

# Drywall and Veneer Plaster Products

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Since their introduction over 90 years ago, USG Sheetrock® Brand Gypsum Panels from the United States Gypsum Corporation (USG) have led the drywall industry and have become the standard for quality interior walls and ceilings. With the addition of veneer plaster bases and finishes, USG has the nation's largest-selling, broadest line of gypsum products with the highest quality and the best performance.

The gypsum products described in this chapter conform to product standards recommended by USG as well as applicable American Society for Testing and Materials (ASTM), government and commercial standards. These materials meet the essential requirements of economy, sound isolation, workability, strength, fire resistance and ease of decoration that are characteristic of quality construction.

USG continues to be at the forefront of technological advances in the industry. In recent years, the company's research and development staff has produced a series of materials that offer exceptional strength and durability. Those materials now are commercially available as abuse-resistant products and systems. These systems were initially developed for government buildings, commercial construction, schools, prisons and other structures where walls and ceilings are subject to considerable traffic and abusive wear and tear. They will also provide longer lasting quality in typical commercial and residential construction. You will find information on abuse-resistant products and systems throughout this text.

USG sales and technical representatives are available to consult with tradespeople, contractors, architects, dealers and code officials on gypsum products and systems and their application to individual job problems and conditions. For more in-depth information, visit the USG websites ([usg.com](http://usg.com) and [usgdesignstudio.com](http://usgdesignstudio.com)).

## Gypsum Panel Products

USG Sheetrock® Brand is the preferred and most widely used brand of gypsum panels. It is available in more specialized forms than any other gypsum panel line. When used with USG's other high-quality components, USG Sheetrock® Brand gypsum panels provide high-performance walls and ceilings.

A USG Sheetrock® Brand panel is composed of a noncombustible gypsum core encased in a strong, smooth-finish paper on the face side and a natural-finish paper on the back side. The face paper is folded around the long edges to reinforce and protect the core, and the ends are square-cut and finished smooth. The long edges of the panels are available in a choice of designs (including tapered), allowing joints to be reinforced and concealed with a USG joint treatment system.

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### Advantages

Interior walls and ceilings built with USG Sheetrock® Brand panels have a durable surface suitable for most types of decorative treatment and for redecoration throughout the life of the building.

**Dry Construction** Factory-produced panels do not contribute moisture during construction. The joint finishing system contributes very little.

**Fire Protection** The gypsum core will not support combustion or transmit temperatures greatly in excess of 212°F until completely calcined. Fire resistance ratings of up to 4 hours for partitions, 3 hours for floor-ceilings and 4 hours for column and beam assemblies are available with specific assemblies. (See Chapter 10, “System Design Considerations,” for specific ratings and related assemblies.)

**Sound Control** USG Sheetrock® Brand gypsum panels are a vital component in sound-resistive partition and floor-ceiling systems. (See Chapter 10 and the Appendix for specific rating data.)

**Low In-Place Cost** The easily cut gypsum panels install quickly, simplifying fixture attachment and installation of electrical and mechanical services.

**Dimensional Stability** Expansion or contraction under normal temperature and humidity changes is small and normally will not result in warping or buckling. With joints properly reinforced, USG Sheetrock® Brand panels are exceptionally resistant to cracking. (See the Appendix for thermal and hygrometric coefficients of expansion.)

**Availability** Over 40 USG manufacturing plants produce gypsum board and related products described herein throughout North America. Special warehouse facilities, in addition to these plants, increase total distribution and service efficiency to major markets and rural areas from coast to coast. All standard gypsum board products are readily available on short notice. Many products are available from USG subsidiary plants in Mexico and Canada.

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#### Gypsum Panel Limitations

1. Exposure to excessive or continuous moisture and extreme temperatures should be avoided. Not recommended for use in solar or other heating systems when board will be in direct contact with surfaces exceeding 125°F.
2. Adequate protection must be provided against wetting when panels are used as a base for ceramic or other wall tile (see the Foil-Back Panel Limitations section under Products Available later in this chapter). Durock® brand cement board, USG Fiberock® Brand Aqua-Tough™ interior panels or Fiberock Aqua-Tough tile backerboard is recommended for partitions in moisture-prone areas.
3. Maximum spacing of framing members: 1/2" and 5/8" gypsum panels are designed for use on framing centers up to 24"; 3/8" panels are designed for use on framing centers up to 16". In both walls and ceilings, when 1/2" or 5/8" gypsum panels are applied across framing on 24" centers and joints are reinforced, blocking is not required. 1/4" USG Sheetrock® Brand panels are not recommended for single-layer applications on open framing.
4. Application of panels is not recommended over 3/4" wood furring applied across framing, since the flexibility of the furring under impact of the hammer tends to loosen nails already driven. Furring should be 2 × 2 minimum (may be 1 × 3 if panels are to be screw-attached).
5. Application of gypsum panels is not recommended over an insulating blanket that has first been installed continuously

across the face of the framing members. Blankets should be recessed and flanges attached to the sides of studs or joists.

6. To prevent objectionable sag in new gypsum panel ceilings, the weight of overlaid unsupported insulation should not exceed: 1.3 psf for 1/2"-thick panels with frame spacing 24" on center (o.c.); 2.2 psf for 1/2" panels on 16" o.c. framing (or 1/2" USG Sheetrock® Brand panels designed for sag resistance on 24" o.c. framing); 2.2 psf for 5/8" panels on 24" o.c. framing. 3/8"-thick panels must not be overlaid with unsupported insulation. A vapor retarder should be installed in all exterior ceilings, and the plenum or attic space should be properly vented.

During periods of cold or damp weather, where a polyethylene or equivalent vapor retarder is installed on ceilings behind the gypsum board, it is important to install the ceiling insulation before or immediately after installing the ceiling board. Failure to follow this procedure may result in moisture condensation on the back side of the gypsum board, causing the board to sag.

Water-based textures, interior finishing materials and high ambient humidity conditions can produce sag in gypsum ceiling panels if adequate vapor and moisture control is not provided. The following precautions must be observed to minimize sagging of ceiling panels:

- a) Where a vapor retarder is required in cold-weather conditions, care must be taken to avoid moisture condensation. The temperature of the gypsum ceiling panels and vapor retarder must remain above the interior air dew point temperature during and after the installation of panels and finishing materials.
- b) The interior space must be adequately ventilated and air circulation must be provided to remove water vapor from the structure.

Most sag problems are caused by the condensation of water within the gypsum panel. The placement of vapor retarders, insulation levels and ventilation requirements will vary by location and climate and should be reviewed by a qualified engineer if in question.

7. Certain recommendations regarding surface preparation and painting products and systems must be adhered to for satisfactory performance and intended results.
8. Precaution should be taken against using gypsum panels as a base for highly water-vapor-resistant coverings when the wall already contains a vapor retarder, as this will create a double vapor retarder. Moreover, do not create a vapor retarder by such wall coverings on the interior side of exterior walls of air-conditioned buildings in hot-humid climates where conditions dictate a vapor retarder be located near the exterior side of the wall. Such conditions require assessment by a qualified mechanical engineer.

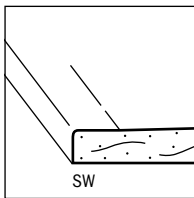
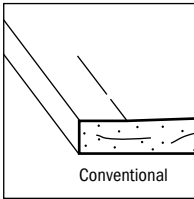
# Products Available

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**USG Sheetrock® Brand UltraLight Panels 1/2"** Up to 30% lighter than regular 1/2" wallboard, these are the lightest 1/2" gypsum panels available. The panels offer superior sag resistance and can replace 1/2" sag-resistant ceiling board and 5/8" Type X on ceilings with 24" o.c. frame spacing. This can reduce waste as only one type of panel is required for walls and ceilings. Available with tapered or smooth wall edges and 48" and 54" widths.

**USG Sheetrock® Brand Regular Core** These 48"-wide panels have long edges tapered on the face side to form a shallow recess (nominal 0.050" deep) to accommodate joint reinforcement. Made in three thicknesses for specific purposes:

- 1/2", recommended for single-layer application typical new construction and remodeling. The thickness provides resistance to fire exposure, sound transmission and sagging.
- 3/8", lightweight, applied principally in repair and remodel work over existing surfaces.
- 1/4", lightweight, low-cost, utility gypsum panel, used as a base layer for improving sound control in multilayer partitions and in covering old wall and ceiling surfaces. Also used for forming curved surfaces. Meets ASTM C1396.



**Types of tapered edges**

**USG Sheetrock® Brand 54" Gypsum Panels** Available as 1/2" regular and lightweight USG Sheetrock® Brand gypsum panels but 6" wider. The added width reduces cutting, waste, joint finishing and labor costs for walls that are 8'-6" or 9' tall.

**USG Sheetrock® Brand Gypsum Panels, SW** Feature an exclusive tapered rounded-edge design to help minimize ridging, beading and other joint imperfections. This edge produces a much stronger joint than a regular tapered edge when finished with joint treatment. Except for the rounded edge, panels are tapered like, and otherwise identical to, regular tapered-edge gypsum panels. Made in 5/8" and 1/2" thicknesses. Panels are available in regular or Firecode® Core (Type X and Type C) formulations. Meets ASTM C1396.

**USG Sheetrock® Brand Firecode® Core 5/8"** thick, combine all the advantages of regular panels with additional fire resistance—the result of a specially formulated core containing special additives that enhance the integrity of the core under fire exposure. Panels comply with ASTM requirements for Type X gypsum board. Meets ASTM C1396. Also available 54" wide.

**USG Sheetrock® Brand Ultralight Panels Firecode® 30** A lightweight 5/8"-thick non-Type X panel that is up to 30% lighter than standard Type X wallboard. Ideal for use where 5/8" panels are desired for added strength, but Type X is not required for fire or sound ratings. Meets or exceeds ASTM C1396 physical properties for 5/8" wallboard. Available with tapered edges and 48" width.

**USG Sheetrock® Brand Ultralight Panels Firecode® X** A lightweight 5/8"-thick Type X panel that is up to 15% lighter than standard

Type X wallboard. Listed in over 130 Underwriters Laboratories (UL) fire-rated designs, they can be substituted for Type X panels in most fire-rated assemblies. Available with tapered edges and 48" width.

**USG Sheetrock® Brand Firecode® C Core** Available in 1/2" and 5/8" thicknesses. Improved formulation exceeds ASTM requirements for Type X gypsum board. Based on tests at UL and other nationally recognized testing agencies, certain partition, floor-ceiling and column fire-protective assemblies using these special products provide fire resistance ratings of 1 to 4 hours.

In order to attain fire resistance ratings, the construction of all such assemblies must be consistent with the assembly tested. (See Chapter 10 for assemblies.) Meets ASTM C1396.

**USG Sheetrock® Brand 1/4" Flexible Gypsum Panels** Designed specifically for curved partitions, these panels are more flexible than standard panels of the same thickness, making them ideal for use anywhere a tight radius is required for curved walls, arches and stairways. (See curved surface section, Chapter 3, "Cladding.") They make construction of curved surfaces easy and fast. Double-layer installation improves surface smoothness and fire protection. Meet ASTM C1396.

**USG Sheetrock® Brand Ultracode® Core** 3/4" thick, UL tested to provide a 2-hour fire rating with single-layer construction and a 4-hour fire rating with double-layer construction in certain specified systems (steel studs only). Because fewer layers are needed to meet fire ratings, Ultracode Core panel systems reduce labor and material costs.

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### **Gypsum Panels, Foil-Back**

USG Sheetrock® Brand gypsum panels, foil-back are made by laminating special kraft-backed aluminum foil to the back surface of regular, SW, Firecode or Firecode C panels. Where required in cold climates, this panel forms an effective vapor retarder for walls and ceilings when applied with foil surface next to framing on the interior side of exterior wall in single-layer application or as the base layer in multilayer systems. Foil-backed gypsum panels provide a water vapor retarder to help prevent interior moisture from entering wall and ceiling spaces. In tests per ASTM E96 (desiccant method), 1/2" foil-back panels showed a vapor permeability of 0.06 perms. The permeance of the total exterior wall system is dependent on the closure of leaks with sealants at periphery and all penetrations such as outlet boxes.

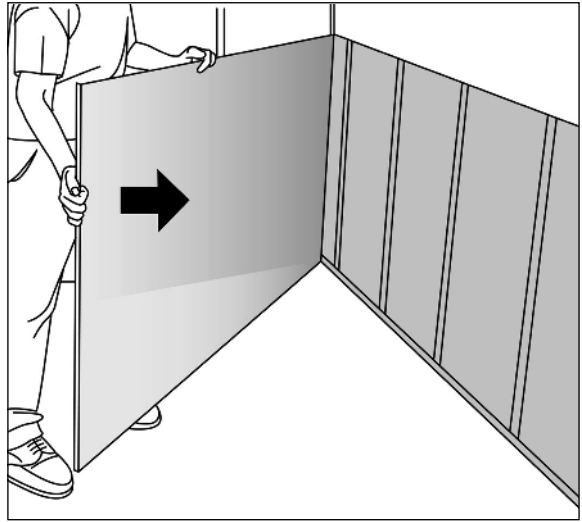
These panels are designed for use with furred masonry or wood or steel framing. Thickness: 5/8", 1/2" and 3/8". Sizes, edges and finish are the same as for base panels.

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### **Foil-Back Panel Limitations**

1. Not recommended as a base for ceramic or other tile.
2. Not to be used in air-conditioned buildings in climates having sustained high outside temperature and humidity, such as the Southern Atlantic and Gulf Coast areas. Under these conditions, a qualified mechanical engineer should determine vapor retarder location.

*Foil-back panels applied to steel framing over the interior of exterior walls provide an effective vapor retarder.*



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### **Gypsum Panels, Moisture and Mold Resistant**

**USG Sheetrock® Brand Mold Tough® Gypsum Panels** Have a noncombustible, moisture gypsum core encased in moisture- and mold-resistant, 100% recycled green face and brown back paper. The 5/8" Firecode and 1/2" Firecode C Core panels are UL classified for fire resistance (Type X).

Although all USG Sheetrock® Brand Mold Tough Gypsum Panels have improved moisture and mold resistance over standard gypsum panels by treating the face and back papers, independent lab tests conducted at the time of manufacture on only 5/8" USG Sheetrock® Brand Firecode® Mold Tough Gypsum Panels, 1/2" USG Sheetrock® Brand Mold Tough Firecode® C Core gypsum panels (Type X) and USG Sheetrock® Brand Ultracode® Gypsum Panels per ASTM D3273, "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber," the panel score was 10.

This ASTM lab test may not guarantee the mold performance of building materials in actual use. Given unsuitable project conditions may be present at any time during construction, 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.

**USG Sheetrock® Brand Mold Tough® 1/2"** thickness for single-layer application in residential construction.

**USG Sheetrock® Brand Mold Tough® Firecode® Core 5/8"** thickness with a Type X core to provide fire resistance for required ratings.

**USG Sheetrock® Brand Glass Mat Panels Mold Tough® Firecode® X** offer superior moisture and mold resistance with the added benefit of glass mat facers instead of paper. For use in interior applications where exposure to weather is anticipated during the construction process. Meets ASTM C1658 and C1177.

**USG Sheetrock® Brand Mold Tough® Firecode® C Core** 1/2" and 5/8" thicknesses with a special core to provide improved fire resistance for required ratings.

**USG Sheetrock® Brand Mold Tough® 3/4" Ultracode® Core** panel is UL classified as to fire resistance. One layer of 3/4" Ultracode Core panels may be substituted for two layers of 5/8" Firecode Core panels in many UL Listed assemblies. Refer to the *UL Fire Resistance Directory* for details.

#### Mold Tough Panel Limitations

1. Not suitable for sustained temperatures exceeding 125°F (52°C).
2. Should not be exposed to excessive, repetitive or continuous moisture before, during or after installation. Eliminate sources of moisture immediately.
3. 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. USG Durock® Brand Cement Board is recommended for these uses. (See Durock applications, Chapter 4, "Backerboard Installation.")
4. Non-load-bearing.

**USG Fiberock® Brand Aqua-Tough™ Interior Panels** Offer finishing flexibility and superior mold and moisture resistance in a single panel. Manufactured using USG's unique gypsum-fiber technology, these durable panels provide moisture and mold resistance superior to conventional drywall but can be installed and finished using basic drywall techniques. Uniform composition, without face paper, is based on a uniquely engineered gypsum/cellulose-fiber combination that won't weaken if the surface is penetrated by moisture. Panels comply with ASTM C1278.

**USG Fiberock® Brand Aqua-Tough™ Tile Backerboard** Unique fiber-reinforced gypsum product that represents a new era in substrate performance for wet or dry areas. This durable panel offers superior performance and tile bond because of its integral water-resistant core. Unlike traditional water-resistant gypsum board, Fiberock tile backerboard derives both strength and water resistance from its uniquely engineered gypsum/cellulose-fiber combination. With no paper to delaminate, Fiberock tile backerboard maintains its integrity even when wet.

#### Fiberock Panel Limitations

Panels are not intended for use in areas subject to constant moisture, such as interior swimming pools, gang showers, steam showers and saunas. (Durock brand cement board is recommended for these uses. See Chapter 4 for further information.)

## Exterior Gypsum Ceiling Board

**USG Sheetrock® Brand Exterior Gypsum Ceiling Board** Weather-resistant board designed for use on the soffit side of eaves, canopies and carports and other commercial and residential exterior applications with indirect exposure to the weather. Noncombustible core is simply scored and snapped for quick application. Panels can be painted and provide good sag resistance.



Installed conventionally in wood- and metal-framed soffits. Batten strips or mouldings can be used over butt joints or joints can be treated. Backing strips are required for small vent openings. Natural finish. Available in 1/2" thickness with regular core and in 5/8" thickness with fire-rated Type X and Type C cores—both with eased edges. Board complies with ASTM C1396.

**USG Securock® Brand Glass Mat Sheathing** Also can be used for exterior ceiling applications where extra weather protection is desired. A direct-applied synthetic-type stucco system applied in accordance with the manufacturer's recommendations is recommended as a final finish.

**USG Fiberock® Brand Aqua-Tough™ Interior Panels** Suitable for use in exterior soffit and ceiling applications not directly exposed to the weather, such as open porches, walkways, soffits and similar applications that are horizontal or inclined downward away from the building. Manufactured using USG's unique gypsum-fiber technology, these durable panels provide moisture and mold resistance superior to conventional paper-faced products. Panels comply with ASTM C1278.

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### **Sag-Resistant Ceiling Panels**

Up to 30% lighter than regular 1/2" wallboard, **USG Sheetrock® Brand 1/2" Ultralight Panels** are the lightest 1/2" gypsum panels available. The panels offer superior sag resistance and can replace 1/2" sag-resistance ceiling board and 5/8" Type X on ceilings with 24" o.c. frame spacing, up to 2.2 psf of overlaid insulation and water-based texture applied. ICC Evaluation Service Compliant for ceiling installations, ESR-3365.

