slope ratings are available over any deck type
- FM Uplift values up to 135 psf can be achieved

For code specifics, refer to Versico's Code Approval Guide.

Warranty

Consult your Authorized Contractor, Versico Independent Sales Representative or Distributor for associated warranty charges.

Versico's VersiWeld TPO systems are backed by our industry leading Total System Warranty. Five to thirty year total system warranties are available with optional hail, puncture and reflectivity warranties available upon request.

VersiWeld TPO Accessories

Versico also offers over a dozen prefabricated, in-stock, standard-order accessories, and countless custom-order accessories. All carry a CFA (Certified Fabricated Accessory) stamp of approval, so you know they are manufactured to the highest standards. Every Versico CFA-approved accessory saves time and money during installation.



OCTAGUARD XT
WEATHERING PACKAGE



Existing or New Deck Type	New Construction						Re-roofing		
	Steel	Plywood or OSB	Lt. Wt. Concrete	Structural Concrete	Wood Planks	Gypsum & Fibrous Cement	Smooth-Surface BUR	Gravel-Surfaced BUR	Existing Single-Ply
Insulation Required	Yes	No	Refer to Specs**	No	Yes	Yes	No	Yes	Refer to Specs**
Recommended Insulations	Approved Versico insulation or cover board								
Insulation Attached By	Versico fasteners and plates								
Membrane Attached By	HPVX Fasteners; HPV-XL Fasteners	HPVX Fasteners; HPV-XL Fasteners	Gyptec Fasteners/ Plates	CD-10; MP 14-10 Fasteners	HPVX Fasteners	Gyptec Fasteners/ Plates			

FOR TEAR-OFF OPTIONS REFER TO NEW CONSTRUCTION ABOVE.

For current code approvals and warranties, visit Versico's website or contact a design analyst.

** Refer to Versico's VersiWeld Design Criteria Portion of the Current Specification.



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MEMBRANE MATERIAL WARRANTY

DATE OF ISSUE:
WARRANTY NO.:
NAME OF BUILDING:
BUILDING ADDRESS:

Subject to the following terms and conditions, Versico, a division of Canale Construction Materials Incorporated (VERSICO) warrants to the Buyer that the membrane material (MEMBRANE) sold to the Buyer will be free from manufacturing defects at the time of its delivery to the job site.

If upon inspection by Versico, the Membrane evidences manufacturing defects, Versico's liability and Buyer's remedies are limited, at Versico's option, to the repair or replacement of the defective membrane at the F.O.B. point in the original contract of sale.

Versico further warrants that the Membrane material will not prematurely deteriorate to the point of failure because of weathering for a period of -- years from the date of sale if properly installed, maintained and used for the purpose for which Versico intends it to be used.

Buyer shall give Versico notice of a claim under this warranty within thirty (30) days of discovering the premature deterioration of the Membrane.

If upon inspection by Versico, the Membrane shows premature deterioration because of weathering within the -- year period stated herein, Versico's liability and Buyer's remedies are limited at Versico's option to the providing of repair material for the original Membrane or credit to be applied towards the purchase of a new Membrane, the value of these remedies being determined by Versico based upon the number of remaining months of the unexpired warranty used to prorate at the current prices for the Membrane. The maximum prorated value allowed by Versico for repair or credit shall not exceed the original Membrane purchase price.

This warranty refers to the membrane material only. Flashings, adhesives and other accessories contained in a membrane system are not covered by this warranty.

Versico shall not be responsible for the cleanliness or discoloration of the membrane material caused by environmental conditions including, but not limited to, dirt, pollutants or biological agents.

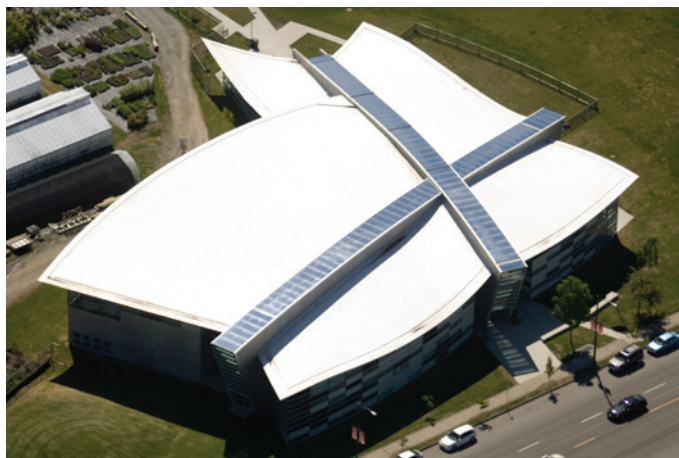
NO REPRESENTATIVE OF VERSICO HAS AUTHORITY TO MAKE ANY REPRESENTATIONS OR PROMISES EXCEPT AS STATED HEREIN.

THERE ARE NO WARRANTIES EITHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THE WARRANTIES CONTAINED IN THIS DOCUMENT. VERSICO SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS OR DAMAGES TO THE STRUCTURE OR ITS CONTENTS ARISING UNDER ANY THEORY OF LAW WHATSOEVER.

BY: Lorraine Russ

AUTHORIZED SIGNATURE
TITLE: General Manager

VersiWeld® TPO Reinforced Membrane



Overview

Versico's VersiWeld TPO reinforced membrane is a premium, heat-weldable, single-ply thermoplastic polyolefin (TPO) sheet designed for new roof construction and re-roofing applications. VersiWeld High Slope (HS) membrane is formulated with additional flame retardant for higher-slope fire code approvals. VersiWeld Plus is 80-mils (2.03 mm) thick for significantly higher strength and weatherability.

VersiWeld TPO membranes use advanced polymerization technology that combines the flexibility of ethylene-propylene (EP) rubber with the heat weldability of polypropylene. All VersiWeld TPO membranes include OctaGuard XT™, an industry-leading, state-of-the-art weathering package. OctaGuard XT technology enables VersiWeld TPO to withstand the extreme weatherability testing intended to simulate exposure to severe climates.

Physical properties of the membrane are enhanced by a strong polyester fabric that is encapsulated between the TPO-based top and bottom plies. The combination of the fabric and TPO plies provides high breaking and tearing strength, as well as excellent puncture resistance. The relatively smooth surface of the membrane produces a total surface fusion weld that results in consistent, watertight, monolithic roof assembly. The membrane is environmentally friendly and safe to install.

VersiWeld TPO standard and HS membranes are available in highly reflective white, tan and gray, in both 45-mil (1.14 mm) and 60-mil (1.52 mm) thicknesses. 80-mil (2.03 mm) VersiWeld Plus (including HS) is also offered in white, gray and tan colors. Special Color VersiWeld HS TPO membranes are also available (see Versico's TPO Color Palette brochure). Versico's TPO is offered in 4- and 6-ft (121.92 cm and 182.88 cm) perimeter sheets and 8-, 10- and 12-ft (243.84 cm, 304.80 cm, and

Labor Saving Features and Benefits: Optional APEEL™ Protective Film

Versico's VersiWeld TPO reinforced membrane is available with APEEL Protective Film, saving time and labor by eliminating the need for roof cleaning upon project completion. Versico's innovative APEEL Protective Film can be left in place for up to 90 days without affecting the integrity of the film, guarding the TPO membrane's surface from scuffs and dirt accumulation during installation. Durable and easy to remove, APEEL Protective Film improves aesthetics and long-term reflectivity and is ideal for re-roofing, re-cover, and new construction projects.



365.76 cm) field sheets. VersiWeld special color HS TPO membranes are available in limited sizes.

Versico's tan and white TPO membranes are ENERGY STAR®-qualified and California Title 24 compliant and can contribute toward LEED® (Leadership in Energy and Environmental Design) credits.

Features and Benefits

- Outstanding puncture resistance
- Excellent fire resistant assemblies
- Environmentally friendly and stable formulation
- Excellent resistance to impact and low temperature
- Excellent chemical resistance to acids, bases and restaurant exhaust emissions
- UL 2218 Class 4 hail rating
- Exceptional resistance to heat, solar UV, ozone and oxidation
- Manufactured using a hot-melt extrusion process for complete scrim encapsulation
- 100% recyclable (refer to Versico's Recyclability Statement)
- Enhanced with the OctaGuard XT weathering package
- APEEL Protective Film guards the TPO membrane's surface from scuffs and dirt accumulation during installation, improving the roof system's appearance and long-term performance
- APEEL Protective Film can be left in place for up to 90 days without degrading due to its excellent heat- and UV-resistance



VersiWeld TPO Reinforced Membrane

Installation

1. VersiWeld TPO roofing systems are quick to install, as minimal labor and few components are required. TPO systems are installed using an automatic heat welder, making sheet welding fast, clean, consistent, and easy to learn, while reducing strain on the roofing technician.
2. APEEL Protective Film should be removed from within areas that are to be heat-welded together. In areas that do not require heat-welding, the APEEL Protective Film can be left in place for up to 90 days. When the installation of the entire TPO roofing system is complete, remove and discard the APEEL Protective Film.

Mechanically Attached Roofing System

1. The Versico Mechanically Attached Roofing System installation starts by fastening the insulation with a minimum of 4 fasteners per 4' by 8' (121.90 cm by 243.84 cm) board. The membrane is mechanically fastened to the deck using HPVX Fasteners and HPVX Plates or HPV-XL Fasteners and HPV-XL Plates. Adjoining sheets of membrane are overlapped over the fasteners and plates and joined together with a minimum 1½"-wide (4 cm) hot-air weld.

Fully Adhered Roofing System

1. The Versico Fully Adhered Roofing System installation begins by fastening the insulation at the required density necessary to meet the appropriate warranty or wind load requirement. The substrate and membrane are coated with an appropriate VersiWeld TPO bonding adhesive and the membrane is rolled into place.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Sunglasses that filter out ultraviolet light are strongly recommended as tan and white surfaces are highly reflective. Roofing technicians should dress appropriately and wear sunscreen.
- Surfaces may become slippery due to frost and ice buildup. Exercise caution during cold conditions to prevent falls.
- Care must be exercised when working close to a roof edge when surrounding area is snow-covered as the roof edge may not be clearly visible.
- Use proper stacking procedures to ensure sufficient stability of the rolls.
- Exercise caution when walking on wet membrane. Membranes may be slippery when wet.
- Store membrane in the original undisturbed plastic wrap in a cool, shaded area and cover the light-colored, breathable, waterproof tarpaulins. Membrane that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.
- Take care not to stand or place heavy objects on the edge of folded-over membrane, as this could cause a hard crease in the membrane.
- Maximum sustained temperature not to exceed 160°F (71°C) for TPO membrane.
- Do not use razor blades or other sharp tools to cut the APEEL Protective Film while it is still adhered to the TPO membrane as damage to the underlying membrane may occur. Pull the protective film away from the membrane prior to cutting.
- Remove APEEL Protective Film by pulling toward the center of the roof. Do not remove the film by pulling toward the roof edge.
- A static electric charge may develop when removing APEEL Protective Film from the surface of the membrane sheet. To avoid the possibility of ignition, lids must be closed on any flammable products and a fire extinguisher should be readily available.
- Color membranes will 'fade' over time mainly due to the ultraviolet portion of sunlight. Since most roof surfaces are exposed to variable sunlight, some areas will be more susceptible to color changes caused by UV fading. Warranties for color membranes do not cover fading of colors.

VersiWeld TPO Reinforced Membrane

Extreme Testing for Severe Climates

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the scope of the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." Versico's goal is to produce TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM D6878.

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Versico Extreme Testing - Heat Aging

		ASTM Requirement	VersiWeld Requirement
ASTM Test	240°F	32 weeks*	>128 weeks

* Heat exposure comparable to 3,120 weeks (60 years) at 185°F for 8 hours/day.

- Test specimen is 2" by 6" (50.8 mm by 152.4 mm) piece of 45-mil (1.14 mm) membrane unbacked, placed in a circulating hot-air oven.
- Criterion - no visible cracks after bending aged test specimen around 3" (76.2 mm)-diameter mandrel.

Q-Trac testing combines accelerated weathering with real world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. Versico requires its VersiWeld TPO membranes to pass the equivalent of 40 years of exposure in the Q-Trac.

Versico Extreme Testing - Q-TRAC

ASTM Test	ASTM D6878 Requirement	VersiWeld Requirements
N/A	N/A	Equivalent of 40 years of exposure

Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion and xenon-arc exposure.

- ASTM requirement - none
- Versico EXTREME test*:
 - 10 days heat aging at 240°F (116°C) followed by
 - 5 days water immersion at 158°F (70°C) followed by
 - 5,040 kJ/m² (2000 hrs at 0.70 W/m² irradiance) xenon-arc exposure

*Test specimen is 2.75" by 5.5" (69.85 mm by 140 mm) piece of membrane with edges sealed.

*Criterion - after 3 complete cycles, test specimens shall remain flexible and not have any cracking under 10x magnification while wrapped around a 3" (76.2 mm)-diameter mandrel.

Supplemental Approvals, Statements and Characteristics:

1. VersiWeld TPO meets or exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.
2. Radiative properties for ENERGY STAR, Cool Roof Rating Council (CRRC) and LEED.
3. VersiWeld TPO membranes conform to requirements of the US E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
4. VersiWeld TPO was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 45-mil (1.14 mm) was watertight after an impact energy of 12.5 J (9.2 ft-lbf) and 60-mil (1.52 mm) was watertight after 22.5 J (16.6 ft-lbf). The 80-mil (2.03 mm) was watertight after an impact energy of 30.0 J (22.1 ft-lbf).
5. NSF-P151 Certification for rainwater catchment system components.
 - Plant 91/White Only

VersiWeld TPO Reinforced Membrane

Typical Properties and Characteristics

Physical Property	ASTM D6878 Requirement	45-mil (1.14 mm)	60-mil (1.52 mm)	80-mil (2.03 mm)
Tolerance on nominal thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness over scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typ (0.457)	0.024 typ (0.610)	0.034 typ (0.864)
Breaking strength, lbf (kN) ASTM D751 grab method	220 (976 N) min	225 (1.0) min 320 (1.4) typical	250 (1.1) min 360 (1.6) typical	350 (1.6) min 425 (1.9) typical
Elongation break of reinforcement, % ASTM D751 grab method	15 min	15 min 25 typ	15 min 25 typ	15 min 25 typ
Tearing strength, lbf (N) ASTM D751 proc. B 8 in. x 8 in.	55 (245) min	55 (245) min 130 (578) typ	55 (245) min 130 (578) typ	55 (245) min 130 (578) typ
Brittleness point, °F (°C) ASTM D2137	-40 (-40) max	-40 (-40) max -50 (-46) typ	-40 (-40) max -50 (-46) typ	-40 (-40) max -50 (-46) typ
Linear dimensional change, % ASTM D1204, 6 hours at 158°F	± 1 max	± 1 max -0.2 typ	± 1 max -0.2 typ	± 1 max -0.2 typ
Ozone Resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs	PASS	PASS	PASS	PASS
Water absorption resistance, mass % ASTM D471 top surface only 166 hours at 158°F water	± 3.0 max	± 3.0 max 0.9 typ	± 3.0 max 0.9 typ	± 3.0 max 0.9 typ
Factory seam strength, lbf (N) ASTM D751 grab method	66 (290) min	66 (290) min	66 (290) min	66 (290) min
Field seam strength, lbf/in (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 50 (8.8) typ	25 (4.4) min 60 (10.5) typ	40 (7.0) min 70 (12.3) typ
Water vapor permeance, Perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typ	0.10 max 0.05 typ	0.10 max 0.05 typ
Puncture resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min 325 (1.4) typ	300 (1.3) min 350 (1.6) typ	400 (1.8) min 450 (2.0) typ
Properties after heat aging ASTM D573, 32 weeks @ 240°F or 8 weeks @ 275°F No cracking when bent around 3" diameter mandrel Weight change, %	PASS No cracking ± 1.5 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max	PASS No cracking 1.0 max
Typical Weights, lb/ft ² (kg/m ²)		0.23 (1.1)	0.29 (1.4)	0.40 (2.0)

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 range for any particular property of this product.

VersiWeld TPO Reinforced Membrane

LEED® Information

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT Carlisle, PA
Solar Reflective Index (SRI)	White: 99 Tan: 86

Radiative Properties for ENERGY STAR® and LEED

	Test Method	White TPO	Tan TPO	Gray TPO
ENERGY STAR initial solar reflectance	Solar Spectrum Reflectometer	0.79	0.71	N/A
ENERGY STAR initial solar reflectance after 3 years	Solar Spectrum Reflectometer (uncleaned)	0.70	0.64	N/A
CRRC initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.64	0.43
CRRC initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED thermal emittance	ASTM E408	0.9	0.86	0.85
Solar Reflectance Index (SRI) initial	ASTM E1980	99	86	53
Solar Reflectance Index (SRI) 3 years aged		85	77	48

Radiative Properties (Initial) for Special Colors

	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

DensDeck® Roof Board



Overview

DensDeck Roof Board's patented design features a gypsum core with embedded glass mat facers on the top and bottom of the board. DensDeck can be used in a variety of commercial roof systems and provides an excellent thermal barrier as well as exceptional fire, moisture, and wind uplift resistance properties.

DensDeck is primarily used as a cover board over insulation in mechanically fastened roofing applications. Frequently used in wood deck construction to achieve UL code ratings. DensDeck reduces the potential for growth of mold and mildew per ASTM D 3273.

Features and Benefits

- UL code ratings available for (class A, B, C) unlimited slopes and wood decks
- FM Approved
- Improves resistance to foot traffic and hail damage
- Excellent wind uplift ratings
- Resistant to deterioration, warping, and jobsite damage
- 5/8" DensDeck can replace any generic Type "X" gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P"

Installation

DensDeck may be secured with Flexible DASH™ Adhesive, fastened in accordance with an approved fastening pattern, or mopped with Type III or IV asphalt.

Maximum asphalt application temperatures of 425°F (218°C) to 450°F (232°C) are recommended. Application temperatures above these recommended temperatures may adversely affect roof system performance.

Edge joints should be located on and parallel to deck ribs. End joints of adjacent lengths should be staggered.

1. This material shall be installed with ends and edges butted tightly.
2. When installed over combustible wood decks or insulations, all joints should be staggered.
3. In accordance with approved shop drawings, FM Approved fasteners shall be installed with plates through the roof board, flush with the surface.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Panels must be kept dry before, during and after installation. Apply only as much roof board as can be covered by roof membrane in the same day.
- 1/4" DensDeck is not recommended for vertical parapet applications or for asphalt attachment.
- In ballasted roofing systems, DensDeck is not an acceptable membrane underlayment.

Ratings and Certifications

- Manufactured to conform to ASTM C-1177
- Tested in accordance with ASTM E-84 or CAN/ULC-S102
- Non-combustible when tested in accordance with ASTM E-136
- UL code approval for current class A, B, C approvals

DensDeck Roof Board

Typical Properties and Characteristics

Properties	¼" (6.4 mm)	½" (12.7 mm)	¾" (15.9 mm)
Thickness, nominal	¼" (6.4 mm) ± ⅛" (1.6 mm)	½" (12.7 mm) ± ⅛" (1.6 mm)	¾" (15.9 mm) ± ⅛" (1.6 mm)
Width, standard	4' (1219 mm) ± ⅛" (3 mm)	4' (1219 mm) ± ⅛" (3 mm)	4' (1219 mm) ± ⅛" (3 mm)
Length, standard	8' (2438 mm) ± ¼" (6.4 mm)	8' (2438 mm) ± ¼" (6.4 mm)	8' (2438 mm) ± ¼" (6.4 mm)
Weight, nominal, lbs./sq. ft. (Kg/m²) ⁷	1.2 (5.9)	2.0 (9.8)	2.5 (12.2)
Surfacing	Fiberglass mat	Fiberglass mat	Fiberglass mat
Flexural Strength ¹ , parallel, lbf. min. (N)	≥ 40 (178)	≥ 80 (356)	≥ 100 (444)
Flute Spanability ²	2⅝" (67 mm)	5" (127 mm)	8" (203 mm)
Permeance ³ , perms (ng/Pa • S • m²)	> 50 (2850)	> 35 (1995)	> 32 (1824)
R Value ⁴ , ft² • °F • hr/BTU (m² • K/ W)	0.28	0.56	0.67
Linear Variation with Change in Temp., in/in °F (mm/mm/°C)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)
Linear Variation with Change in Moisture	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶
Water Absorption ⁵ , % max	5	5	5
Compressive Strength ⁶ , psi nominal	900	900	900
Surface Water Absorption, grams, nominal ¹	1.0	1.0	1.0
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	5' (1524 mm)	8' (2438 mm)	12' (3658 mm)

¹ Tested in accordance with ASTM C473 method B.

² Tested in accordance with ASTM E661.

³ Tested in accordance with ASTM E96 (dry cup method).

⁴ Tested in accordance with ASTM C518 (heat flow meter).

⁵ Tested in accordance with ASTM C1177.

⁶ Tested in accordance with ASTM C473.

⁷ Represents approximate weight for design and shipping purposes. Actual weight may vary based on manufacturing location and other factors.

LEED® Information

Manufacturing Location ¹	Total Recycled Content ²	Pre-Consumer Recycled Content ²	Post-Consumer Recycled Content ²
Acme, TX	0%	0%	0%
Antioch, CA	0%	0%	0%
Ft. Dodge, IA	0%	0%	0%
Las Vegas, NV	0%	0%	0%
Lovell, WY	0%	0%	0%
Newington, NH	30%	30%	0%
Savannah, GA	0%	0%	0%
Tacoma, WA	14%	14%	0%
Wheatfield, IN	94%	94%	0%

¹ Manufacturing locations subject to change. Please visit www.gpgypsum.com and click on Sustainability.

² Recycled content subject to change +/- 1.0%.

³ Based on ICC Evaluation Service Verification of Attributes Report for Dens® brand products issued August 1, 2009. www.saveprogram.icc-es.org

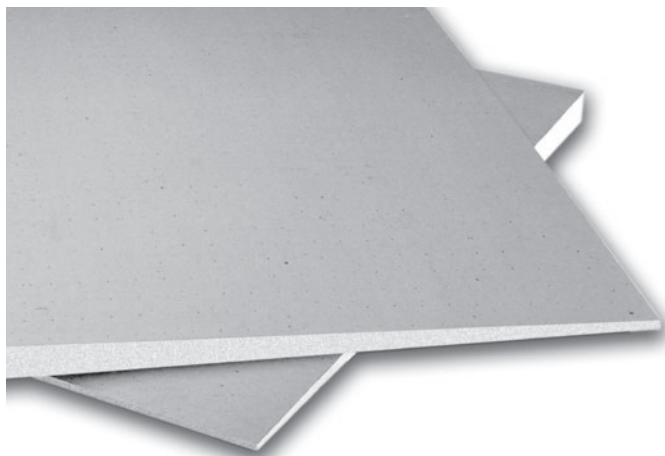


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VersiCore® Tapered Polyiso



Overview

VersiCore Tapered is a sloped rigid roof insulation panel composed of a closed cell polyisocyanurate foam core bonded to glass reinforced felt (GRF) facers.

Features and Benefits

- VersiCore 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

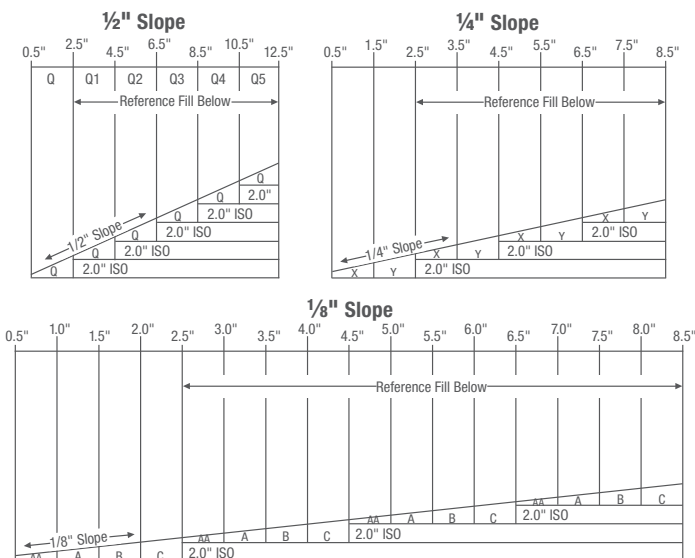
Panel Characteristics

- Available in 4' x 4' (1220 mm x 1220 mm) in thickness of 1/2" (12 mm) minimum to 4.5" (115 mm) maximum
- Available slopes (per foot):
 - 1/16" (2 mm)
 - 1/8" (3 mm)
 - 3/16" (5 mm)
 - 1/4" (6 mm)
 - 3/8" (10 mm)
 - 1/2" (12 mm)

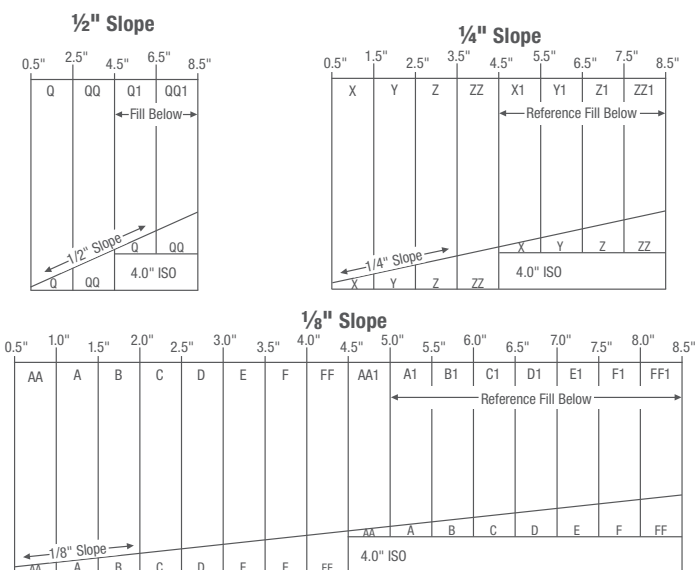
Applications

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

Standard Panel Profiles



Extended Panel Profiles



VersiCore Tapered Polyiso

Installation

Ballasted Single-Ply Systems

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

Mechanically Attached & Fully Adhered Single-Ply Systems

Secure each VersiCore Tapered panel to the roof deck with Versico's Flexible DASH adhesive or the appropriate plate and fastener. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Codes and Approvals

- ASTM C1289, Type II, Class 1, Grade 2 (20 psi), Grade 3 (25 psi)
- International Building Code (IBC) Section 2603
- UL Standard 790, 263 and 1256: Component of Class A Roof Systems (refer to UL Roof Materials' system director)
- CAN/ULC S704, Type 2 & 3, Class 2
- Third-party certification with the PIMA Quality Mark for Long-Term Thermal Resistance (LTTR) values
- FM® Standards 4450/4470: Class 1 approval for steel roof-deck constructions (refer to FM RoofNavSM)
- FLORIDA BUILDING CODE APPROVAL FL#1296
- MIAMI-DADE COUNTY, FLORIDA NOA NO: 04-1018.01

Precautions

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. Versico will not be responsible for specific building and roof design by others, for deficiencies in construction or workmanship, for dangerous conditions on the jobsite 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 Versico for more specific details, or refer to PIMA Technical Bulletin No. 109: Storage & Handling Recommendations for Polyiso Roof Insulation.

