

Technical Summary

GreenGlass[®] gypsum sheathing features a mold- and moisture-resistant gypsum core sandwiched between naturally mold- and moisture-resistant fiberglass-mat facers, and incorporates the TemShield[®] mold-protection system in the core. This provides excellent exposure durability for up to 12 months (see warranty details on our website). In addition, the high recycled content of GreenGlass gypsum sheathing can contribute greatly toward valuable credits in green-building rating systems.

MOLD and MOISTURE RESISTANCE:

GreenGlass gypsum sheathing incorporates the TemShield mold protection system in the core and glass facers on the surface to resist moisture and mold. GreenGlass scored a 10, the highest score possible, when tested in accordance with ASTM D3273, the industry standard test for mold resistance. Its water absorption of less than 10 percent was tested in accordance with ASTM C473. See our website for more information.

Note: The ASTM D3273 lab test may not be applicable to the actual performance of building materials. No material may be labeled mold proof, and resistance to mold growth depends on many factors. Prolonged exposure to moisture may cause mold and mildew to grow on any surface. Therefore, in order to maximize the mold and mildew resistance of a material, it is essential that good design, handling and construction practices be implemented. This involves avoiding water exposure during all phases of storage, handling, shipping, installation and after installation is complete. See GA 238 for more information.

PHYSICAL PROPERTIES		
	1/2"	5/8"***
Width	4'	4'
Lengths	8', 9', 10', 12'	8', 9', 10', 12'
Edge	Square	Square
Weight	1.70 lbs./ sq. ft.	2.30 lbs./ sq. ft.
Water Absorption ¹	<10%	<10%
Permeability ² (perms)	>27	>22
Flame Spread ³	0	0
Smoke Developed ³	0	0
Humidified Deflection ¹	2/8" max	1/8" max
Flexural Strength ¹ (md/cd)	80/100	100/140
Combustibility	Non	Non
Weather-resistant barrier ⁴	Pass	Pass
Bending Radii ⁵	10'	15'

¹ASTM C473; ²ASTM E96; ³ASTM E84; ⁴ASTM E331; ⁵GA-216 and GA-226.

** 5/8" complies with UL designs and requirements for Type X products.

NOTE: see our website for important information regarding the fire-resistant properties of 5/8" Type X products.

INSTALLATION RECOMMENDATIONS:

Before installing GreenGlass gypsum sheathing, read page 3 of this document regarding **handling cautions** and **required hygiene**.

GreenGlass gypsum sheathing must be installed in accordance with ASTM C1280, ASTM C840 and/or Gypsum Association publication GA-253 and/or GA-216. GreenGlass gypsum sheathing may be installed parallel or perpendicular to either wood or metal framing, with orientation determined by the specific fire-rated assemblies and shear wall applications or other reference documents as required by the designer.

Framing:

The minimum width of wood framing members shall be 1½". The minimum width of metal framing members shall be 1¼". Framing members shall not vary more than 1/8" from the plane of the faces of adjacent framing.

Fasteners:

Drive fasteners flush with the surface of the panel. Do not countersink fasteners. All fasteners must penetrate into the framing member. Locate fasteners a minimum of 3/8" from the edges and ends of the sheathing. Use either nails or screws to attach GreenGlass gypsum sheathing to framing members. Please consult Temple-Inland for specific shear resistance data.

Joints:

Install GreenGlass gypsum sheathing so that end joints are staggered on horizontal applications. Ends and edges

of GreenGlass gypsum sheathing should fit tightly against one another. Refer to the project specifications for control joint recommendations.

Fire-Rated Assemblies:

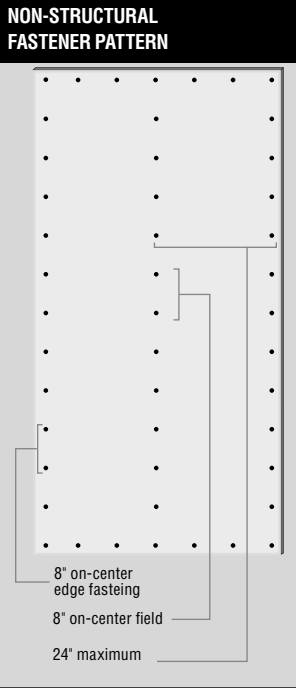
GreenGlass gypsum sheathing should be installed according to the appropriate fire-rated system/assembly specification and in accordance with the appropriate standards: ASTM C1280, ASTM C840, GA-253, GA-216. Please visit our website for a listing of over 140 U.L. approved assemblies and design details or contact your Temple-Inland representative for details.

