

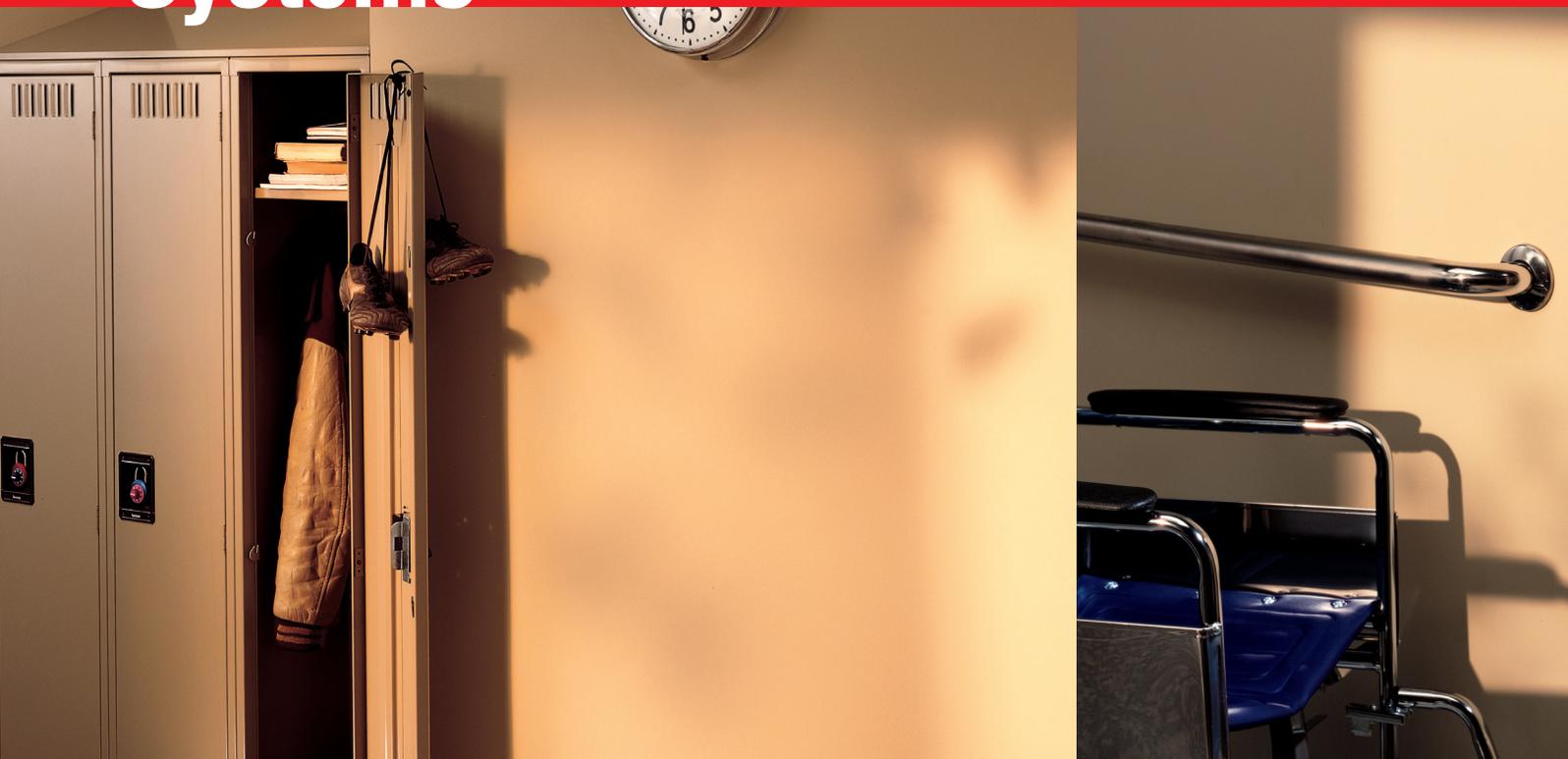
SA929 09 20 00/USI

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BuyLine 3137

Cost-effective system solutions
to combat incidental and
intentional surface and impact
damage