Typical Properties and Characteristics

Property	Test Method	Value
Compressive Strength	ASTM D1621 ASTM 1289	20 psi minimum (138 kPa, Grade 2)
Dimensional Stability	ASTM D2126	2% linear change (7 days)
Moisture Vapor Transmission	ASTM E96 12.10	<1 perm (57.5ng/(Pa•s•m²))
Water Absorption	ASTM C209	<1% volume
Service Temperature		-100° to 250°F (-73°C to 122°C)

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 range for any particular property of this product.



Foamed plastic as roof deck construction material with resistance to an internal fire exposure only for use in construction no.(s) 120 and 123. See UL Directory of Products Certified for Canada and UL Roofing Materials and Systems Directory. 99DL.

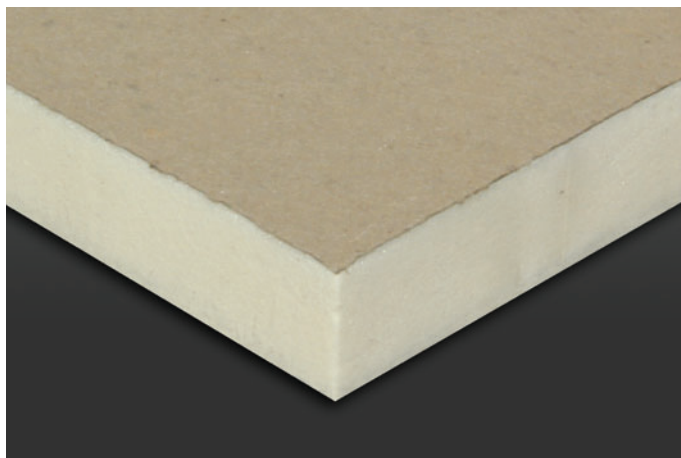


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VersiCore® Polyiso



Overview

VersiCore is a rigid-roof insulation panel composed of a closed-cell polyisocyanurate foam core bonded on each side to glass-reinforced felt (GRF).

Features and Benefits

- VersiCore 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' x 4' (1220 mm x 1220 mm) and 4' x 8' (1220 mm x 2440 mm) panels in thickness of 1/2" (13 mm) to 4.5" (115 mm)

Applications

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

Installation

Ballasted Single-Ply Systems

Each VersiCore panel is loosely laid on the roof deck. Butt edges and stagger joints of adjacent panels. Install the roof membrane according to Versico's specifications.

Mechanically Attached Single-Ply Systems

VersiCore panels 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 Versico's specifications.

Fully Adhered Single-Ply Systems

VersiCore panels 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 Versico's specifications.

VersiCore 4' x 8' panels can be secured to the roof deck with Versico's Flexible DASH® Adhesive, either full coverage or bead spacing.

VersiCore 4' x 4' panels may be adhered to prepared concrete deck with a full mopping of Type III or IV asphalt.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Codes and Compliances

- ASTM C1289, Type II, Class 1, Grade 2 (20 psi), Grade 3 (25 psi)
- International Building Code (IBC) Section 2603
- UL Standard 790, 263 and 1256: Component of Class A Roof Systems (refer to UL Roof Materials' system directory)
- FM® Standards 4450/4470: Class 1 approval for steel roof-deck constructions (refer to FM RoofNavSM)
- California Code of Regulations, Title 24, Insulation Quality Standard License #TI-1418
- Third-party certification with the PIMA Quality Mark for Long-Term Thermal Resistance (LTTR) values
- CAN/ULC S704, Type 2 & 3, Class 3
- Florida Building Code Approval

Precautions

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. Protect installed product from excessive foot traffic. Versico 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 Versico for more specific details, or refer to PIMA Technical Bulletin No. 109: Storage & Handling Recommendations for Polyiso Roof Insulation.

VersiCore Polyiso

Typical Properties and Characteristics

Physical Property	Test Method	Value
Compressive Strength	ASTM D1621	20 psi* minimum (138 kPa, Grade 2)
Dimensional Stability	ASTM D2126	2% linear change (7 days)
Moisture Vapor Permeance	ASTM E96	<1 perm (57.5 ng/(Pa•s•m ²))
Water Absorption	C1763	<1% volume

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 range for any particular property of this product.

*Also available in 25 psi minimum, Grade 3



Foamed plastic as roof deck construction material with resistance to an internal fire exposure only for use in construction no.(s) 120 and 123. See UL Directory of Products Certified for Canada and UL Roofing Materials and Systems Directory. 99DL.



VersiCore Polyiso Thermal Values

Thickness (inches)	LTTR R-value	Thickness (inches)	LTTR R-value
0.5	2.8	2.75	15.9
0.75	4.2	2.8	16.2
1	5.7	2.9	16.8
1.1	6.3	3	17.4
1.2	6.8	3.1	18
1.25	7.1	3.2	18.6
1.3	7.4	3.25	18.9
1.4	8	3.3	19.2
1.5	8.6	3.4	19.9
1.6	9.1	3.5	20.5
1.7	9.7	3.6	21.1
1.75	10	3.7	21.7
1.8	10.3	3.75	22
1.9	10.8	3.8	22.3
2	11.4	3.9	23
2.1	12	4	23.6
2.2	12.6	4.1	24.2
2.25	12.9	4.2	24.9
2.3	13.2	4.25	25.2
2.4	13.8	4.3	25.5
2.5	14.4	4.4	26.1
2.6	15	4.5	26.8
2.7	15.6	—	—

Flute Spanability is 2%* for 1.4" or thickness or smaller. Flute Spanability is 4%* for 1.5" thickness or greater.



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Insulation Fastening Plates



Typical Properties and Characteristics

Property	Value
Size	3" Round
Weight/Carton	37 lbs.
Quantity	1000 / Carton
Material	Galvalume-Coated Steel
Thickness	26 Gauge
Corrosion Resistance	Galvalume-Coated Steel meets the FM 4470 test

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 range for any particular property of this product.

Overview

Versico Insulation Fastening Plates are specifically designed for attachment of insulation and cover boards under Versico roofing systems. Insulation Fastening Plates are stamped from Galvalume®-coated steel for long-term protection against corrosion. The round design provides an even distribution of loads and eliminates sharp corners that can damage insulation.

Installation

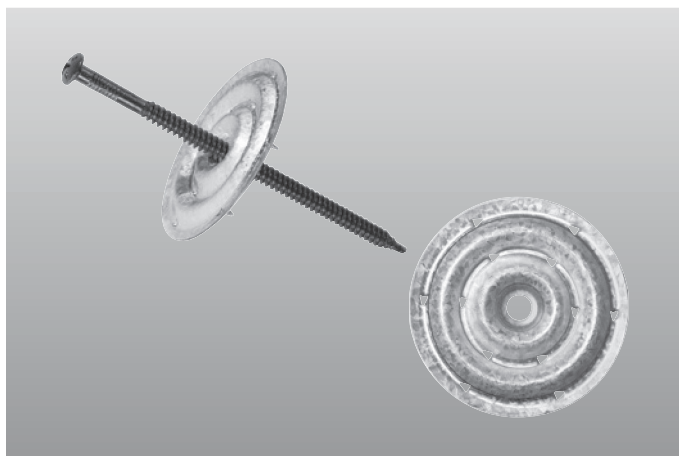
1. Position insulation plates per Versico Specifications.
2. Secure insulation plates using the appropriate Versico fastener.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Eye protection is recommended during drilling and installation of fasteners.

HPVX Fasteners and HPVX Plates



Overview

Versico HPVX Fasteners are used with HPVX Fastening Plates to secure mechanically attached VersiWeld® TPO and VersiFlex™ PVC roofing systems to 20- and 22-gauge steel decks or minimum 1⁵/₃₂" CDX plywood decks. HPVX Fasteners are #15 steel-threaded fasteners that offer excellent driving and pull-out performance and outstanding resistance to back-out and corrosion. HPVX Plates are 2 3/8"-diameter, 20-gauge steel plates with 12 barbs that provide increased slip resistance of membrane during uplift conditions.

Features and Benefits

- One #3 Phillips screwdriver bit included in each bucket
- 12 threads/inch increases thread engagement for additional back-out resistance
- Mini drill-point design cuts hole in the steel deck, maintaining contact between deck and the minor diameter of the fastener for increased back-out resistance
- Black epoxy electro-deposition coating provides excellent corrosion resistance, surpassing FM 4470 corrosion test of less than 15% red dust after 15 cycles in the Kesternich cabinet.

Installation

No pre-drilling is necessary for wood and steel decks. Simply insert the HPVX Fastener through the HPVX Plate and install with a standard clutch drive electric screw gun (0-2500 rpm). Optimum fastener performance is achieved when the fastener is installed perpendicular to and into the top flutes of a steel deck.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Eye protection is recommended during installation.
- Use care to avoid over-torquing the fastener.

Typical Properties and Characteristics

	Steel Deck (20- or 22-Gauge)	Wood Deck (1 ⁵ / ₃₂ " CDX Plywood)
Typical Pull-out Value	710 lbf (3158 N) 22 gauge	375 lbf (1668 N)
Minimum Penetration	3/4" (19 mm)	1" (25 mm)
Maximum Penetration	4" (100 mm)	4" (100 mm)
Typical Static Back-out	15 in lbs (1.7 N-m)	N/A
Typical Drill Times	1.5 seconds (20 gauge)	N/A

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 range for any particular property of this product.

CAV-GRIP® 3V Adhesive/Primer



Overview

Versico's CAV-GRIP 3V is a low-VOC (<250 g/L), California-compliant, spray applied aerosol contact adhesive and primer used for a variety of applications: adhering standard TPO and EPDM membranes to horizontal and vertical surfaces, adhering VersiFleece membranes to vertical surfaces, as a primer for VapAir Seal 725TR, and as an unexposed asphalt primer for Flexible DASH. CAV-GRIP 3V is available in disposable/recyclable #40 size cylinders and in returnable/refillable #85 size cylinders.

CAV-GRIP 3V is applied using a self-contained spray system for quick and even coverage with an excellent open time and requires minimal clean-up or maintenance. A spray gun with an extension wand is available for field of roof applications and a standard spray gun is available for wall applications. **Please note: CAV-GRIP 3V, spray guns and hoses are each sold separately.**

Features and Benefits

- Excellent option for adhering TPO and EPDM to horizontal and vertical surfaces and all VersiFleece membranes to vertical surfaces
- Can be used in temperatures as low as 25°F (-4°C) when used as an adhesive and 15°F (-9°C) when used as a primer
- Easy setup
- Easy cleanup
- Low odor

Labor Saving Features and Benefits:

- Quick application with spray gun
- Fast flash-off and great open time
- No stirring
- Up to 60% labor savings compared to traditional bonding adhesive
- Compatible with 5' and 10' wide spray carts



Specifications

Membrane	Wall	Field
VersiWeld® TPO	✓	✓
VersiGard® EPDM	✓	✓
VersiFlex™ PVC	X	X
VersiFleece®	✓	X

Installation

1. Connect spray gun to hose and connect hose to cylinder. Use lithium grease or petroleum jelly on all fittings and be careful to avoid cross-threading. Open valve on cylinder to check fittings for leaks. **Keep cylinder valve open to maintain pressure in the hose/spray gun when not in use.**
2. CAV-GRIP 3V can be applied at ambient temperature of 25°F and above. **Propellant in cylinders must be kept above 70°F for the product to spray properly. Utilize power-heated blankets and hot boxes when necessary. Ensure that cylinder temperatures stay below 110°F.** Substrate shall be clean, dry, and free of debris and contaminants.
3. For applications taking place in ambient temperature below 70°F, store cylinders in heated space and move to project area during application. Cylinders must be kept warm on the jobsite. Dispense product from cylinder while it is still warm. When product in cylinder becomes too cold, it will begin to spit rather than spray. If this occurs, swap cold cylinder for warmer one and return cold cylinder to heated area. When changing cylinder, close the valve on the cylinder and depressurize the hose. Remove the hose and attach to the new cylinder. Open valve and do a test spray.
4. Apply CAV-GRIP 3V in an even coat to substrate (refer to the drawing on the next page), keeping the spray tip approximately 12" (30 cm) away and perpendicular to the surface during spray. Avoid high thickness buildup that can skin over, trap solvent, and create a blister.



CAV-GRIP 3V Adhesive/Primer

5. Allow heavy areas of CAV-GRIP 3V to flash-off until it does not transfer to your finger when touched and pushed. Limit application of CAV-GRIP 3V to surfaces that will be covered with membrane or Versico's VapAir Seal™ 725TR the same day.
6. Solvent flash-off can lower the surface temperature below the dew point causing moisture to form on the adhesive. Slide your hand across the flashed-off adhesive on the insulation or cover board to ensure moisture has evaporated and the adhesive surface is dry and tacky prior to installing the membrane.

Vertical Applications of Standard TPO, EPDM, or any VersiFleece membrane:

Acceptable substrates include: Versico's VersiCore MP-H® Polyiso, SecurShield® Polyiso, SecurShield HD, SecurShield HD Plus, InsulFoam SP, DensDeck® Prime, SECUROCK®, OSB, plywood, metal, residual asphalt, and clean concrete block. To improve adhesion and reduce the potential for asphalt bleed-through on vertical surfaces with residual asphalt, apply an initial "sealing" base coat of CAV-GRIP 3V and allow to flash off properly; then, apply a second coat of CAV-GRIP 3V to the vertical surface. Contact Versico before using on substrates other than those listed above.

There are no vertical height restrictions when using CAV-GRIP 3V.

1. Spray wall and back of the membrane, utilizing a 50% overlapping spray pattern.
2. Do not apply adhesive to splice areas.
3. Allow adhesive to flash-off so it does not transfer to fingers when touched and pushed.
4. Mate membrane with the wall from the center of the sheet towards the edges, smoothing by hand.
5. Broom the membrane with a soft-bristle broom.
6. Roll in with a hand roller or extendable floor roller.

Horizontal Application of Standard TPO or EPDM Membranes

Acceptable substrates include: Versico's VersiCore MP-H Polyiso, SecurShield Polyiso, SecurShield HD, SecurShield HD Plus, DensDeck Prime, SECUROCK, OSB, and plywood. Please see Versico's Specifications for a complete list of acceptable substrates.

The surface, on or against which adhesive is to be applied, shall be clean, smooth, dry, free of films, sharp edges, loose and foreign materials, oil and grease. Depressions greater than ¼" (6 mm) should be feathered, using epoxy, mortar or other approved patching material. All sharp projections shall be removed by sweeping, blowing or vacuum cleaning.

Application shall be continuous and uniform, avoiding globs or puddles.

1. Spray substrate and back of the membrane with enough overlap to ensure 100% coverage.
2. Do not apply adhesive to splice areas to be hot-air welded.
3. Allow heavy areas of adhesive to flash-off so the adhesive does not transfer to your finger when touched and pushed.
4. Roll the membrane onto the adhesive-coated substrate while avoiding wrinkles. **Immediately brush down the bonded portion of the sheet with a soft-bristle push broom and then roll the membrane with a weighted segmented roller to achieve maximum contact.**

CLEANUP: Versico's Low-VOC UN-TACK™ solvent or mineral spirits can be used to clean tools and surfaces. If the spray gun valve becomes stuck, attach hose and spray gun to cylinder of Citrus Cleaner or Low-VOC UN-TACK and trigger spray gun repeatedly until operation is smooth. If the spray gun is clogged, a small-gauge wire or torch clean-out tool is helpful after soaking the brass fitting in Low-VOC UN-TACK.

STORAGE: Store cylinders in protected, conditioned space with temperature maintained above 70°F. Do not store or heat cylinders where temperatures reach 110°F or higher. Contents are flammable. Store in accordance with local, state, and federal regulations. **Keep cylinder valve open to maintain pressure in the hose and spray gun.** Periodically spray in a safe manner to help prevent possible clogging. Keep spray gun trigger locked when not in use. Flush gun and hose with Low-VOC UN-TACK for long-term storage beyond 30 days.

Return Instructions for #85 Cylinders:

1. A minimum of 12 empty cylinders are required for a free return.
2. Arrange 12 empty #85 cylinders upright on a pallet.
3. Secure and shrink-wrap the entire pallet (including cylinders) to ensure safe shipment.
4. Call the 1-800 number listed on the #85 cylinder to schedule the pick-up of the pallet.
5. Please note: A forklift or loading dock is the preferred method to load the pallet onto the truck. If a forklift or loading dock is not available, discuss alternative methods when arranging the return.

CYLINDER DISPOSAL: When all adhesive/primer in the cylinder has been used, close cylinder valve and evacuate hose and spray gun before disconnecting hose from cylinder. If hose is not to be connected to a new cylinder immediately, do not evacuate hose and spray gun to ensure material does not harden in spray gun and hose. Clean up adhesive/primer residue, spray gun, and spray tips with Low-VOC UN-TACK or mineral spirits. In most areas, the empty cylinder can be disposed as an aerosol can or recycled as scrap metal. If disposal is not allowed in your area, contact your distributor for disposal arrangements. Federal law forbids transportation if refilled.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

CAV-GRIP 3V Adhesive/Primer

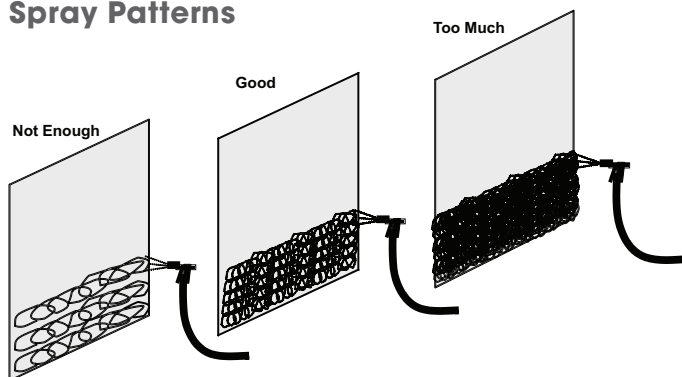
Precautions

CAV-GRIP 3V is a flammable liquid propellant and vapor. Vapors are heavier than air and may travel along the ground or may be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from the material handling point and flashback. Keep away from open flame. Use with adequate ventilation. Avoid inhalation of spray mist or vapors. Harmful or fatal if swallowed. May cause eye irritation. Keep out of reach of children. Review Safety Data Sheet for complete safety information prior to use. Use of goggles and gloves is required. #40 aerosol cylinders are not refillable and when empty are harmless and disposable. Dispose according to local codes and laws. Read safety precautions and warnings on cylinder label. Wear gloves and goggles before using this product. Do not aim spray gun at people or animals at any time. PPE Gloves must be used while handling material.

For industrial professional use only.

*Important note: cylinder, hoses, and gun are each sold separately

Spray Patterns



Proper Coverage on Membrane



Proper Coverage on Insulation

Packaging

Product	Size/Weight	Part Number
CAV-GRIP 3V	#40 Aerosol Cylinder Fill Weight: 30 lbs of adhesive	330420
CAV-GRIP 3V #85 (returnable cylinder)	#85 Cylinder Fill Weight: 60 lbs of adhesive	332800
6' Hose	6' Length	304302
12' Hose	12' Length	304303
18' Hose	18' Length	304304
Spray Gun with Extension	—	330912
Spray Gun - Adjustable	—	307490
Low-VOC UN-TACK	#8 Aerosol Cylinder	330793

Typical Properties and Characteristics

Physical Property	Typical Value
Color	Light Green
Consistency	Aerosol Spray
Spray Pattern	Variable Web
Odor	Low
Base	Rubber/Solvent Blend
Coverage Rate #40 Cylinder	1-Sided Primer - 2000-2500 ft ² when used with air and vapor barriers* 2-Sided Adhesive - Walls - 750 ft ² * 2-Sided Adhesive - Field - 1000 ft ² *
Coverage Rate #85 Cylinder	1-Sided Primer - 4000-5000 ft ² * 2-Sided Adhesive - Walls - 1500 ft ² * 2-Sided Adhesive - Field - 2000 ft ² *
Adhesion	Excellent
Flammability	Flammable when wet. Non-flammable when dry.
Water Resistance	Excellent
Mildew Resistance	Excellent
Shelf Life	12 months (unopened container)

* Approximate Coverage

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Lynchburg, VA
VOC	248 g/L

Low-VOC UN-TACK Adhesive Remover and Cleaner



Typical Properties and Characteristics

Color	Clear
Consistency	Aerosol Spray
Odor	Slight Solvent
VOC	33 g/l
Application Temperature	25°F to 100°F
Packaging	#8 Aerosol Cylinder
Part Number	330793

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 range for any particular property of this product. Versico's Low-VOC UN-TACK Adhesive Remover and Cleaner CANNOT be used to clean CAV-PRIME pressurized cylinders.

*For application procedures and precautions please see the Low-VOC UN-TACK Adhesive Remover and Cleaner Technical Data Bulletin.

Overview

Versico's Low-VOC UN-TACK Adhesive Remover and Cleaner is designed to remove adhesives from a variety of surfaces including single-ply membranes, accessories, metal, plastic, rubber, and glass. Low-VOC UN-TACK is used to clean spray guns and hoses when an opened CAV-GRIP 3V cylinder is going to be stored for more than 30 days.

Features and Benefits

- Clears clogged spray guns and hoses
- Allows easy cleanup of excess adhesive and overspray
- VOC Compliant in all 50 states

Coverage Rate

250–300 ft² surface area to be cleaned per Low-VOC UN-TACK cylinder.



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CLEAR CUT-EDGE SEALANT



Overview

Versico's Cut-Edge Sealant is a medium solids content, free-flowing, polymeric material to be used for sealing cut edges of VersiWeld™ Reinforced Membrane. It is available in clear for use with various colors of VersiWeld Membrane.

Versico Cut-Edge Sealant is used to seal cut edges of TPO Membrane, providing a waterproof barrier where scrim reinforcement is exposed.

Features and Benefits

- Provides excellent sealing of exposed fabric at cut membrane edges
- Squeeze-bottle packaging allows easy, no-mess application
- Available in clear for use with various colors of VersiWeld membrane

Coverage Rates

Approximately 115'–140' (35–45 m) per 8-oz. bottle when applied with 1/8" (3 mm) bead. Approximately 225'–275' (70–85 m) per 16-oz. bottle when applied with 1/8" (3 mm) bead.

Application

1. All surfaces to be sealed with Cut-Edge Sealant must be clean, dry and free from oil, grease, dirt and other foreign materials.
2. Apply a 1/8" (3 mm) bead of Cut-Edge Sealant from the plastic squeeze bottle to seal cut edges of reinforced VersiWeld Membrane. Do not apply Cut-Edge Sealant on vertical surfaces.
3. Sealant should be tack-free in 2 hours and fully cured in 24 hours depending on weather conditions and application thickness.

NOTE: Clear Cut-Edge Sealant may not be compliant in all Low-VOC states.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS.

Precautions

1. Review the applicable Material Safety Data Sheet for complete safety information.
2. Cut-Edge Sealant is FLAMMABLE – it contains solvents that are dangerous fire and explosion hazards when exposed to heat, flame or spark. Do not smoke while applying. Do not use in a confined area or unventilated area. Vapors are heavier than air and may travel along the ground to a distant ignition source and flashback.
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.
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 water for at least 15 minutes. Contact a physician immediately.
6. Avoid contact with skin. Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) recommended. Wash thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water.
7. Jobsite storage temperatures in excess of 90°F (32°C) may affect product shelf life. Should the Cut-Edge Sealant be stored at temperatures below 60°F (15°C), restore to room temperature prior to use.
8. KEEP OUT OF THE REACH OF CHILDREN

TYPICAL PROPERTIES AND CHARACTERISTICS

Property	Value
Base	Synthetic Rubber
Color	Clear
Solids	14%
Viscosity	3,500 cps
Flash Point	39°F (4°C)
Net Weight Gallon	7.4 lbs (3.3 kg)
Resistance to:	
Ozone	Excellent
UV	Excellent
Water	Excellent
VOC	750 g/l
Packaging	Eight 16-oz. bottles/carton (3.8 L) Two 8-oz. bottles/carton
Shelf Life	1 year

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 range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Rockland, MA
VOC Content	733 g/L

G-500 CM WATER CUT-OFF MASTIC



Overview

Let Versico simplify your next membrane installation with its Water Cut-Off Mastic. Water Cut-Off Mastic is a one-component, low-viscosity, self-wetting, butyl-blend mastic designed to be used in conjunction with roofing and waterproofing systems. It is primarily used as a sealing agent between various membranes and applicable when membrane is being terminated using a compression-type seal.

Water Cut-Off Mastic is an extremely tacky material and will remain as such when used with compression-type terminations.

Features and Benefits

- Extremely tacky
- Provides a durable compression-type seal between various membranes and parapet wall constructions

Coverage Rate

10 linear feet per tube at the recommended application rate of a ½" bead.