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### **Abuse-Resistant Panel Products**

Abuse-resistant panels are made with strong face paper and a heavy-duty backing sheet, which improve the integrity of the board. As a result, the panels are able to withstand impact better than standard gypsum board and are less likely to allow penetrations or show indentations. Meets ASTM C1396.

**USG Sheetrock® Brand Abuse-Resistant Gypsum Panels** Offer greater indentation and through-penetration resistance than standard gypsum panels. Available in 5/8" Firecode Core.

**USG Sheetrock® Brand Mold Tough® Firecode® Core AR** Abuse-resistant panels that offer greater resistance to surface indentation and impact damage than 5/8" **USG Sheetrock® Brand AR** gypsum panels. They feature a noncombustible moisture-resistant Type X core encased in moisture- and mold-resistant face and back papers, available in 5/8" thickness and 48" width. **USG Sheetrock® Brand Mold Tough® Firecode® Core VHI** are produced with a fiberglass mesh imbedded in the backside for superior impact resistance. They feature a noncombustible moisture-resistant Type X core encased in moisture- and mold-resistant face and back papers, available in 5/8" thickness and 48" width.

**USG Fiberock® Brand Abuse-Resistant Panels** Engineered to provide increased resistance to abrasion, indentation and penetration for interior walls and ceilings in demanding construction applications. These gypsum fiber panels are designed to outperform paper-faced gypsum board. Strong, solid and durable, they resist denting, breaking and puncturing—even in high-traffic areas. They also are manufactured

with 95% recycled content. They have exceptional surface-burning characteristics (ASTM E84, flame spread 5, smoke developed 0) and fire resistance (ASTM E119). 5/8" Fiberock abuse-resistant panels may be used in lieu of Type X gypsum panels in over 50 fire-rated wall assemblies as listed in the *UL Fire Resistance Directory* under "Type FRX."

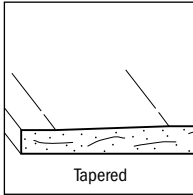
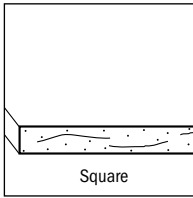
### Specifications—Gypsum Panel Products

	Thickness		Length	Approx. Wt.	
	in.	mm	ft.	lb./SF	kg/m <sup>2</sup>
USG Sheetrock® Brand Regular Panels	1/4	6.4	8 and 10	1.2	5.9
	3/8	9.5	8, 9, 10, 12, 14	1.4	6.8
	1/2	12.7	8, 9, 10, 12, 14	1.7	8.3
USG Sheetrock® Brand UltraLight Panels	1/2	12.7	8, 9, 10, 12, 14	1.7	8.3
Firecode Core Panels, standard and lightweight	5/8	15.9	8, 9, 10, 12, 14	2.2	10.7
Firecode C Core Panels	1/2	12.7	8, 9, 10, 12, 14	1.9	9.3
	5/8	15.9	8, 9, 10, 12, 14	2.5	12.2
Ultracode Core Panels	3/4	19.0	8, 9, 10, 12	2.8	13.7
USG Sheetrock® Brand UltraLight Mold Tough Panels	1/2	12.7	8, 10, 12	1.35	6.6
Mold Tough Firecode Core Panels	5/8	15.9	8, 10, 12	2.2	10.7
Mold Tough Firecode C Core Panels	1/2	12.7	10	1.9	9.3
Fiberock Brand Aqua-Tough	1/2	12.7	5, 8, 9, 10	2.2	10.7
Interior Panels/Fiberock Brand Tile-Backerboard	5/8	15.9	5, 8, 9, 10	2.7	13.2
Exterior Ceiling Board Regular Board	1/2	12.7	8, 12	1.9	9.3
Firecode Board	5/8	15.9	8, 12	2.4	11.7
Interior Ceiling Panels Sag Resistant	1/2	12.7	8, 12	1.6	7.8
1/4" Flexible Panels	1/4	6.4	8, 10	1.2	5.9
54" Panels	1/2	12.7	8, 9, 10, 12, 14	1.7	8.3
Abuse-Resistant Panels	5/8	15.9	8, 9, 10, 12, 14	2.7	13.2
Fiberock Brand Abuse-Resistant Panels	1/2	12.7	8, 9, 10, 12	2.2	10.7
	5/8	15.9	8, 9, 10, 12	2.7	13.2
USG Sheetrock® Brand UltraLight Panels Firecode® 30	5/8"	15.9	8, 9, 10, 12, 14	1.6 - 1.8	7.8 - 8.8
USG Sheetrock® Brand Abuse-Resistant Gypsum Panels	5/8"	15.9	8, 10, 12	2.8	13.7
USG Sheetrock® Brand Mold Tough® AR Firecode® Core Panels	5/8"	15.9	8, 10, 12	2.8	13.7
USG Sheetrock® Brand Mold Tough® VHI Firecode® Core Panels	5/8"	15.9	8, 10, 12	2.8	13.7

**USG Fiberock® Brand Aqua-Tough™ Interior Panels** Have all the benefits of Fiberock abuse-resistant panels with the added benefit of mold and moisture resistance. Available in 1/2" and 5/8" Firecode Core.

**USG Fiberock® Brand VHI Abuse-Resistant Panels** Very high impact (VHI) panels have all the benefits of the Fiberock abuse-resistant panels but are also glass-fiber-mesh reinforced to provide penetration resistance and rigidity for a single-layer gypsum panel. Available in 1/2" and 5/8" Firecode Core.

### Veneer Plaster Gypsum Base Products



*Types of edges*

Gypsum bases finished with veneer plasters are recommended for interior walls and ceilings in all types of construction. For these interiors, a veneer of specially formulated gypsum plaster is applied in one coat (1/16" to 3/32" thick) or two coats (approximately 1/8" thick) over the base. The resulting smooth or textured monolithic surfaces are preferred for hard-wear locations where durability and resistance to abrasion are required.

Imperial gypsum bases are 48"-54" wide gypsum board panels that are rigid and fire-resistant. A gypsum core is faced with specially treated, multilayered paper (blue) designed to provide a maximum bond to veneer plaster finishes. The paper's absorbent outer layers quickly and uniformly draw moisture from the veneer plaster finish for proper application and finishing. The moisture-resistant inner layers keep the core dry and rigid to resist sagging. The face paper is folded around the long edges. Ends are square-cut and finished smooth.

### Gypsum Base Advantages

Gypsum bases, in conjunction with selected veneer plaster finishes, provide the lasting quality of plaster walls and ceilings at a lower cost and with less weight and residual moisture than conventional plaster.

**Rapid Installation** Walls and ceilings can be completed quickly—in 3 to 4 days, from bare framing through decorated interiors.

**Fire Resistance** Ratings of up to 4 hours for partitions, 3 hours for floor-ceilings and 4 hours for column fire protection assemblies have been obtained.

**Sound Control** Gypsum base partitions faced with veneer plaster finishes on both sides have high resistance to sound transmission. (Resilient attachment of base and use of insulation further improve sound isolation.)

**Durability** Hard, high-strength surfaces provide excellent abrasion resistance, resulting in minimum maintenance, even in high-traffic areas.

**Easily Decorated** Smooth-surfaced interiors readily accept paints, texture, fabric and wallpaper. Veneer plaster finishes also may be textured. If completely dry, finishes can be painted with breather-type paints the day following application. For additional information, reference PM15, Preparation for Painting.

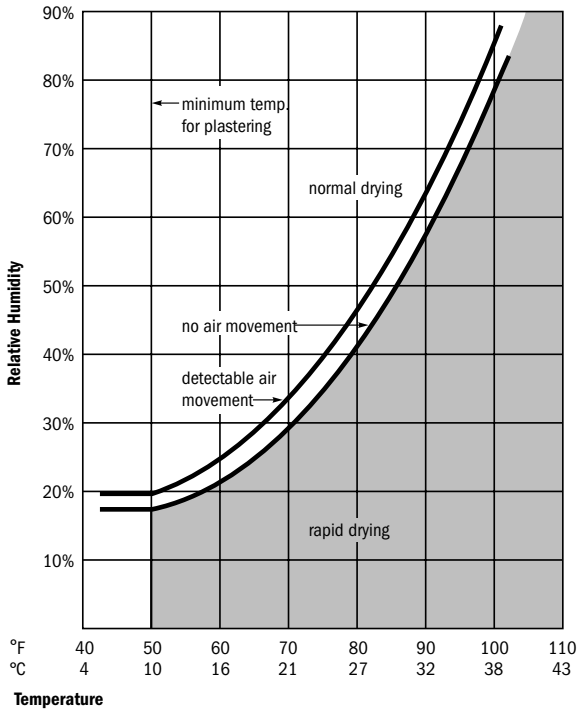
### Gypsum Base Limitations

1. Maximum frame and fastener spacing is dependent on thickness and type of base used.
2. Recommended for use with Imperial veneer basecoat, Imperial veneer finish, Diamond® veneer basecoat and Diamond veneer finish. Do not apply gauged lime-putty finishes or Portland cement plaster directly to base; bond failure is likely.
3. Not recommended for use in areas exposed to moisture for extended periods or as a base for adhesive application of

ceramic tile in wet areas (Durock brand interior cement board and Fiberock Aqua-Tough tile backerboard are recommended for this use).

4. Gypsum base that has faded from the original light blue color due to exposure to sunlight should be treated with either USG plaster bonder or a solution of USG accelerator—alum catalyst before Diamond veneer finish or any veneer plaster finish containing lime is applied. When using USG plaster bonder, a two-coat veneer system (basecoat and finish coat) is required for adequate smoothness. Imperial veneer basecoat and veneer finish and Diamond veneer basecoat plasters do not contain lime and are not susceptible to bond failure over faded base.
5. Joints and internal angles must be treated with USG Sheetrock® Brand joint tape and setting-type joint compound (Durabond®) or lightweight setting-type joint compound (Easy Sand™) when building temperature-humidity conditions fall in the “rapid-drying” area of the graph when metal framing is specified or when 24” o.c. wood frame spacing and a single-layer gypsum base veneer system is specified (5/8” base with one-coat veneer finish and 1/2” or 5/8” base with two-coat veneer finish). Single-layer 1/2” base is not recommended with 24” o.c. spacing and one-coat veneer plaster.

**Plaster Drying Conditions**



**Products Available**

**USG Imperial® Gypsum Base** A special gypsum board that has been specifically engineered for use with Imperial veneer finish and Diamond veneer finish or Imperial and Diamond veneer basecoat plasters. It provides the strength and absorption characteristics necessary for top-quality veneer plaster finishing performance. Large sheets minimize the number of joints and speed installation. The high-density, fire-resistant gypsum core has a superior controlled-absorption paper lightly tinted blue on the face side and a strong liner paper on the back side. Available in two thicknesses with square or tapered edges: 1/2" for single-layer application in new light construction; 5/8" recommended for the finest high-strength veneer plaster finish construction. The greater thickness provides increased resistance to fire exposure and sound transmission and allows 24" o.c. spacing of wood framing. Imperial gypsum base may be used with Diamond veneer finish to embed cables for radiant heat ceilings. Meets ASTM C588.

**USG Sheetrock® Brand UltraLight Gypsum Base Imperial®, 1/2"** lightweight gypsum base ideally suited for veneer plaster systems. Meets ASTM C1396.

**USG Imperial® Gypsum Base, Firecode® and USG Firecode® C Core** Imperial Gypsum Base, Firecode® Core in 5/8" thickness and Firecode C Core in 1/2" and 5/8" thicknesses combine all the advantages of regular Imperial gypsum base with additional resistance to fire exposure—the result of specially formulated mineral cores. UL classified for fire resistance. Meets ASTM C588. For additional information, reference PM16, Application of Electric Heat Cable Systems.

**Other Veneer Plaster Base Products**

**USG Durock® Brand Cement Board** A glass-fiber-mesh reinforced aggregated Portland cement panel that provides a high-strength substrate for improved abuse resistance. Requires the use of USG plaster bonder, which is only suitable for two-coat plaster application. Available 1/2" thick (5/8" available under minimum order conditions) in 4' × 8' and 4' × 10' dimensions.

**Fiberock Abuse-Resistant Panels** deliver greater impact and puncture resistance than any other gypsum panel. Made with a unique gypsum/cellulose fiber core, the panels impede penetrations by sharp objects, including sharp blows from small objects, and exhibit more rigidity than standard gypsum panels. They also provide greater flexural strength and screw withdrawal properties than other gypsum panels. Requires the use of USG plaster bonder, which is only suitable for two-coat plaster application. VHI panels are glass-fiber-mesh reinforced to provide extraordinary penetration resistance and rigidity for a single-layer gypsum panel. Available in 1/2" and 5/8" thicknesses. They have exceptional surface-burning characteristics (ASTM E84, flame spread 5, smoke developed 0) and fire resistance (ASTM E119). 5/8" Fiberock brand abuse-resistant panels may be used in lieu of Type X gypsum panels in over 50 fire-rated wall assemblies as listed in the *UL Fire Resistance Directory* under "Type FRX."

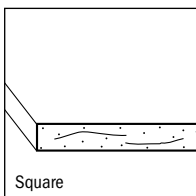
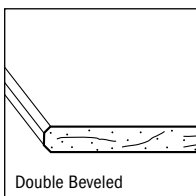
### Specifications—Gypsum Bases

Product	Thickness		Length	Approx. wt	
	in.	mm	ft <sup>(1)</sup>	lb./SF	kg/m <sup>2</sup>
Imperial Gypsum Base <sup>(2)</sup>					
Ultralight	1/2	12.7	8, 9, 10, 12, 14	1.25-1.35	8.8
Firecode	5/8	15.9	8, 9, 10, 12, 14	2.3	11.2
Firecode C	1/2	12.7	8, 9, 10, 12, 14	2.0	9.8
Firecode C	5/8	15.9	8, 9, 10, 12, 14	2.5	12.2
Durock Brand Cement Board	1/2	12.7	8, 9, 10, 12, 14	3.0	14.6
Fiberock Brand Abuse-Resistant Panels	1/2	12.7	8, 9, 10	2.2	10.9

(1) Metric lengths: 8 ft. = 2440 mm; 9 ft. = 2745 mm; 10 ft. = 3050 mm; 12 ft. = 3660 mm; 14 ft. = 4270 mm.

(2) Also available in foil-back base.

## Gypsum Liner and Sheathing Products



Types of edges

**USG Sheetrock® Brand Gypsum Liner Panels** Have a 1"-thick, special fire-resistant gypsum core that is encased in multilayered, moisture-resistant green paper. Panels are used in USG cavity shaft walls, area separation walls, select floor assemblies and infill panel systems for exterior curtain walls. Panels have beveled edges for easy insertion between the supporting flanges of steel C-H studs, E-studs or H-studs. Meet ASTM C1396.

**USG Sheetrock® Brand Mold Tough Gypsum Liner Panels** Have a noncombustible, moisture gypsum core that is encased in moisture- and mold-resistant, 100% recycled blue face and back papers. The panels are UL classified as to fire resistance (Type SLX) and feature double beveled edges for easy installation. May be substituted for USG Sheetrock® Brand gypsum liner panels in all USG Sheetrock® Brand shaft wall and area separation wall systems.

**USG Sheetrock® Brand Glass Mat Liner Panels** Feature a noncombustible, moisture-resistant gypsum core encased in moisture- and mold-resistant glass mats. They offer a 12-month exposure warranty, and they can be used in any fire-rated cavity shaft wall and separation wall system assembly where regular USG Sheetrock® Brand gypsum liner panels and USG Sheetrock® Brand Mold Tough gypsum liner panels are specified.

**Note:** These USG Sheetrock® Brand gypsum liner panels have been comprehensively tested for fire resistance, structural performance and sound control *only* when used with USG shaft wall and area separation wall framing components. All USG shaft wall and area separation wall system components must be used together to ensure superior system performance and safety. Substitutions of any components are not recommended and are not endorsed by USG.

**USG Sheetrock® Brand Gypsum Sheathing** A fire-resistant gypsum board, with a water-resistant gypsum core encased in specially treated water-repellent paper on both sides and long edges. Its weather resistance, water repellency, fire resistance and low applied cost make it suitable for use in exterior wall construction of garden apartments and light commercial buildings as well as in homes. Also used in steel stud curtain wall construction.

USG Sheetrock® Brand gypsum sheathing is suitable for a wide range of exterior finishes such as, but not limited to, masonry veneer, wood, vinyl and aluminum siding, wood shingles and stucco. Exterior finish attachment is limited to mechanical fastening through sheathing into the framing.

Available in 1/2" and 5/8" thick, 48" wide, 8' long with square edges for vertical application. Meets ASTM C1396.

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**Sheathing Limitations**

1. Sheathing may be stored outside for up to one month but must be stored off the ground and must have a protective covering.
2. Maximum stud spacing is 24" o.c.
3. When applied to a structure, sheathing must not be left exposed to the elements for more than one month unless the procedure as outlined in limitation 5 (below) is followed.
4. Exterior finish systems applied over gypsum paper-faced sheathing must be applied with mechanical fasteners through the sheathing into the wall framing. Alternate methods of application are not endorsed, and their performance and that of the substrate are solely the responsibility of the specifier. Direct application of paint, texture finishes and coatings over gypsum sheathing is not recommended.
5. For paper-faced sheathing in-place exposure up to six months, all gaps resulting from cuts, corners, joints and machine end cuts of the sheathing should be filled with exterior caulk at time of erection or wrapped with a suitable water barrier.
6. For curtain wall construction, cover the sheathing with No. 15 asphalt felt or other suitable water barrier within 30 days of sheathing installation. Felt should be applied horizontally with 2" overlap and immediately anchored with metal lath, masonry ties or corrosion-resistant screws or staples. (See SA923 Technical Folder for additional curtain wall details.)
7. Paper-faced sheathing is not recommended for exterior ceilings and soffits, unless covered with metal lath and exterior Portland cement stucco.
8. System should be designed to allow free movement of water out of the system where the sheathing is installed to allow it to dry.
9. Specific requirements regarding framing spacing, fastener spacing and fastener specifics to provide required lateral wind load resistance are the responsibility of the design professional.

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**USG Securock® Glass Mat Sheathing**

Securock glass mat sheathing has a treated gypsum core combined with a fiberglass mat face and back and offers superior strength. It is a noncombustible, moisture- and mold-resistant panel designed for use under exterior claddings where conventional gypsum sheathing products have traditionally been used, such as brick veneer, properly detailed Exterior Insulation Finish Systems (EIFSs), clapboard

siding, panel siding, shingle siding, shake siding and conventional stucco. The panels offer quick score-and-snap cutting with no sawing or special tools and rapid screw or nail attachment. Available in 1/2" regular and 5/8" fire-rated thicknesses, 48"-wide square edges and 8', 9' and 10' lengths.

