



# USG SHEETROCK® BRAND GLASS-MAT PANELS MOLD TOUGH® VHI FIRECODE® X

## 5/8 in. (15.9 mm) glass-mat Type X panels with very high-impact (VHI), moisture and mold resistance

- Feature a noncombustible, moisture-resistant gypsum core encased in a fiberglass face and back that shed water
- Designed and tested to offer greater resistance to surface abrasion, indentation and impact damage than 5/8 in. (15.9 mm) USG Sheetrock® Brand Glass-Mat Panels Mold Tough® Firecode® X
- Suitable for use in pre dry-in (fast track or pre-rock) and similar applications of panels before the building envelope is fully enclosed
- Quick score-and-snap, no sawing or special tools required
- Comply with ASTM C1658, *Standard Specification for Glass Mat Gypsum Panels*, for 5/8 in. (15.9 mm), Type X and glass-mat water-resistant gypsum panel
- Tested to ASTM C1629, *Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels*, for surface abrasion and indentation resistance, and soft- and hard-body impact
- Score a "10" when tested in accordance with ASTM D3273, *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*
- Can be exposed to weather for up to 12 months and are guaranteed three years against manufacturing defects
- Underwriters Laboratories Inc. (UL) Classification as to fire resistance, surface burning characteristics and noncombustibility
- Achieved GREENGUARD Gold Certification and qualifies as a low VOC emitting material (meets CA 01350)

## DESCRIPTION

USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VHI Firecode® X (UL Type AR) are 5/8 in. (15.9 mm) Type X panels designed and tested to offer greater resistance to surface abrasion, indentation and impact damage than 5/8 in. (15.9 mm) USG Sheetrock® Brand Glass-Mat Panels Mold Tough® Firecode® X. These abuse-resistant panels feature a noncombustible, moisture-resistant gypsum core that is encased in a green colored fiberglass face and back that shed water. When tested in accordance with ASTM D3273, *Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber*, the panels score a "10" (highest). The fiberglass face is folded around the long edges to reinforce and protect the core, and the ends are cut square and even. The long edges of the panels are tapered, allowing joints to be reinforced and concealed with USG Sheetrock® Brand joint treatment systems. The panels are UL Classified for fire resistance and can be used in any UL Design in which Type AR panels are listed.

## INTENDED FOR

- Commercial or residential applications where 5/8 in. (15.9 mm) moisture- and mold-resistant Type X panels with greater resistance to surface abrasion, indentation and impact damage are required
- Areas where additional abuse resistance is desired
- Areas where glass-mat panels are desired
- Load-bearing and nonload-bearing wood- or steel-framed fire-rated walls
- New or repair and remodel construction

## LIMITATIONS

1. Avoid sustained exposure to temperatures exceeding 125°F (52°C).
2. Avoid exposure to excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
3. Must be stored off the ground and under cover in accordance with Gypsum Association's GA-801, *Handling and Storage of Gypsum Panel Products*.

## LIMITATIONS, CONT.

4. For abuse-resistant construction over steel stud framing, minimum 20-gauge (0.0296 in. [0.752 mm] base metal thickness) steel studs, as defined by the Steel Stud Manufacturers Association (SSMA), are recommended.
5. Not intended for exterior applications or constant exposure to water. Protect from immersion in water and the eroding effects of cascading water.
6. Building must be dried-in prior to installation in soffits and other horizontal applications. Wall cavities, floor cavities and other enclosed areas, including insulation, must be dry prior to being closed-up and application of interior finishing.
7. Not suitable for use as a substrate for tile in wet areas such as tubs and showers, gang showers, and other areas subject to direct water exposure.
8. Use as a wall tile substrate is limited to tile installed according to current TCNA and ANSI specifications. Consult with adhesive and tile manufacturers for recommendations for maximum size and weight parameters for use with gypsum panels.

## INTERIOR INSTALLATION, FINISHING AND DECORATING INSTALLATION

For maximum framing spacing in non-fire-resistance-rated applications of gypsum panel products, refer to Gypsum Association's GA-216, *Specifications for the Application and Finishing of Gypsum Panel Products* or ASTM C840, *Standard Specification for Application and Finishing of Gypsum Board*. For fire-resistance-rated applications, refer to the published UL Design or GA File Number.

### Maximum Framing Spacing for Single-Layer Application

Location	Gypsum Panel Thickness	Gypsum Panel Orientation to Framing	Maximum Framing Spacing OC
Ceilings <sup>1</sup>	5/8 in. (15.9 mm)	Parallel	16 in. (406 mm)
		Perpendicular	24 in. (610 mm)
Walls	5/8 in. (15.9 mm)	Parallel	24 in. (610 mm)
		Perpendicular	24 in. (610 mm)

### Maximum Framing Spacing for Multi-Layer Application Without Adhesive Between Layers

Location	Gypsum Panel Thickness	Gypsum Panel Orientation to Framing	Maximum Framing Spacing OC
Ceilings <sup>1</sup>	5/8 in. (15.9 mm)	Parallel	16 in. (406 mm)
		Perpendicular	24 in. (610 mm)
Walls	5/8 in. (15.9 mm)	Parallel	24 in. (610 mm)
		Perpendicular	24 in. (610 mm)

#### Note:

1. On ceilings to receive water-based texture material, 5/8 in. (15.9 mm) gypsum board shall be applied either parallel to framing spaced at 16 in. (406 mm) OC or perpendicular to framing spaced maximum 24 in. (610 mm) OC. See Appendix A.3 of Gypsum Association's GA-216, *Specifications for the Application and Finishing of Gypsum Panel Products* for more information..

USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VHI Firecode® X are by design stronger and have greater surface hardness than standard 5/8 in. (15.9 mm) Type X panels. Because of this, they are heavier and will be more difficult to install. Slower installation production rates should be accounted for in job planning.

Installing USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VHI Firecode® X on steel thinner than 20-gauge (minimum 0.0296 in. [0.752 mm] base metal thickness), as defined by the SSMA, may result in increased fastener strip-out, improper screwhead seating or other related conditions. For more information, refer to USG TechNOTE *Reducing Occurrences of Screw Spinout on Steel Studs When Installing Abuse- & Impact-Resistant Gypsum Panels* (ST700).

## FINISHING AND DECORATING

For high-quality finishing results, USG recommends USG Sheetrock® Brand finishing products.

The nature of the texture and absorption properties of the panel will require an additional skim coat of the entire panel surface with joint compound in most applications. Additionally, an aesthetic benchmark or mock-up is recommended for establishing and demonstrating an approved finishing system to coordinate the expectations of the design professionals with those of the contracted workforce. The finished appearance of the constructed standard should be approved in advance of any widespread work.

Painting products and systems should be used that comply with recommendations and requirements in Appendices of ASTM C840. For priming and decorating with paint, texture or wall covering, follow manufacturer's directions for materials used. Gypsum Association's GA-214, *Recommended Levels of Finish for Gypsum Board, Glass Mat and Fiber-Reinforced Gypsum Panels* should be referred to in order to determine the level of finishing needed to ensure a surface properly prepared to accept the final decoration.

**INTERIOR INSTALLATION,  
FINISHING AND DECORATING, CONT.**  
FINISHING AND DECORATING

All surfaces, including applied joint compound, must be thoroughly dry, dust-free and not glossy. Prime with USG Sheetrock® Brand First Coat™ Primer or with an undiluted, interior latex flat paint with high-solids content. Allow to dry before decorating.

To improve fastener concealment where gypsum panel walls and ceilings will be subjected to critical artificial or natural lighting, or will be decorated with a gloss paint (eggshell, semigloss or gloss), the gypsum panel should be skim coated with joint compound. This equalizes suction and texture differences between the fiberglass face and the finished joint compound before painting. When a Level 5 finish is required, use USG Sheetrock® Brand Tuff-Hide™ Primer-Surfacer. See *USG Sheetrock® Brand Tuff-Hide™ Primer-Surfacer Submittal Sheet* (J1613) for limitations and application instructions.

For more information, refer to USG literature *Finishing and Decorating Glass-Mat Gypsum Panels White Paper* (WB2646).

**TEST DATA**

Property		ASTM Test Method	Requirement	UL Type AR
<b>Noncombustibility</b>		E136	Noncombustible	Meets
<b>Surface-burning characteristics</b>	Flame spread	E84	Flame Spread Index, not greater than 25 <sup>2</sup>	0
	Smoke developed	E84	—	0
	Class A	E84	Flame spread not greater than 25 and smoke developed not greater than 450	Meets
<b>Core hardness</b>	Field	C473 (B)	Not less than 15 lbf (67 N) <sup>2</sup>	Meets
	End	C473 (B)	Not less than 15 lbf (67 N) <sup>2</sup>	Meets
	Edge	C473 (B)	Not less than 15 lbf (67 N) <sup>2</sup>	Meets
<b>Flexural strength</b>	Parallel	C473 (B)	Not less than 100 lbf (445 N) <sup>2</sup>	Meets
	Perpendicular	C473 (B)	Not less than 140 lbf (623 N) <sup>2</sup>	Meets
<b>Humidified deflection</b>		C473	Not greater than 1/4 in. (6 mm) <sup>2</sup>	Meets
<b>Nail pull resistance</b>		C473 (B)	Not less than 90 lbf (400 N) <sup>2</sup>	Meets

**Note:**

2. Per ASTM C1658 for 5/8 in. (15.9 mm) glass mat gypsum panels.

**MOISTURE AND MOLD RESISTANCE**

Per ASTM C473, *Test Methods for Physical Testing of Gypsum Panel Products*, the average water absorption for USG Sheetrock® Brand Glass-Mat Panels Mold Tough® VHI Firecode® X is not greater than 5% by weight after two-hour immersion.

In independent lab tests conducted per ASTM D3273 at the time of manufacture, the panels score a "10", meeting ASTM C1658 specifications. This ASTM lab test may not accurately represent the mold performance of building materials in actual use. Given unsuitable project conditions during storage, installation or after completion, any building material can be overwhelmed by mold. To manage the growth of mold, the best and most cost-effective strategy is to protect building products from water exposure during storage and installation and after completion of the building. This can be accomplished by using good design and construction practices.