Application

1. All surfaces to be sealed with Water Cut-Off Mastic must be free of moisture, oil, dirt and other foreign materials. Water Cut-Off Mastic cannot be used on insulation.
2. Apply a ½" (13 mm) bead of Water Cut-Off Mastic between the substrate and the edge of the membrane.
3. Apply appropriate termination material and secure to provide constant compression for the Water Cut-Off Mastic.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC APPLICATION REQUIREMENTS

Precautions

1. Review the applicable Material Safety Data Sheet for complete safety information prior to use.
2. Water Cut-Off Mastic is **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 flashback.
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.
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.

Note: Permeation-resistant gloves (that meet ANSI/ISEA 105-2005) are recommended to be worn when using this product to protect hands from irritating ingredients.

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TYPICAL PROPERTIES AND CHARACTERISTICS

Property	Value
Color	Gray
Solids	80%
Flash Point	40°F (4°C) Closed Cup
Service Temperature	-40°F to 200°F (-40°C to 93°C)
Specific Gravity	1.29
Cold Weather Flexibility	Excellent
Average Brookfield Viscosity	1,320,000 cps
Packaging	25 tubes/carton
Clean Up	Weathered Membrane Cleaner
Average net weight/gallon	28 lbs (13 kg)
Shelf Life	1 year, unopened container

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 range for any particular property of this product.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
VOC Content	250 g/L

UNIVERSAL SINGLE-PLY SEALANT



Overview

Versico's Universal Single-Ply Sealant is a 100%-solids, solvent-free, one-part, polyether sealant that provides a weather-tight seal to a variety of building substrates. Universal Single-Ply Sealant can be used as a termination bar sealant for VersiFlex™, VersiWeld® and VersiGard® White EPDM Fully Adhered and Mechanically Attached Roofing Systems. It is also an excellent product for use in counter flashing, coping and scupper details. See Versico specifications and details for specific applications.

Intended Uses

Universal Single-Ply Sealant has excellent adhesion to substrates such as stone, masonry, ceramic, marble, wood, steel and aluminum, as well as most plastics and composites. Universal Single-Ply Sealant is not recommended as a glass-glazing sealant.

Features and Benefits

- Excellent adhesion to various substrates
- Low VOC
- Versatile applications

Installation

1. Universal Single-Ply Sealant is a one-component, ready-to-use material that requires no mixing or preparation.
2. Surface Preparation - Surfaces shall be dry, clean and free of all dust and contamination, which may harmfully affect the adhesion of the sealant. Cleaning with Versico's Weathered Membrane Cleaner may be required.
3. A quality caulking gun should be used to ensure ease of application.
4. Universal Single-Ply Sealant typically is tack free in 25 minutes and skins over within 45 minutes. Full cure occurs in 3 to 7 days depending on temperature and humidity.
5. Clean Up - Remove excess sealant adjacent to joint prior to curing with Versico's Weathered Membrane Cleaner. Uncured sealant can also be removed from tools or equipment with the Weathered Membrane Cleaner.

Precautions

1. Avoid prolonged contact with skin. Uncured adhesive irritates eyes. In case of contact with eyes, immediately flush with water. Consult a physician if ill effects occur.
2. Store in original unopened containers in a cool, dry area. Protect unopened containers from heat and direct sunlight. Elevated temperatures will reduce shelf life.
3. KEEP OUT OF THE REACH OF CHILDREN.



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4. For industrial professional use only. May not be repackaged or resold for other than industrial or professional use.
5. See Safety Data Sheet for complete safety information before using product.
6. Do not use Universal Single-Ply Sealant in temperatures below 40°F.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Coverage

25' (7.6 m) per tube or 600' (183 m) per carton using a 3" (6 mm) bead

TYPICAL PROPERTIES AND CHARACTERISTICS

Property	Value
Color	White
Viscosity	850,000 Cps.
Tack Free Time	25 minutes depending on temp/humidity
Cure Time	3–7 days depending on temp/humidity
Flow, Sap or Slump	None (¼" Bead)
Staining	None
Ozone Resistance	Good
UV Resistance	Excellent
Cured Hardness (Shore A)	21–27
Shear Strength	75 PSI
Weight per Carton	26 lbs
Packaging	24 Cartridges, 10.1 Fl. oz each
Shelf Life	12 months, unopened container @ 90°F
VOC Content	22 g/L

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 range for any particular property of this product.

VERSIWELD® TPO PIPE SEALS



Overview

Let Versico simplify your next VersiWeld TPO installation with TPO Molded Pipe Seals. TPO Pipe Seals are injection molded, pre-formed flashings for pipes ¾" (19.0 mm) to 8" (203.2 mm) in diameter. TPO Pipe Seals are packaged in boxes of eight and come with universal stainless steel clamping rings.

VersiWeld TPO Molded Pipe Seals are part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required to be included in a Versico warranted roofing system.

Features and Benefits

- Provides a reliable method of waterproofing round pipe penetrations
- Provides a substantial labor savings compared to field fabricating from non-reinforced flashing
- Provides more consistent appearance than field-fabricated pipe flashings
- Double-ribbed cutting guide provides easier, smoother and straighter cuts
- Rib design also keeps the clamp in the proper position for the life of the roofing system

Installation

1. Cut pipe seal between the two raised "ribs" to the desired diameter as illustrated on the flange of the pipe seal. (Do not cut off both raised "ribs").
2. Pull pipe seal over pipe until base flange is in contact with the membrane. (Application of heat to the top portion of the pipe seal may be necessary to allow installation over the pipe).
3. Mark pipe around the top of the TPO Pipe Seal.
4. Pull TPO Pipe Seal upwards on pipe until mark on the pipe is visible.
5. Install Water Cut-off Mastic below mark which indicates the top of the installed TPO Pipe Seal.
6. Pull TPO Pipe Seal back down over pipe and into position.
7. Heat weld the TPO Pipe Seal base flange to deck membrane (the hand-welder temperature setting should be between 5 and 6).
8. Install a stainless steel universal clamping ring to provide constant compression of the sealant.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

1. Remove all lead and other flashing.
2. Temperature of pipe must not exceed 160°F (71°C).
3. When used with mechanically attached membrane, install a minimum of four fastening plates around pipe penetrations. Position fastening plates around the penetration so the plates are covered by the pipe seal flange. A minimum 1½-inch wide weld must be maintained around the outer edge of the flange beyond the plates. If fastening plates cannot be installed in a manner to allow a minimum 1½-inch weld, the plates must be placed outside the TPO Pipe Seal flange and covered with a reinforced VersiWeld overlay.
4. Store pre-molded pipe seals in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. TPO Pipe Seals or membrane that has been exposed to the weather prior to use must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

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TYPICAL PROPERTIES AND CHARACTERISTICS

Sizes	¾" to 8" O.D. pipe (19.0 to 203.2 mm)
Packaging	8 per box
Weight (each)	0.63 lbs (0.3 kg)
Material	Injection molded TPO
Color	White, gray and tan

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.

LEED® INFORMATION

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Bloomington, IL
Solar Reflectance Index (SRI)	N/A

Please use the chart below to cross reference your pipe size with the proper step to cut as shown.

Copper Tubing (C.T.S.)

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
Pipe O.D.	.88	1.13	1.38	1.63	2.13	2.63	3.13	4.13	5.13	6.13	N/A
Step of boot used	1	1	1	1½	2	2	3	4	5	6	N/A

Schedule 40 / 80 Steel Pipe - PVC Standard - Polyethylene Pipe IPS

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"
Pipe O.D.	1.05	1.32	1.66	1.90	2.38	2.88	3.50	4.50	5.56	6.63	8.63
Step of boot used	1	1	1½	1½	2	3	3	4	5	6	8

Cast Iron Pipe

	Pit Class A & Spun 100–250					Pit Class B, C & D					
Nominal tube size	2"	3"	4"	6"	8"	2"	3"	4"	6"	8"	
Pipe O.D.	2.50	3.96	4.80	6.90	9.50	N/A	3.96	5.00	7.10	9.30	
Step of boot used	2	4	5	6	N/A	N/A	4	5	6	N/A	

Sewer - Soil Pipe

PVC Plastic SDR 35 & 41 - Cast Iron Soil Pipe no hub - service weight & extra heavy

Nominal tube size	4"	4"	4"	4"	6"	6"	6"	6"	8"	8"	8"	8"
Pipe O.D.	4.22	4.38	4.30	4.62	6.28	6.30	6.30	6.62	8.40	8.38	8.38	8.75
Step of boot used	4	4	4	4	6	6	6	6	8	8	8	8

Conduit EMT

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
Pipe O.D.	.922	1.16	1.51	1.74	2.19	2.88	3.50	4.00	4.50
Step of boot used	1	1	1	1½	2	3	3	4	4

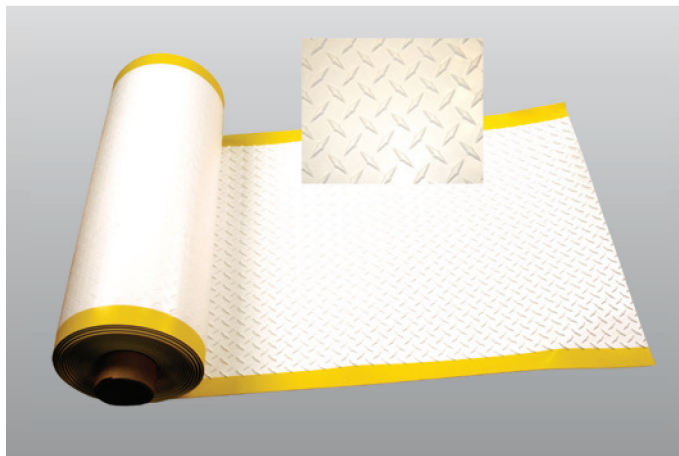
Conduit IMC

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"
Pipe O.D.	1.02	1.29	1.63	1.74	2.36	2.85	3.47	3.97	4.46
Step of boot used	1	1	1½	1½	2	3	3	4	4

Conduit Rigid

Nominal tube size	¾"	1"	1¼"	1½"	2"	2½"	3"	3½"	4"	5"
Pipe O.D.	1.05	1.32	1.66	1.90	2.37	2.87	3.5	4	4.5	5.56
Step of boot used	1	1	1½	1½	2	3	3	4	4	5

TPO Heat Weldable Walkway Rolls



Overview

Versico's VersiWeld® TPO Heat Weldable Walkway Roll is designed to protect the VersiWeld TPO membrane in areas exposed to repetitive foot traffic and other hazards. Walkways must be installed at all traffic concentration points (i.e. roof hatches, access doors, rooftop ladders, etc.) regardless of traffic frequency. Walkways must also be installed if regular maintenance (once a month or more) is necessary to service rooftop equipment.

Versico's VersiWeld TPO Walkway Rolls are part of the Certified Fabricated Accessory (CFA) program. Certified Fabricated Accessories are the only factory-fabricated TPO accessories that meet the stringent quality tolerances required by Versico.

Features and Benefits

- Increased slip resistance created with a diamond- plate tread pattern
- Walkway edges are trimmed in safety yellow to better define the designated traffic flow
- The yellow edges are smooth without tread lugs for easier welding
- Superior weathering package for long-term performance
- Stocked in white, tan and gray, special colors available (minimum quantities apply)

Installation

1. Use Weathered Membrane Cleaner to prepare the membrane area that will be welded to the walkway material.
2. Position the walkway material. Cut the Walkway Rolls into maximum 10' lengths and position with a minimum 1" gap between adjacent pieces to allow for water drainage. Cut the walkway so a 4" minimum gap is created over any field splices. Since the attachment of the walkway to the membrane is permanent, this will allow access to the field seams.
3. Using an automated welder, **weld all four sides of the walkway material to the membrane**. Typically the same speed and temperature settings will be used for this procedure as for welding membrane to membrane. A test weld is always recommended prior to performing welds to the installed membrane. A hand-held welder may be utilized; however, productivity will be decreased.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

- Walkway Rolls are a maintenance item and are not covered under the Versico membrane systems warranty.
- This product is to be used as a walkway only and is not designed as a perimeter warning line or a substitute for ballast. For safety reasons, walkway rolls should not be installed within 10' (3m) of the roof perimeter.
- Allow the walkway to relax and warm up in the sun prior to welding in place.
- When possible, weld the walkway rolls when the ambient temperature is above 60° F (16° C) to help prevent wrinkles.

TPO Heat Weldable Walkway Rolls

Typical Properties and Characteristics

Physical Property	Test Method	Typical Properties	
		Minimum	Maximum
Dimensional Conformance Thickness, in. (mm)	ASTM D412	0.160 (4.06)	0.180 (4.5)
Density, lbs./ft ³ ; (gr/cm ³ ;))	ASTM D792	80.5 (1.29)	84.3 (1.35)
Tensile Strength, psi (MPa)	ASTM D638	600 (4.1)	
Tear Strength, lbf/in (kN/m)	ASTM D624	100 (17.5)	
Sizes	34" wide x 50' long		
Packaging	9 per skid, each roll individually bagged		
Weight (each)	97 lbs.		
Thickness	80-mil at bottom of tread, 80-mil at yellow welding edge, 170-mil overall		
Color	White, gray and tan		

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.

LEED® Information

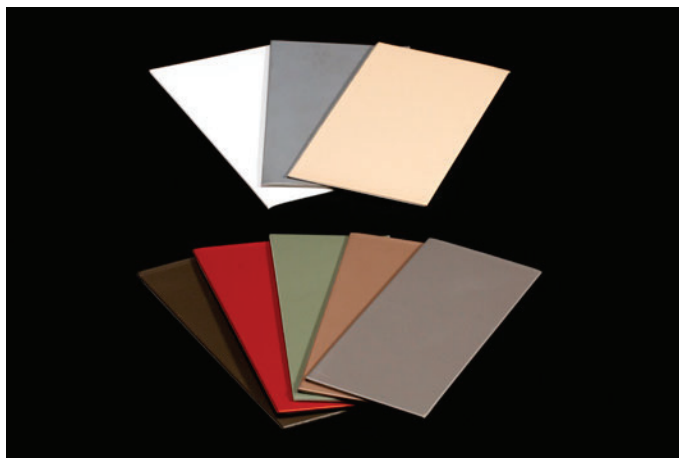
Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Greenville, IL

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

	Test Method	White TPO	Tan TPO	Gray TPO
CRRC initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CRRC solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.7	0.64	0.43
CRRC initial thermal emittance	ASTM C1371	0.9	0.86	0.89
CRRC thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED thermal emittance	ASTM E408	0.9	0.86	0.85
Solar Reflectance Index (SRI) initial	ASTM E1980	99	86	53
Solar Reflectance Index (SRI) 3 years aged	ASTM E1980	85	77	48

Solar Reflectance Index (SRI) is calculated per ASTM E1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values and particularly cool materials can even exceed 100.

VersiWeld® TPO Coated Metal



Overview

VersiWeld TPO Coated Metal is a 24-gauge (0.6 mm) galvanized steel sheet that is coated with a layer of .035" non-reinforced TPO flashing. TPO membrane may be welded directly to the coated metal, eliminating the need to strip in the metal with a separate piece of TPO Pressure-Sensitive Coverstrip. The sheet is cut into the appropriate width and used to fabricate metal drip edges or other roof perimeter edging profiles.

Versico's TPO Coated Metal is part of Versico's comprehensive TPO accessory offering that meets the stringent quality tolerances required to be included in a Versico warranted roofing system.

Features and Benefits

- Allows direct welding of TPO membrane to the metal, eliminating the need to strip in edging with additional TPO Pressure-Sensitive Coverstrip.
- Easy to cut and form for creating a variety of edge sizes and profiles.

Installation

1. Install TPO Coated Metal with 1/8" to 1/4" (3–6 mm) between adjoining sections.
2. Install 2"-wide (5 cm) duct tape over joints in TPO Coated Metal.
3. Heat weld 6"-wide (15.5 cm) piece of TPO non-reinforced flashing over joint.
4. Position TPO reinforced membrane and heat-weld to the TPO Coated Metal with a minimum 1 1/2" (4 cm) weld.

REVIEW CURRENT VERSICO SPECIFICATIONS AND DETAILS FOR SPECIFIC INSTALLATION REQUIREMENTS.

Precautions

Store coated metal in a cool, shaded area and cover with light-colored, breathable, waterproof tarpaulins. TPO Coated Metal that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.

Typical Properties and Characteristics

Property	Value
Sheet Size	4' by 10' (1.2 m by 3.0 m)
Weight	1.1 lb/ft ² (5.4 kg/m ²)
Color	Gray, White, Tan, Patina Green, Rock Brown, Terra Cotta, Medium Bronze, and Slate Gray
Flashing Thickness	0.035" (0.9 mm) nominal
Steel Thickness	0.024" (0.6 mm) nominal (24 gauge)
Steel Type	Hot Dipped Galvanized Steel–G90
Conforms to ASTM A653	
Packaging	10 or 25 sheets per pallet - White, Gray, and Tan 5 sheets per pallet - Patina Green, Rock Brown, Terra Cotta, Medium Bronze, and Slate Gray

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 range for any particular property of this product.

LEED® Information

Pre-consumer Recycled Content	0
Post-consumer Recycled Content	0
Manufacturing Location	Franklin Park, IL
Solar Reflectance Index (SRI)	N/A

NEW CONSTRUCTION OR RE-ROOF/TEAR OFF
PROJECTS WITH SECURSHIELD HD, SECUROCK,
DENS-DECK, RECOVERY BOARD OR ANY
VERSICO APPROVED INSULATION MIN 1-1/2"
(38mm) THICK



INCHES TO CENTIMETER															
	1/2"	3/4"	1"		2.5"	3"	4"	5"	6"	7"	8"	9"	10"	11"	
cm	1	1.5	2	2.5		6.5	7.5	10	13	15	18	20	23	25	28

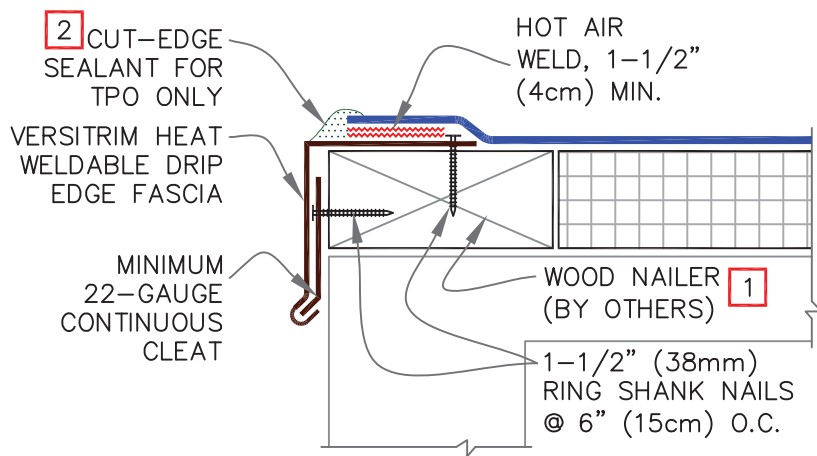


INSULATION/COVER BOARD
ATTACHMENT FOR
PROJECTS EXCEEDING
15-YEAR WARRANTIES

 → FASTENER & PLATE
 → CENTER LINE
 → GUIDE LINE

MECHANICALLY
ATTACHED SYSTEM

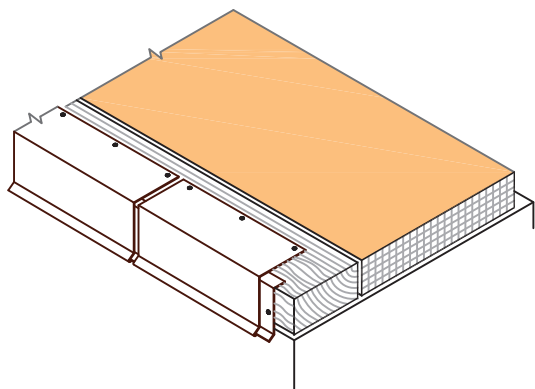
MA-27.2



NOTES:

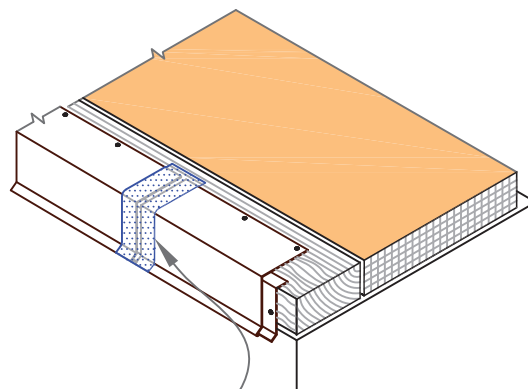
1. WOOD NAILER MUST EXTEND PAST TOTAL WIDTH OF METAL FASCIA DECK FLANGE.
2. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.

1



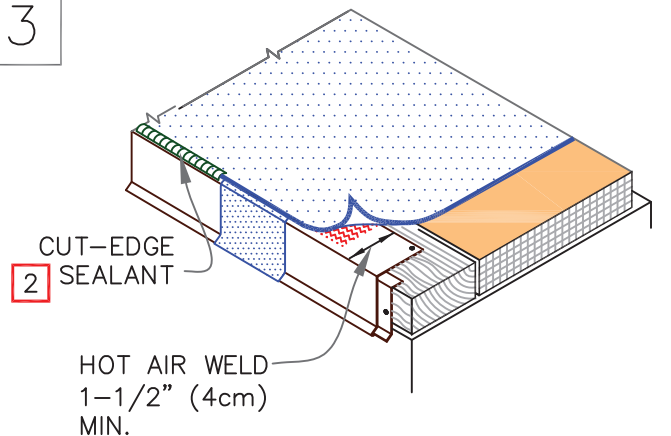
INSTALL CONTINUOUS CLEAT AND COATED METAL WITH 1/8"–1/4" (0.5–1cm) JOINTS BETWEEN ADJOINING SECTIONS.

2



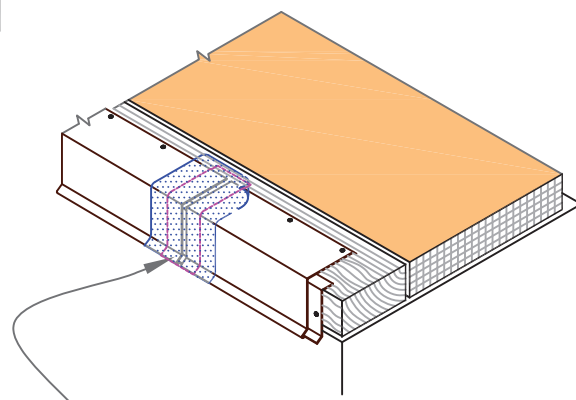
HEAT WELD 3" (7.5cm) WIDE PIECE OF NON-REINFORCED THERMOPLASTIC MEMBRANE OVER JOINT

3

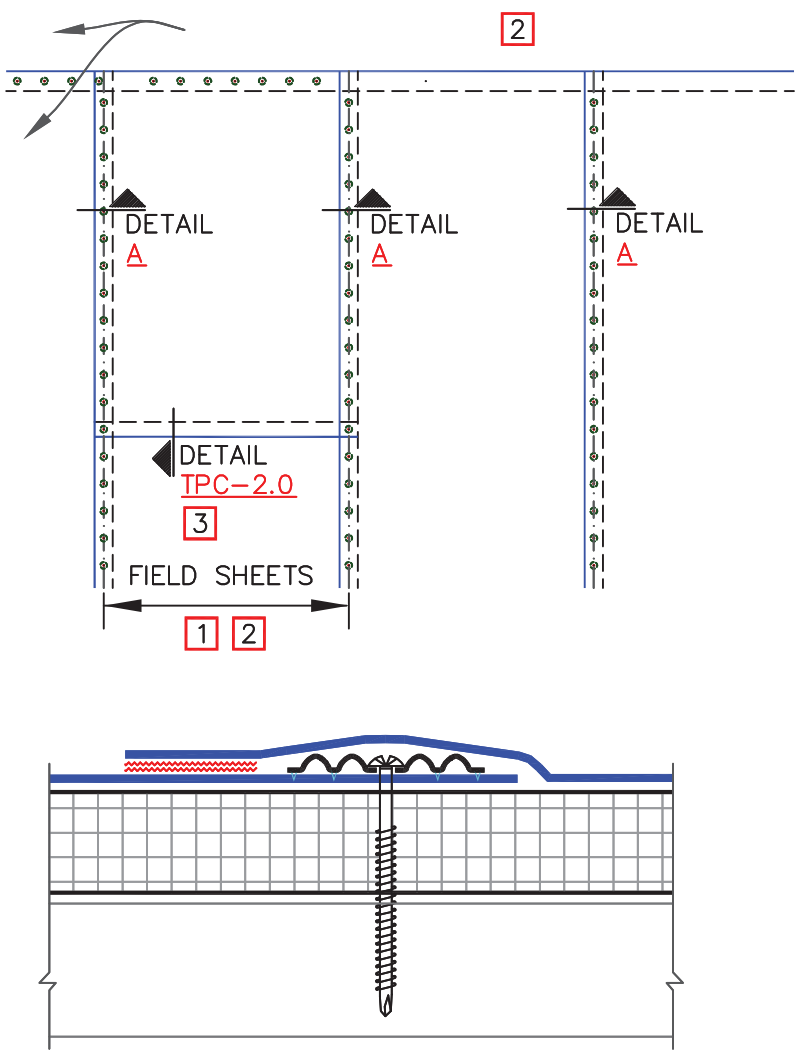


POSITION FIELD MEMBRANE AND HEAT WELD COATED METAL A MINIMUM OF 1-1/2" (4cm) AS SHOWN.