### Securock™ Glass Mat Sheathing

1. Must not be used as a nail base for exterior cladding.
2. Specific requirements regarding framing spacing, fastener spacing and fastener specifics to provide required lateral wind load resistance are the responsibility of the design professional.
3. Offers improved resistance to weather but is not intended for constant exposure to water.
4. Not recommended for lamination to masonry surfaces. (Use furring strips or framing.)
5. Maximum stud spacing is 24" o.c.
6. Not a finished surface.
7. Not intended for tile applications.
8. Does not meet Collaborative for High Performance Schools (CHPS) formaldehyde interior requirements.

### Specifications—Liner and Sheathing Products

Product	Thickness		Width		Edges	Length		Approx. Wt.	
	in.	mm	in.	mm		ft.	lb./SF	kg/m <sup>2</sup>	
USG Sheetrock® Brand Liner Panels	1	25.4	24	610	Bevel	up to 16	4.1	20.0	
	1/2	12.7	48	1219	Square	8, 9	2.0	9.8	
USG Sheetrock® Brand Firecode Sheathing	5/8	15.9	48	1219	Square	8, 9	2.4	11.7	
Securock Glass Mat Sheathing	1/2	12.7	48	1219	Square	8, 9, 10	2.0	9.8	
Securock Glass Mat Firecode Sheathing	5/8	15.9	48	1219	Square	8, 9, 10	2.7	13.2	

## Roof Board Products

**USG Securock® Gypsum-Fiber Roof Board** is a fiber-reinforced gypsum panel developed specifically to meet the demands of low-slope commercial roofing assemblies for both fully adhered and mechanically attached roofing systems. It provides high wind uplift performance, lower adhesive absorption, exceptional bond, no face layer to delaminate, great compressive strength, fire resistance and resistance to moisture and mold. The roof board protects, separates and supports the membrane and insulation, preventing early roof failures due to traffic, hail, snow loads or high winds. The smooth top surface provides an exceptional bonding surface for fully adhered or self-adhering membrane applications. Securock gypsum-fiber roof boards meet ASTM C1278 and is made from 95% recycled content. For additional information, please visit [usg.com/securock](http://usg.com/securock).

**USG Securock® Glass Mat Roof Board** is a high-performance, non-combustible, moisture- and mold-resistant roof board that is ideal for the use in low-sloped mechanically attached roof systems as a



coverboard, fire barrier or thermal barrier. Designed with a high-quality fiberglass mat with an unmatched core to mat tensile bond strength, **Securock** glass mat roof boards have less itch and less chance of delamination when being cut. **Securock** glass mat is also mold and moisture resistant scoring a 10 on ASTM D3273 and has a Class A fire rating for unlimited slope in fire barrier applications per UL790 and Factory Mutual. For additional information, please visit [usg.com/securock](http://usg.com/securock).

## Floor Underlayment Products

**USG Fiberock® Brand Aqua-Tough™ Underlayment** Engineered to meet water, mold and indentation resistance needs under ceramic tile, resilient flooring, carpeting, hardwood flooring and laminate flooring in residential and light-commercial construction. This all-purpose underlayment is manufactured from a specially engineered combination of gypsum and cellulose fibers and has a uniform, moisture- and mold-resistant composition. It is an environmentally friendly alternative to wood-based underlayments because it is made from 95 percent recycled material. Residential and light-commercial performance rating based on Robinson Floor Test (ASTM C627), conducted by the Tile Council of North America (TCNA). Meets ASTM C1278 standards.

**USG Durock® Brand Underlayment** Glass fiber-mesh reinforced aggregated Portland cement panel for floors and countertops. Its nominal 5/16" thickness helps eliminate transition trim when abutting carpet or wood flooring, and it helps minimize level variations with other finish materials. Its 4' x 4' size is easy to handle and helps cut down on waste. It may be applied directly over old substrate on countertops to save time. Regular 1/2" Durock brand cement board may also be used for underlayment applications.

**USG Levelrock® Brand Floor Underlayments** are poured cementitious floor systems available in compressive strengths ranging from 2,500 to 8,000 psi. They require no shot blasting and include the first "green" underlayments in the industry made from recaptured gypsum, a byproduct of flue gas desulfurization. Levelrock floor systems provide fire resistance, sound control and durability for a variety of applications. All Levelrock floor underlayments are expertly installed by authorized applicators who receive and maintain certification following comprehensive onsite and field training from USG. For additional information, please visit [usg.com](http://usg.com).

## Suspended Ceiling Products

Suspended ceilings offer the advantages of variable ceiling height and expanded plenum usage that are not always available with conventional ceiling construction. USG offers several products for suspended ceiling construction that provide superior performance in the areas of fire resistance and sound attenuation. See Chapter 9, "Acoustical Ceiling Design and Application," for information on acoustical ceilings.

**USG Sheetrock®  
Brand Lay-In Ceiling  
Tile**

USG Sheetrock® Brand Lay-in Ceiling Tile with *ClimaPlus*™ performance, is designed for use in standard ceiling suspension systems for exceptional economy, ease of installation and accessibility to the plenum.

USG Sheetrock® Brand lay-in ceiling tile Panels also qualify for UL design fire-rated assemblies to 1-1/2 hours (UL design G222) and 2 hours (UL design G259) when used with fire-rated steel suspension systems such as Donn® DXL™, DXLA™ or ZXLA™ grid systems with *ClimaPlus*™ performance, is made of 1/2" Firecode C Core gypsum board in both 2' × 2' or 2' × 4' sizes. Both sizes are available with either laminated white vinyl facing or natural paper facing.

All *ClimaPlus* performance products carry a warranty to withstand conditions up to 104°F and 90% relative humidity without visible sag when used with Donn brand suspension systems. The panels are guaranteed for 10 years against visible sag, or 30 years when used with Donn suspension systems.

Vinyl facing is embossed in a stipple pattern for a soft, lightly textured look. It is 2 mils thick for toughness, durability and can withstand repeated washings with no sign of abrasion. Natural paper facing can be left plain for utilitarian applications or can be painted to match room color scheme.

USG Sheetrock® Brand lay-in ceiling tiles, with *ClimaPlus* performance, are safe, sanitary and washable. They meet U.S. Department of Agriculture (USDA) requirements for kitchens, restaurants and other food service areas and are suitable for hospitals, laboratories, nursing homes and other health care facilities. These tiles attain interior finish classification Type III, Form A, Class 3; Class A [National Fire Protection Association (NFPA) 101]. Panels with white vinyl facing achieve light reflectance LR1. Panels also can be used in applications such as covered entryways and parking garages.

**USG Clean  
Room™  
*ClimaPlus*™ Vinyl  
Panels**

Clean Room *ClimaPlus* Class 100 and Class 10M-100M panels have embossed vinyl laminated aluminum facing and meet federal standard 209E, "Clean Room and Work Station Requirements, Controlled Environment."

**Advantages**

**Easy Installation** Conventional installation tiles install quickly and easily in standard exposed grid.

**Easy Maintenance** Embossed vinyl facing is washable to keep surface bright and light-reflecting.

**Outdoor Applications** Excellent in protected areas when used with compatible suspension system (such as Donn) environmental ZXLA grid, which features 25-gauge, hot-dipped galvanized steel with corrosion-resistant aluminum face. 4' hanger spacing achieves intermediate-duty rating vs. 3' spacing for aluminum grids.

**Sound Attenuation** Tiles provide sound transmission class (STC) range of 45-49.

**Performance** Tiles qualify for fire-rated assemblies. Surface-burning characteristics: flame spread 25, smoke developed 50. Class A rated on all products (ASTM E84 test procedure). Thermal performance up to R-0.45. Weight 2.00 lb./SF.

**Specifications—USG Sheetrock® Brand Lay-In Ceiling Tile**

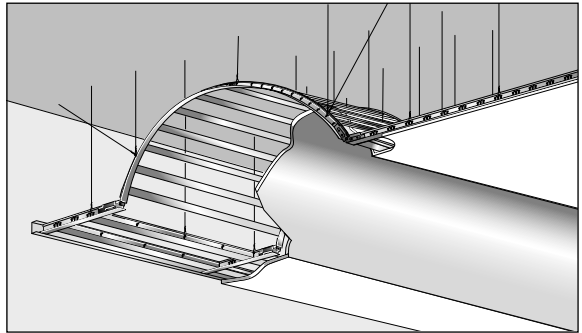
	Size	Edge	Regular			Firecode®		
			Item No.	NRC Range	CAC Range	Item No.	NRC Range	CAC Min.
Stipple Pattern	2'×2'×1/2"	Square	N/A	—	—	3260	N/A	35
USG Sheetrock® Brand Lay-In Ceiling Tile	2'×4'×1/2"	Square	N/A	—	—	3270	N/A	40
Unfinished Paper Facing								
USG Sheetrock® Brand Lay-In Ceiling Tile	2'×4'×1/2"	Square	N/A			3450	N/A	40
Clean Room <i>ClimaPlus</i> Vinyl Panels	2'×4'×1/2"	Square	N/A	—	—	3200	N/A	40

Note: NRC = noise reduction coefficient, CAC = ceiling attenuation class.

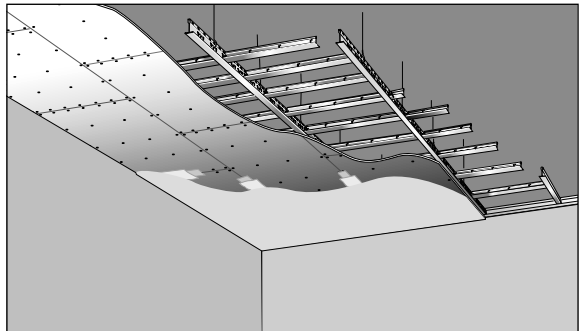
**USG Drywall Suspension System**

The USG drywall suspension system provides a fast and economical method of installing gypsum panel ceilings while supplying support for lighting and air-handling accessories. The system is designed for direct screw attachment of gypsum panels to produce either flat or curved surfaces. Single panels may be up to 5/8 thick. Double-layer panel applications may be up to 1-1/4" combined thickness.

**Vault drywall ceilings**



**Flat drywall ceilings**



The USG drywall suspension system is made of hot-dipped galvanized steel. Main tees are 1-1/2" high × 144" long with a rectangular top bulb and 15/16" or 1-1/2" wide flange. The system offers the option of using 1-7/16" wide-faced furring cross channels or 1-1/2" wide

furring cross tees for gypsum panel attachment. The face of both cross channels and cross tees is knurled to improve fastening of drywall screws. Also available are tees with 15/16" exposed flange to be used with lay-in light fixtures.

Direct-hung drywall suspension system is used in UL designs with fire ratings of 1, 1-1/2, 2 and 3 hours. The most current list of UL designs is available at [usgdesignstudio.com](http://usgdesignstudio.com), where you can search floor/ceiling and roof/ceiling assemblies by fire rating, type of structural framing, Impact insulation class (IIC) and sound transmission class (STC). Downloadable REVIT™ and CAD files are available on this site. You can also consult the *UL Fire Resistance Directory* and revisions for further information and construction details.

### Advantages

**Labor Saving** Factory-controlled module spacing and snap-lock connection of cross channels and cross tees with main tees cuts installation time.

**Cost Saving** Components are low in cost compared with conventional construction to achieve the same result.

**Strength** Strong metal components are designed with interlocking tabs and splicing mechanisms to resist twisting of assembly.

**Sound Control** A vital component in sound-resistive floor-ceiling systems. Visit [usgdesignstudio.com](http://usgdesignstudio.com) for details.

**Accommodates Light Fixtures** Accepts National Electrical Manufacturers Association (NEMA) Type G and Type F light fixtures.

### System Components

**Main Tee** Conforms to ASTM C635 Heavy-Duty Main Tee Classification. Designed to support gypsum board ceiling with maximum deflection of 1/360 of the span. Double-web design, 1-1/2" high × 144" long, rectangular top bulb, 15/16" wide or 1-1/2"-wide flange, integral reversible end splice. Furring cross channel holes 4" from ends, spaced 8" o.c., hanger wire holes 4" o.c.

**Wall-to-Wall Main Tee** Conforms to ASTM C635 Heavy-Duty Main Tee Classification. Designed to support gypsum board ceiling with maximum deflection of L/240 of each span, per ASTM C645. 1-1/2" high × 6', 8', 10', 12' and 14' lengths, double-web design, rotary stitched and knurled.

**DGCL Cross Channel** Hat-shaped formed section, 1-7/16" wide × 7/8" high knurled screw surface, integral end locks stamped at each end. For fire-rated assemblies.

**DGLW Cross Tee** 1-1/2" high, roll-formed into double-web design with rectangular bulb, 1-1/2" knurled face and a steel cap, high-tensile steel, double-locking and self-indexing end clenched to web. For fire-rated assemblies.

**DGL Cross Tee** 1-1/2" high, roll-formed into double-web design with rectangular top bulb, 15/16" exposed flange, high-tensile steel, double-locking and self-indexing end clenched to web.

**Channel Moulding** U-shape, 1" flange × 1-9/16"

**Angle Moulding** L-shape, 1-1/2" flange × 1"

**Hanger Wire** Galvanized carbon steel, soft temper, prestretched, yield stress load at least five times design load, but not less than 12-gauge wire.

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**USG Drywall  
Suspension System—  
Curved Surfaces**

The USG drywall suspension system is uniquely engineered to take advantage of curved metal framing components and flexible gypsum panels to produce arched and/or wavy ceiling surfaces. Framing components are formed tees available in a wide range of radii from 31" to over 240". The system is designed for direct screw attachment of gypsum panels, Imperial gypsum base or metal lath when using conventional plaster systems.

The system easily accommodates transferring from straight to curved members and from concave to convex directions. Tees can be field cut to specific arc or chord lengths. Main tees are 144" long before bending. Spans from single sections vary. Main tees and cross tees or channels both have knurled surfaces to aid screw attachment of gypsum panels.

The system is completed with attachment of USG Sheetrock® Brand gypsum panels. Joints are taped and finished with a USG Sheetrock® Brand joint treatment system. Fire-rated constructions are achievable with multiple layers of the gypsum panels. Additional details, photographs, system estimators and assembly animations are available at [usgdesignstudio.com](http://usgdesignstudio.com).

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**Advantages**

**Labor Saving** Components are factory prepared for easy installation of the main-tee and cross-tee assembly.

**Accuracy** Uniform arched components ensure accurate fit of attached components, including gypsum panels.

**Aesthetic Appearance** Dynamic arched or wavy surface is aesthetically pleasing.

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**Curved System  
Components**

**Curved Main Tees** Conform to ASTM C635, Heavy-Duty Main Tee Classification. 1-1/2" high, galvanized cold-rolled-steel tee with 15/16" flange comes with various radius curvatures in either concave or convex direction. Tee length before bending is 144". Tee web is punched 4" from the end and thereafter at 8" intervals to accept cross channels. Web also is punched at 3' intervals with holes to accept hanger wire.

**Cross Channel** Hat-shaped, galvanized-steel channel has 1-7/16"-wide knurled screw surface for convenient attachment of gypsum panels.

**Hanger Wire** Galvanized carbon steel, soft temper, prestretched, yield stress load at least five times design load but not less than 12-gauge wire.

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**USG Drywall  
Suspension System—  
Fascia Applications**

A special feature of the USG drywall suspension system is the array of fascia trim designed to finish edges that do not abut walls, soffits or adjacent ceilings. The trim strips, called Compasso™, are available either flat or curved (convex or concave) to meet design requirements. The trim system is designed for parallel, perpendicular or angled attachment to suspension system tees. Curved fascia applications are also available.

**Advantages**

**Labor Saving** Components are factory prepared for easy installation.

**Cost Saving** Trim is low in cost compared with conventional construction to achieve the same result.

**Aesthetic Appearance** Flat or curved fascia trim is aesthetically pleasing.

**Compäso™ Fascia Trim Components**

**Compäso Trim** Available flat or in a variety of radii to match design requirements. Widths available up to 8".

**Compäso Drywall Clip** Provides ready attachment of Compäso trim to main or cross tees, either parallel or perpendicular to the tee direction. Clip edges fit snugly inside trim edges; screw attach to tees.

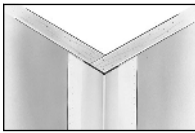
## Bead and Trim Accessories

USG offers a wide variety of bead and trim products that are utilized in finishing drywall corners.

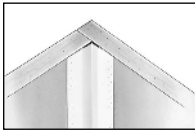
**Paper-Faced Metal Bead and Trim**

**USG Sheetrock® Brand and USG Beadex® Brand Paper-Faced Metal Bead and Trim** Offer the most cost-effective, problem-free, high-quality corners. Fast, easy installation reduces labor costs while superior product performance eliminates costly job callbacks, saving money and ensuring customer satisfaction. Tape-on profiles do not require nailing, so installation and corner alignment is easier, and there are no nails to pop when wood framing shrinks. USG's formulated paper tape ensures excellent adhesion to joint compounds, textures and paints for a strong, clean finish.

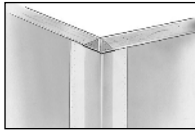
Tape-on paper-faced metal corner bead and trim also provide superior resistance to edge cracking. In fact, USG offers a lifetime warranty against edge cracking using recommended application techniques (refer to USG lifetime warranty J1302 for details).



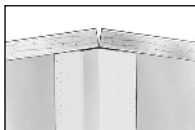
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Outside Corner, Tape-On Bead (B1W, B1XW EL, Micro Bead™, B1 Super Wide)** For 90° outside corners. Suitable for use on any thickness of wallboard.



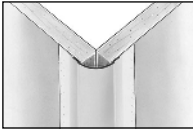
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Inside Corner, Tape-On Trim (B2)** Designed to form a true inner 90° corner. For use with any thickness of wallboard.



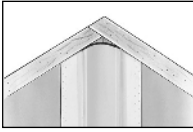
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Offset Outside Corner, Tape-On Bead (B1 OS)** For 135° corners. Offset bead is designed to give a true offset corner with a smaller bead height for less compound fill. Can be used with any thickness of wallboard.



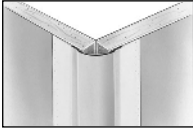
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Offset Inside Corner, Tape-On Bead (B2 OS)** Designed to provide a true offset angle on inside corners greater than 90°. Use on any thickness of wallboard.



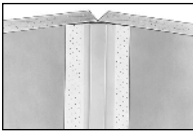
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal 3/4" Bullnose Outside Corner, Tape-On Bead (SLOC)** Designed to create a rounded 3/4" radius, 90° corner angle. For use with 1/2" or 5/8" gypsum panels.



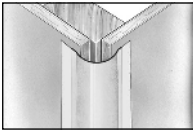
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Inner Cove, Tape-On Trim (SLIC)** Creates a rounded 3/4" radius, 90° inside corner. For use with 1/2" or 5/8" gypsum panels.



