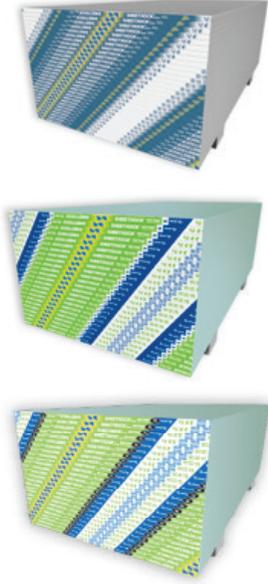


USG Sheetrock® Brand Abuse-Resistant Products

Selector Guide



Durability is one of the most basic design considerations in any building. Interior partitions are vulnerable to both incidental and intentional surface and impact damage, especially in institutional applications, such as hospitals and schools. Understanding abuse resistance for different applications is an important factor in controlling life-cycle costs. For example, corridors in hospitals may be subject to higher levels of impact damage because rolling carts and gurneys are frequently used, while the walls of a middle school might deal with nothing more serious than incidental abrasion and indentation from cleaning equipment, furniture and occasional malicious behavior. At the most fundamental level, abuse resistance can be defined as the ability of a partition system to resist two primary types of damage:

Surface Damage

Abrasion and indentation on the partition surface, which includes surface damage caused by ordinary contact with people and furniture, as well as contact with objects such as mail carts, hospital gurneys and cleaning equipment. This type of damage typically requires simple repair to the partition surface without any wall panel replacement.

Impact Damage

Hard-body (tools, doorknobs, or other hard objects) and soft-body (human) impact with enough force to penetrate through the partition into the wall cavity. This often causes damage that requires replacing panel sections and is costly to repair. This also can be potentially unsafe in fire-rated partitions if not repaired promptly.

Performance Categories

Moderate Duty	Areas requiring a basic upgrade to standard drywall, with improved resistance to incidental surface and indentation damage	Single-family residential stairways Family and children's rooms Elementary school classrooms Public spaces in healthcare facilities
Medium Duty	Areas requiring a resistance to incidental surface, indentation and penetration damage from people and objects (usually unintentional damage)	Multifamily stairways, entries and common areas Middle and high school classrooms and cafeterias College lecture halls Mailrooms
Heavy Duty	For areas requiring resistance to heavy surface, indentation and penetration damage from people and objects (often intentional damage)	High-risk multifamily entries, stairways, common areas School corridors Gymnasiums College dormitories Military barracks Hospital corridors
Extreme Duty	For areas requiring resistance to extreme levels of surface and impact damage	Court detention facilities Psychiatric wards Payroll rooms Shipping-receiving areas Government and military facilities Data storage facilities Pharmaceutical dispensing areas

USG Sheetrock® Brand Wallboard Abuse-Resistant Products

USG manufactures three different abuse-resistant panels for different applications depending on the project requirements. The panels have a fire-resistant gypsum core encased in 100% recycled face and back papers. The long edges are tapered, and the panels can be installed and finished using conventional wallboard installation techniques.

- UL classified as to fire resistance and can be used in any fire-rated assemblies where type "AR" panels are listed.
- Comply with ASTM C1629 for 5/8" Type X gypsum wallboard
- Meet CHPS requirements for low VOC (volatile organic compound) emitting materials
- For wood or steel framing

Sheetrock® AR Firecode® Core Gypsum Panels

- A basic upgrade from standard 5/8" Type X
- Improved indentation and abrasion resistance
- Stronger back paper and higher density core for improved soft-body impact performance
- For applications where moisture and mold is not a concern

Recommended for moderate- to medium-duty applications

Sheetrock® Mold Tough® AR Firecode® Core Gypsum Panels

- Improved impact resistance
- Higher core density than Sheetrock AR panels
- For applications where moisture and mold resistance is needed

Recommended for medium- to heavy-duty applications

Sheetrock® Mold Tough® VHI (very high impact) Firecode® Core Gypsum Panels

- Fiberglass mesh imbedded in the core for improved impact resistance
- Moisture and mold resistance

Recommended for heavy- to extreme-duty applications

ASTM C1629 Test Results

	Abrasion	Indentation	Soft Body Impact	Hard Body Impact
Sheetrock® AR Firecode® Core	2*	1	1	N/A
Sheetrock® Mold Tough® AR Firecode® Core	2*	1	2	1
Sheetrock® Mold Tough® VHI Firecode® Core	2*	1	3	3

*Level 3 when primed and painted as below.