4

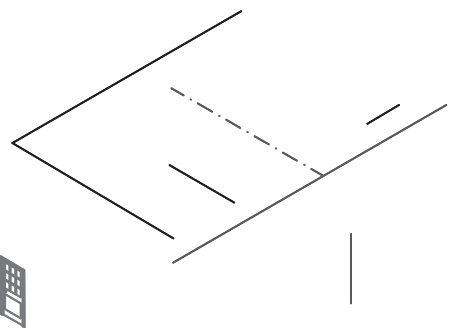


HEAT WELD 6" (15cm) WIDE PIECE OF NON-REINFORCED MEMBRANE OVER JOINT

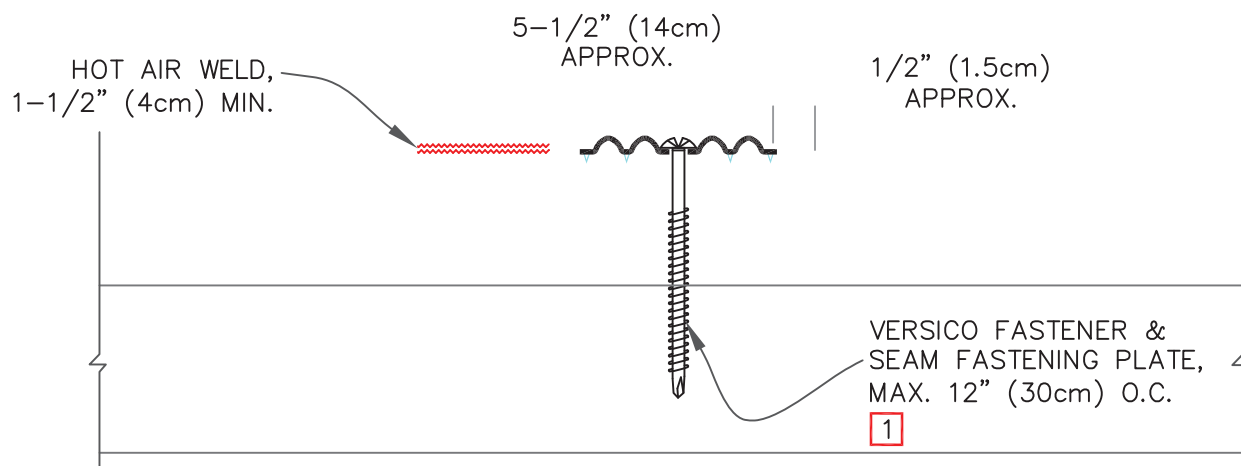


NOTES:

1. WHEN USING 10' (305cm) O



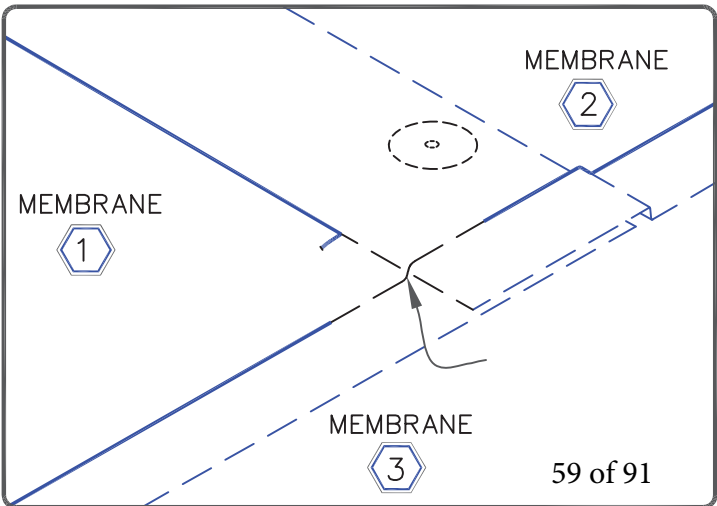
FOUR PERIMETER SHEETS CENTERED OVER LARGE OPENINGS

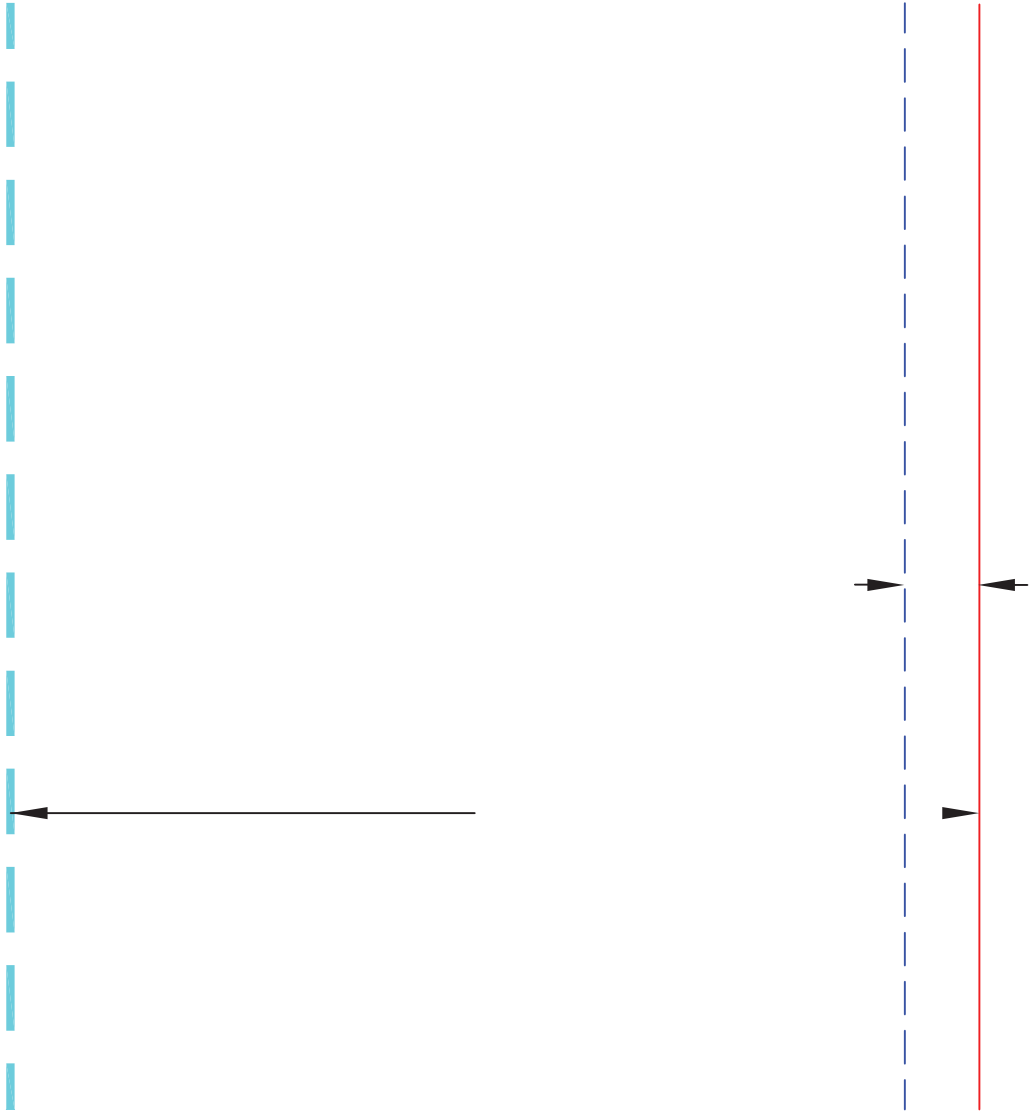


T-JOINT REQUIREMENTS

MEMBRANE	THICKNESS		
	45/50	60	80
PVC	N/A	N/A	YES
KEE HP	N/A	N/A	YES
TPO	N/A	YES	YES

(0.5cm) DIAMETER
BEAD OF CUT-EDGE SEALANT IS REQUIRED
ON CUT EDGES OF REINFORCED TPO
MEMBRANE.



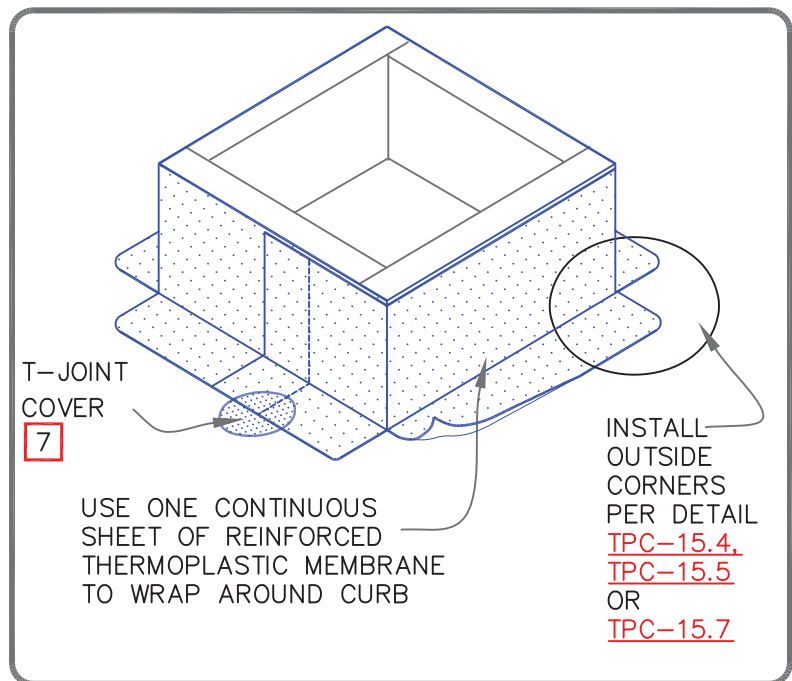
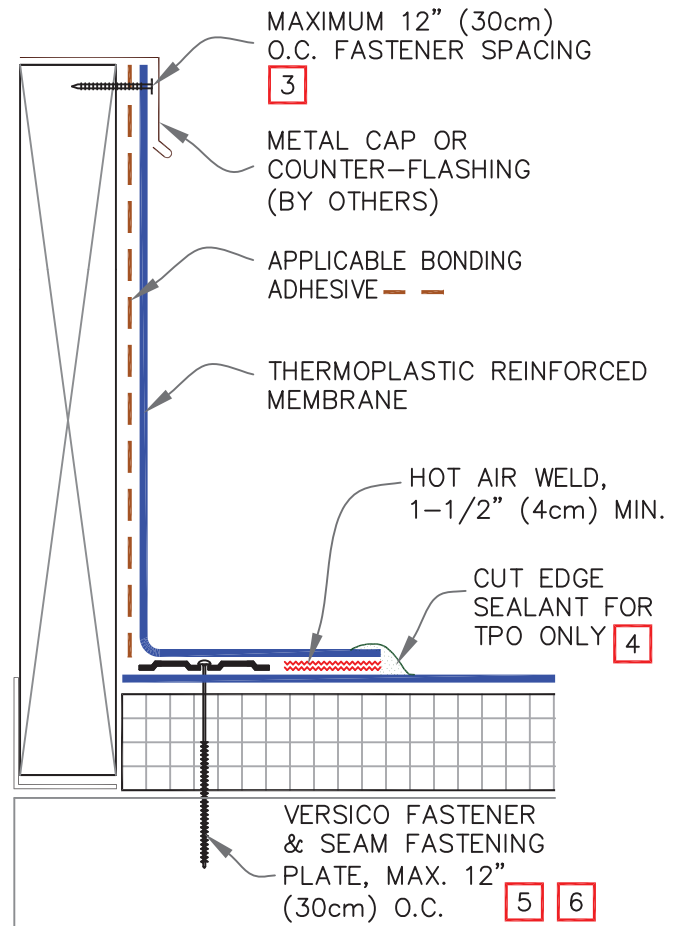


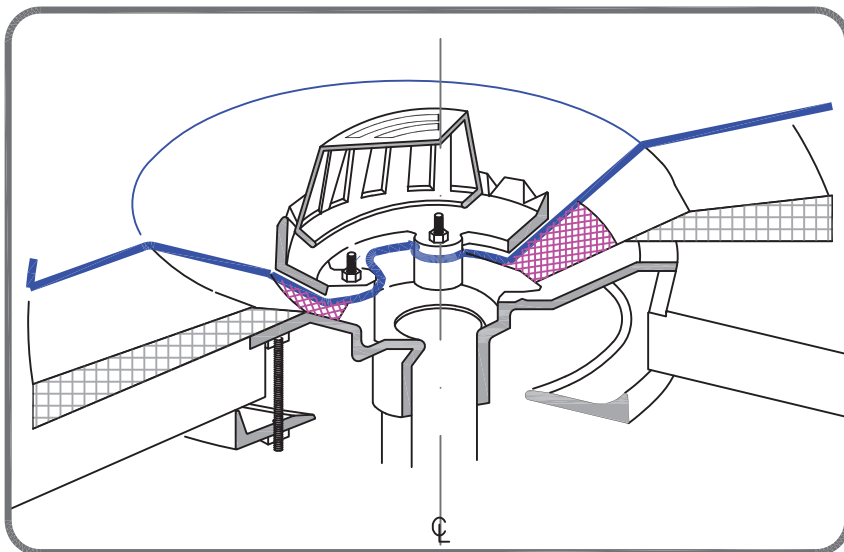
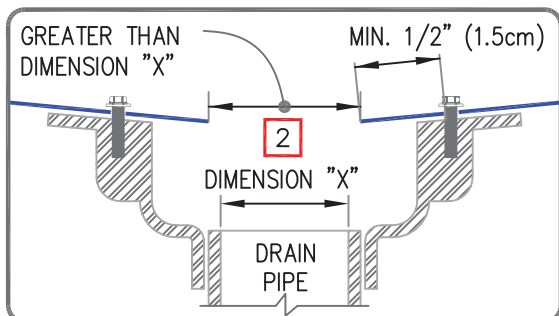
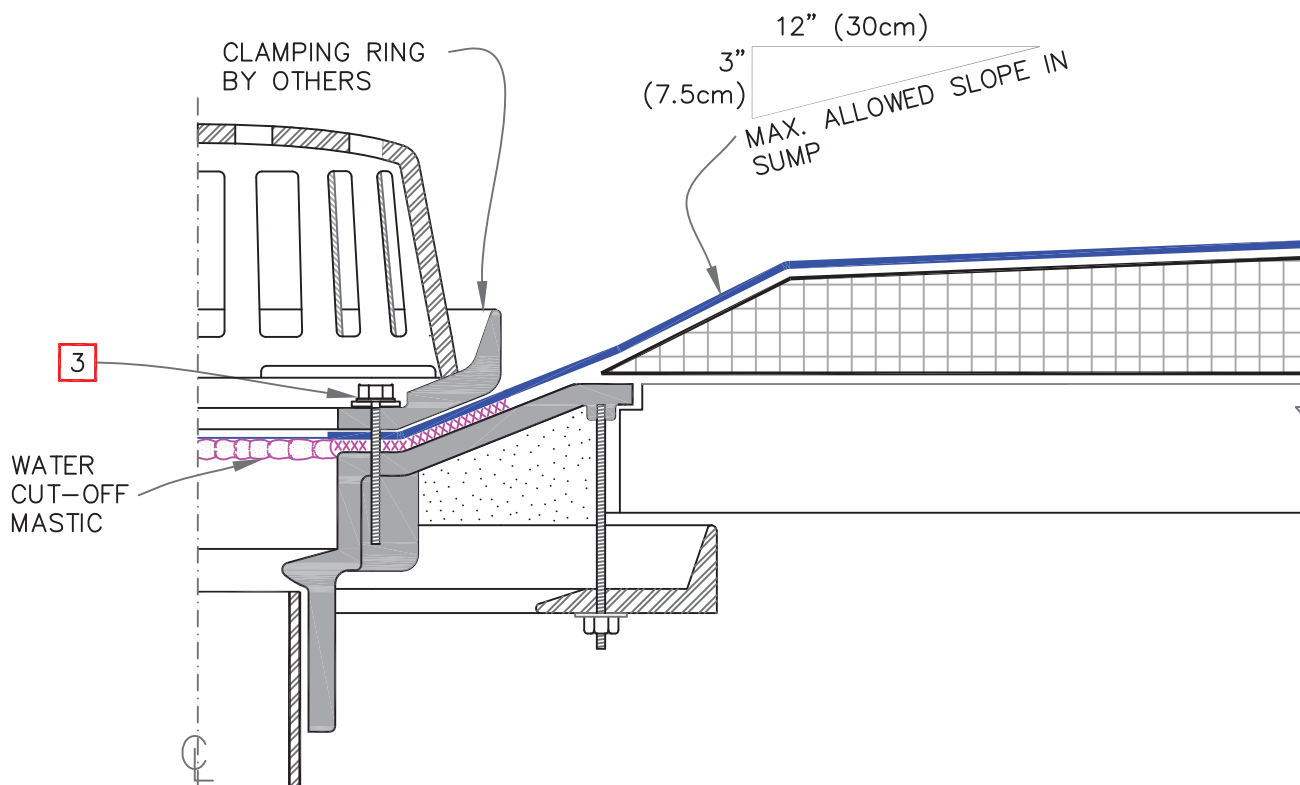
NOTES:

1. ON MECHANICALLY ATTACHED SYSTEMS, H

NOTES:

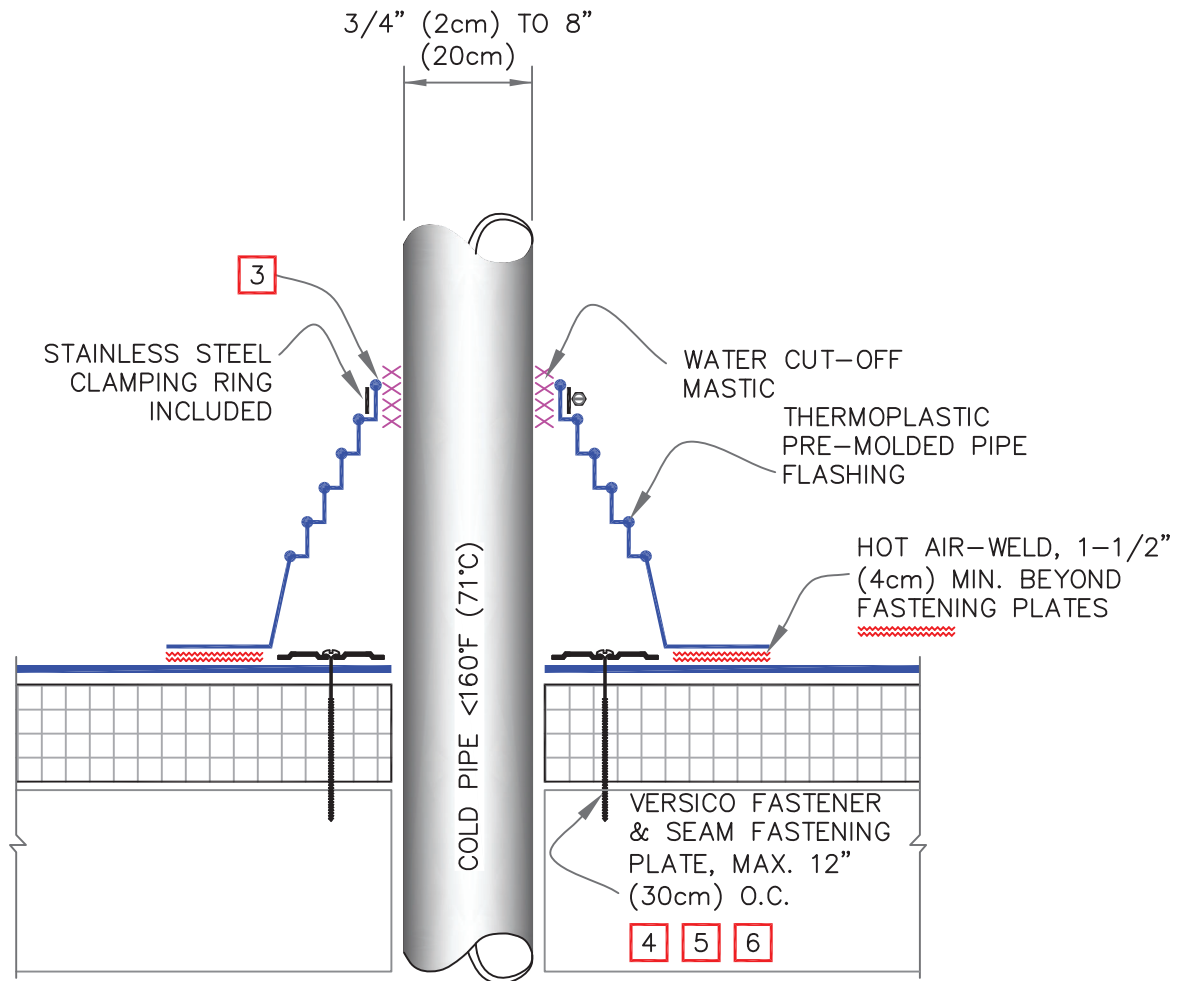
1. WHEN USING TPO MEMBRANE, BONDING ADHESIVE IS NOT REQUIRED WHEN THE FLASHING HEIGHT IS 12" (30cm) OR LESS AND THE MEMBRANE IS FASTENED "AS SHOWN" ON TOP OF THE CURB. WHEN VERSICO TERMINATION BAR IS USED BENEATH THE COUNTER-FLASHING, BONDING ADHESIVE CAN BE ELIMINATED WHEN THE MEMBRANE HEIGHT IS 18" (46cm) OR LESS.
2. APPLICABLE BONDING ADHESIVE FOR PVC OR TPO. IN CASE OF TPO, CAV-GRIP 3V ADHESIVE MAY ALSO BE USED ON VERTICAL PORTION.
3. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER-FLASHING, USE EPDM WASHERS, APPLY WATER CUT-OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.
4. APPROXIMATELY 1/8" (0.5cm) DIAMETER BEAD OF CUT-EDGE SEALANT IS REQUIRED ON CUT EDGES OF REINFORCED TPO MEMBRANE.
5. REFER TO VERSICO SPECIFICATIONS FOR ACCEPTABLE VERSICO FASTENER AND PLATE.
6. MECHANICAL SECUREMENT MAY BE INSTALLED INTO THE VERTICAL SUBSTRATE.
7. WHEN USING 60 MIL (1.5mm) OR 80 MIL (2.03mm) THICK CURB FLASHING, THE INTERSECTIONS BETWEEN SPLICES MUST BE OVERLAID WITH A THERMOPLASTIC "T-JOINT" COVER.





NOTES:

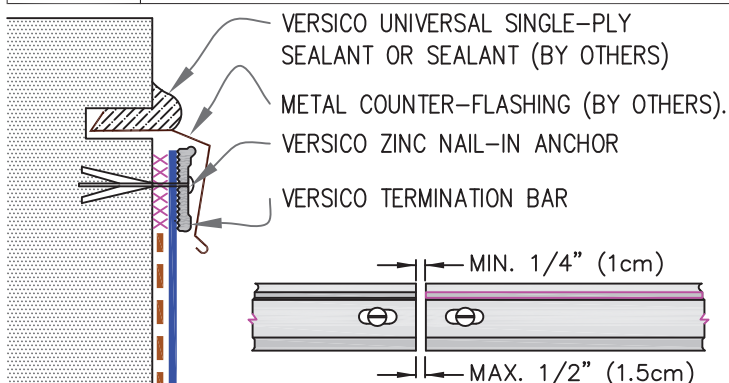
1. ROOF DRAIN SIZE AND NUMBER OF DRAINS SHALL BE IN ACCORDANCE WITH THE LOCAL CODES.
2. THE HOLE IN THE MEMBRANE SHALL EXCEED THE DIAMETER OF THE DRAIN PIPE, BUT SHALL BE NO LESS THAN 1/2" (1.5cm) FROM THE ATTACHMENT POINTS OF THE DRAIN CLAMPING RING.
3. ALL BOLTS OR CLAMPS MUST BE IN PLACE TO PROVIDE CONSTANT COMPRESSION ON WATER CUT-OFF MASTIC.
4. REMOVE EXISTING LEAD, FLASHING MATERIAL & ENSURE THE DRAIN RING IS COMPLETELY CLEAN DOWN TO BARE METAL.



NOTES:

1. REMOVE ALL EXISTING LEAD AND FLASHING MATERIAL BEFORE INSTALLING PRE-MOLDED PIPE FLASHING.
2. TEMPERATURE OF THE PIPE PENETRATION MUST NOT EXCEED 140°F (60°C) WHEN USING PVC AND 160°F (71°C) WHEN USING TPO FLASHING.
3. PIPE SEAL MUST HAVE INTACT RIB AT TOP EDGE, REGARDLESS OF PIPE DIAMETER.
4. INSTALL A MINIMUM OF 4 FASTENERS AND PLATES AROUND THE PIPE, EQUALLY SPACED. IF FASTENERS AND PLATES CANNOT BE INSTALLED AS SHOWN, THEY MAY ALSO BE POSITIONED OUTSIDE THE PIPE MAXIMUM 12" (30cm) O.C. AND FLASHED WITH THERMOPLASTIC REINFORCED MEMBRANE/CUT-EDGE SEALANT. REFER TO [DETAIL TPC-8.2](#).
5. FASTENERS AND PLATES ARE NOT REQUIRED ON ADHERED SYSTEMS UNLESS PIPE DIAMETER EXCEEDS 18" (46cm).
6. ON MECHANICALLY ATTACHED SYSTEMS, HPVX FASTENERS AND PLATES OR HPV-XL FASTENERS AND PLATES ARE REQUIRED OVER STEEL AND WOOD DECKS. ON CONCRETE DECKS, CD-10 OR MP 14-10 FASTENERS ARE USED WITH HPVX PLATES.