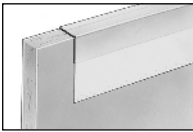
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Bullnose Offset Outside Corner, Tape-On Bead (SLOC OS)** Forms a rounded 135° offset outside corner. Ideal for bay window offsets and similar applications.



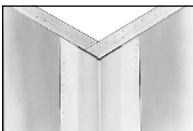
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Offset Inner Cove, Tape-On Trim (SLIC OS)** Forms a smooth cove for 135° inside corners.



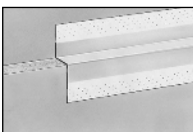
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal 1-1/2" Bullnose Outside Corner, Tape-On Bead (Danish)** Broader and gentler corner than 3/4" radius bullnose. Use with 1/2"- or 5/8"-thick wallboard.



**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal "L" Shaped Tape-On Trim (B4 Series)** For use where wallboard abuts suspended ceilings, beams, plaster, masonry and concrete walls as well as untrimmed door and window jambs.



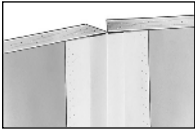
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Outside Corner (Micro Bead)** Reduced bead height results in less joint compound consumption. Extra-wide flanges for maximum corner coverage.



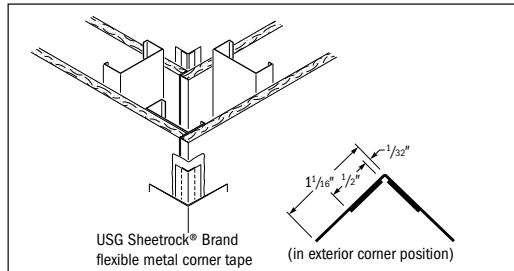
**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal Reveal, Tape-On Trim (B4 NB)** Modified tape-on "L" trim solves problems with reveals on soffits, wall offsets, ceilings, light boxes and other interior architectural features. B4 reveal features a paper flange on both trim legs, eliminating the need to caulk the edge of reveal details and providing a cleaner, straighter line.



**USG Sheetrock® Brand and Beadex Brand Paper-Faced Metal "J" Shaped Tape-On Trim (B9)** Used to finish rough drywall panel ends. Ideal for use at window and door openings and casements.



**USG Sheetrock® Brand and Beadex Brand Flexible Metal Corner Reinforcing Tape** Flexible reinforcing tape that ensures straight, sharp corners on any angle. Provides durable corner protection on cathedral and drop ceilings, arches and around bay windows. Tape is 2-1/16" wide and has 1/16" gap between two 1/2"-wide galvanized steel strips. When folded, tape forms a strong corner bead. Applied with standard joint compound feathered at the edges for a smooth wall surface. Also used to join drywall partition to plastered wall in remodeling and for repairing chipped and cracked corners. Available in convenient 100' rolls in dispenser box.



## Metal Beads

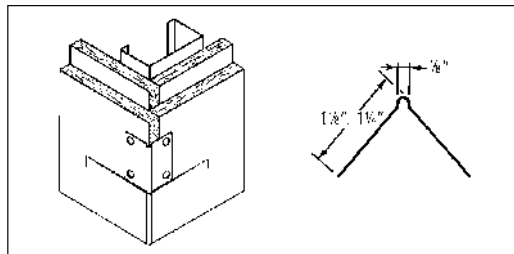
Metal corner beads permit traditional fastening to studs and construction of true, concealed external angles with gypsum base and panels.

**USG Dur-A-Bead® Corner Bead** Specially galvanized steel reinforcement for protecting external corners in drywall construction. It is screwed or nailed to framing through the panels and concealed with USG joint compounds as a smooth, finished corner. Flanges also may be attached with a clinch-on tool. Available in 1-1/4" × 1-1/4" flange width (No. 103).

**Expanded Flange Corner Bead No. 800** A galvanized steel external corner reinforcement with 1-1/4"-wide fine-mesh expanded flanges, tapered along outer edges to enhance concealment. It is easily nailed or stapled and provides superior bond to panels and base with joint compound and veneer plaster finishes through approximately 90 keys per linear foot. It also provides proper 1/16" grounds for one-coat veneer finishes.

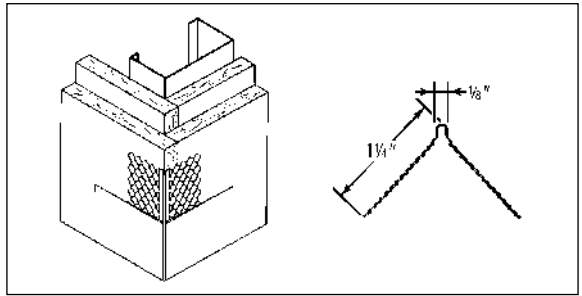
**Expanded Flange Corner Bead No. 900** Used with two-coat veneer plaster systems, it provides 3/32" grounds and its 1-1/4" fine-mesh flanges can be either stapled or nailed. Provides reinforcement equivalent to No. 800.

## Dur-A-Bead corner bead





**Expanded flange corner bead, Nos. 800 and 900**

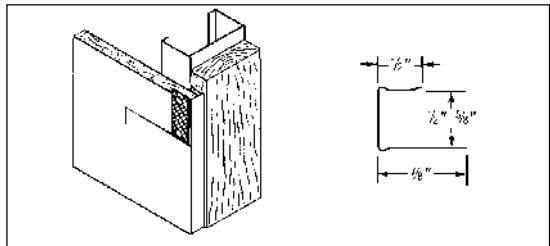


**Metal Trim**

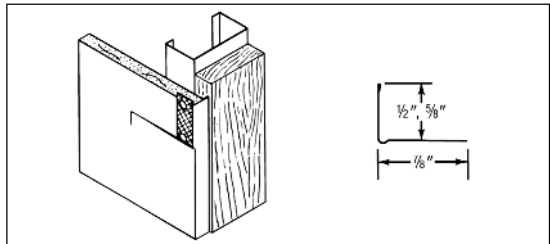
Metal trim provides protection and neat finished edges to gypsum panels and bases at window and door jambs, at internal angles and at intersections where panels abut other materials. Easily installed by nailing or screwing through the proper leg of trim. Made in the following types and sizes:

**L-Trim and J-Trim** Galvanized steel casing for gypsum panels, includes No. 200-A J-shaped channel in 1/2" and 5/8" sizes and No. 200-B L-shaped angle edge trim without back flange (to simplify application), in 1/2" and 5/8" sizes. Both require finishing with USG joint compounds.

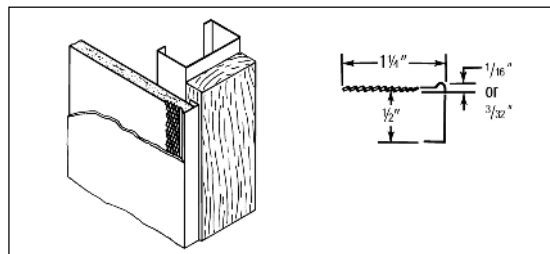
**No. 200-A metal J-trim**



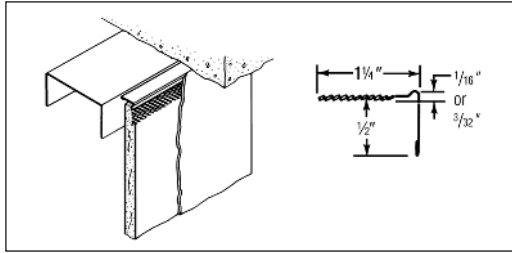
**No. 200-B metal L-trim**



**No. 701-A metal trim,  
No. 801-A metal trim**



No. 701-B metal trim,  
No. 801-B metal trim



**Expanded Flange L-Trim and J-Trim, No. 700 Series** All-metal trim provides neat edge protection for two-coat veneer plaster finishes at cased openings and ceiling or wall intersections. Fine-mesh expanded flanges strengthen veneer bond and eliminate shadowing. No. 701-A J-shaped channel-type and No. 701-B L-shaped angle edge trim provide  $3/32''$  grounds. Sizes for  $1/2''$ - and  $5/8''$ -thick gypsum base.

**Expanded Flange L-Trim and J-Trim, No. 800 Series** All-metal trim companion to 700 series, but with  $1/16''$  grounds for one-coat veneer plaster finishes or finishing with joint compound in drywall applications. Fine-mesh  $1-1/4''$  expanded flanges strengthen veneer bond, eliminate shadowing, provide a superior key and are easily nailed or stapled. No. 801-A J-shaped channel-type and No. 801-B L-shaped angle edge trim come in sizes for  $1/2''$ - and  $5/8''$ -thick panels and bases.

## Framing Components

USG pioneered the development of steel framing components for gypsum construction. They offer the advantages of light weight, low material cost, quick erection, high strength and versatility in meeting job requirements.

Today, steel studs and runners are available from a number of manufacturers. It is important to note manufacturers produce the same equivalent gauge of material, but the steel properties and thicknesses can vary from manufacturer to manufacturer. To ensure the best system performance, manufacturer specifications should be checked against the design and minimum thicknesses provided by USG. Failure to do so could result in improper fastening, excessive deflection, overstressed or even buckled steel studs. USG does not address the physical property specifications and use of equivalent gauge studs in this section.

USG does not sell common steel framing, but does sell framing components for its proprietary systems and accessory products for high-performance systems. All components are noncombustible, made from corrosion-resistant steel.

It is important that light-gauge steel components such as steel studs and runners, furring channels and resilient channels be adequately protected against rusting in the warehouse and on the job site. In marine areas, particularly sea coasts, and especially such areas as the Caribbean, Florida and the Gulf Coast where salt air conditions exist with high humidity, components that offer increased protection against corrosion should be used.

## Steel Studs and Runners

Steel studs and runners are channel-type, roll-formed from corrosion-resistant steel and designed for quick screw attachment of facing materials. They are strong, non-load-bearing components of interior partitions, ceilings and column fireproofing and also framing for exterior curtain wall systems. Heavier thickness members are used in load-bearing construction. Limited chaseways for electrical and plumbing services are provided by punchouts in the stud web. Matching runners for each stud size align and secure studs to floors and ceilings, which also function as headers.

**25-gauge (18-mil) Studs and Runners** Efficient, low-cost 25-gauge members for framing non-load-bearing interior assemblies. Studs come in widths to match wood framing dimensions and are available in lengths up to 20'. Runners come in matching stud widths—10' lengths. Not recommended for high-density board applications, such as for Durock cement board, Fiberock abuse-resistant panels or USG Sheetrock® Brand abuse-resistant panels.

**22-gauge (27-mil) Studs and Runners** Heavier gauge, stronger studs in widths of 2-1/2", 3-5/8", 4" and 6". Runners come in widths to match studs. Not recommended for high-density board applications, such as for Durock brand cement board, Fiberock brand abuse-resistant panels or USG Sheetrock® Brand abuse-resistant panels.

**20-gauge (33-mil) Studs and Runners** Heavier 20-gauge members used in framing interior assemblies requiring greater strength studs and as reinforcement for door frames. Also used in curtain wall assemblies. Studs available in 2-1/2", 3-5/8", 4" and 6" widths, and cut-to-order lengths up to 28'. Runners come in stud widths, 10' lengths.

Studs and runners should be hot-dip galvanized.

**Load-Bearing Studs and Runners** Used for framing load-bearing interior and exterior walls and non-load-bearing curtain walls. These studs have stiffened flanges and are available in several sizes.

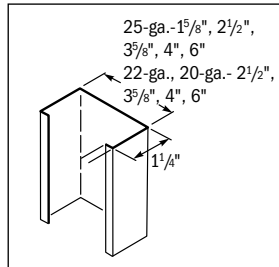
### Typical Steel Thickness—Steel Studs and Runners<sup>(1)</sup>

Minimum Thickness <sup>(2)</sup> (mils)	Design Thickness (in.)	Reference Only Gauge No.
18	0.0188	25
27	0.0283	22
30	0.0312	20 – Drywall
33	0.0346	20 – Structural
43	0.0451	18
54	0.0566	16
68	0.0713	14
97	0.1017	12

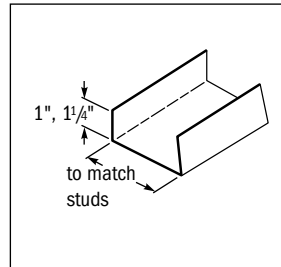
(1) Data is from Steel Stud Manufacturers Association (SSMA) catalog. (2) Minimum thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site based on Section A3.4 of the 1996 AISI specification.

There is a serious misconception within the construction industry regarding the substitution of one manufacturer's studs for those of another manufacturer. The assumption is that all studs of a given size and steel thickness are interchangeable. It is possible that the substitution can safely be made, but the decision should not be made until the structural properties of the studs involved are

compared. Most reliable manufacturers publish structural property tables in their technical literature. USG includes recommended minimum thickness data in all architectural technical literature covering steel-framed systems.



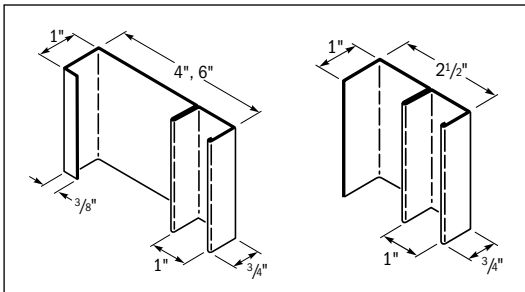
**Steel stud (25, 22, 20-gauge)**



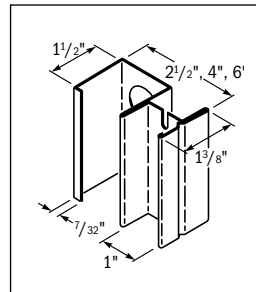
**Steel runner (25, 22, 20, 18, 16, 14-gauge)**

## Cavity Shaft Wall and Area Separation Fire-Wall/Party-Walls

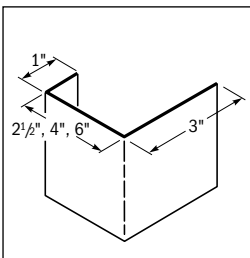
These steel components are lightweight, versatile non-load-bearing members of economical fire and sound barrier systems: (1) area separation walls between units in multifamily wood-frame buildings; (2) shaft walls around elevator and mechanical shafts, return air ducts, stairwells and smoke shafts in multistory buildings. Components are formed from corrosion-resistant steel: C-H stud base metal meets structural performance standards in ASTM A446, Grade A. Components should be hot-dipped galvanized.



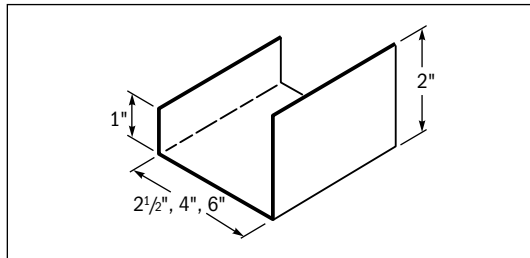
**Steel E-studs**



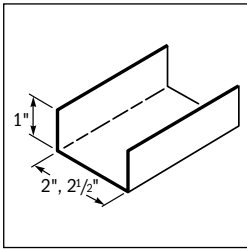
**Steel C-H stud**



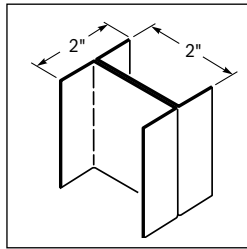
**Steel jamb strut (20 gauge)**



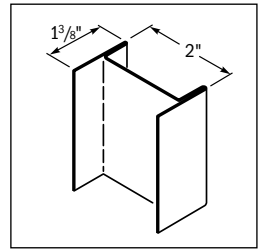
**Steel J-runner**



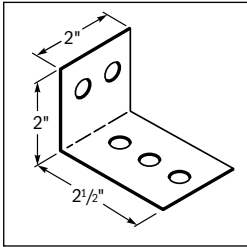
**Steel C-runner**



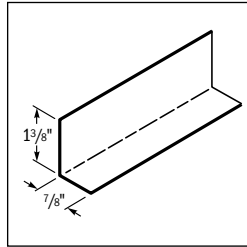
**Steel H-stud (two piece)**



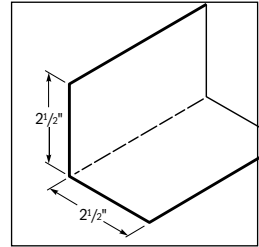
**Steel H-stud (one piece)**



**Breakaway clip**



**Metal angle runner**



**Corner angle**

**Thickness—Area Separation, Shaft Wall and Furring Components<sup>(1)</sup>**

Component Designation	Design <sup>(2)</sup>		Minimum		
	in.	mm	in.	mm	Gauge <sup>(3)</sup>
CR, CH, ES25	0.0188	0.48	0.0179	0.45	25
JR24	0.0239	0.61	0.0227	0.58	24
Metal Angles	0.0239	0.61	0.0227	0.58	24
CH22	0.0310	0.79	0.0294	0.75	22
ES, JR, JS, CH20	0.0359	0.91	0.0341	0.87	20

(1) Uncoated steel thickness; meets ASTM A568. Studs and runners meet ASTM C645. Base metal meets ASTM A446 standards for structural performance. Min. yield strength 33 ksi, except C-H stud 40 ksi. Coatings are hot-dip galvanized per ASTM A525; aluminized per ASTM A463, or aluminum-zinc per ASTM A792. (2) Conforms to AISI Specification for the Design of Cold Formed Steel Structural Members, 1986 edition. (3) For information only; refer to limiting height tables and structural properties for design data.

**Cavity Wall Components** 2-1/2", 4" and 6" wide and designed for use with 1"- thick USG Sheetrock® Brand gypsum liner panels. USG steel C-H studs 2-1/2", 4" and 6" are non-load-bearing sections installed between abutting liner panels. They have 1" holes spaced 12" to 16" from each end for easy installation of horizontal pipe and conduit. USG steel E-studs are 2-1/2", 4" or 6" wide, used singly to cap panels at intersections with exterior walls or back-to-back as studs in unusually high partitions. USG steel J-runners, made with unequal legs, are used at floor and ceiling in shaft walls. USG steel C-runners are used singly at terminals, top and bottom of wall and back-to-back between vertical liner panels at intermediate floors in area separation walls. USG steel jamb struts (20-gauge), 2-1/2", 4" and 6" wide, are used in jamb framing for fire-rated elevator doors.

**Solid-Wall Components** 2" wide and used with two thicknesses of 1" gypsum liner panels: USG steel H-studs fit over and engage edges of adjacent liner panels. USG steel C-runners are used in area separation walls as floor and top runners and back-to-back

between liner panels at intermediate floors. Also used singly to cap area separation walls.