WALL APPLICATIONS:

GreenGlass gypsum sheathing may be applied under most traditional exterior sidings and wall coverings, including wood, hardboard siding, fiber cement siding, vinyl, metal, stone, brick, wood shingles, shakes, plywood panels, stucco and EIFS systems. Apply all exterior siding/finishes and weather-resistive barriers according to the manufacturers' instructions, local building code and/or architect design.

Brick Wall Application:

Brick, masonry or stone veneer can be applied over GreenGlass gypsum sheathing in the same manner as traditional gypsum sheathing. Attach the masonry ties securely through the panels into the framing member. Space the ties according to masonry courses. Apply the weather-resistive barrier in accordance with local building codes and/or architect design.



Hardboard, Fiber Cement, Shingles, Shakes, Vinyl, Metal or Wood Siding:

All siding must be attached to the framing member through the GreenGlass® gypsum sheathing. Apply a weather-resistive barrier in accordance with local building codes and/or architect design.

Conventional Stucco:

GreenGlass gypsum sheathing may be used as a substrate under conventional stucco systems using paper-backed metal lath. The lath must be mechanically fastened through the GreenGlass gypsum sheathing into the framing members. Apply all exterior siding/finishes and weather-resistive barriers according to the manufacturers' instructions, local building code and/or architect design. Consult the stucco system manufacturer for approval using GreenGlass gypsum sheathing as a substrate.

Exterior Insulation and Finish System (EIFS):

GreenGlass gypsum sheathing is an approved substrate for many different EIFS applications and systems as it is manufactured to comply with ASTM C1177.

Please consult the particular EIFS system manufacturer for the approval of using GreenGlass gypsum sheathing. Apply all exterior siding/finishes and weather-resistive barriers according to the manufacturers' instructions, local building code and/or architect design.

SOFFIT APPLICATIONS:

GreenGlass gypsum sheathing may be used in exterior soffit applications wherever gypsum sheathing is acceptable. GreenGlass gypsum sheathing should be installed according to the appropriate fire-rated system/assembly specification and in accordance with the appropriate standards: ASTM C1280, ASTM C840, GA-253, GA-216.

Finish Instructions:

Finish all joints with 2"-wide fiberglass mesh tape and setting-type joint compound. When joints are dry, skim coat the entire panel surface with setting compound to achieve a smooth surface for final finishing. Use an exterior grade primer and apply 2 coats of quality exterior paint.

For direct-applied finishing systems in soffit areas, consult the finishing systems manufacturer for specific installation instructions.

FASTENING AND FINISHING REQUIREMENTS:

Fasten GreenGlass gypsum sheathing to framing members in accordance with: ASTM C1280, ASTM C840, GA-253, GA-216 (FIG. 1).

WEATHER-RESISTIVE BARRIERS:

GreenGlass gypsum sheathing has been shown to resist water penetration when tested in accordance with ASTM E331. Install using rubberized asphalt tapes with a minimum 4" width (MFM Window Wrap, Fortiflash or Protectowrap) to seal all exposed joints and penetrations.

Note: Some local codes for weather-resistive barriers require sealing of joints and fasteners with reinforced tape combined with a flexible joint treatment. Refer to your local building code, the weather-resistive barrier manufacturer's installation instructions, as well as project design specifications.