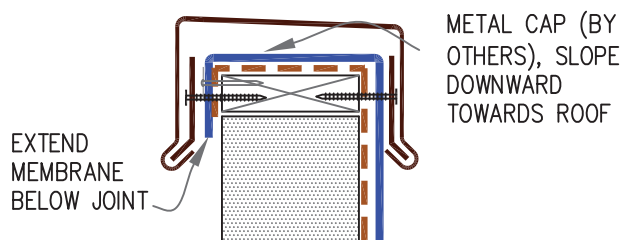
9.1 MECHANICAL TERMINATION WITH COUNTER FLASHING



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP TERMINATION BAR AROUND CORNERS.
3. DETAIL REQUIRED FOR USE ON WARRANTY PROJECTS EXCEEDING 20-YEARS.
4. DETAIL 9.5 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

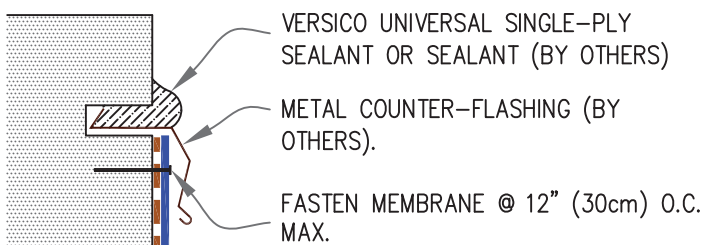
9.2 SHEET METAL COPING (BY OTHERS)



NOTES:

1. FOR VERSICO VERSITRIM COPING, REFER TO INSTALLATION INSTRUCTIONS PUBLISHED SEPARATELY.
2. MEMBRANE MUST BE EXTENDED TO CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE.

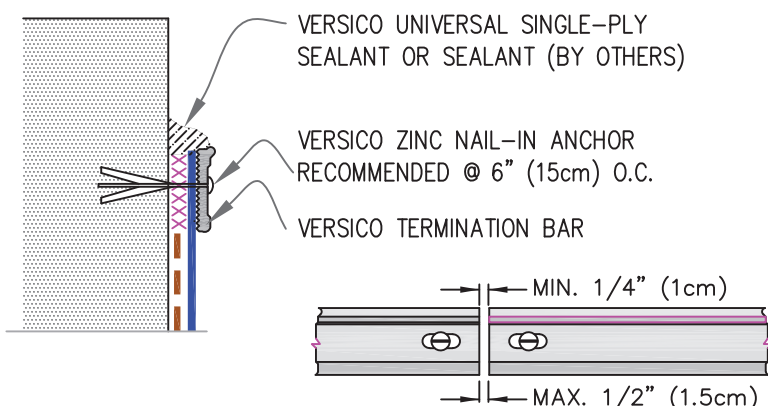
9.3 COUNTER FLASHING TERMINATION



NOTES:

1. WHEN MECHANICAL FASTENERS ARE USED TO PENETRATE THE METAL COUNTER-FLASHING, USE EPDM WASHERS, APPLY WATER CUT-OFF MASTIC UNDER THE COUNTER-FLASHING OR CAULK THE FASTENER HEADS.
2. DETAIL NOT FOR USE ON WARRANTY PROJECTS EXCEEDING 10-YEARS.

9.4 MECHANICAL TERMINATION



NOTES:

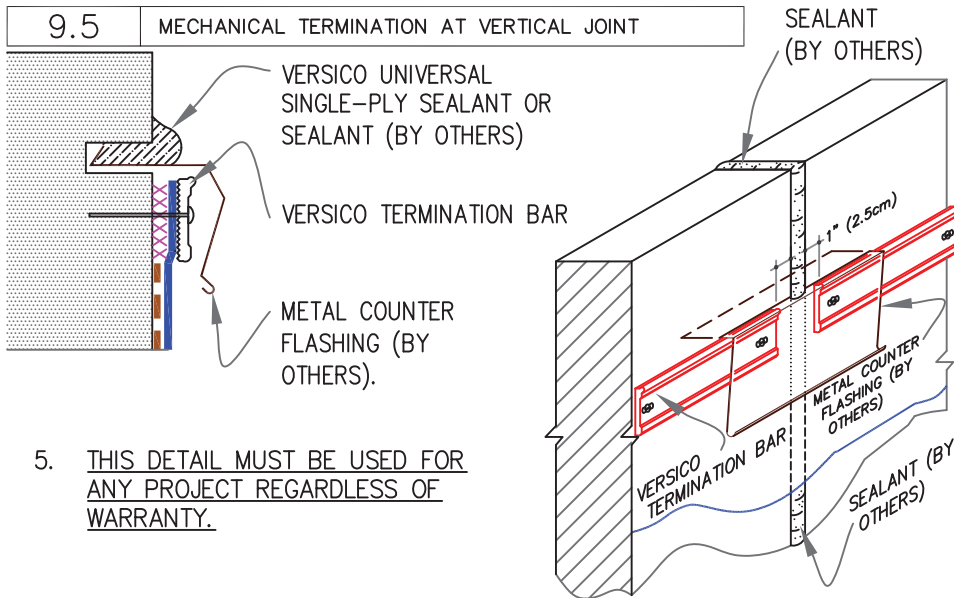
1. APPLY ON HARD SMOOTH SURFACE ONLY; NOT FOR USE ON EXPOSED WOOD.
2. DO NOT WRAP COMPRESSION TERMINATION BAR AROUND CORNERS.
3. DETAIL NOT FOR USE ON WARRANTY PROJECTS EXCEEDING 20-YEARS.
4. DETAIL 9.5 MUST BE USED AT VERTICAL JOINTS IN PANEL WALLS.

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--- APPLICABLE BONDING ADHESIVE.

xxxxxxx

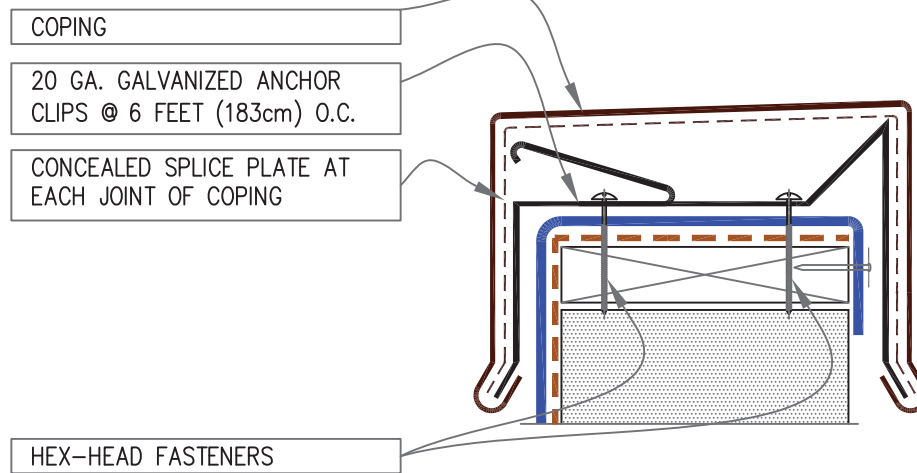
WATER CUT-OFF MASTIC – MUST BE HELD UNDER CONSTANT COMPRESSION.



NOTES:

1. APPLY ON HARD SMOOTH SURFACE ONLY.
2. DO NOT WRAP COMPRESSION TERMINATION BAR AROUND CORNERS.
3. VERTICAL JOINTS IN THE PRE-CAST PANEL AS WELL AS ALL GAPS AT THE JUNCTION OF THE TILT-UP PANEL AND ROOF DECK MUST BE FULLY SEALED TO PREVENT AIR INFILTRATION.
4. CONTINUOUS COUNTER FLASHING REQUIRED FOR WARRANTY PROJECTS EXCEEDING 20-YEARS.

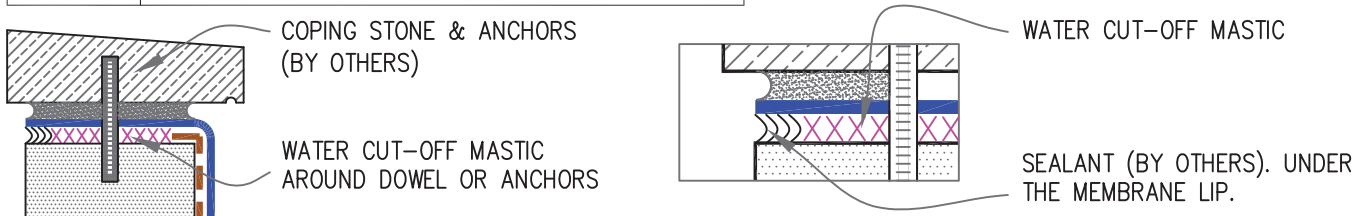
9.6 VERSITRIM 200 & 300 COPING



NOTE:

1. MEMBRANE SHOULD BE EXTENDED AT CORNERS TO PROVIDE COMPLETE COVERAGE OF THE TOP WALL SURFACE. REFER TO [DETAIL TPC-9.0](#).
2. REFER TO [VERSITRIM COPING INSTALLATION INSTRUCTION](#) MANUAL FOR STEP-BY-STEP INSTRUCTION PROCEDURES.

9.7 COPING STONE TERMINATION



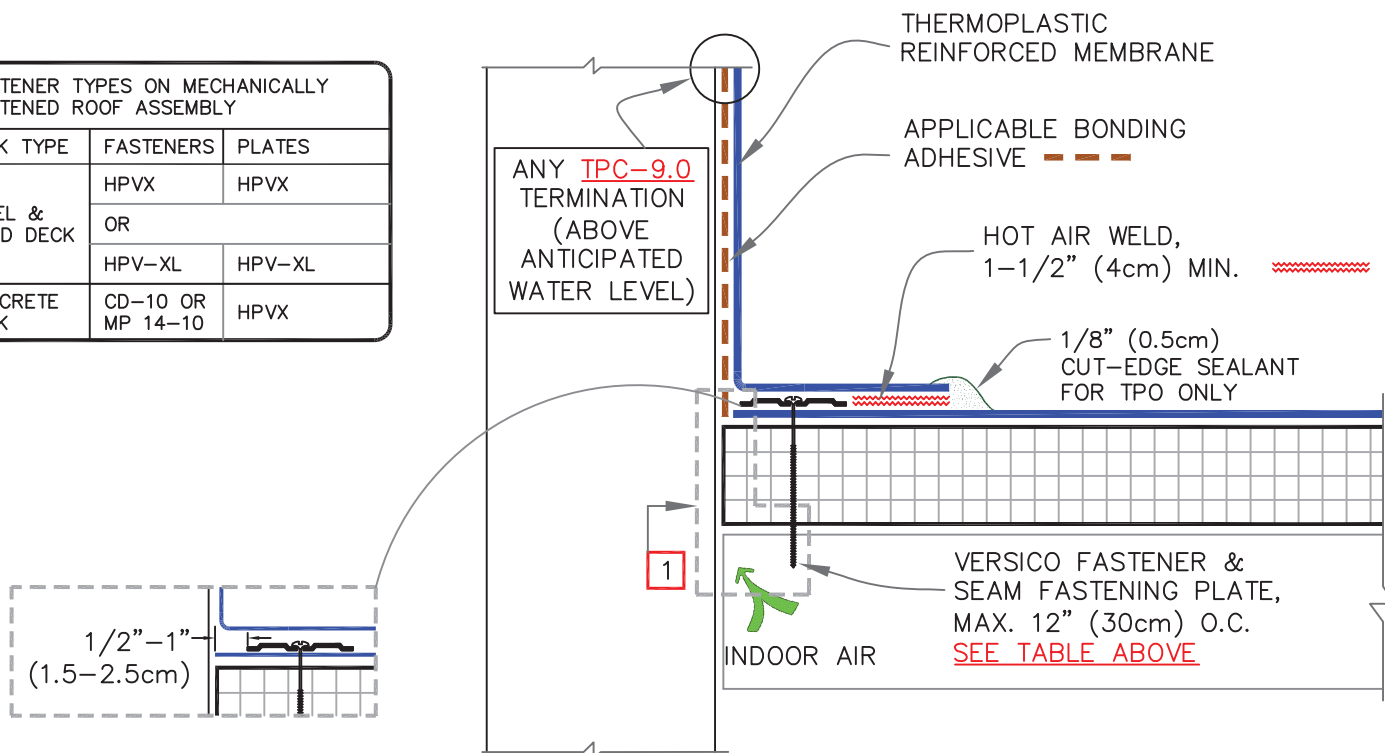
--- APPLICABLE BONDING ADHESIVE.

xxxxxxx WATER CUT-OFF MASTIC – MUST BE HELD UNDER CONSTANT COMPRESSION.

CAUTION

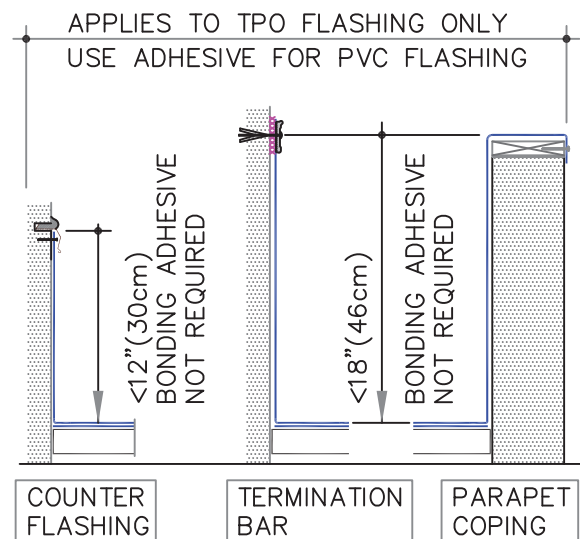
FASTENERS AND PLATES ARE REQUIRED AT 6" (15cm) O.C. FOR ADHERED SYSTEMS WITH WARRANTY WIND SPEED COVERAGE GREATER THAN 90 MPH AND FOR ALL PROJECTS WITH WARRANTIES GREATER THAN 20 YEARS.

FASTENER TYPES ON MECHANICALLY FASTENED ROOF ASSEMBLY		
DECK TYPE	FASTENERS	PLATES
STEEL & WOOD DECK	HPVX	HPVX
	OR	
	HPV-XL	HPV-XL
CONCRETE DECK	CD-10 OR MP 14-10	HPVX

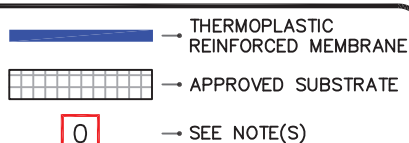


NOTES:

- REFER TO SPECIAL CONDITION [SPEC SUPPLEMENTS:](#)
 - TO BLOCK INDOOR AIR INFILTRATION AND HUMIDITY AT THE JUNCTION [\(G-01-18\)](#).
 - WHERE ROOF SYSTEM IS DESIGNED WITH A VAPOR RETARDER [\(G-08-18\)](#).
- IN A CASE WHERE FASTENERS MUST BE FASTENED INTO THE VERTICAL SURFACE, CARE MUST BE TAKEN TO CREASE THE MEMBRANE TIGHTLY INTO THE ANGLE CHANGE. PLACING THE PLATES TIGHT INTO THE ANGLE CHANGE WILL HELP HOLD THE MEMBRANE IN THE PROPER POSITION.



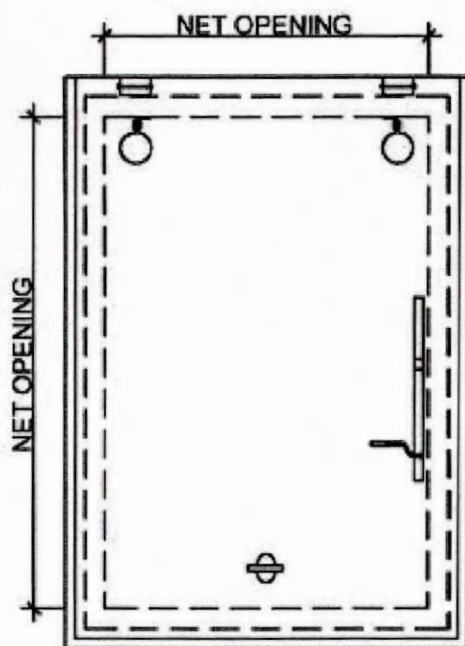
PARAPET FLASHING – FASTENED INTO DECK



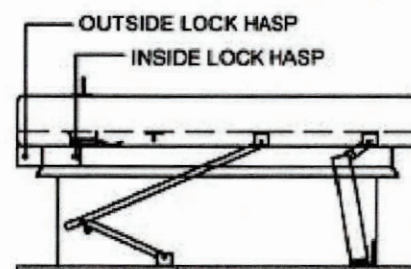
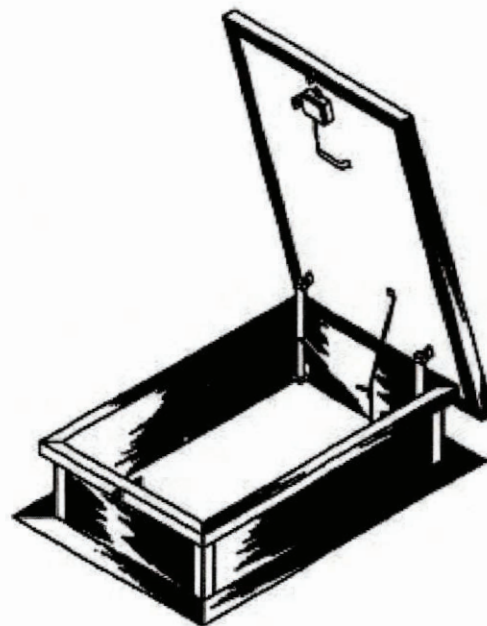
THERMOPLASTIC ROOFING SYSTEM

TPC-12.1

MODEL - RHG



PLAN VIEW
NOT TO SCALE



SIDE VIEW
NOT TO SCALE

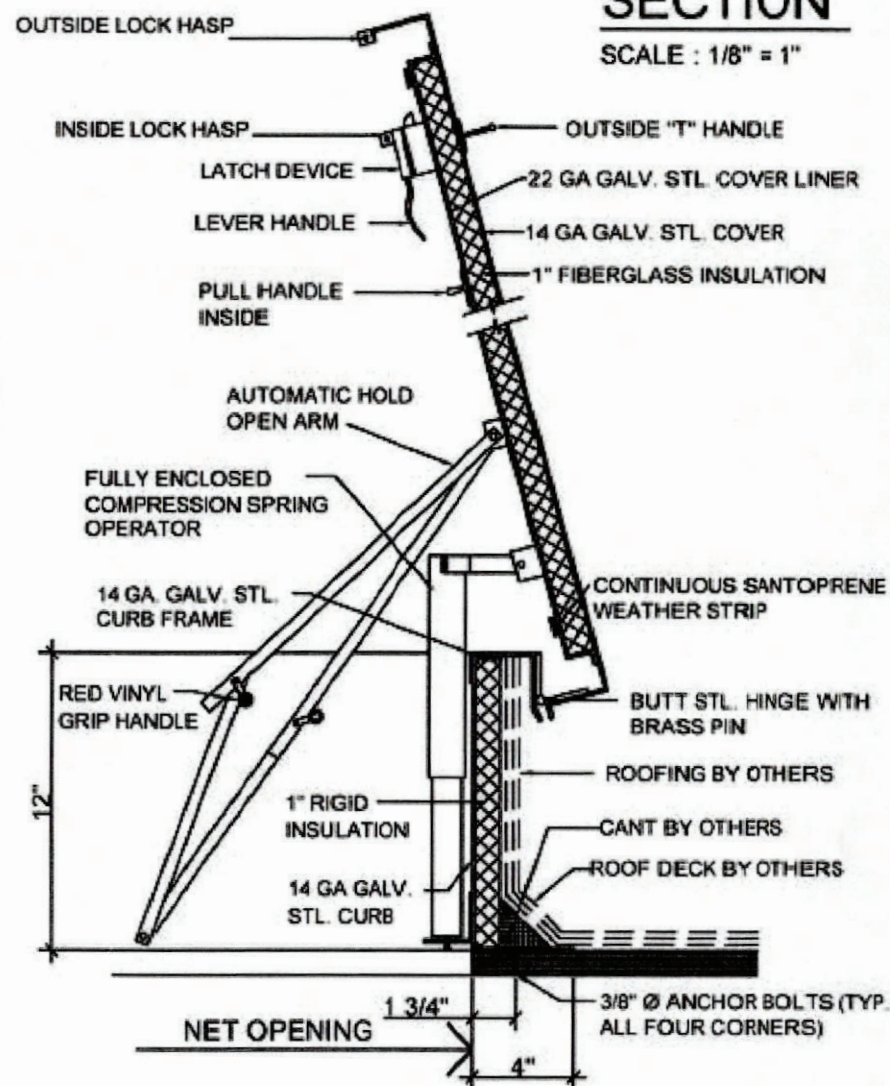
MODEL : RHG-
NET OPENING :
UNITS REQUIRED :
FINISH :

SPECIFICATIONS :

ALL PARTS SHALL BE NEATLY FORMED AND FABRICATED WITH ALL JOINTS AND SEAMS COMPLETELY WELDED TO INSURE WATER TIGHTNESS. COVER, COVER LINER, CURB AND CURB FRAME TO BE FORMED FROM GALVANIZED STEEL AND SUPPLIED WITH A GREY METAL PRIMER FINISH. UNIT SHALL BE SUPPLIED COMPLETELY ASSEMBLED AND READY FOR INSTALLATION. UNIT WILL OPEN TO MAXIMUM 75° POSITION. ACTUAL NUMBER OF SPRING OPERATORS TO BE DETERMINED AS NEEDED FOR SMOOTH OPERATION OF UNIT.

SECTION

SCALE : 1/8" = 1"



SINCE 1952
ROOFMASTER®
PRODUCTS COMPANY

800-421-6174

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Roofmaster
 Kettles
 Mops
 Hand Tools
 Tires
 Ladders, Stages &
 Hatches
 Ladders
 Ladder
 Accessories
 Roof Brackets
 Ladder
 Hatches
 Aluminum
 Stages

 Membranes &
 Flashings
 Spraying Systems
 Vents & Roof
 Accessories
 Conveyors
 Replacement
 Engines
 Leather
 Accessories
 Closeout Specials
 Nails & Fasteners
 Truck Accessories

Featured Products

extending the Safety Post by lifting with just one hand, because of the built-in counter spring. Now you can step on or off the ladder in a safe standing position while gripping the post. A latch maintains the post at any height and is easily released for retracting the post. Safety features include an easy-to-grip square post and a ring for fall arrest attachment at the top. Safety Posts are easy to install and it comes pre-assembled and attaches directly to the top two rungs (square or round) with just two "U" bolts.

Note: Roof Hatch for pictorial purposes only, not included

Share



Specifications

Item #:	109030
Item Desc:	Safety Post for Roof Hatches
Weight:	24.000
Price Um:	EA
Units/Pk:	1

[Ladder Hatches](#)

Manufacturer

Georgia-Pacific Gypsum
133 Peachtree Street
Atlanta, GA 30303

Georgia-Pacific Canada
2180 Meadowvale Boulevard, Suite 200
Mississauga, ON L5N 5S3

Technical Service Hotline: 1-800-225-6119

Description

DensGlass® Sheathing is a gypsum panel made of a treated, water-resistant core, surfaced with fiberglass mats and a GOLD colored primer coating. Providing superb protection from the elements, DensGlass Sheathing is resistant to delamination and deterioration due to weather exposure—even during construction delays that last as long as twelve months after installation and are backed by a limited warranty against delamination and deterioration for up to 12 months of exposure to normal weather conditions.* DensGlass Sheathing panels are also mold-resistant, and have scored a 10, the highest level of performance for mold resistance under ASTM D3273 test method.

DensGlass Sheathing exhibits a dimensional stability that assures resistance to warping, rippling, buckling and sagging for a flat and even substrate and is noncombustible as defined and tested in accordance with ASTM E136 or CAN/ULC S114. Since DensGlass Sheathing is strong in both directions, it may be installed either parallel or perpendicular to wall framing members (always follow specific assembly installation instructions).

Primary Uses

Because of the superior performance of DensGlass Sheathing, it is specified for exterior walls, ceilings and soffits in a wide variety of applications. These include exterior insulation and finish systems (EIFS); cavity brick or stone veneer applications; cladding such as wood siding, vinyl siding, composition siding, wood shingles, shakes, conventional stucco systems, plywood siding panels; and interior finish systems that require a substrate panel with superior fire and moisture resistance.

For EIFS applications, DensGlass Sheathing is an ideal substrate for adhesive or mechanical application of expanded polystyrene or extruded polystyrene insulation, and is recommended in all climate zones.

Manufacturers of water and air resistive barriers, which include attached flexible membranes, self-adhered membrane and liquid applied, have found DensGlass Sheathing to be a suitable substrate for their systems.

DensGlass Sheathing is an ideal product for exterior ceilings and soffits for both cold and warm climate zones. It resists sagging, even under exceptionally humid conditions. Panels are applied directly to structural framing. Surface and joints may be finished and painted, or surfaced with an exterior finish system.

Limitations

DensGlass Sheathing is resistant to normal weather conditions, but it is not intended for immersion in water. Cascading roof/floor water should be directed away from the sheathing until appropriate drainage is installed.

Avoid any condition that will create moisture in the air and condensation on DensGlass Sheathing. The use of forced air heaters creates volumes of water vapor which, when not properly vented, can condense on building materials. The use of these heaters and any resulting damage is not the responsibility of Georgia-Pacific Gypsum. Consult heater manufacturer for proper use and ventilation.

When DensGlass Sheathing panels are used in slanted wall applications, that portion of the wall must be temporarily protected from the elements. Do not allow water to pond or settle on sheathing. Also, exposed wall ends must be covered to prevent water from infiltrating the cavity.

Georgia-Pacific Gypsum does not warrant and is not responsible or liable for the performance of the cladding or exterior systems applied over DensGlass Sheathing. The suitability and compatibility of any system is the responsibility of the system manufacturer or design authority.

Do not laminate masonry surfaces to DensGlass Sheathing; use furring strips or framing.

DensGlass Sheathing is not intended for roof applications. For roof applications, consult our DensDeck® Roof Board brochure.

DensGlass Sheathing is not intended for interior or exterior tile applications. For interior tile applications, consult our DensShield® Tile Backer brochure.

DensGlass Sheathing should not be used in lieu of plywood where required.

Do not apply DensGlass Sheathing below grade.

For all installations, design details such as fasteners, sealants and control joints per system specifications must be properly installed. Openings and penetrations must be properly flashed and sealed. Failure to do so will void the warranty.

Do not use DensGlass Sheathing as a base for nailing or mechanical fastening. Fasteners should be flush to the face of the board, not countersunk.