**USG Aluminum Breakaway Clip** A 2"-wide angle clip made of 0.63"-thick aluminum. Used to attach area separation walls to intermediate floor and roof framing. Clips are designed to melt and break away when exposed to fire. 2-1/2" × 2"; approximately 60 lb./1,000 pcs.

#### Specifications—Area Separation Wall and Shaft Wall Components

Component Designation <sup>(1)</sup>	Section Depth		Length		Approx. Weight	
	in.	mm	ft.	mm	lb./1000 ft.	kg/100 m
<b>C-H Studs</b>						
212CH25	2-1/2	63.5	8 to 24	2440 to 7315	519	77.2
212CH22	2-1/2	63.5	8 to 24	2440 to 7315	861	126.5
212CH20	2-1/2	63.5	8 to 24	2440 to 7315	1000	148.8
400CH25	4	101.6	8 to 24	2440 to 7315	612	91.1
400CH20	4	101.6	8 to 24	2440 to 7315	1245	185.3
600CH20	6	152.4	8 to 24	2440 to 7315	1366	203.3
<b>E-Studs</b>						
212ES25	2-1/2	63.5	8 to 28	2440 to 8530	358	53.3
212ES20	2-1/2	63.5	8 to 28	2440 to 8530	729	108.5
400ES25	4	101.6	8 to 28	2440 to 8530	472	70.2
400ES20	4	101.6	8 to 28	2440 to 8530	970	144.3
600ES25	6	152.4	8 to 28	2440 to 8530	689	102.5
600ES20	6	152.4	8 to 28	2440 to 8530	1285	191.2
<b>J-Runners</b>						
212JR24	2-1/2	63.5	10	3050	535	79.6
212JR20	2-1/2	63.5	10	3050	736	109.5
400JR24	4	101.6	10	3050	680	101.2
400JR20	4	101.6	10	3050	937	139.4
600JR24	6	152.4	10	3050	860	128.0
600JR20	6	152.4	10	3050	1191	177.2
<b>C-Runners</b>						
200CR25	2	50.8	10	3050	270	40.1
<b>Metal Angles</b>						
2-1/2" × 2-1/2"	2-1/2	63.5	10	3050	425	63.2
1-3/8" × 7/8"	1-3/8	34.9	10	3050	190	28.3
<b>Jamb Strut</b>						
212JS20	2-1/2	63.5	8 to 12	2440 to 3660	826	122.9
400JS20	4	101.6	8 to 12	2440 to 3660	1026	152.7
600JS20	6	152.4	8 to 12	2440 to 3660	1256	186.9

(1) All components shipped unbundled, additional charge for bundling

## Framing and Furring Accessories

**Metal Angles** Made of 24-gauge galvanized steel in two standard sizes. The 1-3/8" × 7/8" size is used to secure 1" core board or liner panels at floor and ceiling in laminated gypsum drywall partitions. Length: 10'; 1-3/8" × 7/8": approximate weight 190 lb./1000', 2-1/2" × 2-1/2": approximate weight 425 lb./1000'. (Angles in other sizes and gauges available on request. See illustrations in the next section for more details.)

**Cold-Rolled Channels** Made of 16-gauge steel. Used in furred walls and suspended ceilings. Available either galvanized or black asphaltum painted. Sizes 3/4" with 1/2" flange, 1-1/2" and 2" with 17/32" flange; lengths 16' and 20'; 3/4": approximate weight 300 lb./1,000', 1-1/2": approximate weight 500 lb./1,000', 2": approximate weight 590 lb./1,000'. (See illustrations in the next section for more details.)

**Resilient Channel** Made of 25-gauge corrosion-resistant steel. One of the most effective, lowest-cost methods of reducing sound transmission through wood- and steel-framed partitions and ceilings. Used for resilient attachment of USG Sheetrock® Brand gypsum panels and Imperial brand gypsum bases. Prepunched holes 4" o.c. in the flange facilitate screw attachment to framing; facing materials are screw attached to channels. Length: 12'; 1/2" × 2-1/2": approximate weight 200 lb./1,000'. (See illustrations in the next section for more details.)

**Limitations:** Not for use beneath highly flexible floor joists; should be attached to ceilings with 1-1/4" Type W or Type S screws only—nails must not be used; see Chapter 2, "Framing Requirements."

**Z-Furring Channels** Made of minimum 24-gauge corrosion-resistant steel used to mechanically attach mineral wool FS-15 insulating blankets, polystyrene insulation (or other rigid insulation) and gypsum panels or base to interior side of monolithic concrete and masonry walls. Length: 8'-6"; sizes 1", 1-1/2", 2" and 3"; approximate weight (lb./1,000'): 224 (1"), 269 (1-1/2"), 313 (2") and 400 (3"). (See illustrations in the next section for more details.)

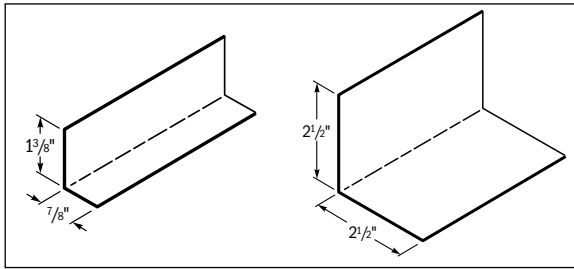
**Metal Furring Channels** Roll-formed, hat-shaped sections made of 20- and 25-gauge corrosion-resistant steel. Designed for screw attachment of gypsum panels and gypsum base in wall and ceiling furring. Size 7/8" × 2-9/16"; length 12'; approximate wt.: 25-gauge: 276 lb./1,000', 20-gauge: 515/1,000'. (See illustrations in the next section for more details.)

**Furring Channel Clips** Made of galvanized wire and used in attaching metal furring channels to 1-1/2" cold-rolled channel ceiling grillwork. For use with single-layer gypsum panels or base. Clips are installed on alternate sides of 1-1/2" channels; where clips cannot be alternated, wire-tying is recommended. Size 1-1/2" × 2-3/4"; approximate weight 38 lb./1,000 pcs. (See illustrations in the next section for more details.)

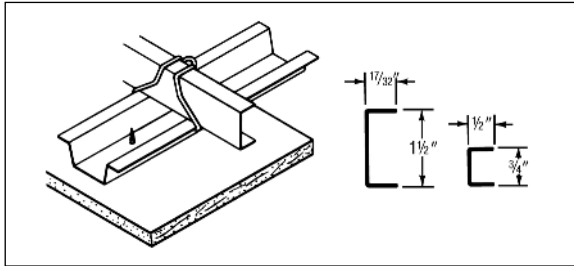
**Adjustable Wall Furring Brackets** Used for attaching 3/4" cold-rolled channels and metal furring channels to interior side of exterior masonry walls. Made of 20-gauge galvanized steel with corrugated edges, brackets spaced not more than 32" o.c. horizontally and 48" o.c. vertically are attached to masonry and wire tied to horizontal channel stiffeners in braced furring systems. Permits adjustment from 1/4" to 2-1/4" plus depth of channel. Approximate weight 56 lb./1,000 pcs. (See illustrations in the next section for more details.)

**Hanger and Tie Wire** Galvanized soft annealed wire available in three sizes: (1) 8-gauge wire, used for hangers in suspended ceiling grill work, available in 50-lb. coils (approx. 730'); (2) 12-gauge wire for the USG drywall suspension system; (3) 18-gauge wire, used for wire tying channels in wall furring and ceiling construction, available in 50-lb. coils (approximately 8,310') and 25-lb. hanks (48" straight lengths—4,148' total). (See illustrations in the next section for more details.)

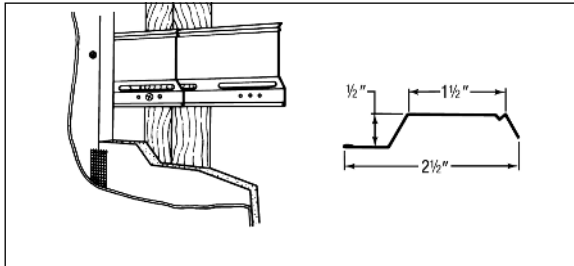
**Metal angles**



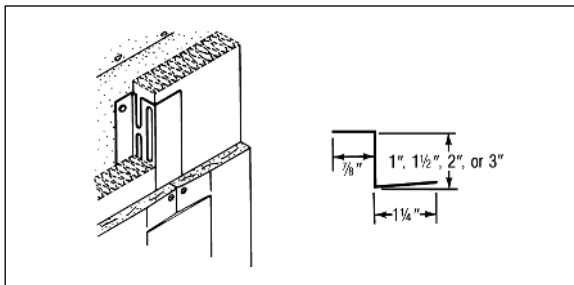
**Cold-rolled channel**



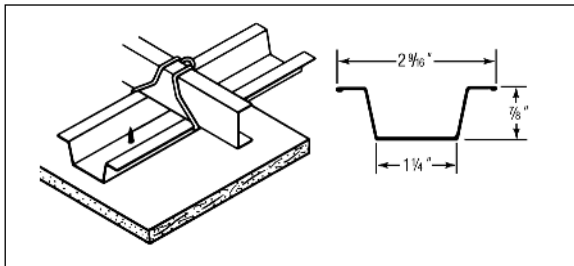
**Resilient channel**



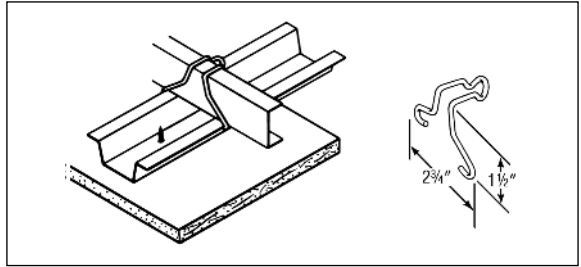
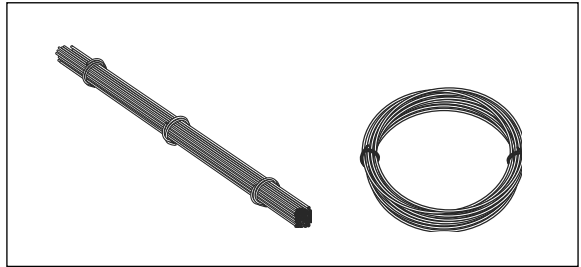
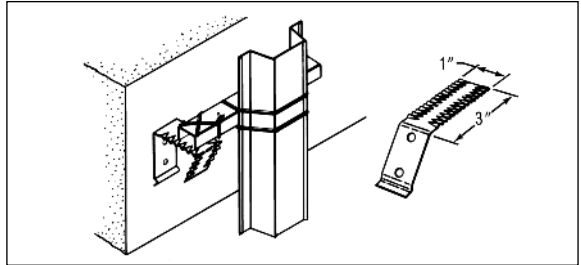
**Z-furring channel**



**Metal furring channel**





*Furring channel clip**Hanger and tie wire**Adjustable wall furring bracket*

## Sound Control and Insulation Products

Adequate sound control and energy conservation are among the most important requirements in today's buildings. The public has become sufficiently aware of these factors to demand effective measures to control unwanted sound and heat transfer in both commercial and residential construction. With its advanced research, USG has been a leader in developing new systems and products for efficient, low-cost sound control and thermal insulation for new construction and remodeling.

### Products Available

**USG Sheetrock® Brand Acoustical Sealant** A highly elastic, water-based caulking compound for sealing sound leaks around partition perimeters, cutouts and electrical boxes. May be easily applied in beads or worked with a knife over flat areas. Provides excellent adherence to most surfaces. Highly resilient, permanently flexible, shrink- and stain-resistant and has a long life expectancy. Accepted for use in

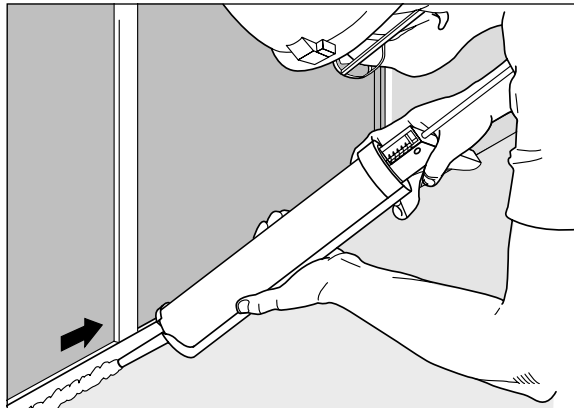
1- to 3-hour fire-rated assemblies with no adverse effect on assembly fire performance. Complies with ASTM C919. Not to be used in contact with PVC or plastic pipe. Low volatile organic compound (VOC). Not intended to be painted.

**USG Firecode® Smoke-Sound Sealant** An acrylic, latex-based fire caulk for use as a joint sealant in fire-rated partitions, smoke barriers, sound-rated assemblies and through-penetration firestop systems. The product is a rust red color to be easily identified by inspectors. Supports high STC ratings. Low VOC. Not intended to be painted.

#### Coverage—USG Sheetrock® Brand Acoustical Sealant

Product	Bead Size		Approx. Coverage
	in.	mm	
USG Sheetrock® Brand Acoustical Sealant	1/4	6.4	392 ft./gal.
	3/8	9.5	174 ft./gal.
	1/2	12.7	98 ft./gal.

**USG Sheetrock® Brand acoustical sealant at partition perimeters seals leaks to help deliver tested sound attenuation.**



## Firestop Products

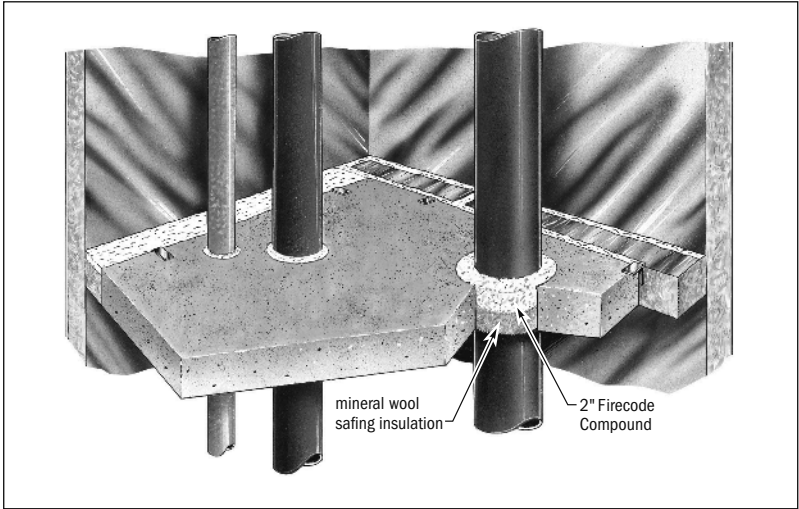
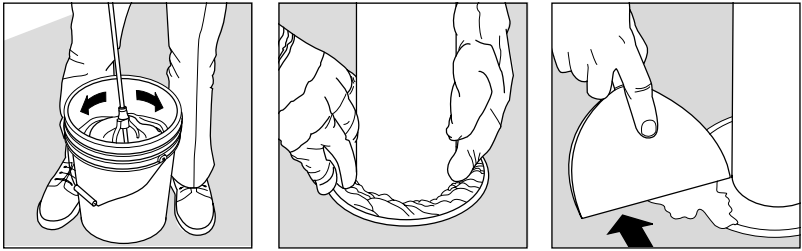
### USG Fire/Smoke Containment Products

Through-penetration openings—where metallic pipes and conduit pass through floors and walls—can also be passage points for fire and smoke to spread through the building.

USG Fire/Smoke-Stop System restores the floor or wall as a fire barrier by preventing smoke and fire from passing through such openings.

**Firecode Compound** Mortar-type material applied wet over the forming material (where applicable). It then sets or dries to form a tough, curable seal. Available in either a powder or ready-mixed form.

Firecode Compound is UL classified and low in cost. It has been tested in a variety of penetration conditions.



**Mineral wool through-penetration fire/smoke-stop system**

**Firecode Compound** Nontoxic compound developed for use with saffing insulation to provide wall and floor through-penetration firestop systems that combine exceptional economy and performance. Rated noncombustible as defined by NFPA standard 220 when tested in accordance with ASTM E136. Surface-burning characteristics: flame spread 0, smoke developed 0, when tested in accordance with ASTM E84. Effectively seals openings around pipe and cable poke-through openings. Comes ready mixed in 3-qt. or 4.5-gal. pails, or in 15-lb. bags to mix easily with water at the job site. More economical to use than tube products, especially in large-scale jobs. See Chapter 10 for floor and wall penetrations. Tested in accordance with ASTM E814, UL 1479, CAN-S115 and UL 2079.

**Coverage—Firecode Compound**

Dry Powder Compound	Approx. Water Additions (pt.)	Approx. Applied Firestop (cu. in.)*	Premixed Compound (qt.)	Approx. Applied Firestop (cu. in.)
1	0.5	33.6	1.0	57.8
5	2.5	172.5	4.0 (1 gal.)	231.0
7.5	3.8	257.6	18.0 (4.5 gal.)	1039.5
10	5.0	344.9	—	—
15	7.5	517.4	—	—

\*Based on approximately 7.5 pints water per 15-lb. bag for wall penetrations. For floor penetrations, approximately 8.3 pints water per 15-lb. bag is recommended and yields approximately 537 cu. in. of applied firestop.

**USG Firecode® Firestop Sealant Acrylic** is a single-component, water-based, acrylic sealant for use in wall and floor through-penetrations and head-of-wall construction joint applications.

**USG Firecode® Firestop Sealant Acrylic Spray** is a sprayable single-component, water-based acrylic sealant for use in head-of-wall construction joint applications.

**USG Firecode® Firestop Sealant Intumescent** expands to fill voids caused from combustible material burned or melted in a fire, for example, plastic pipe. For wall and floor through penetrations.

## Fasteners

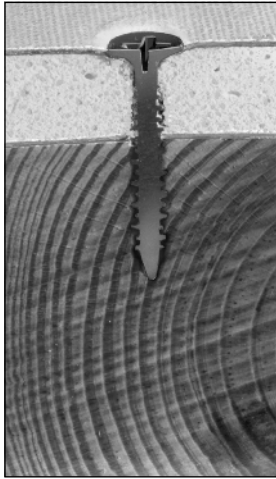
### Gypsum Board Screws

Although USG does not produce fasteners, there are many manufacturers that offer a complete line of special self-drilling, self-tapping steel screws, including types with a double-lead thread design that produces up to 30% faster penetration, less screw stripping and greater holding power and pull-through resistance than conventional fasteners.