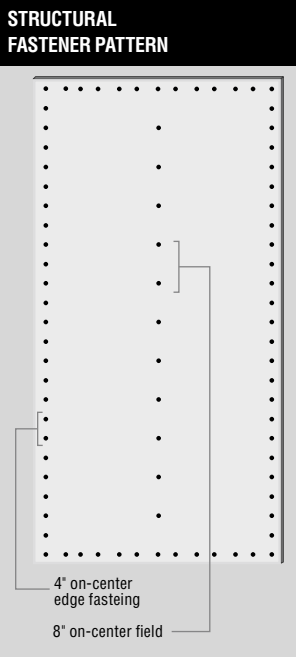


FIG. 1 FASTENING GUIDELINES				
Framing	Thickness	Max. Spacing	Fastener	Fastener Pattern
Wood	1/2"	24" O.C.	1.5" 11 gauge galvanized 7/16-head nail 1.25" bulge head, coarse-thread screw 1.25" wafer head, rust-res screw	8" OC field/8" OC perimeter
Wood	5/8"	24" O.C.	1.75" 11 gauge galvanized 7/16-head nail 1.25" bulge head, coarse-thread screw 1.25" wafer head, rust-res, screw	8" OC field/8" OC perimeter
Lt. Gauge Metal	1/2"	24" O.C.	1" bulge head, fine-thread, rust-res. screw 1.25" wafer head, rust-res screw	8" OC field/8" OC perimeter
Lt. Gauge Metal	5/8"	24" O.C.	1.25" bulge head, coarse-thread screw 1.25" wafer head, rust-res screw	8" OC field/8" OC perimeter
Heavy Gauge Steel	1/2"	24" O.C.	1" bulge head, fine-thread, rust-res. screw 1.25" wafer head, rust-res screw.	8" OC field/8" OC perimeter
Heavy Gauge Steel	5/8"	24" O.C.	1.25" bulge head, coarse-thread screw 1.25" wafer head, rust-res screw	8" OC field/8" OC perimeter

NOTES:
 1/2" framing spacing is only for mechanically attached claddings. Maximum framing spacing when 1/2" is applied behind an EIFS system is 16" OC.
 For wood framing fastener spacing when meeting racking shear strength in normal wind zone areas, the fastener spacing must be 4" OC around the perimeter and 8" OC in the field for those considered bracing panels.
 For racking strength resistance, apply panel edges of GreenGlass gypsum sheathing to framing spaced no more than 16" OC, for both 1/2" and 5/8" thicknesses.
 Fire-rated assemblies may require additional fasteners. See assembly details for specifics.
 Screws must meet or exceed ASTM C1002 and/or ASTM C954.

FIRE-RATED ASSEMBLIES:

GreenGlass fire-resistant gypsum sheathing has been tested in accordance with ASTM E119 and therefore may provide a fire-resistance rating of one or more hours, depending upon the assembly in which it is applied. Please visit our website for a listing of over 140 U.L. approved assemblies and design details or contact your Temple-Inland representative for details.

Note: Because ASTM procedures require that fire tests be conducted on complete building assemblies/systems and not just on the gypsum board itself, the ability of any particular gypsum board to pass a specific ASTM fire test may well depend on factors other than the fire resistance of the gypsum board being tested. These factors include the other components used to construct the building system being tested, the manner in which the system is constructed and the inherent variability of ASTM fire tests.

CODE COMPLIANCE:

GreenGlass gypsum sheathing is manufactured to comply with ASTM C1177 and the appropriate sections of ASTM C1396. As such, it conforms to IRC R702.3 and IBC 2506.2. For the acceptance of gypsum sheathing as structural wall bracing, refer to IRC R602.10.3 and IBC 2506.2. Please consult your local building code.

ARCHITECTURAL SPECIFICATIONS:

CSI 3-part specifications for GreenGlass products and all Temple-Inland gypsum board products may be found in a variety of downloadable formats in the Gypsum Board section of our website accessible through the link labeled Architect Resources. Our specifications may also be found at Sweets/Dodge Online: <http://products.construction.com>; Reed Construction Data: www.reedfirstsource.com; 4Specs.com: www.4specs.com; BSD speclink: www.bsdssoftlink.com and SpexPlus: www.spexplus.net.