Technical Data

DensGlass Sheathing is noncombustible as described and tested in accordance with ASTM E136 or CAN/ULC S114.

DensGlass Sheathing exceeds ASTM C1396 sheathing standards for humidified deflection by a factor of 10 in tests over the standard for regular gypsum sheathing.

5/8" (15.9 mm) DensGlass® Fireguard® Sheathing is UL and ULC classified **Type DGG**.

DensGlass Sheathing is manufactured to meet ASTM C1177.

Flame spread and smoke develop rating of 0/0 when tested in accordance with ASTM E84 or CAN/ULC S102.

Handling and Use—CAUTION

This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

Material Safety Data Sheet (MSDS) is available at www.buildgp.com/safetyinfo or call 1-404-652-5119.

Product Data

Thicknesses: 1/2" (12.7 mm); 5/8" (15.9 mm) is Type X (ASTM C1177)

Width: 4' (1220 mm) standard, tolerance up to ± 1/8" (3.2 mm)

Lengths: 8' (2438 mm), 9' (2743 mm) or 10' (3048 mm) standard

Edges: Square

* For complete warranty details, visit www.gpgypsum.com.

continued →

Submittal Approvals

Job Name _____

Contractor _____

Date _____

Physical Properties

Properties	1/2" (12.7 mm) DensGlass® Sheathing	5/8" (15.9 mm) DensGlass® Fireguard® Sheathing
Width, nominal	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)
Length, standard	8' (2440 mm), 9' (2743 mm), 10' (3048 mm), ± 1/4" (6 mm)	8' (2440 mm), 9' (2743 mm), 10' (3048 mm), ± 1/4" (6 mm)
Weight, nominal, lbs./sq. ft. (Kg/m²)	1.9 (9)	2.5 (12)
Edges	Square	Square
Bending radius ⁵	6' (1829 mm)	8' (2438 mm)
Racking strength ⁶ , lbs./ft. (dry) (N/m), Ultimate—not design value	>540 (7878)	>654 (9544)
Flexural strength ^{1,4} , parallel, lbf. (N), 4' weak direction	≥80 (356)	≥100 (445)
Compressive strength	min. 500 psi (3445 kPa)	min. 500 psi (3445 kPa)
Humidified deflection ^{1,4}	<2/8" (6 mm)	<1/8" (3 mm)
Permeance ² , perms (ng/Pa•s•m²)	>23 (1300)	>17 (970)
R Value ³ , ft²•°F•hr/BTU (m²•K/W)	.56 (0.099)	.67 (0.118)
Combustibility ⁷	Noncombustible	Noncombustible
Linear expansion with moisture change, in/in %RH (mm/mm %RH) ⁸	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶
Surface burning characteristics per ASTM E84 or CAN/ULC S102: flame spread/smoke developed	0/0	0/0
Coefficient of thermal expansion, in/in/°F (mm/mm/°C)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶) ⁹	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶) ⁹

¹ Tested in accordance with ASTM C473

² Tested in accordance with ASTM E96 (dry cup method)

³ Tested in accordance with ASTM C518 (heat flow meter)

⁴ Specified values per ASTM C1177

⁵ Double fasteners on ends as needed

⁶ Tested in accordance with ASTM E72

⁷ As defined and tested in accordance with ASTM E136 or CAN/ULC S114

⁸ As stated by Gypsum Association GA-235

⁹ Tested in accordance with ASTM E228-85



U.S.A. Georgia-Pacific Gypsum LLC
 Georgia-Pacific Gypsum II LLC
 Canada Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. West: **1-800-824-7503**
 Midwest: **1-800-876-4746**
 South Central: **1-800-231-6060**
 Southeast: **1-800-327-2344**
 Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**
 Quebec Toll Free: **1-800-361-0486**

TECHNICAL INFORMATION

U.S.A. and Canada: **1-800-225-6119**, www.gpgypsum.com

TRADEMARKS Unless otherwise noted, all trademarks are owned by or licensed to Georgia-Pacific Gypsum LLC.

WARRANTIES, REMEDIES AND TERMS OF SALE For current warranty information for this product, please go to www.gpgypsum.com and select the product for warranty information. All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at www.gpgypsum.com.

UPDATES AND CURRENT INFORMATION The information in this document may change without notice. Visit our website at www.gpgypsum.com for updates and current information.

CAUTION For product fire, safety and use information, go to www.buildgp.com/safetyinfo or call 1-800-225-6119.

FIRE SAFETY CAUTION Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.



TECHNICAL GUIDE

SHEATHING



Product Overview

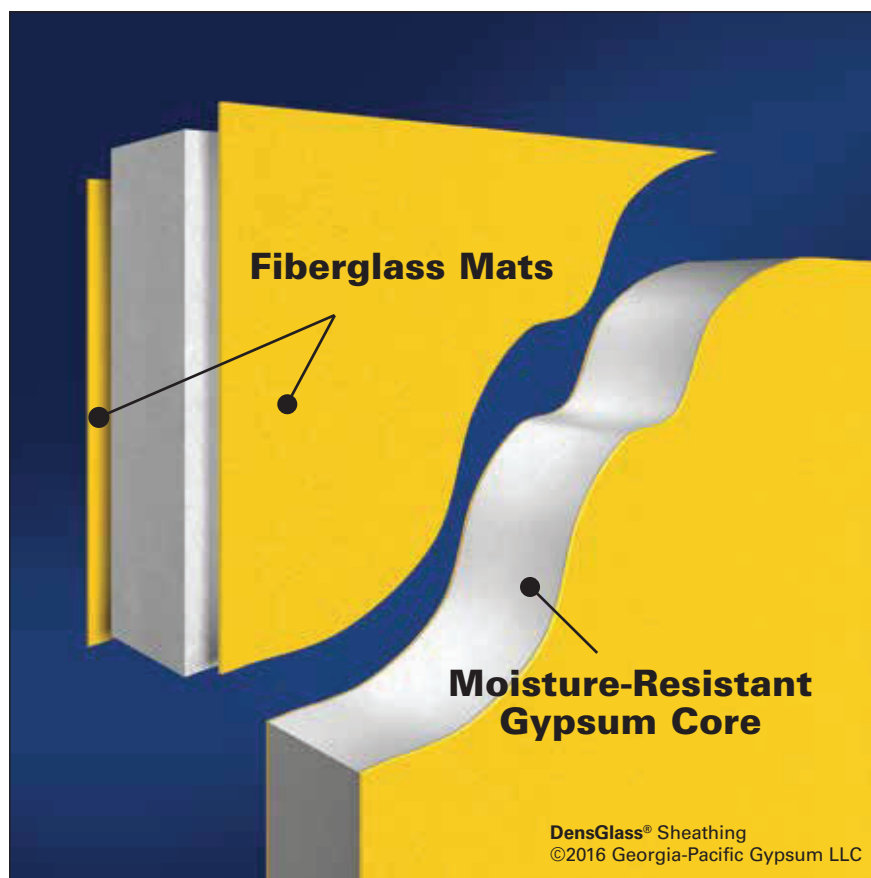


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DensGlass® Sheathing, with its recognizable GOLD color, has fiberglass mats for superior mold and moisture resistance compared to paper-faced sheathings.

- *Fiberglass mats eliminate a potential food source for mold and may reduce remediation and scheduling delays associated with paper-faced drywall.*
- *Replaces traditional paper-faced sheathing.*
- *Backed with a limited warranty against delamination and deterioration for up to 12 months of exposure to normal weather conditions.**

**For complete warranty details, visit www.buildgp.com/warranties.*

When tested, as manufactured, in accordance with ASTM D3273, DensGlass Sheathing has scored a 10, the highest level of performance for mold resistance under the ASTM D3273 test method.

The score of 10, in the ASTM D3273 test, indicates no mold growth in a 4-week controlled laboratory test. The mold resistance of any building product when used in actual job site conditions may not produce the same results as were achieved in the controlled, laboratory setting. No material can be considered mold proof. When properly used with good design, handling and construction practices, Dens® Brand gypsum products provide increased mold resistance compared to standard paper-faced wallboard. For additional information, go to www.buildgp.com/safetyinfo.

Available Sizes/Dimensions

DensGlass Sheathing is available in 1/2" (12.7 mm) thickness and DensGlass® Fireguard® Sheathing is available in 5/8" (15.9 mm) thickness. DensGlass Sheathing is manufactured in a 4' (1219 mm) width and 8' (2438 mm), 9' (2743 mm) and 10' (3048 mm) lengths. Other lengths are available upon request.

DensGlass® Sheathing is a preferred substrate under brick, stone, stucco, siding and Exterior Insulation and Finishing Systems (EIFS) because of its exemplary track record. DensGlass Sheathing should be specified for any project where flexibility and easy sheathing installation are paramount without the headaches and expense of delamination, deterioration, sagging and warping. Look for the distinctive GOLD color to ensure you're using genuine DensGlass Sheathing.

Mold Resistance

In independent testing, DensGlass Sheathing, with its fiberglass mat design, has achieved a score of 10, the highest level of performance for mold resistance under ASTM D3273. For additional information concerning mold resistance, go to www.buildgp.com/safetyinfo.

Strength

Fiberglass mats penetrate into the panel to make an integrated unit that offers superb strength; outstanding resistance to delamination, deterioration, warping and job site damage; and an excellent bonding surface for EIFS and air barrier systems. The flexural strength of DensGlass Sheathing is approximately the same in both directions. This means DensGlass Sheathing can be installed either vertically or horizontally without sacrificing wall strength between studs. DensGlass panels also protect and help stabilize structural framing.

Stability

DensGlass Sheathing is extremely resistant to rippling, buckling and sagging, even under humid conditions—which makes it particularly suitable for soffits. In actual tests, DensGlass panels exceeded ASTM C1396 standards for humidified deflection by a factor of five times over the standard for paper-faced gypsum sheathing.

Fire Resistance

DensGlass Sheathing is noncombustible as described and tested in accordance with ASTM E136 or CAN/ULC S114. 5/8" (15.9 mm) DensGlass® Fireguard® Sheathing is included in a variety of UL and ULC listings and other designs in the GA-600 Fire Resistance Design Manual.

Superior Weather Protection

DensGlass Sheathing integrates a water-resistant, treated core with a fiberglass mat face and back to provide superb protection from the elements.

A water-resistive barrier is not required over DensGlass Sheathing to provide for the protection of the gypsum sheathing during installation. DensGlass Sheathing is the ideal substrate for a wide variety of air and water-resistive barriers including building wraps, fluid applied coatings, self-adhering membranes and spray foam applications. See page 10 for details.

Easy to Handle

DensGlass Sheathing is lightweight and easy to handle. It can be cut and fastened with standard drywall tools and fasteners. The product is much easier to work with than cement board, fiber cement sheathing or magnesium oxide sheathing which tend to be heavy and brittle.

Outstanding Warranty

DensGlass Sheathing is covered by a 12-month limited warranty against delamination and deterioration for exposure to normal weather conditions, a five-year limited warranty against manufacturing defects and a 12-year limited warranty against manufacturing defects when used as a substrate for architecturally specified EIFS. For a copy of the limited warranty, visit our website at www.buildgp.com/warranties.

Standards and Code Compliance

DensGlass Sheathing is manufactured to meet ASTM C1177. Application standards where applicable are in accordance with Gypsum Association Publication GA-253 for gypsum sheathing or ASTM C1280.

Evaluated by:

- ICC ES: www.icc-es.org/reports/index.cfm?search=search
- Florida Product Approval: www.floridabuilding.org

The data relating to fire- and sound-tested assemblies is based on the characteristics, properties and performance of materials and systems obtained under controlled test conditions as set forth under the appropriate ASTM standard, such as E 119 (fire), E 90 (sound) or E 72 (structural).

**For use in select assemblies.*

Georgia-Pacific Gypsum and Sustainability

Georgia-Pacific Gypsum's definition of sustainability is meeting the needs of society today without jeopardizing our ability to do so in the future. We are committed to using resources efficiently to provide innovative products and solutions that meet the needs of customers and society, while operating in a manner that is environmentally and socially responsible, and economically sound.

We continue to focus on:

- Improving energy efficiency at our manufacturing plants
- Seeking out opportunities to reduce water use, and to reuse water more efficiently
- Finding cost effective ways to further reduce air emissions
- Recovering and reusing materials that otherwise would end up in landfills.

Green building codes, standards, and programs are establishing themselves across the country. They promote the use of products that contribute to the performance of the building, along with minimizing environmental and human health impacts over the life of the building or home. Because we embrace product performance and operate in an environmentally, socially, and economically sound manner, owners and architects can feel good about the structures they build using our products.

Many of our products contribute to LEED® and other green building codes, standards, or program credits or requirements. Please refer to www.gpgypsum.com for recycled content, regional materials, and low emitting materials information and use our on-line LEED calculator to calculate contribution for a specific credit. For general information on sustainability, visit www.buildgp.com/sustainability.

Physical Properties

Product Comparison	1/2" (12.7 mm) DensGlass® Sheathing	5/8" (15.9 mm) DensGlass® Fireguard®
Width, nominal ⁵	4' (1219 mm) ± 3/32" (2.4 mm)	4' (1219 mm) ± 3/32" (2.4 mm)
Length, standard ⁵	8', 9', 10' (2438, 2743, 3048 mm) ± 1/4" (6 mm)	8', 9', 10' (2438, 2743, 3048 mm) ± 1/4" (6 mm)
Weight ⁹ nominal, lbs./sq. ft. (Kg/m ²)	1.9 (9)	2.5 (12)
Bending radius (lengthwise)	6' (1829 mm) ⁶	8' (2438 mm) ⁶
Racking strength, ⁷ lbs./ft. (dry) (N/m) (Ultimate – not design value)	>540 (7878)	>654 (9544)
Flexural strength, ² parallel, lbf. (N) (4' weak direction)	≥80 ⁵ (356)	≥100 (445)
Compressive strength	min. 500 psi (3445 kPa)	min. 500 psi (3445 kPa)
Humidified deflection ^{2,5}	<2/8" (6 mm)	<1/8" (3 mm)
Permeance, ³ perms (ng/Pa•s•m ²)	>23 [1300]	>17 [970]
R Value ⁴ , ft ² •°F•hr/BTU (m ² •K/W)	.56 (0.099)	.67 (0.118)
Combustibility ⁸	Noncombustible	Noncombustible
Linear expansion with moisture change in/in/%RH (mm/mm %RH) ¹⁰	6.25 x 10 ⁻⁶	6.25 x 10 ⁻⁶
Surface burning characteristics (per ASTM E84 or CAN/ULC-S102): flame spread/smoke developed	0/0	0/0
Coefficient of thermal expansion in/in/°F (mm/mm/°C) ¹¹	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)	8.5 x 10 ⁻⁶ (15.3 x 10 ⁻⁶)

¹ Specified values per ASTM C1396

² Tested in accordance with ASTM C473

³ Tested in accordance with ASTM E96 (dry cup method)

⁴ Tested in accordance with ASTM C518 (heat flow meter)

⁵ Specified values per ASTM C1177

⁶ Double fasteners on ends as needed

⁷ Tested in accordance with ASTM E72

⁸ As defined and tested in accordance with ASTM E136 or CAN/ULC S114

⁹ Approximate weight for design and shipping purposes. Actual weight may vary based on manufacturing location and other factors.

¹⁰ As stated by Gypsum Association GA-235

¹¹ Tested in accordance with ASTM E228-85

Installation Instructions

- DensGlass® Sheathing must be installed in accordance with the instructions in this brochure, Gypsum Association document GA-253 and ASTM C1280. DensGlass Sheathing can be attached parallel or perpendicular to wood or metal framing. Use appropriate board orientation for specific fire assemblies and shear wall applications within this document, other reference documents or as required by designing authority. The framing width shall not be less than 1-1/2" (38 mm) wide for wood framing and 1-1/4" (32 mm) for steel framing. Framing members shall not vary more than 1/8" (3 mm) from the plane of the faces of adjacent framing.
- Fasteners should be driven flush with the panel surface (not countersunk) and into the framing system. Locate fasteners at least 3/8" (9 mm) from the ends and edges of the sheathing. Nails or screws, as listed in the fastener chart, may be used to attach DensGlass Sheathing to framing. When a pneumatic fastening system into metal is used to attach DensGlass Sheathing, consult with manufacturer for application specifications and shear resistance data. DensGlass Sheathing is not to be used as a base for nailing or other fastening.
- Install DensGlass Sheathing with joints staggered. DensGlass Sheathing shall be properly flashed at openings and preferably located so that no joint will align with an edge of the opening. Ends and edges of the sheathing should fit tightly. DensGlass Sheathing panels shall not be less than 7" (178 mm) from the finish grade in fully weather- and water-protected siding systems, and not less than 12" (305 mm) from the ground for properly drained and ventilated crawl spaces. Consult with the design authority for control joint recommendations.

Wall Applications

Installing Cladding over DensGlass® Sheathing

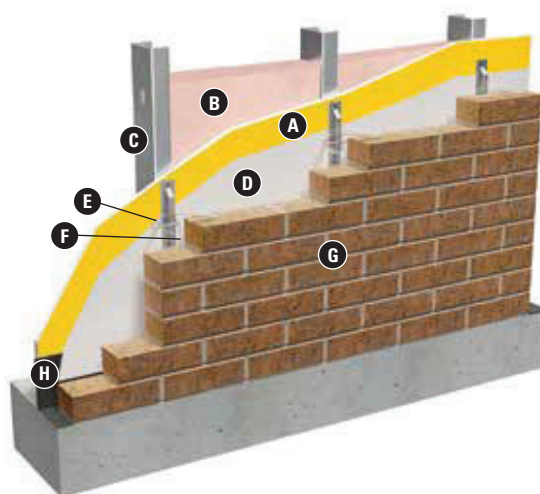
Most conventional exterior sidings and wall coverings—including vinyl, composition, metal, stone, brick, wood—may be applied over DensGlass Sheathing.

- | | | |
|--------------------------------|-----------------------|------------------------|
| A. DensGlass Sheathing | G. Brick Masonry | L. Fiber Cement Siding |
| B. Insulation | H. Flashing and Weeps | M. Metal Siding |
| C. Framing | I. Wood Siding | |
| D. Water-Resistive/Air Barrier | J. Plywood Siding | |
| E. Masonry Tie | K. Vinyl Siding | |
| F. 2" (50 mm) Max. Air Space | | |

Important: Illustrations not intended for design or specification purposes.

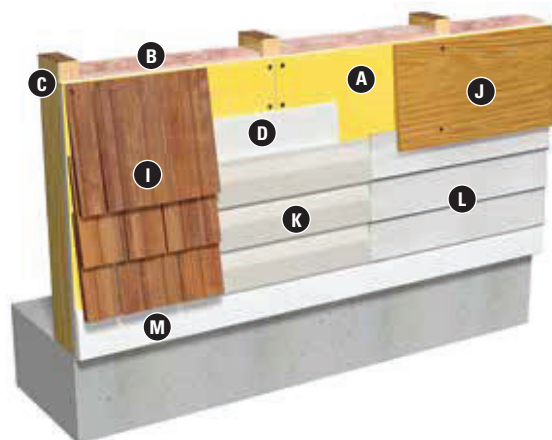
Brick Cavity Wall

Masonry or stone veneer can be applied over DensGlass Sheathing just as it would be over any other type of sheathing. Attach the masonry ties securely through the panels and into the steel or wood framing. Space the ties as required by masonry courses. Apply water-resistive/air barrier and continuous insulation as required by building code or design authority.*



Vinyl, Metal, Wood, Fiber Cement Siding

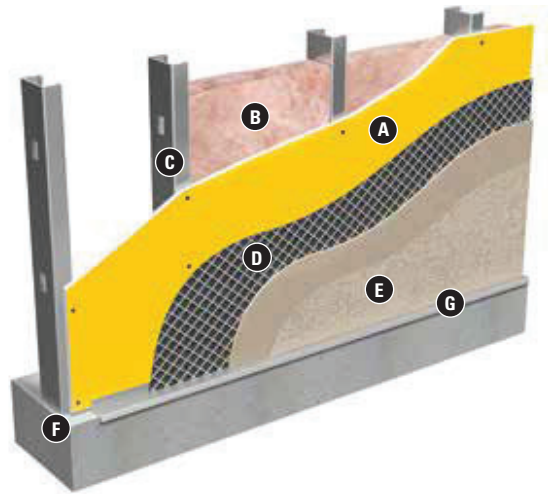
DensGlass Sheathing can be used in applications such as under wood or plywood panel siding and other horizontal siding applications. All siding must be attached through the DensGlass Sheathing and into the steel or wood framing. Apply water-resistive/air barrier as required by building code or design authority.*



*For a sheathing, water-resistive barrier and air barrier, that eliminates the need for building wrap or fluid applied membranes, see the DensElement™ Barrier System at DensElement.com

Wall Applications *continued*

- A. DensGlass® Sheathing
- B. Insulation
- C. Framing
- D. Paper-Backed Metal Lath
- E. Conventional Stucco System
- F. Minimum 1/4" (6 mm) Gap
- G. Flashing and Weeps



Conventional Stucco

Stucco systems may be applied over DensGlass Sheathing using paper-backed metal lath or two layers of building paper and metal lath. Metal lath must be mechanically attached through the DensGlass Sheathing into the steel or wood framing. Install stucco system in accordance with the manufacturer's instructions and local building code requirements. For a sheathing, with an integrated water-resistive barrier and air barrier, that eliminates the need for building wrap or fluid applied membranes, see the DensElement™ Barrier System at DensElement.com.

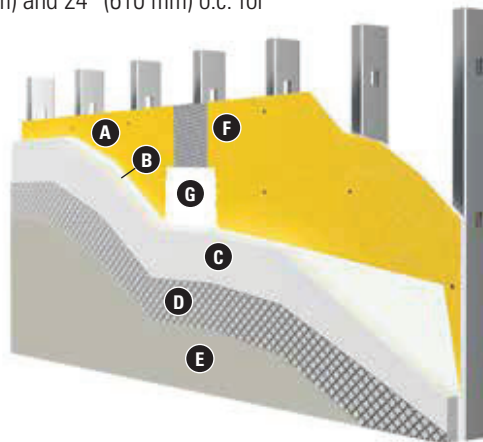
Exterior Insulation and Finish Systems (EIFS)

DensGlass Sheathing is an ideal substrate for adhesive or mechanical application of expanded polystyrene (EPS) or extruded polystyrene insulation in EIFS applications and is recommended for all climate zones.

DensGlass Sheathing is a preferred gypsum substrate for EIFS by EIMA (the EIFS industry members association). DensGlass Sheathing panels are surface treated with our exclusive GOLD color. This coating, developed especially for DensGlass Sheathing, has several important advantages for EIFS applications:

- Eliminates the need for sealer/primer with EIFS air and water resistive barrier coatings.
- Strengthens the bond between panel and surfacing insulation product.
- Makes the panel more resistant to surface water.
- 12-year limited warranty against manufacturing defects when used in an architecturally specified EIFS application (see buildgp.com/warranties for complete warranty information).
- Maximum framing spacing 16" (406 mm) o.c. for 1/2" (12.7 mm) and 24" (610 mm) o.c. for 5/8" (15.9 mm) DensGlass® Fireguard® Sheathing.

- A. DensGlass Sheathing
- B. Water Resistive/Air Barrier
- C. Polystyrene Insulation
- D. Reinforcing Mesh Embedded in Base Coat
- E. Finish Coat
- F. Mesh Tape
- G. Coating to bed tape to DensGlass Sheathing



High Velocity Hurricane Zone (HVHZ)

The ability to withstand the destructive winds and the impact of various objects during a hurricane in a coastal area is key to the survival of any exterior cladding system. DensGlass Sheathing from Georgia-Pacific Gypsum helps BASF, Sto Corp, Dryvit, and Parex-Lahabra, Inc. systems pass the strict Miami-Dade County and Florida Building Code requirements for High Velocity Hurricane Zones (HVHZ). The systems were tested independently to determine the performance against specific criteria for impact resistance, air and water infiltration resistance and wind load resistance. For more information, please visit Miami Dade HVHZ: www.miamidade.gov/building/pc-search_app.asp or contact the system manufacturer.

Fastening and Framing

Thickness	Framing Spacing	Panel Orientation	Fastener Spacing – Wood Framing ⁴	Fastener Spacing – Metal Framing ⁴
1/2" (12.7 mm)	24" (610 mm) o.c. max ^{1,3}	Parallel ³ or Perpendicular	8" (203 mm) o.c. field ² & perimeter	8" (203 mm) o.c. along framing
5/8" (15.9 mm)	24" (610 mm) o.c. max ³	Parallel ³ or Perpendicular	8" (203 mm) o.c. field ² & perimeter	8" (203 mm) o.c. along framing

- Only for mechanically attached claddings. When specified behind EIFS, maximum framing spacing for 1/2" (12.7 mm) DensGlass® Sheathing is 16" (406 mm) o.c.
- Fastener spacing around the perimeter of the wall and along intermediate vertical framing members. To meet the racking shear strength listed in the physical properties table, fastener spacing is 4" (102 mm) o.c. around the perimeter of each panel and 8" (203 mm) o.c. along vertical framing members.
- For racking strength resistance, apply panel edges parallel with framing spaced a maximum of 16" (406 mm) o.c. for both 1/2" (12.7 mm) and 5/8" (15.9 mm) DensGlass Sheathing.
- Fire-rated assemblies may require additional fasteners, see specific assembly details.

Fastener*	Length		Description	Application
	1/2" (12.7 mm) Thick Sheathing	5/8" (15.9 mm) Thick Sheathing		
	1" (25 mm)	1-1/4" (32 mm)	Bugle head fine thread, corrosion-resistant drill point drywall screw	DensGlass Sheathing to heavy-gauge metal framing (18 gauge or thicker)
	1" (25 mm)	1-1/4" (32 mm)	Bugle head fine thread, corrosion-resistant sharp point drywall screw	DensGlass Sheathing to light-gauge metal framing furring (20-25 gauge)
	1-1/4" (32 mm)	1-5/8" (41 mm)	Bugle head, rust-resistant, coarse thread sharp point screw	DensGlass Sheathing to wood framing
	1-1/4" (32 mm)	1-1/4" (32 mm) metal 1-5/8" (41 mm) wood	Wafer head, corrosion-resistant screws, drill or sharp point	DensGlass Sheathing to heavy-gauge or light-gauge, metal or wood framing
	1-1/2" (38 mm)	1-3/4" (45 mm)	11-gauge, galvanized nail	DensGlass Sheathing to wood framing

*For screws, meet or exceed ASTM C1002 or C954. Contact fastener manufacturer for correct amount of corrosion resistance.