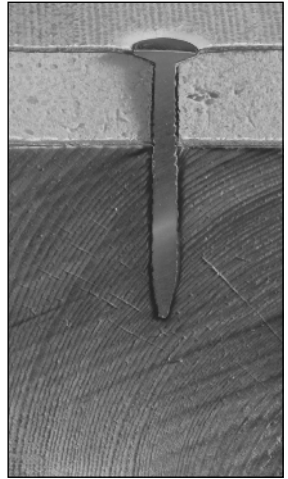
Screws should be corrosion-resistant, free of excessive machine oils and forming lubricants and (except hex washer head type) have a Phillips head recess for rapid installation with a special bit and power-driven screw gun. The bugle head spins the face paper into the cavity under the screw head for greater holding power and helps prevent damage to the gypsum core and face paper. Defects associated with improper nail dimpling are eliminated. Other head types are designed specifically for attaching metal to metal and installing wood and metal trim. Screws should meet ASTM C1002 (Type S and Type W) and ASTM C954 (Type S-12).

Type S screws have specially designed drill point and threads that minimize stripping, provide maximum holding power and pull-through resistance in steel studs and runners. Type S screws are designed for use with steel up to 0.04" thick; Type S-12 screws for steel from 0.04" to 0.07" thick. (See the table "Selector Guide for Screws" in the next section.) The special threads on Type G and Type W screws offer superior holding power in attachment to gypsum boards and wood framing, respectively. Tapcon anchors provide fast, safe attachment of steel components to poured concrete and concrete block surfaces. Special 1-15/16" Type S-12 bugle head pilot point screws are designed for attachment of plywood to steel joists and studs.

The superior pull-through resistance of Type W screws has virtually eliminated loose panel attachment and nail pops in wood frame construction. Tests have shown the Type W screw to have 350% greater pullout strength than GWB-54 nails. Fewer screws than nails are generally required, and the speed of installation using electric screw guns compares favorably with nailing.



*The secret to superior screw attachment is shown by comparative diagrams. Bugle-head screw depresses face paper of gypsum panel without tearing; threads cut into and deform wood to hold tightly.*



*Longer drywall nail grips with friction, loosens hold as wood shrinks, which may pop nailhead above surface to create callback situation.*

**Selector Guide for Screws**

<b>Fastening Application</b>	<b>Fastener Used</b>	<b>Fig<sup>2)</sup></b>
<b>Gypsum panels to steel framing<sup>(1)</sup></b>		
1/2" single-layer panels to steel studs, runners, channels	1" Type S bugle head	1
5/8" single-layer panels to steel studs, runners, channels	1" Type S bugle head	1
	1-1/8" Type S bugle head	1
3/4" single-layer panels to steel studs, runners, channels	1-1/4" Type S bugle head	1
1" coreboard to metal angle runners in solid partitions	1-5/8" Type S bugle head	1
1/2" double-layer panels to steel studs, runners, channels	1-5/8" Type S bugle head	1
5/8" double-layer panels to steel studs, runners, channels	1-5/8" Type S bugle head	2
3/4" double-layer panels to steel studs, runners, channels	2-1/4" Type S bugle head	2
1/2" panels through coreboard to metal angle runners in solid partitions	1-7/8" Type S bugle head	2
	2-1/4" Type S bugle head	2
1" double-layer coreboard to steel studs, runners	3" Type S bugle head	2
	2-5/8" Type S bugle head	2
<b>Wood to steel framing</b>		
Wood trim over single layer	1" Type S or S-12 trim head	5
Panels to steel studs, runners	1 -5/8" Type S or S-12 trim head	5
Wood trim over double-layer panels to steel studs, runners	2-1/4" Type S or S-12 trim head	5
Steel cabinets, brackets through single-layer panels to steel studs	1-1/4" Type S oval head	6
Wood cabinets through single-layer panels to steel studs	1-5/8" Type S oval head	6
Wood cabinets through double-layer panels to steel studs	2-1/4", 2-7/8", 3-3/4", Type S oval head	6
<b>Steel studs to door frames, runners</b>		
Steel studs to runners 25 & 22 gauge	3/8" Type S pan head	9
<b>Steel studs to runners</b>		
Steel studs to door frame	3/8" Type S-12 pan head	10
Jamb anchors 20-gauge	5/8" Type S-12 low-profile head	11
<b>Other metal-to-metal attachment (12 gauge max.)</b>		
Steel studs to door frame jamb anchor clips (heavier shank assures entry in clips of hard steel)	1/2" Type S-12 pan head	10
	5/8" Type S-12 low-profile head	11
Metal-to-metal connections up to double thickness of 12-gauge steel	3/4" S-4 hex washer head, anticorrosive coated	12
<b>Gypsum panels to 12-gauge (max.) steel framing</b>		
1/2" and 5/8" panels and gypsum sheathing to steel studs and runners; specify anticorrosive-coated screws for exterior curtain wall applications	1" Type S-12 bugle head	3
Self-furring metal lath and brick wall ties through gypsum sheathing to steel studs and runners; specify anticorrosive-coated screws for exterior curtain wall applications	1-1/4" Type S-12 bugle head	4
	1-1/4" Type S-12 pancake head	13
1/2" and 5/8" double-layer gypsum panels to steel studs and runners	1-5/8" Type S-12 bugle head	4
<b>Gypsum panels to 12-gauge (max.) steel framing</b>		
Multilayer gypsum panels and other materials to steel studs and runners	1-7/8", 2, 2-3/8", 2-5/8", 3" Type S-12 bugle head	4

**Selector Guide for Screws** (continued)

**Cement board to steel framing**

Durock brand cement board or exterior cement board direct to steel studs, runners	1-1/4", 1-5/8" Durock brand steel screws	17
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**Rigid foam insulation to steel framing**

Rigid foam insulation panels to steel studs and runners; Type R for 20- to 25-gauge steel	1-1/2", 2, 2-1/2", 3" Type S-12 or R wafer head	15
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**Aluminum trim to steel framing**

Trim and door hinges to steel studs and runners (screw matches hardware and trim)	7/8" Type S-18 oval head, anticorrosive coated	7
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Batten strips to steel studs in demountable partitions	1-1/8" Type S bugle head	1
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Aluminum trim to steel framing in demountable and Ultrawall partitions	1/4" Type S bugle head, anticorrosive coated	1
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**Gypsum panels to wood framing**

3/8", 1/2" and 5/8" single-layer panels to wood studs, joists	1-1/4" Type W bugle head	8
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**Cement board to wood framing**

Durock brand cement board or exterior cement board to wood framing	1-1/4", 1-5/8", 2-1/4" Durock brand wood screws, with anticorrosive coating	18
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**Resilient channels to wood framing**

Screw attachment required for both ceilings and partitions	1-1/4" Type W bugle head	8
	1-1/4" Type S bugle head	1

For fire-rated construction	1-1/4" Type S bugle head	1
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**Gypsum panels to gypsum panels**

Multilayer adhesively laminated gypsum-to-gypsum partitions (not recommended for double-layer 3/8" panels)	1-1/2" Type G bugle head	8
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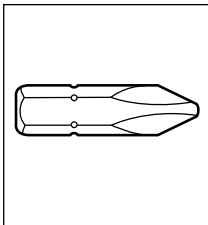
**Plywood to steel joists**

3/8" to 3/4" plywood to steel Joists (penetrates double thickness 14 gauge)	1-5/16" Type S-12 bugle head, pilot point	16
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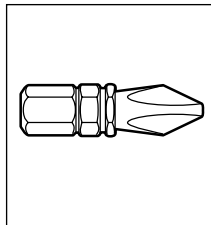
**Steel to poured concrete or block**

Attachment of steel framing components to poured concrete and concrete block surfaces	3/16" x 1-3/4" acorn slotted HWH Tapcon anchor	14
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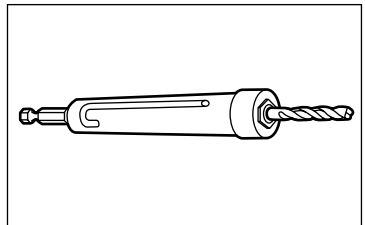
Notes: (1) Includes 25-, 22- and 20-gauge steel studs and runners; metal angles; metal furring channels; resilient channels. If channel resiliency makes screw penetration difficult, use screws 1/8" longer than shown to attach panels to resilient channels. For other gauges of studs and runners, always use Type S-12 screws. For steel applications not shown, select a screw length which is at least 3/8" longer than total thickness of material to be fastened. Use anticorrosive-coated screws for exterior applications. (2) Figures refer to screw illustrations on the next page.



**No. 1 bit for trim and pancake heads**



**No. 2 bit for bugle pan, water, low-profile and oval heads**



**Condrive tool/bit for HWH Tapcon anchors. Note: Hex-head bit not illustrated**

Basic types of screws—Numbers refer to descriptions on previous pages in the Selector Guide for Screws section.



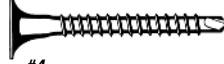
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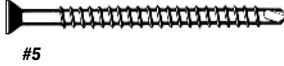
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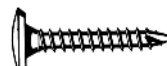
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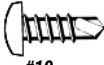
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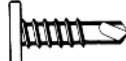
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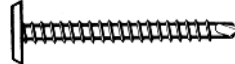
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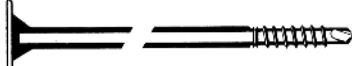
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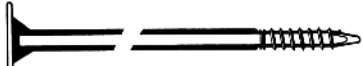
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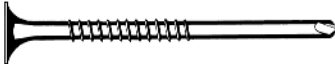
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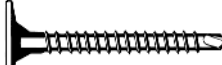
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#16



#17



#18












## Specifications—Screws

Description	Length		Type	Head
	in.	mm		
Base Screws	1	25.4	Type S	bugle
	1-1/8	28.6	Type S	bugle
	1-1/4	31.8	Type S	bugle
	1-5/8	41.3	Type S	bugle
	1-7/8	47.6	Type S	bugle
	2-1/4	57.2	Type S	bugle
	2-5/8	66.7	Type S	bugle
	3	76.2	Type S	bugle
Specialty Screws	3/8	9.5	Type S	pan
	3/8	9.5	Type S-12	pan
	1/2	12.7	Type S-12	pan
	1/2	12.7	Type S-12	pancake
	1/2	12.7	Type S-16	pan <sup>(1)</sup>
	5/8	15.9	Type S-12	low profile
	3/4	19.1	Type S-4	hex washer <sup>(1)</sup>
	7/8	22.2	Type S-18	oval <sup>(1)</sup>
	1	25.4	Type S	trim
	1	25.4	Type S-12	trim
	1	25.4	Type S-12	bugle
	1-1/4	31.8	Type S-12	bugle
	1-1/4	31.8	Type S	bugle <sup>(1)</sup>
	1-1/4	31.8	Type W	bugle
	1-1/4	31.8	Type S-12	pancake
	1-1/4	31.8	Type S	oval
	1-1/2	38.1	Type G	bugle
	1-1/2	38.1	Type R	wafer
	1-1/2	38.1	Type S-12	wafer
	1-5/8	41.3	Type S	oval
	1-5/8	41.3	Type S	trim
	1-5/8	41.3	Type S-12	bugle
	1-5/8	41.3	Type S-12	trim
	1-7/8	47.6	Type S-12	bugle
	1-15/16	49.2	Type S-12	bugle, pilot pt.
	2	50.8	Type S-12	bugle
	2	50.8	Type R	wafer
	2	50.8	Type S-12	wafer
	2-1/4	57.2	Type S	trim
	2-1/4	57.2	Type S	oval
	2-1/4	57.2	Type S-12	trim
	2-3/8	60.3	Type S-12	bugle
2-1/2	63.5	Type R	wafer	
2-1/2	63.5	Type S-12	wafer	
2-5/8	66.7	Type S-12	bugle	
2-7/8	73.0	Type S	oval	
3	76.2	Type S-12	bugle	
3	76.2	Type R	wafer	
3	76.2	Type S-12	wafer	
3-3/4	95.3	Type S	oval	
Tapcon Screw	1-3/4	44.5	conc.	hex

(1) Anticorrosive coated.

## Screw Applications

	Application	Screw Size and Length (no. × Inches)
	1" (25.4 mm) Bugle Head Type S Attaches 1/2" or 5/8" single-layer gypsum panels and bases to steel framing.	6 × 1
	1-1/8" (28.6 mm) Bugle Head Type S Attaches 5/8" gypsum panels and bases to resilient channels or other steel framing, also batten strips for demountable partitions.	6 × 1-1/8
	1-1/4" (31.8 mm) Bugle Head Type S Attaches 1" coreboard to steel runners. Attaches 1/2", 5/8" and 3/4" gypsum panels and bases to wood studs.	6 × 1-1/4
	1-5/8" (41.3 mm) Bugle Head Type S Attaches double-layer gypsum panels to steel framing.	6 × 1-5/8
	2" (50.8 mm) Bugle Head Type S 2-1/4" (57.2 mm) Bugle Head 2-1/2" (63.5 mm) Bugle Head 3" (76.2 mm) Bugle Head Attaches multiple layers of gypsum panels and other compatible materials to steel framing.	6 × 2 6 × 2-1/4 7 × 2-1/2 8 × 3
	1-1/4" (31.8 mm) Bugle Head (Type W) Attaches 1/2" or 5/8" single-layer gypsum panels, bases or resilient channels to wood framing.	6 × 1-1/4
	7/16" (11.1 mm) Pan Head Attaches 25-gauge steel studs to runners.	6 × 7/16 7 × 7/16
	1-1/2" (38.1 mm) Bugle Head-Laminating Temporary attachment of gypsum to gypsum.	10 × 1-1/2
	1-5/8" (41.3 mm) Trim Head 2-1/4" (57.2 mm) Trim Head Attaches wood trim to 20- to 25-gauge steel framing.	6 × 1-5/8 6 × 2-1/4

**Double-Thread Screw Applications**

Application	Screw Size and Length (no. × Inches)
Bugle Head	6 × 1
Attaches gypsum board	6 × 1-1/8
to 20- to 25-gauge steel framing	6 × 1-1/4
	6 × 1-5/8
	6 × 2
	6 × 2-1/4
	7 × 2-1/2
	8 × 3



**Drill Tip Screw Applications**

Application	Screw Size and Length (no. × Inches)
Bugle Head	6 × 1
Attaches single-layer gypsum board to steel framing up to 14 gauge	6 × 1-1/8
	6 × 1-1/4
Bugle-Head	6 × 1-5/8
Attaches multilayer gypsum board to steel framing up to 14 gauge	6 × 1-7/8
	8 × 2-1/8
	8 × 2-5/8
	8 × 3
Pan Head	7 × 7/16
Attaches stud to runner up to 14 gauge	8 × 5/8
Hex Washer Head	8 × 1/2
Attaches steel to steel up to 14-gauge	8 × 5/8
	8 × 3/4
	8 × 1
Modified Truss Head	8 × 1/2
Attaches metal lath to steel framing up to 14 gauge	8 × 3/4
	8 × 1
	8 × 1-1/4

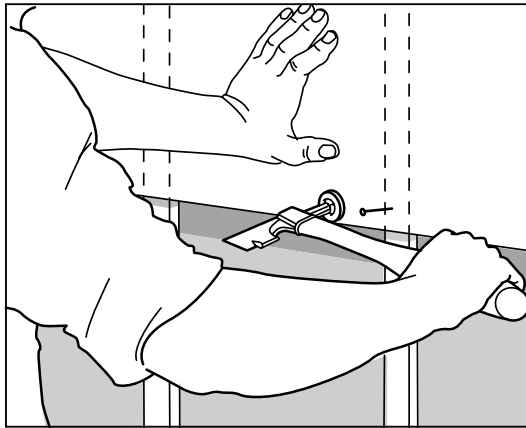


**Gypsum Board Nails**

The design of nails has vastly improved since the relationship of wood shrinkage to nail popping was identified. Nails have been developed to concentrate maximum holding power over the shortest possible length—notably the annular ring-type nail, which has about 20% greater holding power than a smooth-shank nail of the same length and shank diameter. However, under lengthy, extreme drying conditions, such as a cold, dry winter or in arid climates, resultant wood shrinkage may cause fastener pops even with the shorter annular ring nail.

As with screws, specification of the proper nail for each application is extremely important, particularly for fire-rated construction where nails of the specified length and diameter only will provide proper performance.

**Hand pressure is applied to panel as nail is driven.**



When wood-framed gypsum panel systems are subjected to fire, nails on the surface attain temperatures that tend to char the wood, thereby reducing their holding power. Nails used in gypsum construction should comply with performance standards of ASTM C514. Nails are not available from USG.

**Selector Guide for Gypsum Board Nails<sup>(1)</sup>**

Fastener Description <sup>(2)</sup>	Fastener	Length	Total Thickness of Surfacing Materials <sup>(3)</sup>											Approx. Usage		
			in.	mm	mm 1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-3/8	lb./1,000 ft. <sup>2</sup>	kg/100 m <sup>2</sup>	
Annular Ring Drywall	1-1/4	31.8	X		X	X									4.50	2.20
Nail 12-1/2 gauge (2.50 mm) 1/4" (6.35 mm) diam. head	1-3/8	34.9					X								5.00	2.44
Medium diamond point	1-1/2	38.1							X						5.25	2.56
	1-5/8	41.3								X					5.75	2.81
Same as above except 19/64" (7.54 mm) diam. head	1-1/4	31.8	X		X	X									4.50	2.20
	1-3/8	34.9					X								5.00	2.44
12-1/2 gauge (2.50 mm) 19/64" (7.54 mm) diam. head	1-1/2	38.1							X						5.25	2.56
	1-5/8	41.3								X					5.75	2.81
	1-3/4	44.5									X				6.00	2.93
Same as above except 1/4" (6.35 mm) diam. head	2	50.8										X			7.00	3.42
	12-1/2 gauge (2.50 mm) 19/64" (7.54 mm) diam. head	1-1/4	31.8	X		X	X								4.50	2.20
Same as above except 1/4" (6.35 mm) diam. head	1-3/8	34.9					X								5.00	2.44
	1-1/2	38.1							X						5.25	2.56
Same as above except 1/4" (6.35 mm) diam. head	1-5/8	41.3								X					5.75	2.81
	14 gauge (2.03 mm)	1-3/8 (4d)	34.9					X							3.50	1.71
13-1/2 gauge (2.18 mm)	1-5/8 (5d)	41.3							X					4.50	2.20	
13 gauge (2.32 mm)	1-7/8 (6d)	47.6								X				5.75	2.81	
13-1/2 gauge (2.18 mm)	2-1/8 (7d)	54.0									X			7.50	3.66	

(1) For wood framing 16" o.c., nails 8" o.c. for walls, 7" o.c. for ceilings. (2) All nails treated to prevent rust with joint compounds or veneer plaster finishes. Fire-rated assemblies generally require greater nail penetration; therefore, for fire-rated assemblies, use exact nail length and diameter specified for rated assembly (see Fire Test Report). (3) In laminated double-layer construction, base layer is attached in same manner as single layer.

# Adhesives

Drywall adhesives make an important contribution to gypsum panel attachment when high-quality room interiors are desired. Their use greatly reduces the nail or screw fastening otherwise required, thus saving labor on spotting and sanding, as well as minimizing nail pops and other fastener imperfections.