LIMITATIONS:

- Should not be used as a nailing base or in lieu of structural wood panels when required.
- Should not be immersed in water or subjected to cascading water conditions.
- Apply GreenGlass gypsum sheathing no lower than 8" from the finish grade in weather- and moisture-protected siding systems and no lower than 12" from the ground for properly ventilated and drained crawl spaces.
- Should not be laminated to masonry surfaces.
- Should not be used where forced air heaters can produce condensation when not properly vented.
- Should avoid any condition that creates moisture and condensation to form on the exterior sheathing during the construction process.
- Do not allow water to pond, cascade or settle on sheathing.
- Do not use for structural roof sheathing or decking applications.
- Not intended for use as a tile backer.
- Temple-Inland will not warrant and will not be held liable for the performance of the exterior cladding systems applied over GreenGlass gypsum sheathing. Check with your system manufacturer or design authority for compatibility and installation instructions.

Failure to adhere to these limitations and manufacturer's instruction will void the warranty.

LIMITED WARRANTY:

Temple-Inland offers a 12-month weather-exposure warranty, a 5-year warranty against manufacturing defects, and a 10-year warranty against manufacturing defects where GreenGlass gypsum sheathing is installed as a substrate in an architecturally specified EIFS. See warranty details on our website.

CAUTION: CONTAINS GLASS FIBERS:

Glass fibers are contained within GreenGlass gypsum sheathing and in the glass facers. Handling may cause skin irritation. Cutting and handling may release glass fibers. Do not use a power saw. Avoid inhalation of these fibers as they may cause respiratory irritation or even aggravated medical conditions.

Skin: If skin contact causes irritation, wash the area with soap and water.

Eyes: If contact with eyes, flush the eye with clean water for 15 minutes

Lungs: Avoid any inhalation of fibers. If unintended inhalation occurs, move to an area of fresh air.

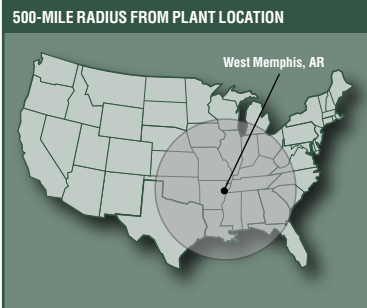
PRODUCT HANDLING AND HYGIENE REQUIREMENTS:

Care should be used in handling GreenGlass gypsum sheathing to ensure worker comfort and safety. Below are some handling guidelines and safety requirements:

- Avoid breathing dust-glass fibers by using a NIOSH-approved dust mask when cutting or sanding.
- Gloves and loose-fitting, long sleeved clothing should be worn to avoid contact of the GreenGlass with bare skin.
- Eye protection with side protection should be worn. Use either safety glasses with side shields or goggles.
- Skin should be washed after contact with GreenGlass. Wash exposed skin with soap and water.
- Clothing may entangle glass fibers. Clothing which has glass fibers entangled should be washed separately from other clothing.

See product MSDS for more information.





SUSTAINABLE DESIGN (LEED, NAHB-GBS and others):

GreenGlass fiberglass-faced gypsum sheathing is SCS certified in accordance with ISO 14021 standards to contain at least 90 percent recycled content on a dry weight basis. This allows it to make valuable contributions toward project certification in several green building rating systems such as LEED and the NAHB Green Building Standard. In addition, GreenGlass contains no volatile organic compounds (VOC).

LEED

The use of GreenGlass gypsum sheathing can contribute greatly toward LEED credits in these two LEED certification categories:

MR credit 4

Recycled Content awards 1 or 2 points for using products with recycled content that constitute at least 10% or 20%, based on cost, of the total value of project materials.

MR credit 5

Local/Regional Materials awards 1 or 2 points for using materials that are extracted and manufactured within 500 miles that constitute at least 10% or 20%, based on cost, of the total value of project materials.

N.A.H.B. Green Building Standards

The use of GreenGlass gypsum sheathing can also contribute greatly toward the N.A.H.B. Green Building Standard credits in the following certification category:

NAHB 604.1 (2)

Pre-consumer Recycled Content specifies the use of recycled content products in major areas such as walls, floors, insulation and roofing.

Please consult your Temple-Inland representative for contribution to other green ratings systems or visit our website.

SUSTAINABLE MATERIALS DATA CHART

Plant Location	Total Recycled Content	% Post-Consumer	% Pre-Consumer	Raw Materials Extraction Site	Miles from Extraction to Plant
West Memphis, AR	90	0	90	Cumberland, TN	154 miles

GreenGlass: Tough as expected. Green as it gets.