Negative Uniform Wind Load

5/8" (15.9 mm) DensGlass® Fireguard® Sheathing Horizontally Applied

Stud Spacing, In./O.C. (mm)	Screws, In./O.C. (mm)	Ultimate load, PSF* (kPa)
16 (406)	8 (203)	127 (6.08)
16 (406)	6 (152)	142 (6.80)
16 (406)	4 (102)	192 (9.19)
12 (305)	8 (203)	157 (7.51)
12 (305)	6 (152)	204 (9.77)
12 (305)	4 (102)	270 (12.93)
8 (203)	8 (203)	208 (9.96)
8 (203)	6 (152)	354 (16.95)
8 (203)	4 (102)	410 (19.63)

NOTE: Apply DensGlass Sheathing to appropriately engineered framing system. Tested applied to 6" (152 mm) x 1-5/8" (41 mm) 18-gauge (43 mils) steel studs using #6 1-1/4" (32 mm) bugle head screws. Other stud sizes may be suitable.

Source: Tested in accordance with ASTM E330 by Hurricane Test Laboratory. For a copy of report #G488-1001-07, contact Georgia-Pacific Gypsum Technical Hotline at 1-800-225-6119.

*Apply appropriate safety factor from the design method used to calculate design load.

1/2" (12.7 mm) DensGlass Sheathing and 5/8" (15.9 mm) DensGlass Fireguard Sheathing Vertically or Horizontally Applied

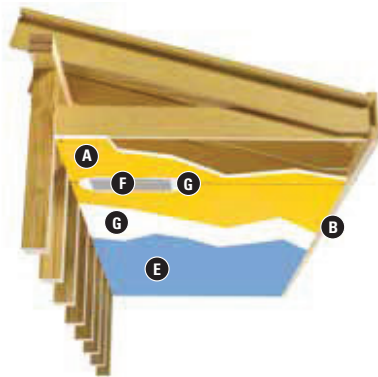
Thickness Inches (mm)	Board Orientation	Stud Spacing in. o.c. (mm)	Ultimate Load PSF* (kPa)
1/2" (12.7)	Vertical	16 (406)	65 (3.11)
1/2" (12.7)	Horizontal	16 (406)	70 (3.35)
5/8" (15.9)	Vertical	24 (610)	68 (3.26)
5/8" (15.9)	Horizontal	24 (610)	85 (4.07)
5/8" (15.9)	Vertical	16 (406)	92 (4.40)

Source: TPI Report #89-047; wind load per ASTM E330 (bugle head screws 8" (203 mm) o.c.).

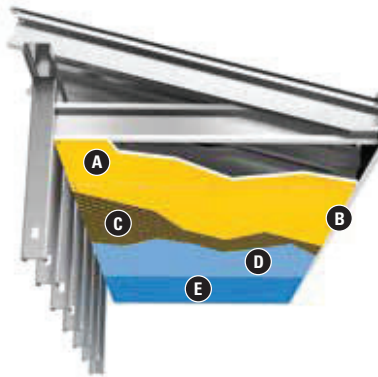
*Apply appropriate safety factor from the design method used to calculate design load.

Soffit Applications, Fastening, Framing and Finishing

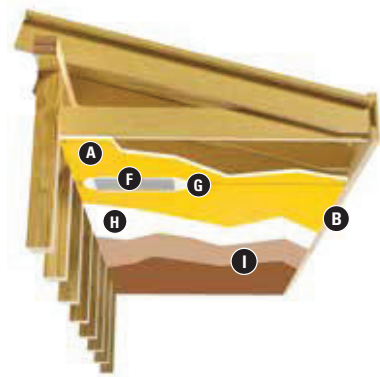
Method #1



Method #2



Method #3



- | | |
|------------------------------------|---|
| A. DensGlass® Sheathing | G. Gypsum Setting Type Compound* |
| B. Drip Edge | H. Bonding Agent to Entire DensGlass Sheathing Surface |
| C. Reinforcing Mesh/Base Coat | I. 2 Coat Thin Stucco System not to exceed 1/4" to 3/8" Total Thickness |
| D. Base Coat | |
| E. Finish Coat | |
| F. 2" (51 mm) Fiberglass Mesh Tape | |

*Sandable setting compounds are not recommended.

Thickness	Framing Spacing	Orientation	Screw Spacing
1/2" (12.7 mm)	16" (406 mm) o.c. max	Parallel or Perpendicular	8" (203 mm) o.c. along framing
1/2" (12.7 mm)	24" (610 mm) o.c. max	Perpendicular 24" o.c. framing	8" (203 mm) o.c. along framing
5/8" (15.9 mm)	24" (610 mm) o.c. max	Parallel or Perpendicular	8" (203 mm) o.c. along framing

Method #1

Embed 2" (51 mm) wide fiberglass mesh tape in 90 minute gypsum setting type joint compound over all joints. Upon setting, apply a skim coat of setting compound over the panels to achieve a uniform, smooth finish over the entire area. Prime with exterior-grade primer and finish with two coats of exterior-grade paint.

Method #2

Apply a synthetic-type Direct Applied Finish System in accordance with the coating manufacturer's recommendation.

Special conditions for both methods:

- Control joints are recommended a maximum of 30 feet (9144 mm) or closer as specified by the design authority.
- The roof must be dried in or protection from the elements must be provided prior to installing DensGlass Sheathing in horizontal applications to prevent moisture from ponding or settling on top of the sheathing panel or within the finished soffit.
- Sandable setting compounds are not acceptable for use over DensGlass Sheathing in exterior soffit applications.

Method #3

- Finish joints as described in method #1.
- Apply a bonding agent to entire DensGlass Sheathing surface.
- Apply a 2-coat thin stucco system directly to the DensGlass Sheathing (2-coat system not to exceed 1/4" to 3/8" total thickness).

Important: Illustrations not intended for design or specification purposes.

Water- and Air-Resistive Barriers

Evolving codes, standards and programs are requiring the use of water and air resistive barriers. In most cases, these barriers are applied over the exterior sheathing. DensGlass® Sheathing has been widely accepted as a preferred substrate for all recognized types of water and air resistive barriers.

- Self-adhered sheet materials
- Fluid applied membranes
- Spray polyurethane foam (medium density closed cell)
- Mechanically attached flexible sheet (includes #15 asphalt felt and synthetic wraps)
- Boardstock air barrier – rigid foam core

For a list of air barrier materials, accessories and components, see the Air Barrier Association of America (ABAA) website (www.airbarrier.org).

Where joint protection is required or desired, two methods may be used: **Method 1)** Apply minimum 3/8" (9 mm) bead of sealant to joints and trowel to provide a layer approximately 2" (51 mm) wide by 1/16" (2 mm) thick spanning the joint. Use backer rod for openings larger than 1/8" (3 mm). **Method 2)** Apply glass mesh joint tape to all joints, overlapping at intersections by the width of the tape. Apply approximately 3/8" (9 mm) bead of caulk along the joint. Embed the caulk into the entire surface of the tape with a trowel. Use backer rod for openings larger than 1/8" (3 mm). Follow manufacturer's installation recommendations for use with DensGlass Sheathing, and design authority specifications.

Note: Consult with local building code, design professional, owner or cladding manufacturer for water-resistive barrier requirements and compatibility with the wall cladding.

Protection of Penetrations

All penetrations should be protected to prevent air and water infiltration. Follow building code, door/window manufacturer or design authority's recommendations for flashing around openings, abutments to dissimilar materials and wall terminations.

Air Barrier Compliance

Per the International Energy Conservation Code® (IECC), gypsum sheathing such as DensGlass Sheathing complies with the prescriptive code language for use as a continuous air barrier when the joints and openings are properly sealed.

For a Sheathing, with an integrated water-resistive barrier and air barrier please refer to the DensElement Barrier System

The DensElement™ Barrier System with AquaKOR™ Technology integrates a water-resistive and air barrier (WRB-AB) directly into the exterior wall assembly. This eliminates the need for building wraps, peel-and-stick membranes, or fluid-applied membranes to the field of the sheathing. For additional information on the DensElement™ Barrier System, visit www.denselement.com.

Fire-Rated Assemblies

5/8" DensGlass® Fireguard® Sheathing is UL and ULC certified as **Type DGG** and is included in numerous assembly designs investigated by UL and ULC for hourly fire resistance ratings.

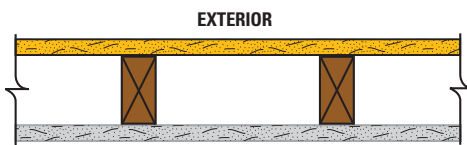
In addition, 5/8" DensGlass Fireguard Sheathing is certified as "Type X" in accordance with ASTM C1177 and may replace 5/8" gypsum sheathing specified as Type X in generic fire-rated wall assemblies. Generic systems in the GA-600 Fire Resistance Design Manual are applicable to the products of any manufacturer, including Georgia-Pacific Gypsum, provided they meet certain standards set forth in such manual, such as Type X gypsum board per applicable ASTM standard with specified thickness and size described in the design. "Type X" as used in this technical guide designates gypsum board manufactured and tested in accordance with specific ASTM standards for increased fire resistance beyond regular gypsum board. Please consult the ASTM standard for the specific product (for example, ASTM C1177 for glass mat gypsum substrate for use as sheathing) for further information and significance of use.

Proprietary GA-600 Designs: Assemblies listed as proprietary in the GA-600 Fire Resistance Design Manual only list one product per manufacturer and may not include all products referenced in the illustrations below. Please consult the specified UL, ULC, cUL or other fire listing or test for a complete list of approved products.

The following design assemblies are for illustrative purposes only. Consult the appropriate fire resistance directory or test report for complete assembly information. For additional fire safety information concerning DensGlass Sheathing, visit www.buildgp.com/safetyinfo.

1-Hour Fire Rating

Design Reference: UL U305, U337, WHI 495-0702, GA WP 8130



30-34 STC Sound Trans.

Test Reference: OR 64-8

Wall Thickness: 4-3/4" (121 mm)

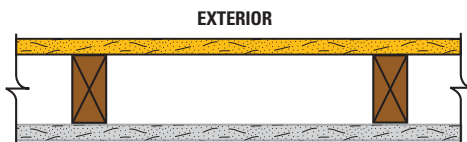
Weight per Sq. Ft.: 7.5 psf (37 Kg/m²)

Exterior: 5/8" (15.9 mm) DensGlass® Fireguard® Sheathing applied vertically (U337, U305) or horizontally (U305) to 2" (51 mm) x 4" (102 mm) wood studs 16" (406 mm) o.c. with 1-3/4" (45 mm) galvanized roofing nails 7" (178 mm) o.c. for all framing members. Exterior surface covered with weather exposed cladding or finish system.

Interior: 5/8" (15.9 mm) DensArmor Plus® Fireguard® interior panels or 5/8" (15.9 mm) ToughRock® Fireguard X® gypsum board applied vertically (U337, U305) or horizontally (U305) to studs with 1-7/8" (48 mm) 6d coated nails 7" (178 mm) o.c. Stagger joints each side.

1-Hour Fire Rating

Design Reference: UL U309, cUL U309, GA WP 3510, GA WP 8105



35-39 STC Sound Trans.

Test Reference: NGC 2404

Wall Thickness: 4-7/8" (124 mm)

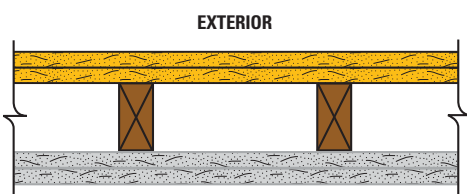
Weight per Sq. Ft.: 7.0 psf (34 Kg/m²)

Exterior: 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically or horizontally to 2" (51 mm) x 4" (102 mm) wood studs spaced 24" (610 mm) o.c. with 1-3/4" (45 mm) galvanized roofing nails 7" (178 mm) o.c.

Interior: 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock Fireguard X gypsum board applied vertically or horizontally to framing with 1-7/8" (48 mm) 6d coated nails 7" (178 mm) o.c.

2-Hour Fire Rating

Design Reference: UL U301, cUL U301, GA WP 8416



40-44 STC Sound Trans.

Test Reference: NGC-2363

Wall Thickness: 6-1/8" (156 mm)

Weight per Sq. Ft.: 12.0 psf (58 Kg/m²)

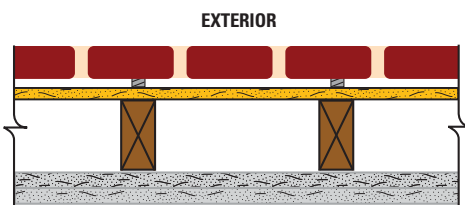
Exterior: Two layers 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically or horizontally to 2" (51 mm) x 4" (102 mm) wood studs 16" (406 mm) o.c. Base layer attached with 1-7/8" (48 mm) galvanized roofing nails 6" (152 mm) o.c. Face layer attached with 2-3/8" (60 mm) galvanized roofing nails 8" (203 mm) o.c. Stagger joints between layers and on base layer of both sides.

Interior: Two layers 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock Fireguard X gypsum board applied horizontally or vertically to framing. Base layer attached with 1-7/8" (48 mm) 6d cement coated nails 6" (152 mm) o.c. Face layer attached with 2-3/8" (60 mm) 6d cement coated nails 8" (203 mm) o.c. Stagger joints between layers and on base layer of both sides. Sound tested with studs 16" (406 mm) o.c. and nails for base layer spaced 6" (152 mm) o.c.

Fire-Rated Assemblies continued

2-Hour Fire Rating

Design Reference: UL U302, cUL U302, GA WP 8410



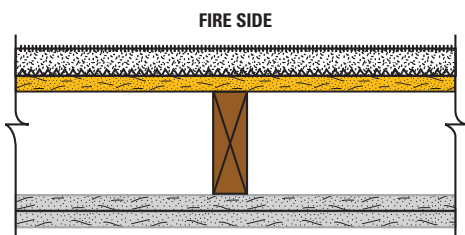
Wall Thickness: 10-1/8" (257 mm)

Exterior: One layer 1/2" (12.7 mm) DensGlass® Sheathing applied vertically or horizontally to studs 16" (406 mm) o.c. with 1-3/4" (45 mm) galvanized roofing nails 6" (152 mm) o.c. Face layer is 2" (51 mm) x 4" (102 mm) x 8" (51 mm x 102 mm x 203 mm) clay brick with 1" (25 mm) air space between brick and exterior sheathing. 20-gauge (30 mils) galvanized wire ties attached to each stud with 8d coated nails 2-3/8" (60 mm) as described above, located at every sixth course of bricks.

Interior: Two layers 5/8" (15.9 mm) DensArmor Plus® Fireguard® interior panels or 5/8" (15.9 mm) ToughRock® FireguardX® gypsum board applied vertically or horizontally to 2" (51 mm) x 4" (102 mm) wood studs 16" (406 mm) o.c. Base layer attached with 1-7/8" (48 mm) 6d coated nails 8" (203 mm) o.c. Face layer attached with 2-3/8" (60 mm) coated nails 8" (203 mm) o.c.

Generic 2-Hour Fire Rating

Design Reference: UC ES-6898 12-21-67, GA WP 8420



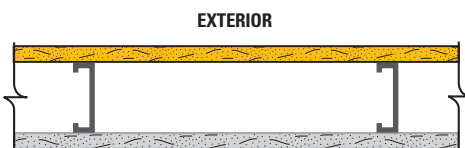
Wall Thickness: 8-5/8" (219 mm)

Exterior: Base layer 5/8" (15.9 mm) DensGlass® Fireguard® Sheathing retardant treated 2" (51 mm) x 6" (152 mm) wood studs 16" (406 mm) o.c. with 6d coated nails, 1-7/8" (48 mm) long, 0.0915" (2 mm) shank, 1/4" (6 mm) heads, 12" (305 mm) o.c. and covered with a single layer fire resistant protective weather retarder paper stapled along each edge at 16" (406 mm) o.c. Galvanized self-furring wire mesh applied over sheathing with 8d galvanized roofing nails, 2-3/8" (60 mm) long, 0.113" (3 mm) shank, 9/32" (7 mm) heads, 6" (152 mm) o.c. Cement-stucco applied over wire mesh in two 1/2" (12.7 mm) thick coats with bonding agent applied between coats.

Interior: Base layer 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock FireguardX gypsum board applied vertically to studs with 6d coated nails, 1-7/8" (48 mm) long, 0.0915" (2 mm) shank, 1/4" (6 mm) heads, 12" (305 mm) o.c. Face layer 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock FireguardX gypsum board applied horizontally to studs with 8d coated nails, 2-3/8" (60 mm) long, 0.113" (3 mm) shank, 9/32" (7 mm) heads, 8" (203 mm) o.c. at edges and 12" (305 mm) o.c. at intermediate studs.

1-Hour Fire Rating

Design Reference: UL U465, cUL U465, GA WP 8007



45-49 STC Sound Trans.

Test Reference: RAL TL 99-103

Wall Thickness: 4-7/8" (124 mm)

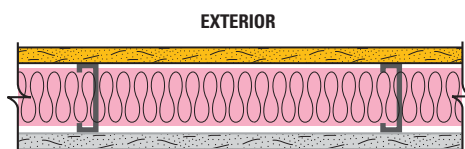
Weight per Sq. Ft.: 6 psf (29 Kg/m²)

Exterior: 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically to min. 3-5/8" (92 mm) corrosion resistant 25-gauge (18 mils) steel studs 24" (610 mm) o.c. with 1" (25 mm) corrosion resistant bugle head screws 8" (203 mm) o.c. at board edges and 8" (203 mm) at intermediate studs.

Interior: 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock FireguardX gypsum board applied vertically to framing with 1" (25 mm) Type S bugle head screws 8" (203 mm) o.c. at board edges and 12" (305 mm) at intermediate studs. Sound tested with 3" mineral fiber, 2.5 psf, in stud space.

1-Hour Fire Rating

Design Reference: UL U425, cUL U425, GA WP 8006



Wall Thickness: 4-3/4" (121 mm)

Weight per Sq. Ft.: 6 psf (29 Kg/m²)

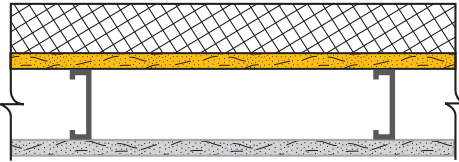
Exterior: 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically to min. 3-1/2" (89 mm) corrosion resistant 20-gauge (30 mils) steel studs 24" (610 mm) o.c. with 1" (25 mm) Type S corrosion resistant bugle head screws 8" (203 mm) o.c.

Interior: 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock FireguardX gypsum board applied vertically to framing with 1" (25 mm) Type S bugle head screws 12" (305 mm) o.c. Insulation to completely fill stud cavity.

Fire-Rated Assemblies continued

1-Hour Fire Rating

Design Reference: GA WP 8122



Partition Thickness: 6" – 7" (152 – 178 mm) Varies based on insulation thickness

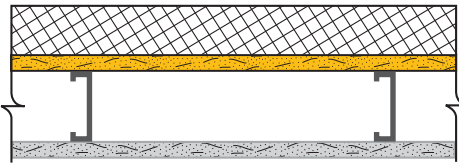
Weight per Sq. Ft.: 7.0 psf (34 Kg/m²)

Exterior: 5/8" (15.9 mm) DensGlass Fireguard® Sheathing applied vertically to 3-5/8" (92 mm) 18-gauge (43 mils) steel studs 16" (406 mm) o.c. with #6 x 1-1/4" (32 mm) self-drilling, corrosion-resistant, bugle head, drywall screws 8" (203 mm) o.c. at edges and ends and 8" (203 mm) o.c. at intermediate studs. Proprietary polymer modified exterior insulation and finish system applied over sheathing. 2" (51 mm) maximum foam-plastic thickness.

Interior: 5/8" (15.9 mm) ToughRock® Fireguard X® gypsum board or 5/8" (15.9 mm) DensArmor Plus® Fireguard® interior panels applied vertically to studs with #6 x 1-1/4" (32 mm) self-drilling, bugle head drywall screws 8" (203 mm) o.c. at edges and ends and 12" (305 mm) o.c. at intermediate studs.

1-Hour Fire Rating

Design Reference: GA WP 8123



Partition Thickness: 6" – 9" (152 – 229 mm) Varies based on insulation thickness

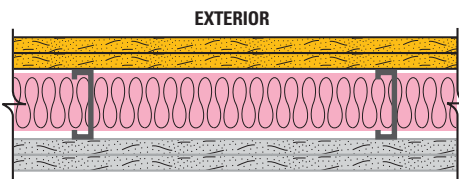
Weight per Sq. Ft.: 7.0 psf (34 Kg/m²)

Exterior: 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically to 3-5/8" (92 mm) 18-gauge (43 mils) steel studs 24" (610 mm) o.c. with #6 x 1-1/4" (32 mm) self-drilling, corrosion-resistant, bugle head, drywall screws 8" (203 mm) o.c. at edges and ends and 8" (203 mm) o.c. at intermediate studs. Polymer-based exterior insulation and finish system applied over sheathing. 4" (102 mm) maximum foam-on-plastic thickness.

Interior: One layer 5/8" (15.9 mm) ToughRock Fireguard X gypsum board or 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels applied vertically to studs with #6 x 1-1/4" (32 mm) self-drilling, bugle head drywall screws 8" (203 mm) o.c. at edges and ends and 12" (305 mm) o.c. at intermediate studs.

2-Hour Fire Rating

Design Reference: UL U425, cUL U425, GA WP 1716, GA WP 8203



40-44 STC Sound Trans.

Test Reference: NGC-2250

Wall Thickness: 6" (152 mm)

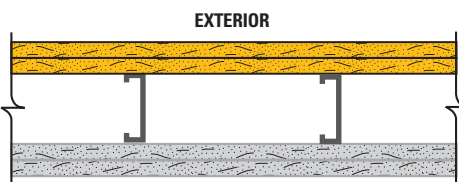
Weight per Sq. Ft.: 11.0 psf (54 Kg/m²)

Exterior: Two layers 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically to min. 3-1/2" (89 mm) corrosion resistant 20-gauge (30 mils) steel studs 24" (610 mm) o.c. Base layer attached with 1" (25 mm) Type S-12 corrosion resistant bugle head screws 8" (203 mm) o.c. Face layer attached with 1-5/8" (41 mm) Type S-12 corrosion resistant bugle head screws spaced 8" (203 mm) o.c. Joints staggered.

Interior: Two layers 5/8" (15.9 mm) DensArmor Plus Fireguard interior panels or 5/8" (15.9 mm) ToughRock Fireguard X gypsum board applied vertically to framing. Base layer attached with 1" (25 mm) Type S-12 bugle head screws 12" (305 mm) o.c. Face layer attached with 1-5/8" (41 mm) Type S-12 bugle head screws spaced 12" (305 mm) o.c. Joints staggered. Insulation to completely fill stud cavity. (Load Bearing: 80% of design load)

2-Hour Fire Rating

Design Reference: UL U411, cUL U411, GA WP 1524



55-59 STC Sound Trans.

Test Reference: IRC IR 761

Wall Thickness: 6 1/8" (156 mm)

Weight per Sq. Ft.: 10 psf (49 Kg/m²)

Exterior: Two layers 5/8" (15.9 mm) DensGlass Fireguard Sheathing applied vertically to min. 2-1/2" (64 mm) corrosion resistant 25-gauge (18 mils) steel studs 24" (610 mm) o.c. Base layer attached with 1" (25 mm) Type S corrosion resistant bugle head screws 16" (406 mm) o.c. Face layer attached with 1-5/8" (41 mm) Type S corrosion resistant bugle head screws spaced 8" (203 mm) o.c. Joints staggered.

Interior: Two layers 5/8" (15.9 mm) DensArmor Plus Fireguard or 5/8" (15.9 mm) ToughRock Fireguard X gypsum board applied vertically to framing. Base layer attached with 1" (25 mm) Type S bugle head screws 16" (406 mm) o.c. Face layer attached with 1-5/8" (41 mm) Type S bugle head screws spaced 16" (406 mm) o.c. in the field and along vertical edges and 12" (305 mm) o.c. to the floor and ceiling runners. Joints staggered. Batt or blanket insulation optional. Sound tested with 3-1/2" (89 mm) fiberglass insulation.

Delivery, Handling and Storage

All materials shall be delivered in original bundles bearing the brand name, if any; applicable standard designation; and name of the manufacturer or supplier for whom the product is manufactured. The plastic packaging used to wrap gypsum panel products for rail and/or truck shipment is intended to provide temporary protection from moisture exposure during transit only and is not intended to provide protection during storage after delivery. Such plastic packaging shall be removed immediately upon receipt of the shipment. **WARNING:** Failure to remove protective plastic shipping covers can result in condensation which can lead to damage, including mold.

All materials should be kept dry. Gypsum panel products shall be neatly stacked flat with care taken to prevent sagging or damage to edges, ends and surfaces. Gypsum panel products and accessories shall be properly supported on risers on a level platform, and fully protected from weather, direct sunlight exposure, and condensation. Gypsum panel products shall be stacked flat rather than on edge or end. **WARNING:** Gypsum panel products stacked on edge or end can be unstable and present a serious hazard in the workplace should they accidentally topple.

Refer to *Handling Gypsum Panel Products, GA-801*, for proper storage and handling requirements.

Reference: *Application and Finishing of Gypsum Panel Products, GA-216*, Gypsum Association.