**TEST DATA, CONT.**  
ABUSE RESISTANCE

Test Standard	Test Summary	ASTM C1629 Classification Levels	Test Results
<b>Abrasion Resistance ASTM D4977</b>	A sample is placed under a wire brush weighted with 25 lbs. (11.3 kg). The brush is then cycled 50 times back and forth across the surface. This creates surface wear that is measured to determine the level of abrasion resistance.	Maximum Depth Level 1 = 0.126 in. (3.2 mm) Level 2 = 0.059 in. (1.5 mm) Level 3 = 0.010 in. (0.3 mm)	Level 2 <sup>3</sup>
<b>Indentation Resistance ASTM D5420</b>	A 2 lb. (0.91 kg) weight is raised to a 36 in. (914 mm) height and dropped onto a 5/8 in. (15.9 mm) hemispherical die that strikes the sample with 72 in•lb (12.6 J) of force. The depth of the indentation is measured to determine the level of indentation resistance.	Maximum Depth Level 1 = 0.150 in. (3.8 mm) Level 2 = 0.100 in. (2.5 mm) Level 3 = 0.050 in. (1.3 mm)	Level 1
<b>Soft-Body Impact Resistance ASTM C1629</b>	A 60 lb. (27.2 kg) leather bag is suspended on a rope and raised away angularly from a sample installed on 2 x 4 in. (38 x 89 mm) wood framing 16 in. (406 mm) O.C. The bag is raised (in 6 in. [152 mm] increments) and released to impact the sample. The impact energy is calculated based upon the bag weight and drop height where structural failure occurs.	Minimum ft•lbf (structural failure) Level 1 = 90 ft•lbf (122 J) Level 2 = 195 ft•lbf (265 J) Level 3 = 300 ft•lbf (408 J)	Level 3
<b>Hard-Body Impact Resistance ASTM C1629</b>	A 2 x 2 ft. (610 x 610 mm) sample is mounted vertically to a metal frame and impacted with a 2.75 in. (70 mm) diameter weighted swinging ram (resembling a sledgehammer). Weight is added in 2.5 lb. (1.1 kg) increments to increase the impact force. Failure energy is determined when penetration through the face into the frame cavity occurs.	Minimum ft•lbf (structural failure) Level 1 = 50 ft•lbf (68 J) Level 2 = 100 ft•lbf (136 J) Level 3 = 150 ft•lbf (204 J)	Level 2

**Note:**

3. USG testing demonstrates that when painted with one coat of primer and two coats of semigloss latex paint, the abrasion resistance increases to Level 3.

**PRODUCT INFORMATION**

See usg.com for the most up-to-date product information.

GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit [ul.com/gg](http://ul.com/gg).

**CAUTION**

Dust may cause irritation to eyes, skin, nose, throat, and upper respiratory tract. Cut and trim with a utility knife or hand saw to minimize dust levels. Power tools must be equipped with a dust collection system. Wear eye, skin, and respiratory protection if necessary. If eye contact occurs, flush thoroughly with water for 15 minutes. If irritation persists, call a physician. Do not swallow. If swallowed, call a physician. For more information call Product Safety: 800 507-8899 or see the SDS at [usg.com](http://usg.com)  
**KEEP OUT OF REACH OF CHILDREN.**

**TRADEMARKS**

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**NOTICE**

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

**SAFETY FIRST!**

Follow good safety and industrial hygiene practices during handling and installation of all products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read Safety Data Sheets and related literature on products before specification and/or installation.

**PRODUCT DATA**

	UL Type AR
<b>Thickness</b>	5/8 in. (15.9 mm)
<b>Lengths<sup>4</sup></b>	8-12 ft. (2438-3658 mm)
<b>Width</b>	4 ft. (1219 mm)
<b>Weight<sup>5</sup>, nominal</b>	2.8 lb./sq. ft. (13.7 kg/sq. m.)
<b>Edges</b>	Tapered
<b>Packaging</b>	Two panels per bundle

**Notes:**

4. Other sizes available by special order. Check with your local USG representative for availability.
5. Represents approximate weight for design and shipping purposes. For specific product weight in your area, contact your local USG representative or call the Customer Service Center at 800 950-3839.

**COMPLIANCE**

- Comply with ASTM C1658 for 5/8 in. (15.9 mm), Type X and glass-mat water-resistant gypsum panel
- Meet ASTM C1629 classification for abuse-resistant gypsum panels
- Classified as a Class A Interior Finish Material per Section 803.1 of the International Building Code® (IBC®)
- UL Classification as to fire resistance, surface-burning characteristics and noncombustibility
- Achieved GREENGUARD Gold Certification and qualifies as a low VOC emitting material (meets CA 01350)

**SUBMITTAL APPROVALS**

<b>Job Name</b>	
<b>Contractor</b>	<b>Date</b>

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WB2749-USA-ENG/rev. 4-20  
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