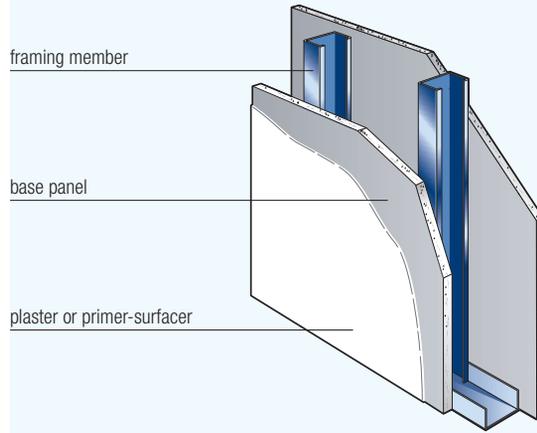
Abuse-Resistant Systems



Overview

An abuse-resistant assembly typically consists of a substrate that provides increased abuse resistance over conventional gypsum panels, and either a plaster, which provides a monolithic surface and increased abrasion and impact resistance, or a primer-surfacer, which provides increased abrasion resistance. A primer-surfacer is used in lieu of a skim coat and paint primer to provide the highest quality interior panel finish.

Abuse-Resistant Components



Levels of Abuse

Use abuse-resistant systems for applications where damage from abuse is likely to occur. Different types of applications require different levels of abuse-resistant systems. For example, a family kitchen will not require as much abuse resistance as a school corridor or a detention center. Identifying the probable level of abuse during the design phase, rather than after the building is in use, is a key factor in keeping building lifecycle maintenance costs as low as possible.

1: Light Duty



For areas requiring a basic upgrade to standard drywall, with improved resistance to incidental surface and indentation damage

**Single-family residential stairways
family rooms, children's rooms
primary grade classrooms
public spaces in healthcare facilities**

2: Moderate Duty



For areas requiring a moderate resistance to incidental surface, indentation and penetration damage from people and objects (usually unintentional abuse)

**Multifamily stairways, entries and common areas
middle/high school classrooms
college lecture halls
mailrooms
retail corridors/public areas**

3: Heavy Duty



For areas requiring resistance to heavy surface, indentation and penetration damage from people and objects (often intentional abuse)

**High-risk multifamily entries
stairways/common areas
school corridors, gyms, college dorms
healthcare or commercial corridors
payroll, loading areas**

4: Extreme Duty



For areas requiring resistance to extreme levels of surface, indentation and penetration damage from hard objects

**Court detention facilities
psychiatric wards
payroll rooms/shipping/receiving areas
government/military facilities
embassies/consulates
bank vaults, data storage facilities
pharmaceutical dispensing areas**

5: Security



For areas requiring resistance to forced entry and ballistics

**Government/military facilities
embassies/consulates
high-detention facilities**

Assembly Selector

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The assemblies shown in the following table are listed according to the four main categories of abuse resistance. They incorporate different combinations of USG's abuse-resistant products (including gypsum fiber panels and plaster systems) to meet various levels of required abuse resistance.