Recommendations and Limitations for Use

The following recommendations and limitations are important to ensure the proper use and benefits of DensGlass® Sheathing. Failure to strictly adhere to such recommendations and limitations may void the limited warranty provided by Georgia-Pacific Gypsum for such product. For additional warranty details, please go to www.buildgp.com/warranties.

DensGlass Sheathing is resistant to normal weather conditions, but it is not intended for immersion in water. Cascading roof/floor water should be directed away from the sheathing until appropriate drainage is installed.

Avoid any condition that will create moisture in the air and condensation on the exterior walls during periods when the exterior temperature is lower than the interior. The use of forced air heaters creates volumes of water vapor which, when not properly vented, can condense on building materials. The use of these heaters and any resulting damage is not the responsibility of Georgia-Pacific Gypsum. Consult heater manufacturer for proper use and ventilation.

When DensGlass Sheathing panels are used in slanted wall applications, that portion of the wall must be temporarily protected from the elements by the use of a water-resistant barrier prior to application of the cladding. Do not allow water to pond or settle on sheathing. Also, exposed wall ends such as those that may be found in parapets must be covered to prevent water from infiltrating the cavity.

Georgia-Pacific Gypsum does not warrant and is not responsible or liable for the performance of any cladding, coating, finishes, coverings or other materials or exterior systems applied over DensGlass Sheathing. The suitability and compatibility of any system is the responsibility of the system manufacturer or design authority.

Brackets to support heavy cladding such as tile and marble should not be installed over DensGlass Sheathing.

Do not laminate DensGlass Sheathing to masonry surfaces; use furring strips or framing.

DensGlass Sheathing is not intended for roof applications. For roof applications, consult our DensDeck® Roof Board brochure.

DensGlass Sheathing is not intended for interior or exterior tile applications. For interior tile applications, consult our DensShield® Tile Backer brochure.

DensGlass Sheathing should not be used in lieu of plywood where required.

Do not apply DensGlass Sheathing below grade.

For all installations, design details such as fasteners, sealants and control joints per system specifications must be properly installed. Openings and penetrations must be properly flashed and sealed. Failure to do so will void the warranty.

Do not use DensGlass Sheathing as a base for nailing or mechanical fastening. Fasteners should be flush to the face of the board, not countersunk.

When DensGlass Sheathing is used in panelized construction, install panels so panel joints are tightly butted together on both horizontal and vertical joints.

Georgia-Pacific recommends as a best practice that cut sheathing edges in panelized construction should be sealed. DensDefy™ Liquid Flashing has been determined to be a product that is effective in sealing cut sheathing edges and has been tested internally for adhesion to Georgia-Pacific sheathing products.

COMMONLY USED METRIC CONVERSIONS

Gypsum Board Thickness

1/4 in. – 6 mm
 1/2 in. – 12.7 mm
 5/8 in. – 15.9 mm
 1 in. – 25.4 mm

Gypsum Board Width

2 ft. – 610 mm
 4 ft. – 1219 mm
 32 in. – 813 mm

Gypsum Board Length

4 ft. – 1219 mm
 5 ft. – 1524 mm
 8 ft. – 2438 mm
 9 ft. – 2743 mm
 10 ft. – 3048 mm
 12 ft. – 3658 mm

Framing Spacing

16 in. – 406 mm
 24 in. – 610 mm

Fastener Spacing

2 in. – 51 mm
 2.5 in. – 64 mm
 7 in. – 178 mm
 8 in. – 203 mm
 12 in. – 305 mm
 16 in. – 406 mm
 24 in. – 610 mm

Temperature

40°F – 5°C
 50°F – 10°C
 125°F – 52°C

High-Performance Gypsum Products from Georgia-Pacific

DensDeck® Roof Board	Fiberglass mat roof board used as the ideal thermal barrier and cover board to improve resistance to wind uplift, hail, foot traffic, fire and mold in a broad range of commercial roofing applications. Look for DensDeck Prime and DensDeck DuraGuard Roof Boards, too.
DensGlass® Sheathing	The original and universal standard of exterior gypsum sheathing offers superior weather resistance, with a 12-month limited warranty against delamination or deterioration during exposure to normal weather conditions. Look for the familiar GOLD color. GREENGUARD listed for microbial resistance.
DensGlass® Shaftliner	These specially-designed panels are perfect for moisture-prone vertical or horizontal shafts, interior stairwells and area separation wall assemblies. 12-month limited warranty against delamination or deterioration during exposure to normal weather conditions. GREENGUARD listed for microbial resistance.
DensArmor Plus® Interior Panel	High-performance interior panel accelerates scheduling because it can be installed before the building is dried-in. A 12-month limited warranty against delamination or deterioration during exposure to normal weather conditions. GREENGUARD and GREENGUARD Gold certified for low VOC emissions. Listed in CHPS® High Performance Product Database as a low emitting product. GREENGUARD listed for microbial resistance.
DensArmor Plus® Abuse-Resistant Interior Panel	With the same benefits as the DensArmor Plus® Interior Panel, these also offer added resistance to scuffs, abrasions and surface indentations; ideal for healthcare facilities and schools. GREENGUARD and GREENGUARD Gold certified for low VOC emissions. Listed in CHPS® High Performance Product Database as a low emitting product. GREENGUARD listed for microbial resistance.
DensArmor Plus® Impact-Resistant Interior Panel	With even greater durability than abuse-resistant panels, these have an embedded impact-resistant mesh for the ultimate resistance in high traffic areas; ideal for healthcare facilities, schools and correctional institutions. GREENGUARD and GREENGUARD Gold certified for low VOC emissions. Listed in CHPS® High Performance Product Database as a low emitting product. GREENGUARD listed for microbial resistance.
DensShield® Tile Backer	Acrylic-coated tile backer stops moisture at the surface. Lightweight and strong, they are built for speed on the job site. Conforms to requirements of 2012 IBC/IRC Code. GREENGUARD listed for microbial resistance.
ToughRock® Gypsum Board	Paper-faced line of gypsum panels for a variety of applications including interior wall and ceiling applications, abuse-resistant boards, and panels for use in fire-rated assemblies. ToughRock products are GREENGUARD and GREENGUARD Gold certified for low VOC emissions. Listed in CHPS® High Performance Product Database as a low emitting product.
ToughRock® Mold-Guard™ Gypsum Board	ToughRock Mold-Guard Gypsum Board products have enhanced mold resistance in comparison to regular ToughRock® Gypsum Boards. They are GREENGUARD and GREENGUARD Gold Certified for low VOC emissions and are listed in the CHPS® High Performance Product Database as a low emitting product. The ToughRock Mold-Guard Gypsum Board is also listed as GREENGUARD microbial resistant.
DensElement™ Barrier System	DensElement Barrier System delivers the same advantages of DensGlass Sheathing while incorporating AquaKOR™ Technology, a water barrier system that maintains high vapor permeability mitigating the risk of moisture in the wall cavity. With this innovation built into its core, DensElement eliminates the need for additional barrier (WRB-AB) saving time, labor and materials.



Georgia-Pacific Gypsum

U.S.A. Georgia-Pacific Gypsum LLC
CANADA Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. West: **1-800-824-7503**
Midwest: **1-800-876-4746**
South Central: **1-800-231-6060**
Southeast: **1-800-327-2344**
Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**
Quebec Toll Free: **1-800-361-0486**

TECHNICAL HOTLINE

U.S.A. and Canada: **1-800-225-6119**



TRADEMARKS –

Unless otherwise noted, all trademarks are owned by or licensed to Georgia-Pacific Gypsum LLC. BASF is a registered trademark of BASF. LEED, USGBC and related logo are trademarks owned by the U.S. Green Building Council and are used by permission. CHPS is a trademark owned by Collaborative for High Performance Schools Inc. International Energy Conservation Code is a registered mark of the International Code Council.

WARRANTIES, REMEDIES AND TERMS OF SALE –

For current warranty information, please go to www.buildgp.com/warranties and select the applicable product. All sales by Georgia-Pacific are subject to our Terms of Sale available at www.buildgp.com/tc.

UPDATES AND CURRENT INFORMATION –

The information in this document may change without notice. Visit our website at www.gpgypsum.com for updates and current information.

CAUTION: For product fire, safety and use information, go to buildgp.com/safetyinfo or call 1-800-225-6119.

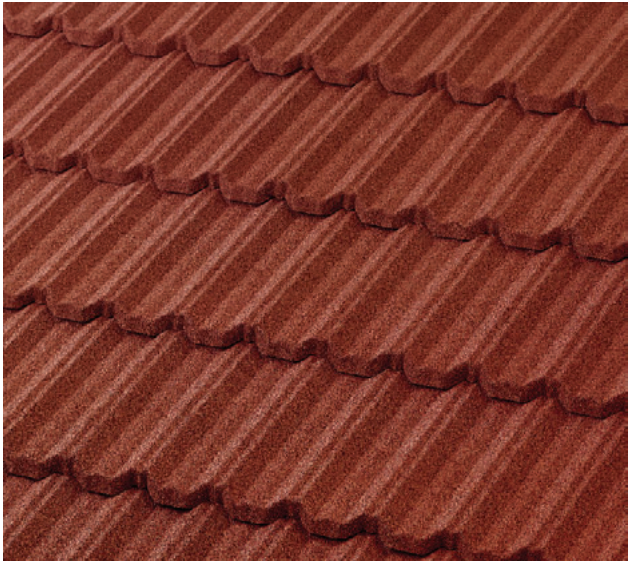
HANDLING AND USE –

CAUTION: This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

FIRE SAFETY CAUTION –

Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily provide one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.

PRODUCT INFORMATION



Reflectivity:	0.14
Aged Ref. (3 yr):	N/A
Emmisivity:	0.89
Aged Em. (3 yr)	N/A
SRI:	11
Aged SRI (3 yr):	N/A

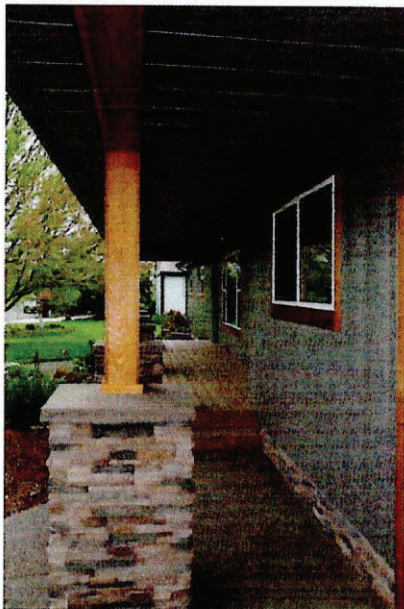
Profile:	PACIFIC Tile
Color Name:	Spanish Red
SKU Number:	4DEP9732500
Product Weight:	Lightweight 1.5 Lbs per Sq Ft
Installation Type:	Direct or Batten
Pallet Layout:	Left-to-Right or Right-to-Left
Fastening:	Exposed
Batten Spacing:	14.5" (368mm)
Available Regions:	Nationwide

Product Specifications

Size:	18.063" x 54.125" (459 x 1375 mm)
Coverage:	14.5" x 49.5" (368 x 1257 mm)
Panels per 100 Sq Ft:	20
Sq M per Panel:	0.46
Sq M per Pallet:	186
Panels per Pallet:	400
Squares per Pallet:	20
Pallets per Full Truck:	15
Squares per Full Track:	300
Panels per Container Size 20ft (6.1M)	
With Accessories:	5,600
No Accessories:	6,400
Pallets per Container Size 20ft (6.1M)	
With Accessories:	14
No Accessories:	16

The printed color shown here may vary from actual available tile color and should not be used to color match. Please contact your local Sales Representative for actual panel samples.





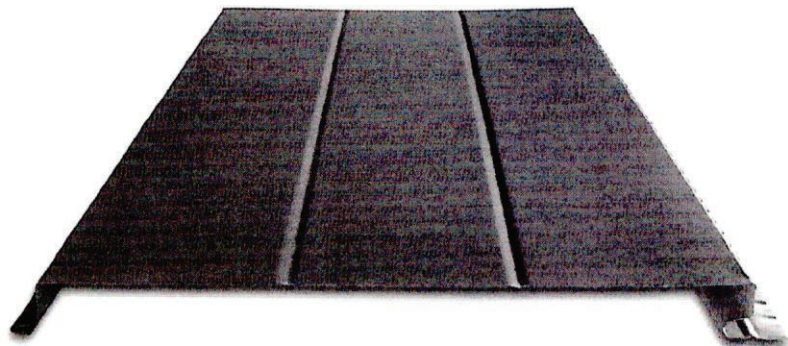
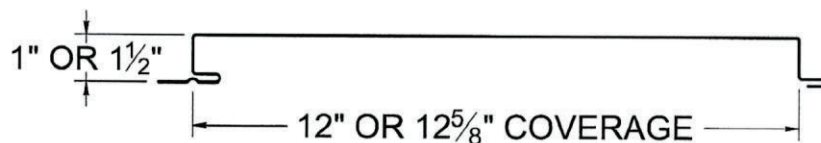
Lifetime Soffit™ will give your commercial or residential projects a clean monolithic appearance. These panels are a perfect fit to be used on walls, soffits and fascia. With the 4 different panel styles available, your designs will come alive.

KEY FEATURES

- 12" and 12-5/8" coverage options
- 26, 24 & 22 gauge Tru-gauge™, .032 Aluminum and 24 gauge Bonderized (G-90) (*inquire*)
- 16 & 20 oz. Copper
- Custom Lengths 1' to 35' (*inquire on longer lengths*)
- Concealed Fasteners: fasteners cannot leak
- 17 sq. inch free air flow per lineal foot of perforated panel
- ASTM E283, ASTM E330, ASTM E331
- UL Class A fire rated
- Versatile in wall and soffit applications

Pan options: Flat Pan, Single Bead, Double Bead and Perforated

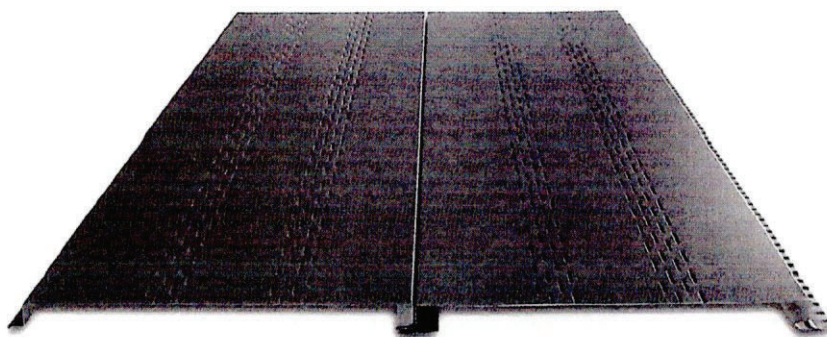
- "Oil canning" is an inherent characteristic of roof and wall products, and not a defect, which is not a cause for panel rejection



DOUBLE BEAD
or Single Bead available



FLAT PAN



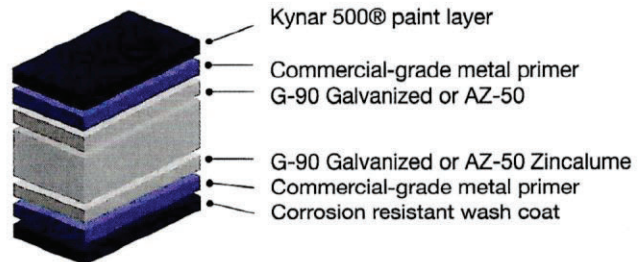
2 PERFORATED PANELS

MATERIAL SPECIFICATIONS

- 26 gauge Kynar 500® Painted Steel
.019" (thickness prior to painting)
G-90 Galvanized or AZ-50
- 24 & 22 gauge Kynar 500® Painted Steel
.0236" (thickness prior to painting)
G-90 Galvanized or AZ-50
- ▲ 22 gauge Kynar 500® Painted Steel
.029" (thickness prior to painting)
G-90 Galvanized or AZ-50
- 24 & 22 gauge bare Zinalume® Plus with
Clear Acrylic Coating
- .032 Kynar® 500 Painted Aluminum (inquire)
- 24 gauge Bonderized (G-90)
- 16 and 20 oz. Copper (inquire)
- 22 gauge Rusteel™ (cold-rolled)
- 22 gauge Rusteel Plus™ (A606)
- Kynar® and substrate testing data available
(see website)

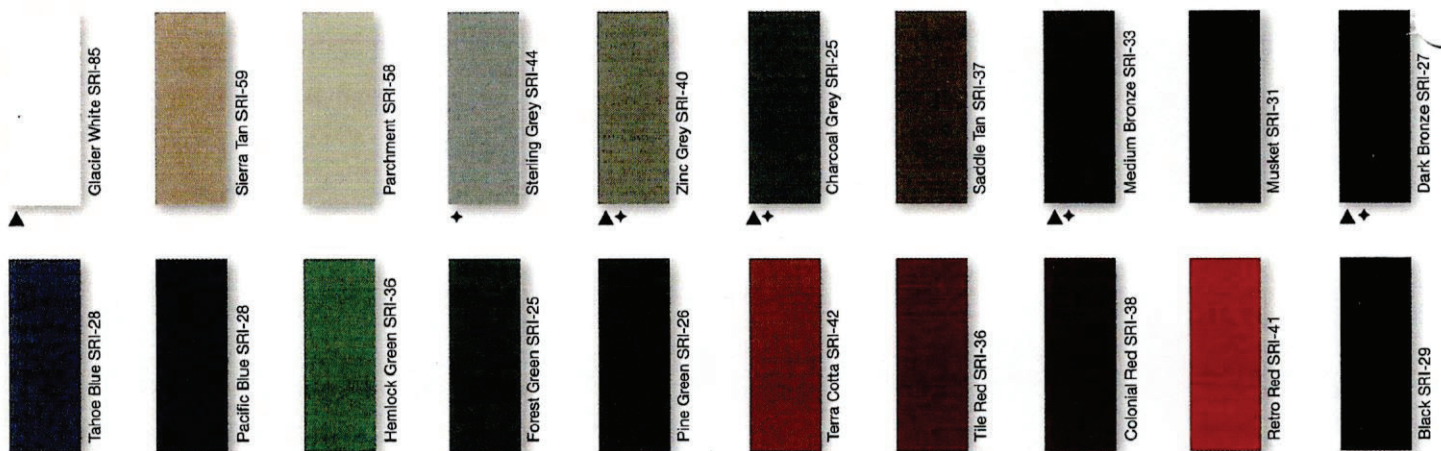
KEY FEATURES

- 20 Standard Colors, 5 Metallic Colors and 5 Specialized Colors
- Kynar 500® Paint System - the ultimate in exterior durability and color retention
- "Cool" color pigments are specially designed to reflect infrared light, reducing heat gain to dwelling, and conform with ENERGY STAR® criteria
- Superior quality, two coat, 70% resin finish, applied at a 1mm thickness
- 40 year residential paint warranty
- 20 and 30 year commercial paint warranty
(contact TMP for warranty specifications)

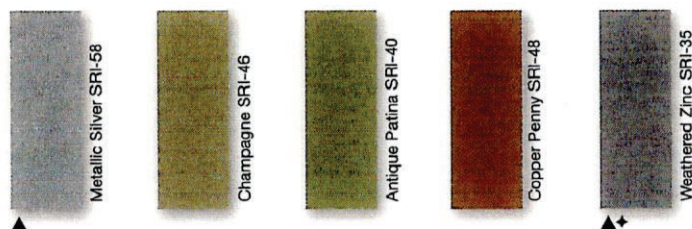


40-Year Residential/20 and 30 Year Commercial Manufacturer's Limited Warranty

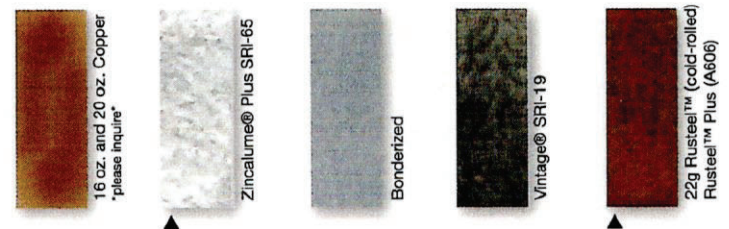
STANDARD 24g COOL KYNAR 500® COLORS



PREMIUM METALLIC COOL KYNAR® COLORS



SPECIALIZED MATERIAL



These printed chips provide a close representation of the colors.

Metal samples are available upon request. Coatings are low gloss 10-15% sheen.

SRI = Solar Reflective Index. SRI values listed above are in accordance with ASTM E 1980 and are based on actual testing. ***Oil canning is not a cause for material rejection***



steelscape



Standard Panel Weights			
Gauge	Color	LBS 50QFT	LBS LF
26	Kynar	1.09	1.09
24	Kynar	1.28	1.28
22	▲	1.61	1.61
.032 Aluminum	◆	0.6	0.6

PROJECT NAME: _____ CAT. #: _____
 NOTES: _____ FIXTURE SCHEDULE: _____

Commercial Downlight

UNIVERSAL RCF SERIES - COLOR SELECTABLE

Product Description:

The Universal Commercial downlight is an economical, all-in-one solution for adding recessed downlighting to hospitality, retail, office and other commercial lighting applications. The downlight is designed with an integral whip, which connects directly to a junction box (existing or independently mounted), and a universal driver that eliminates the need for a traditional recessed housing, saving installers time and money. The downlight combines 3 CCTs in one product. Easy to install in new construction, remodel and retrofit projects, the downlight has a slim body that fits into shallow ceilings. Its white baffle trim blends seamlessly into interiors and reduces glare for soft, eye-pleasing illumination.

Features:

- ETL listed as a fixture and a retrofit
- 3000K/3500K/4000K CCT Selectable with 4000K as the default CCT
- Field installable Emergency Battery back up kit available (includes a test switch and the charge indicator kit, no cover)
- Mounts directly into ceiling, no housing required
- Comes standard with 24" power whip

Voltage:

- 120-277V with 120V Triac Dimming, 10%

Listings:

- cETLus for damp locations, Indoor
- ENERGY STAR certified

Warranty:

5-year standard warranty*

(further details available at www.maxlite.com/warranties)

*Product may be eligible for a warranty extension to 10 years, for an additional fee. Contact MaxLite for details.



CCT SELECTION SWITCH

Ordering Information

FAMILY	SIZE	WATTAGE	CCT	VOLTAGE	TRIM
RCF= Recessed Commercial Fixture	4= 4"	09= 9W	CS= Color Selectable (3000K/3500K/4000K)	[BLANK]= 120-277V, Triac dimming, @ 120V	W= White
	6= 6"	13= 13W			
	8= 8"	18= 18W			
	8= 8"	22= 22W			
	10= 9.5"	40= 40W			

Order Code

ORDER CODE	MODEL NUMBER	ENERGY STAR ID #
14099876	RCF409CSW	2334644
14099877	RCF613CSW	2334645
14099878	RCF618CSW	2334646
14099879	RCF813CSW	2334647
14099880	RCF818CSW	2333702
14099881	RCF822CSW	2334688
104721	RCF1040CSW	2366272

Dimming Compatibility

DIMMER MODELS	
Leviton	6681, IPL06, 6674, 6633, 6672, IPL10, DSL06, RNL06
Lutron	MACL-153M, LGCL-153PLH, PD-6WCL, S-600, LGCL-153P, LG-603P, LG-600, MSCL-OP153M
Cooper	DL10P-A, 9530WS-K, DAL06P, DLC03P
Ivopy	LUXDM600



5-year standard warranty (further details available at www.maxlite.com/warranties) Product may be eligible for a warranty extension to 10 years, for an additional fee. Contact MaxLite for details.

Commercial Downlight

UNIVERSAL RCF SERIES - COLOR SELECTABLE

Accessories (SOLD SEPARATELY)

ORDER CODE	MODEL NUMBER	DESCRIPTION	IMAGE
14098874	RCF-4	4" Commercial Recessed Frame, New Construction	
14098875	RCF-6	6" Commercial Recessed Frame, New Construction	
14098876	RCF-8	8" Commercial Recessed Frame, New Construction	
100298	EBUUP15007N0100	Emergency Battery Back up, 07W, 100-347V, Field installable	
105172	RCF-XTRIM10	Goof ring for RCF10 models, 9.5" to 12" coverage	

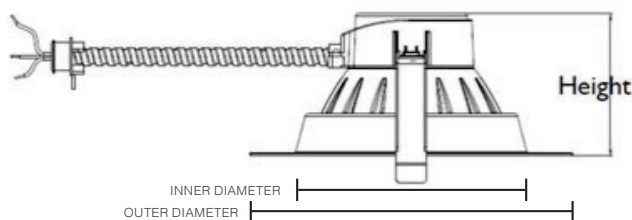
Specifications:

	RCF409CSW	RCF613CSW	RCF618CSW	RCF813CSW	RCF818CSW	RCF822CSW	RCF1040CSW
Power Consumption (W)	9W	13W	18W	13W	18W	22W	40W
Lumens Delivered (lm)	750	1,100	1,650	1,115	1,650	2,120	3,500
Lumens Battery Mode (lm)	530	820	920	835	1060	1105	908
Efficacy	87	88	94	87	94	97	88
CRI	≥80						
Color Temperature (CCT)	Color Selectable - 3000K/3500K/4000K						
L70 Lifetime (hours)	50,000						
Color Consistency	Proprietary binning for uniform color						
Power Factor	≥0.9						
Input Voltage	120-277V, 120V Triac Dimming						
Compatible Dimmers	See List of Compatible Dimmers						
Mounting	Mounts to housing or direct to ceiling						
Operating Temperature	-4°F -104°F (-20°C TO 40°C)						
Certification	ETL, Energy Star, FCC						
Material Usage	RoHS compliant; no mercury						
Environment	Damp Location, Non-IC						
Warranty	5 years						

Lumen values at 3000K

Order Code

NORMAL SIZE	HEIGHT	INNER DIAMETER	OUTER DIAMETER
4"	3.61"	3.61"	5.91"
6"	3.98"	6"	8.18"
8"	4.29"	7.5"	10.25"
9.5"	4.86"	8.3"	11.28"



91 of 91