**USG Sheetrock® Brand lightweight setting-type (Easy Sand) joint compound**

USG offers reliable, field-tested adhesives designed for professional use. Each is formulated to produce strong attachment, freedom from fastener imperfections and high-quality results. Recommended for laminating gypsum panels in multilayer fire-rated or non-fire-rated partitions and ceilings. All provide tight bond when dry yet permit adjustment of panels after contact.

**USG Sheetrock® Brand Setting-Type (Durabond) or Lightweight Setting-Type (Easy Sand) Joint Compounds** Dry, powder products to be mixed with water, used for laminating gypsum panels in multilayer fire-rated or non-fire-rated partitions and ceilings. Spreader applied, these compounds require temporary fastening in application. They provide tight bond when dry, yet permit panel adjustment after contact. Meet ASTM C475.



**USG Sheetrock® Brand ready-mixed all purpose joint compound**

**USG Sheetrock® Brand Ready-Mixed Joint Compound Taping or All-Purpose Compounds** Formulated to a creamy, smooth consistency for fast spreader application. Used for laminating gypsum panels in multilayer fire-rated or non-fire-rated partitions and ceilings. These offer ready-to-use convenience and eliminate extensive mixing and waste. Provide good bond and strength when dry. Use above grade; keep from freezing. Meet ASTM C475.

**Commercial Adhesives** Available in drywall stud and construction types meeting ASTM C557; used in non-fire-rated gypsum construction. These adhesives bridge minor irregularities in the base or framing, making it easier to form true joints and level surfaces. The use of adhesive adds strength to an assembly, reduces fasteners required, and helps eliminate loose panels and nail pops.

## Coverage—Laminating Adhesives

Product <sup>(1)</sup>	Type of laminating	Approx. Coverage <sup>(2)</sup>	
		Lam. Blade Notch Spacing	
		2" o.c.	1-1/2" o.c.
USG Sheetrock® Brand Ready-Mixed Joint Compounds—Taping or All Purpose	sheet	340	465
USG Sheetrock® Brand Lightweight All-Purpose Ready-Mixed Joint Compound (Plus 3)	strip	170	230
USG Sheetrock® Brand Lightweight All-Purpose UltraLightweight All-Purpose	sheet	23.0	31.7
USG Sheetrock® Brand Lightweight Taping	strip	11.5	15.5
USG Sheetrock® Brand Setting-Type Joint Compounds (Durabond)	sheet	184	246
USG Sheetrock® Brand Lightweight Setting-Type Joint Compounds (Easy Sand)	strip	93	123
	sheet	134	179
	strip	68	90

(1) See joint compound specifications for standard package sizes. (2) Coverage in lb./1,000 SF of packaged product, not including water, necessary to achieve working consistency. Exception: Plus 3 is gal./1,000 SF.

# Joint Compounds

Today's complete USG Sheetrock® Brand joint compound line includes both ready-mixed and powder products in drying and setting (hardening) types. In addition to conventional joint finishing and fastener spotting, some of these products are designed for repairing cracks, patching, spackling, back blocking, texturing and laminating gypsum panels in double-layer systems. Products comply with ASTM C475.

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## Advantages

**Low Cost** High-quality products reduce preparation time, save application labor and prevent expensive callbacks.

**Versatility** Job-tested compounds are available in specialized types to meet finishing requirements.

**Safety** Safe to handle and use; meet OSHA and Consumer Product Safety Standards.

Use of USG joint compounds brings the important added advantage of dealing with one manufacturer who is responsible for all components of the finished walls and ceilings—formulated in our laboratories and manufactured in our plants for maximum system performance.

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## General Limitations

1. USG joint compounds are not compatible with and should not be intermixed with any other compounds.
2. For interior use only except for the use of USG Sheetrock® Brand setting-type (Durabond) and USG Sheetrock® Brand lightweight setting-type (Easy Sand) joint compounds with USG Sheetrock® Brand exterior gypsum ceiling board.
3. Not recommended for laminating except USG Sheetrock® Brand setting-type (Durabond) and USG Sheetrock® Brand lightweight setting-type (Easy Sand) compounds and USG Sheetrock® Brand ready-mixed compounds—all purpose and taping.
4. Protect bagged and cartoned products against wetting; protect ready-mixed products from freezing and extreme heat.
5. Each compound coat must be dry before the next is applied (except USG Sheetrock® Brand setting-type [Durabond] and USG Sheetrock® Brand lightweight setting-type [Easy Sand] compounds); and completed joint treatment must be thoroughly dry before decorating.
6. Use only USG Sheetrock® Brand setting-type (Durabond) for treating joints of Fiberock panels to be covered with ceramic or plastic tile.
7. With regard to the following products: USG Sheetrock® Brand lightweight all-purpose joint compound (Plus 3®), ultralightweight all purpose, lightweight all purpose with dust control, USG Sheetrock® Brand topping joint compound ready-mixed and USG Sheetrock® Brand lightweight all-purpose joint compound (A/P Lite™). If smoothing by dry sanding, use nothing coarser than 150-grit sandpaper or 220-grit abrasive mesh cloth.
8. For painting and decorating, follow manufacturer's directions for materials used. All surfaces must be thoroughly dry, dust free

and not glossy before decorating. USG Sheetrock® Brand First Coat should be applied and allowed to dry before decorating.

9. Gypsum panel surface should be skim coated with regular weight all-purpose joint compound, ultralightweight all purpose or Cover Coat® or spray applied Tuff-Hide™ to equalize suction before painting in areas where gypsum panel walls and ceilings will be subjected to severe artificial or natural side lighting and be decorated with a gloss paint (eggshell, semigloss or gloss).
10. If dry sanding is used to smooth the joint compound, avoid roughening the gypsum panel face paper.
11. Do not use topping compound for taping or as first coat over bead.
12. Not recommended for texturing by spray application.
13. Children can fall into a joint compound bucket and drown. Keep children away from the bucket if even a small amount of liquid is inside. Do not reuse bucket.

**USG Sheetrock® Brand Ready-Mixed Drying-Type Joint Compounds**

USG Sheetrock® Brand ready-mixed joint compounds are drying-type products that are vastly superior to ordinary ready-mixed compounds and are preferred for consistently high-quality work. These formulations are specially premixed to a creamy, smooth consistency essentially free of crater-causing air bubbles. They offer excellent slip and bond and easy workability. Available for hand or machine-tool applications.

Seven specialized products:



**Ready-mixed taping**



**Ready-mixed topping**



**Ready mixed, all purpose**



**UltraLightweight All Purpose**



**Plus 3**



**Midweight**



**Plus 3 with dust control**

**USG Sheetrock® Brand Taping Joint Compound Ready Mixed** High-performance product for embedding paper tape. Also used as a first fill coat over metal bead, trim and fasteners in some areas. Check suitability of the formula with your local sales office. Also used for laminating.

**USG Sheetrock® Brand Topping Joint Compound Ready Mixed** Low-shrinkage, easily applied and sanded product recommended for second and third coats over USG Sheetrock® Brand taping and all-purpose joint compounds. Also used for simple hand-applied texturing in some geographic areas. Check suitability of the formula with your local sales office. Not suitable for embedding tape or as first coat over metal corners, trim and fasteners or for skim coating.

**USG Sheetrock® Brand All-Purpose Joint Compound Ready Mixed** Used for embedding, finishing, skim coating, simple hand-applied texturing and laminating. Combines single-package convenience with good taping and topping characteristics. Recommended for finishing USG Sheetrock® Brand gypsum panels, SW Edge, joints over prefill of USG Sheetrock® Brand setting-type (Durabond) or lightweight setting-type (Easy Sand) compound; also for repairing cracks in interior plaster and masonry not subject to moisture.

**USG Sheetrock® Brand UltraLightweight All-Purpose Joint Compound** Used for embedding, finishing, skim coating, simple hand-applied texturing and laminating. Combines single-package convenience with good taping and topping characteristics in a labor-saving package up to 40% lighter than conventional compounds. Recommended for finishing USG Sheetrock® Brand gypsum panels, SW Edge, joints over prefill of USG Sheetrock® Brand setting-type (Durabond) or lightweight setting-type (Easy Sand) compound

**USG Sheetrock® Brand Lightweight All-Purpose Joint Compound Ready Mixed (Plus 3™)** Offers all the benefits of an all-purpose compound, plus three exclusive advantages: up to 30% less weight, less shrinkage and exceptional ease of sanding. Usually needs only two coats over metal. Eliminates need for separate taping and topping compounds—sands with ease of topping compound, bonds like taping compound. Not recommended for skim coating.

**USG Sheetrock® Brand Lightweight All-Purpose Joint Compound Ready Mixed with Dust Control** Offers the additional advantage of drastic reduction of airborne dust. The dust particles bind together, falling directly to the floor, concentrating along the walls for faster clean-up.

**USG Sheetrock® Brand All-Purpose Joint Compound Ready Mixed (Midweight)** Ready-mixed compound that weighs 15% less than conventional-weight compounds, offers excellent tape-embedding properties and easy workability and sandability. Works well for both taping and topping applications. Lower shrinkage means that only two coats typically are required over metal bead, trim and fasteners.



### USG Sheetrock® Brand Brand Powder Joint Compounds

USG Sheetrock® Brand powder joint compounds are top-quality, drying-type products providing easy mixing, smooth application and ample working time. Designed for embedding tape, fill coats and finishing over drywall joints, corner bead, trim and fasteners. Included in product line:

**USG Sheetrock® Brand Lightweight All-Purpose Joint Compound (A/P Lite)** All-purpose compound weighs 20% less than conventional compounds; offers lower shrinkage, better crack resistance and easier mixing, application and sanding.

### USG Sheetrock® Brand Powder Setting-Type Joint Compounds

These setting-type powder products were developed to provide faster finishing of drywall interiors, even under slow drying conditions. Rapid chemical hardening and low shrinkage permit same-day finishing and usually next-day decoration. Features exceptional bond; virtually unaffected by humidity extremes. Ideal for laminating double-layer systems, particularly fire-rated assemblies, and for adhering gypsum panels to above-grade concrete surfaces. May be used for surface texturing and for filling, smoothing and finishing interior above-grade concrete. Also used to treat joints in exterior gypsum ceiling board; as prefill material for USG Sheetrock® Brand gypsum panels, SW Edge; treating fastener heads in areas to receive ceramic or plastic tile; and (except for USG Sheetrock® Brand lightweight setting-type joint compound) to embed tape and fill beads in veneer plaster finish systems when rapid drying conditions exist.

**USG Sheetrock® Brand Lightweight Setting-Type Joint Compound (Easy Sand)** Weighs 25% less than conventional setting-type compounds for easier handling, faster application and improved productivity on the job. Provides sanding ease similar to a ready-mixed, all-purpose joint compound. Offers varied setting times of 8-12 minutes (Easy Sand 5), 20-30 minutes (Easy Sand 20), 30-80 minutes (Easy Sand 45), 85-130 minutes (Easy Sand 90) and 180-240 minutes (Easy Sand 210).

**USG Sheetrock® Brand Setting-Type Joint Compound (Durabond)** Provides the strongest joint bond of all setting-type compounds. Available in a number of setting times to meet varying job requirements: 20-30 minutes (Durabond 20), 30-80 minutes, (Durabond 45), 85-130 minutes (Durabond 90) and 180-240 minutes (Durabond 210).



**Easy Sand**



**Durabond**

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## Joint Compounds for Manufactured Housing

USG has formulated special joint compounds for manufactured housing. These are setting-type compounds designed for the industry's controlled manufacturing environment and the strength characteristics required for over-the-road transit of factory-built homes. For information about these products, recommended applications and instructions for their use, contact your local USG sales office.

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## Joint Compound Selection

Choosing the right joint compound for a specific job requires an understanding of a number of factors: job conditions, shop practices, applicators' preferences, types of available joint systems, characteristics of products considered and recommended product combinations.

Joint compound products are usually named according to function, such as taping, topping and all purpose. Taping typically performs as the highest shrinking, strongest bonding, hardest sanding of the three compounds and is used for embedding tape. Topping usually is the lowest shrinking and easiest applying and sanding of the compounds for use in second and third coats; may occasionally be designed for simple hand-applied texturing. Taping and topping are usually designed as companion products to give the highest quality finish. All purpose is generally a compromise of taping and topping and may be used as a simple hand-applied texturing material. Lightweight all-purpose joint compound is also an all-purpose compound but is lighter, shrinks less and sands easier.

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## Types of Joint Compounds

**Two-Compound Systems** Formulated for superior performance in each joint finishing step. Separate taping compounds develop the greatest bond strength and crack resistance. Separate topping compounds have the best sanding characteristics, lower shrinkage and smoothest finishing.

**All-Purpose Compounds** Good performance in all joint finishing steps; do not have the outstanding bond strength, workability and sandability of separate taping and topping compounds. However, all-purpose compounds minimize inventories, avoid job site mix-ups and are especially good for scattered jobs.

**Ready-Mixed Compounds** Open-and-use convenience; save time and mistakes in mixing, leading to minimum waste. Require minimal water supply at the job. Ready-mixed compounds have the best working qualities of all compounds—excellent performance plus factory-controlled batch consistency.

These compounds do require heated storage. Should they freeze, they can be slowly thawed at room temperature, mixed to an even viscosity and used without damaging effect. However, repeated freeze/thaw cycles cause remixing to become more difficult.

**Powder Compounds** Have the special advantage of being storable (dry) at any temperature. If they are stored in a cold warehouse, however, they should be moved to a warm mixing room the day before they are to be mixed. Best results require strict adherence to proportioning of powder and water.

**Specifications—USG Sheetrock® Brand Joint Compounds**

Product	Container Size	Approx. Coverage
USG Sheetrock® Brand Ready-Mixed Joint Compound—Taping, Topping, All Purpose	12-lb. (5.4-kg), (19-kg) or 61.7-lb. (28-kg) pail; 48-lb. (21.8-kg), 50-lb. (22.7-kg) or 61.7-lb. (28-kg) carton	138 lb./1,000 SF (67.4 kg/100 m <sup>2</sup> )
USG Sheetrock® Brand Lightweight All-Purpose Joint Compound, Ready Mixed (Plus 3)	1 gal. (3.8-L) or 4.5-gal. (17-L) pail; 4.5-gal. (17-L) or 3.5-gal. (13-L) carton	9.4 gal./1,000 SF (38.3 L/100 m <sup>2</sup> )
USG Sheetrock® Brand Lightweight All Purpose with Dust Control	1-gal. pail; 3.5-gal. pail, 3.5-gal. carton Patch Repair pan	9.4 gal./1,000 SF (38.3 L/100 m <sup>2</sup> )
USG Sheetrock® Brand All-Purpose Joint Compound, Ready-Mixed (Midweight)	4.5-gal. (17-L) pail; 4.5-gal. (17-L) or 3.5-gal. (13-L) carton	9.4 gal./1,000 SF (38.3 L/100 m <sup>2</sup> )
USG Sheetrock® Brand UltraLightweight All-Purpose Joint Compound	4.5 Gal Pail (17 L) 4.5 gal (17 L) or 3.5 gal (13 L)	9 to 10 gal/1,000sf
USG Sheetrock® Brand Lightweight All-Purpose Joint Compound (AP Lite)	20-lb. (9-kg) bag	67 lb./1,000 SF (32.7 kg/100 m <sup>2</sup> )
USG Sheetrock® Brand Setting-Type Joint Compound (Durabond) 20, 45, 90, 210	25-lb. (11.3-kg) bag	72 lb./1,000 SF (35.2 kg/100 m <sup>2</sup> )
USG Sheetrock® Brand Lightweight Setting-Type Joint Compound (Easy Sand) 20, 45, 90, 210	18-lb. (8.1-kg) bag	52 lb./1,000 SF (25.3 kg/100 m <sup>2</sup> )

## Concrete Finishing Compounds

**Cover Coat Compound** Formulated for filling and smoothing monolithic concrete ceilings, walls and columns located above grade—no extra bonding agent needed. Supplied in ready-mixed form (sand can be added), easily applied with drywall tools in three or more coats. Dries to a fine white surface usually making further decoration unnecessary. Not washable unpainted. Also can be used for embedding tape, for first coat over metal bead and trim and for skim coating over gypsum panels.



**Cover Coat compound**

**USG Sheetrock® Brand Setting-Type (Durabond) and Lightweight Setting-Type (Easy Sand) Joint Compounds** These setting-type compounds are ideally suited to fill offsets and voids left in concrete. They produce a hard finish in various shades of white. Overpainting may be required.

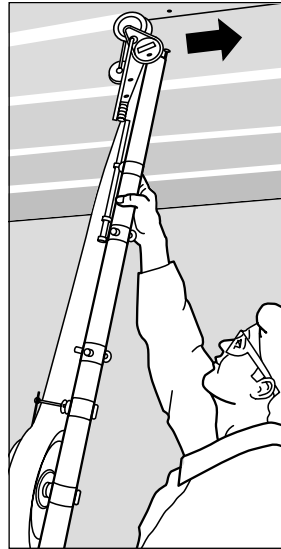
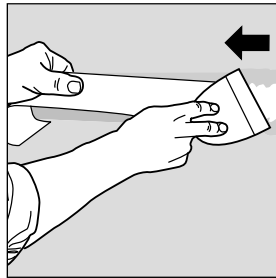
Where deep fills are required, USG Sheetrock® Brand setting-type (Durabond) and USG Sheetrock® Brand lightweight setting-type (Easy Sand) compounds are especially recommended for the first coat, then followed by Cover Coat compound. This practice minimizes check cracking.

## Reinforcing Tapes

From the originator of modern joint finishing, USG reinforcing tapes add strength and crack resistance for smooth concealment at flat joints and inside corners. Two products—both quickly and easily applied—are available for specialized uses: paper tape for treatment with joint compounds and glass-fiber tape for veneer plaster finishes.

**USG Sheetrock® Brand Joint Tape** Special strong, cross-fibered paper tape for use with USG joint compounds in reinforcing joints and corners in gypsum drywall and veneer plaster finish interiors. Exceptional wet and dry strength; resists stretching, wrinkling and other distortions; lies flat and resists tearing under tools. The wafer-thin tape is lightly sanded for increased bond and lies flat for easy concealment on next coat. Precision processed with positive center creasing, which simplifies application in corners; uniform winding provides accurate, trouble-free attachment to angles and to flat joints.

**USG Sheetrock® Brand joint tape is designed for both embedding by hand (below) and application with mechanical taping tool (right). Joint is covered with thin layer of compound before taping.**



Preferred for its consistent high performance in gypsum drywall finishing, USG Sheetrock® Brand joint tape with USG Sheetrock® Brand setting-type (Durabond) joint compound is also used with veneer plaster finish systems. The regular USG Sheetrock® Brand joint tape is 1-31/32" wide in 75', 250' and 500' rolls. USG Sheetrock® Brand joint tape-heavy provides added strength and crack resistance in drywall joint treatment; it is 2-1/16" wide in 250' and 500' rolls. Approximate coverage: 370 LF tape per 1,000 SF panel.