Assembly		Surface Damage		Penetration ^a		System Thickness ^f	System Weight ^g
Substrate	Finish	Abrasion ^b cycles	Indentation ^c in.	Hard-Body ^d ft.-lbs.	Soft-Body ^e ft.-lbs.	in.	psf
Category 1: Light Duty							
5/8" FIBEROCK® Brand AQUA-TOUGH™ Interior Panel	Joint treatment only	30	0.11	85	180	4-7/8	6.4
5/8" FIBEROCK® AR Interior Panel	Joint treatment only	30	0.11	85	210	4-7/8	6.4
Category 2: Moderate							
5/8" FIBEROCK AQUA-TOUGH Interior Panel	SHEETROCK® brand TUFF-HIDE™ primer-surfacer	1000	0.11	85	180	4-7/8	6.9
5/8" FIBEROCK AR Interior Panel	TUFF-HIDE primer-surfacer	1000	0.11	85	210	4-7/8	6.9
5/8" FIBEROCK AR Interior Panel	2-coat IMPERIAL veneer plaster ^h	1000	0.06	85	180	5-1/8	8.4
5/8" FIBEROCK AQUA-TOUGH Interior Panel	2-coat IMPERIAL veneer plaster ^h	1000	0.06	85	180	5-1/8	8.4
5/8" FIBEROCK® VHI Abuse-Resistant Interior Panel	Joint treatment only	30	0.11	175	>480	4-7/8	6.4
5/8" DUROCK® Brand Cement Board	2-coat veneer plaster or tile	1000	0.11	64.5	180	5-1/8	10
Category 3: Heavy Duty							
5/8" FIBEROCK VHI Abuse-Resistant Interior Panel	TUFF-HIDE primer-surfacer	1000	0.11	175	>480	4-7/8	6.9
5/8" FIBEROCK VHI Abuse-Resistant Interior Panel	2-coat veneer plaster ^h	1000	0.06	175	>480	5-1/8	8.4
3.4#/sq. yd. Lath	STRUCTO-BASE® gypsum plaster and IMPERIAL® brand finish plaster	1000	0.08	90	N/A	5-3/8	13.8
Category 4: Extreme Duty							
5/8" FIBEROCK VHI Abuse-Resistant Interior Panel	TUFF-HIDE primer-surfacer	1000	0.11	175	>480	4-7/8	6.9
5/8" FIBEROCK VHI Abuse-Resistant Interior Panel	2-coat veneer plaster ^h	1000	0.06	175	>480	5-1/8	8.4
5/8" FIBEROCK VHI Abuse-Resistant Interior Panel (2 layers)	2-coat IMPERIAL veneer plaster ^h	1000	0.06	>200	>480	5-1/8	8.4
STRUCTOCORE™ Metal Lath Sheets	STRUCTO-BASE gypsum plaster and IMPERIAL brand finish plaster	>1000	0.06	N/A	N/A	4-1/2	45

Notes

(a) Minimum 3-5/8", 20-gauge steel framing at 16" o.c. is recommended for abuse-resistant assemblies, and was used for the hard-body, soft-body and acoustical testing shown here. Framing space of 24" o.c. will likely reduce the impact resistance of an assembly, while framing of 12" or 8" o.c. will likely improve the impact resistance.
 (b) Values reflect the average number of cycles to failure. Testing performed using the abrasion test apparatus specified in ASTM D4977 with a 25 lb. added weight.
 (c) Values reflect the average measured depth of indentation. Testing performance using the Gardner test apparatus specified in ASTM D5420, with 5/8" die at 72 in.-lb. drop energy. Independent testing performed by H.P. White Laboratory, Inc. Three identical specimens were tested for each product.
 (d) Values reflect the minimum impact energy required for a 2" steel pipe cap to completely penetrate the panel when supported by 16" o.c. framing. Independent testing performed by H.P. White Laboratory, Inc. Three identical specimens were tested for each product.
 (e) No failure observed up to apparatus capacity of 300 ft.-lbs. Values reflect the minimum impact energy required for the following: "Surface Failure"—First evidence of creasing or other damage at panel surface. "Structural Failure"—Complete penetration through panel. Testing performed in accordance with ASTM E695 using a 60 lb. leather bag. Panels supported by 16" o.c. framing. Independent testing performed by H.P. White Laboratory, Inc. Three identical specimens were used for each product.
 (f) Weights and thicknesses are based on completed systems (panels on both flanges of studs).
 (g) Two-coat IMPERIAL veneer consists of IMPERIAL basecoat plaster and IMPERIAL finish plaster.
 (h) Two-coat veneer consists of DIAMOND veneer basecoat plaster and IMPERIAL finish plaster.

Components

For more detailed information on these products, see USG Literature SA929, *Abuse-Resistant Systems*.