Sheetrock® Primers and Surfacer Abrasion-Resistant Products

Internal USG testing demonstrates that when paper-faced wallboard panels are primed with a quality primer and painted with two coats of semigloss latex paint, the painted surface achieves ASTM C1629 level 3 abrasion resistance regardless of what the unpainted panel performance is.

Sheetrock® Tuff-Hide™ Primer-Surfacer

Produces an affordable level 5 wallboard finish with an enhanced formulation that delivers whiter and smoother results than drywall primer. It applies quickly and evenly with professional airless spray equipment and generally does not require sanding. The primer's vinyl-acrylic, latex-based coating provides increased resistance to surface abrasion. The result is an ultra high-end look that can be painted after drying overnight.

Sheetrock® First Coat Primer

Designed for priming new interior gypsum panel walls and ceilings before painting or texturing, equalizing both porosity and surface texture differences and also providing increased surface abrasion resistance. Applied with brush, roller and airless or conventional spray, it can be intermixed with wall and ceiling spray textures to enhance hardness, bond and whiteness.



Test Procedures

USG Sheetrock Brand Abuse-Resistant panels are tested in accordance with ASTM C1629 and 3rd party evaluated. The test procedures are summarized below.

ASTM C1629—Standard Classification for Abuse-Resistant Non-decorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels

Test Standard	Test Summary	Classification Levels	Tests For
<p>Abrasion Resistance</p> <p>ASTM D 4977 - Test Method for Granular Adhesion to Mineral-Surfaced Roofing by Abrasion</p>	<p>A sample is placed under a wire brush weighted with 25 lb. The brush is then cycled 50 times back and forth across the surface. This creates surface wear which is measured to determine the level of abrasion resistance. Stipulates that the panel is undecorated.</p>	<p>Abraded Depth Maximum Level 1 = 0.126" Level 2 = 0.059" Level 3 = 0.010"</p>	<p>Surface damage from scratching and scuffing. Repairs usually do not require replacing the wallboard.</p>
<p>Indentation Resistance</p> <p>ASTM D 5420 - Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of Striker Impacted by Falling Weight (Gardener Impact)</p>	<p>A 2 lb. weight is raised to a 36" height and dropped onto a 5/8" hemispherical die which strikes the sample with 72 in.-lb. of force. The depth of the indentation is measured to determine the level of indentation resistance.</p>	<p>Indentation Maximum Level 1 = 0.150" Level 2 = 0.100" Level 3 = 0.050"</p>	<p>Dings and dents and other damage on the panel surface caused by small hard objects. Repairs usually do not require replacing the wallboard.</p>
<p>Soft Body Impact Resistance</p> <p>ASTM E 695 – Test Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading.</p>	<p>A 60 lb. leather bag is suspended on a rope and raised away angularly from a sample installed on 2' x 4' wood framing 16" oc. The bag is raised (in 6" increments) and released to impact the sample. The impact energy is calculated based upon the bag weight and drop height where structural failure occurs.</p>	<p>(Structural Failure) Minimum ft.-lb. Level 1 = 90 ft.-lb. Level 2 = 195 ft.-lb. Level 3 = 300 ft.-lb.</p>	<p>Impact damage into the stud cavity cause by heavy soft objects (people) hitting the wall. Repair requires replacing the damaged wallboard.</p>
<p>Hard Body Impact Resistance</p> <p>ASTM C 1629 Annex A.1</p>	<p>A 2' by 2' sample is mounted vertically to a metal frame and impacted with a 2-3/4" dia, weighted swinging ram (resembling a sledgehammer). Weight is added in 2.5 lb. increments to increase the impact force. Failure energy is determined when penetration through the face into the frame cavity occurs.</p>	<p>Hard Body Minimum ft.-lb. Level 1 = 50 ft.-lb. Level 2 = 100 ft.-lb. Level 3 = 150 ft.-lb.</p>	<p>Impact damage into the stud cavity caused by localized blows from hard objects, such as the corner of a wheeled cart or doorknob. Repair requires replacing the damaged wallboard.</p>

See specific product data sheets for more information.