Base Panels

FIBEROCK AQUA-TOUGH Interior Panels

Designed for wall assemblies where abuse, moisture, mold and fire resistance are critical, these high-performance panels derive both strength and water resistance from their uniform composition. Ideal for institutional, commercial and residential wet and dry interiors.

FIBEROCK Abuse-Resistant Interior Panels

Strong, solid and durable, these panels resist denting, breaking, and puncturing—even in high-traffic areas. FIBEROCK abuse-resistant interior panels are reinforced throughout, providing increased strength, stiffness, and abuse-resistant properties compared to paper-faced gypsum board. An economical alternative to concrete block and plaster construction.

FIBEROCK VHI Abuse-Resistant Interior Panels

These higher-performance engineered panels provide increased resistance to indentation and penetration for interior walls and ceilings in demanding applications. Strong, solid and durable, they resist denting, breaking, and puncturing—even in high-traffic areas. With fiber mesh embedded in the core for enhanced resistance to damage, these panels deliver extreme durability and toughness to ensure minimal maintenance costs.

DUROCK Cement Board

Providing high flexural strength that resists bending to prevent finish cracking, DUROCK cement board will not swell, soften, decay, support mold growth, delaminate, or disintegrate when exposed to water. Its low thermal and hygroscopic expansion helps prevent finish cracking. Warranted performance is 30 years for interior installations and 10 years for exterior applications.

STRUCTOCORE Security Wall Metal Lath Sheets

These specially formed steel panels provide continuous reinforcement for monolithic, high strength, fire-resistant plaster finish applications and offer a cost-saving alternative to reinforced concrete or concrete block. Acceptable for Zone 4 seismic applications.

Plasters

IMPERIAL Basecoat Plaster

A high-strength veneer plaster, IMPERIAL basecoat plaster produces a hard, abrasion-resistant surface with a compressive strength of 3000 lb./sq. in. When used as the basecoat in two-coat applications, IMPERIAL basecoat plaster offers the ultimate in performance and aesthetics. Recommended for hard-wear locations where durability and resistance to abrasion are required.

STRUCTO-BASE Gypsum Plaster

With higher strength (2,800 psi) than conventional plasters, STRUCTO-BASE gypsum plaster can be used in security walls, handball courts, hospital corridors, high-performance suspended ceiling systems, schools and wherever the ultimate compressive strength plaster is necessary.

DIAMOND® Interior Finish Plaster

A white finish formulated for hand application over IMPERIAL® brand gypsum base, DIAMOND interior finish plaster can also be used as the finish for a two-coat system over a sanded gypsum basecoat, IMPERIAL brand basecoat plaster or DIAMOND® brand veneer basecoat plaster. Harder than regular gauging and lime putty finish for more durable walls, it provides a strong surface that resists abrasion and surface cracking.

IMPERIAL Finish Plaster

This high-strength finish plaster produces a hard, abrasion-resistant finished surface with 3000 psi compressive strength that withstands the bumping and scuffing of high-traffic areas.

Primer-Surfacer

SHEETROCK TUFF-HIDE Primer-Surfacer

This dual-purpose, vinyl acrylic, latex-based coating is formulated to provide a smooth, beautiful primed surface over new interior drywall. It can dramatically increase the durability of a base panel.

Website

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Technical Service

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888 874.2348

Customer Service

800 950.3839

Product Information

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

Metric Specifications

USG Corporation, through its operating subsidiaries, will provide metric conversions on its products and systems to help specifiers match metric design sizes. In addition, some products are available in metric dimensions from selected manufacturing plants. Refer to SA100 *Fire-Resistant Assemblies* for additional information and a Table of Metric Equivalents.

Trademarks

The following trademarks used herein are owned by United States Gypsum or a related company: DIAMOND, DUROCK, FIBEROCK, IMPERIAL, SHEETROCK, STRUCTO-BASE, STRUCTOCORE, TUFF-HIDE.

Note

All products described here may not be available in all geographic markets. Consult your local sales office or representative for information.

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 material safety data sheets and related literature on products before specification and/or installation.



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