A joint treatment system (reinforcing tape and joint compound) must provide joints as strong as the gypsum board itself. Otherwise, normal structural movement in a wall or ceiling assembly can result in the development of cracks over the finished joint.

Repeated joint strength tests conducted at the USG Research Center have shown that joints taped and finished with conventional fiberglass leno-weave mesh tape and conventional joint compounds are more prone to cracking than joints finished with paper tape and conventional joint compounds. This is because fiberglass mesh tapes tend to stretch under load, even after being covered with joint compounds.

Permanent repair of these cracks is difficult. Accordingly, USG does not recommend using conventional fiberglass leno-weave mesh tape with conventional ready-mixed, powder or chemically setting compounds for general drywall joint finishing.

**USG Sheetrock® Brand Fiberglass Drywall Tape** Made with a unique cross-fiber construction to provide greater drywall joint strength than conventional fiberglass leno-weave mesh tapes. This self-adhesive tape goes on quickly, eliminating the bedding coat. Smooth, finished joints are accomplished in two coats by using USG Sheetrock® Brand setting-type joint compound (Durabond or Easy Sand) for at least the first application. The setting-type joint compound also provides the added bond to provide desired joint strength. The second application can be either setting type or drying type (ready mixed or powder). This tape is also ideal for patching small holes and cracks.

**USG Imperial® Brand Tape** Strong, glass-fiber tape used in wood-framed construction to conceal and reinforce joints and interior angles of Imperial gypsum base prior to veneer plaster finishing with Imperial veneer basecoat, Imperial veneer finish, Diamond veneer basecoat and Diamond veneer finish. High-tensile strength glass fibers are woven into an open mesh, coated with binder and slit to roll width.

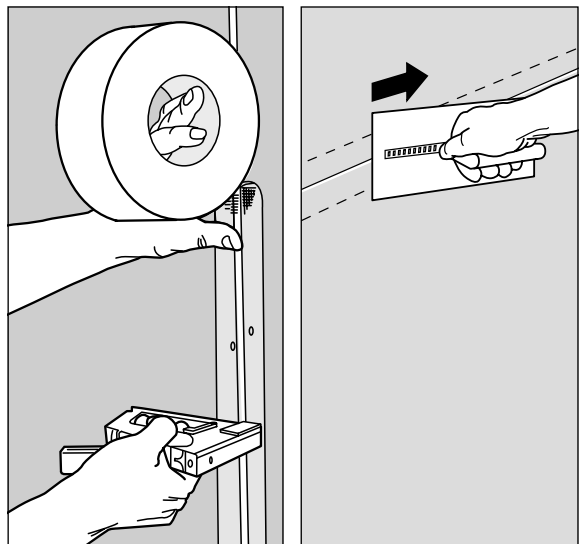
The open weave of Imperial brand tape (100 meshes per sq. in.) provides excellent reinforcing and keying of plaster to resist cracking. The glass fibers lay flat and minimize stretching for wrinkle-free attachment without springback or distortion. Spirally woven (leno) long strands and a binder coating reduce edge raveling and fraying and keep loose threads from defacing finished surfaces. Tape flexes readily to permit fast application to flat joints and corners. Available in two types:

**Type P** with pressure-sensitive adhesive backing. Selected for quick, self-stick hand application; saves installation time and fastener cost.

**Type S** with plain back, fastened with staples. Lower in cost than Type P.

Availability: Type S in 300' rolls, 2-1/2" wide; Type P in 300' rolls, 2" and 2-1/2" wide; 12 rolls per carton. Approximate coverage: 370 LF tape per 1,000 SF gypsum base.

*Both types of glass-fiber Imperial brand tape are quickly applied—Type S with 3/8" staples at staggered 24 intervals (left), self-stick Type P by light hand pressure and bonding with finishing knife or trowel (right). Use of Type P Tape cuts taping time up to 50%, simplifies embedding and saves cost of staples.*



# Veneer Plaster Finishes

Veneer plaster finishes offer the opportunity to trim days from interior finishing schedules and provide strong, highly abrasion-resistant surfaces. These products are designed for one- or two-coat work over gypsum bases or directly to concrete block or properly prepared monolithic concrete. Formulated for hand application (Imperial veneer finish and Diamond veneer finish), they provide a thin, lightweight veneer that sets rapidly.

Conventional plaster is the best system to attain a uniform, monolithic, blemish-free, smooth surface with excellent wear resistance. By contrast, veneer plaster systems utilize large-size gypsum panels to improve speed of installation, while providing more monolithic, harder, abuse-resistant surfaces than are achievable with drywall. Plaster thickness is reduced from the standard 1/2" associated with conventional plaster to a mere 1/16" to 1/8" using high-strength gypsum in the product formulations. While Red Top® Keenes cement-lime-sand provides the most universal texture finish in two-coat application, Imperial veneer finish and Diamond veneer finish provide better surface hardness, abrasion resistance and wearability. Ready for final finish in as little as 24 hours if completely dry. See PM-2, Comparing Plaster Systems and Drywall Systems, for more information.

## Advantages

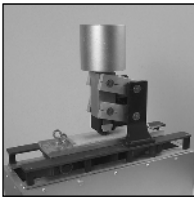
**Rugged, Abuse-Resistant Surfaces** High-strength Imperial veneer finishes provide hard, durable interiors that require minimal maintenance.

**Quicker Completion/Faster Occupancy** Veneer plaster finishes apply rapidly, set fast and dry quickly to save days in finishing interior walls and ceilings. Diamond veneer finish can be decorated in 24 hours (if completely dry) with breather-type paint or left undecorated if desired.

**Competitive Costs** Veneer plaster finishes are easily applied and cover more area per ton than conventional plasters. Joints and interior angles are preset with the same veneer plaster finish that goes on the walls and ceilings.

**Easily Decorated** Veneer plasters are readily finished in smooth-trowel, float or texture surfaces. The hard, smooth surface is decorated easily and economically with paint, fabric, wallpaper or texture.

**Versatile** A wide choice of assemblies is available to meet design requirements: fire- and sound-rated systems for wood or steel framing, hard and abuse-resistant surfaces for high-traffic areas and electrically heated ceilings.



*When abraded 1000 cycles by 25-lb. weighted wire brush in laboratory test, Imperial brand veneer plaster finish showed virtually no penetration—proof of outstanding abrasion resistance.*

**Products Available**



**Imperial brand veneer basecoat plaster**

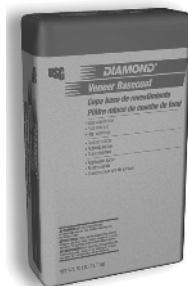
**USG Imperial® Veneer Basecoat** For use as a basecoat in two-coat veneer application finished with proper lime or gypsum finishes. Can be applied to either Imperial gypsum base, directly to concrete block, or over USG plaster bonder on monolithic concrete. Formulated as the basecoat for high-strength Imperial finish veneer, gauged lime putty, Diamond veneer finish, Structo-Gauge® lime smooth trowel or Keenes lime sand float finishes. Available in hand formulation. Complies with ASTM C587. Available in 50-lb. bags.

**USG Imperial® Veneer Finish** For single-coat application composed of scratch coat and immediate doubling back directly over special Imperial gypsum base, glass-fiber tape or USG Sheetrock® Brand joint tape or USG Sheetrock® Brand setting-type joint compound (Durabond or Easy Sand). Also used over Imperial veneer basecoat in a two-coat system. Available for hand application—provides a smooth-trowel or float or spray-texture finish ready for decoration. Complies with ASTM C587. Available in 50-lb. bags.

**Coverage—Imperial Brand Veneer (cjb) Basecoat and Finishes**

Product	SF/ton		m <sup>2</sup> /ton (metric) <sup>(1)</sup>	
	Gypsum Base	Masonry	Gypsum Base	Masonry
Imperial Basecoat	3250-4250	2700-3600	335-435	275-370
Imperial (1-coat) Finish	3500-4000	not recommended	360-410	not recommended
Imperial (2-coat) Finish	3200-3600	3200-3600	330-370	330-370

(1) Coverage rounded to nearest 5 m<sup>2</sup> per metric ton.



**Diamond brand veneer basecoat plaster**

**Diamond Veneer Basecoat** Provides quality walls and ceilings for residential construction where superior strength of Imperial veneer basecoat is not essential. Offers superior workability and ease and speed of application. Formulated to receive a variety of finishes. Apply to Imperial gypsum base, concrete block or monolithic concrete. Complies with ASTM C587. Available in 50-lb. bags.

**Coverage—Diamond Brand Veneer (cjb) Basecoat**

Product	SF/ton		m <sup>2</sup> /ton (metric) <sup>(1)</sup>	
	Gypsum Base	Masonry	Gypsum Base	Masonry
Diamond Brand Basecoat	4000-5000	3500-4500	410-510	360-460



**Diamond brand veneer finish plaster**

**USG Diamond Veneer Finish** A white finish formulated for hand application directly to Imperial gypsum base Also suitable in a two-coat system over Imperial veneer or Diamond veneer basecoats or a sanded gypsum basecoat. Applied to a nominal 1/16" thickness, this finish is unaggregated for a smooth or skip-trowel finish; may be job aggregated with up to an equal part by weight of clean, fine silica sand for Spanish, swirl, float or other textures. Not recommended for use over Portland cement basecoat or masonry surfaces. Complies with ASTM C587. Available in 50-lb. bags.

Diamond veneer finish should be applied only to Imperial gypsum base having blue face paper. Faded base must be treated with USG accelerator—alum catalyst or USG plaster bonder before finish is applied

to prevent possible bond failure. See Diamond Brand Plasters in the Veneer Plaster Finish Applications for specific application instructions.

Diamond veneer finish is also suitable for use with electric cable ceilings. Allows higher operating temperatures than with other products, provides more heat transmission and greater resistance to heat deterioration. Finish is job sanded and hand applied 3/16" thick to cover cable. A finish coat of the same material is applied 1/16" to 3/32" thick to bring the total plaster thickness to 1/4". Applied over Imperial gypsum base attached to wood joists, to metal furring channel or suspended metal grillage or over USG plaster bonder directly to monolithic concrete ceilings (5/16" fill coat plus finish coat for 3/8" total thickness). For additional information, see PM16, Application in Electric Heat Cable Systems.

### Coverage—Diamond Veneer Finish

#### Conventional Walls and Ceilings

Surface Applied To	Neat		Sand Float Finish Sanded 1:2 <sup>(1)</sup> (Sand:DIF) <sup>(1)</sup>		Heavy Texture Finish Sanded 1:1 <sup>(1)</sup> (Sand:DIF) <sup>(1)</sup>	
	SF/ton	m <sup>2</sup> /ton <sup>(2)</sup>	SF/ton	m <sup>2</sup> /ton <sup>(2)</sup>	SF/ton	m <sup>2</sup> /ton
	Imperial Gypsum Base	6000	610	4660	475	3500
Imperial or Diamond Veneer Basecoat	5500	560	4330	440	3250	330
Sanded Red Top Basecoat	5000	510	4000	410	3000	305
Monolithic Concrete <sup>(3)(4)</sup>	5500	560	4330	440	3250	330
Veneer Basecoat over Monolithic Concrete <sup>(3)</sup>	5500	560	4330	440	3250	330

#### Electric Cable Heat Ceilings

Surface Applied To	Fill Coat <sup>(5)</sup> Sanded 1:1 <sup>(1)</sup>		1/16" Finish Coat Sanded 1:4 <sup>(1)</sup>		1/16" Finish Coat Sanded 1:1 <sup>(1)</sup>	
	SF/ton	m <sup>2</sup> /ton <sup>(2)</sup>	SF/ton	m <sup>2</sup> /ton <sup>(2)</sup>	SF/ton	m <sup>2</sup> /ton <sup>(2)</sup>
	Imperial Gypsum Base	2300	235	5000	510	3250
Monolithic Concrete <sup>(3)</sup>	900	84	5500	560	4500	418

(1) Coverage based on one ton of aggregated mixture (combined weight of sand and Diamond brand interior finish plaster).  
 (2) Coverage rounded to nearest km<sup>2</sup> per metric ton. (3) USG plaster bonder and veneer basecoat required. (4) Must be job sanded, minimum 1/2:1, sand to plaster. (5) Fill coat over gypsum base is 3/16" thick—over monolithic concrete is 5/16".

## Primers

**USG Sheetrock® Brand First Coat—Ready Mixed** Decorating problems such as “joint banding” or “photographing” are usually caused by differences between the porosities and surface textures of the gypsum board face paper or concrete on the one hand and the finished joint compound on the other. USG Sheetrock® Brand first coat is a flat latex basecoat paint-type product specially formulated to provide a superior prime coat over interior gypsum board, wood and concrete surfaces.

In contrast to a sealer, USG Sheetrock® Brand first coat does not form a film that seals the substrate surface. Instead, it minimizes porosity differences by providing a base that equalizes the absorption rates of the drywall face paper and the finished joint compound when painted. USG Sheetrock® Brand first coat also provides the proper type and amount of pigments and fillers, lacking from conventional primers and sealers, that minimize surface texture variations between the gypsum board face paper and the finished joint compound.



**USG Sheetrock® Brand first coat—ready mixed**



USG Sheetrock® Brand first coat is designed for fast, low-cost application. It can be applied with a brush, roller or airless or conventional sprayer. It dries in less than 30 minutes under 72°F/50% relative humidity (RH) conditions. White finish is ready for decoration in an hour. Not intended as a final coating—it should be overpainted when dry. The product comes ready mixed in 5- and 1-gal. pails.



**USG Sheetrock®  
Brand wallcovering  
primer—ready mixed**

**USG Sheetrock® Brand Wallcovering Primer—Ready Mixed** Ideal basecoat product for wallcoverings. Also, the required primer for joint-treated areas of walls and ceilings to receive the USG Decorative Interior Finish System; in these applications the primer is then covered with USG plaster bonder—clear. For wallpaper applications, USG Sheetrock® Brand wallcovering primer prevents wallcovering adhesive from soaking into porous wall surfaces and improves adhesion and slip. Also, permits later removal of wallpaper. May be used on cured new or old plaster, stripped wallpaper, masonry and gypsum panels. Not recommended over lime-gauging or lime-containing plaster finishes. Available in 5- and 1-gal. containers.

## Interior Texture Finishes

Texture finishes from USG offer a wide variety of possible texture patterns to provide distinctive interior styling. They are fast and easy to apply and quick drying, saving labor time to preserve job profits. They hide minor surface blemishes, which reduces the amount of surface preparation needed. All products are non-asbestos containing.

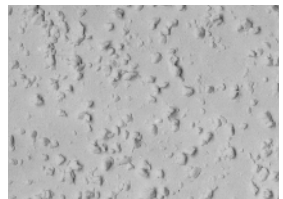
## Powder Texture Products

**USG Sheetrock® Brand Ceiling Spray Texture (QT)—(Fine) (Medium) (Coarse)** Powder product with polystyrene aggregate, available in three finishes. It creates a simulated acoustical ceiling finish but with no acoustical correction. Requires only addition of water and short soaking period at job site. Produces excellent bonding qualities for application to gypsum panels, concrete, plaster or wood. High wet and dry masks hide minor surface defects. Dries to a white finish, which is usually left unpainted but may be overpainted if desired. Not recommended for use where constant humid conditions exist.

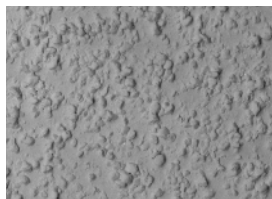
*Examples of high-style textures produced by USG Sheetrock® Brand ceiling spray texture (QT): (1) fine finish for light effect; (2) medium finish for striking texture; (3) coarse finish for unusual decorating effect.*



1

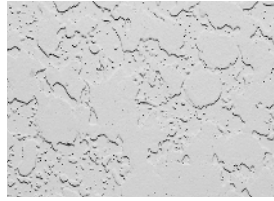


2



3

*Surface designs available with USG Sheetrock® Brand wall and ceiling spray texture include spatter finish (left) and spatter/knockdown finish (right).*



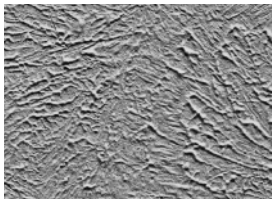
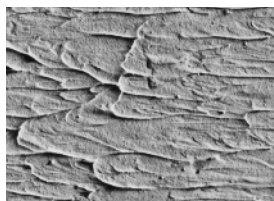
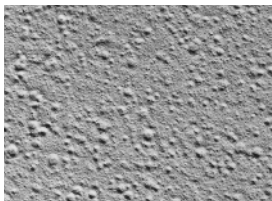
**USG Sheetrock® Brand Wall and Ceiling Spray Texture** Available in aggregated and unaggregated forms for texture variety on most interior wall surfaces. This product produces light spatter and light “orange peel” texture with spray application. It dries to a soft-tone white surface with good concealment that should be overpainted on walls but can be left unpainted on ceilings if adequate amount has been applied to provide sufficient hiding properties. However, it is not washable if left unpainted.

**USG Sheetrock® Brand Wall and Ceiling Texture (Tuf-Tex®)** Unaggregated texture coating that produces a variety of patterns from bold spatter/knockdown to light orange peel. May be by spray-applied and/or hand tooled with a broad knife, brush or roller, depending on pattern desired. Dries to a hard, white finish and helps conceal minor substrate defects. Not intended as a final coating—should be overpainted when dry. If left unpainted, it is not washable.

*Distinctive medium stipple texture is achieved with USG Sheetrock® Brand wall and ceiling texture (Tuf-Tex®).*



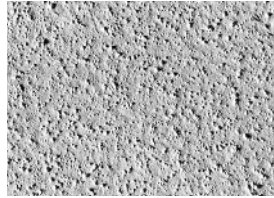
*Variety of effects obtained with USG Sheetrock® Brand wall and ceiling texture—multipurpose include (clockwise from left) bold shadowing with roller application, medium-light finish applied by spray and lightly stippled surface applied with small brush or roller-stippler.*



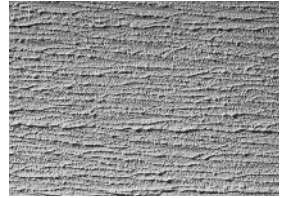
**USG Sheetrock® Brand Wall and Ceiling Texture—Multipurpose** An economical, unaggregated powder product that is mixed with water to create desired texturing consistency. Excellent for producing fine- to medium-texture patterns (such as fine orange peel and crow’s foot stipple finishes) on drywall or other interior surfaces. The textured effect is

obtained by brush, roller or spray application and helps conceal minor surface defects. It dries to a soft-tone white finish that should be over-painted on walls but can be left unpainted on ceilings when adequate amount of material is applied. It is not washable if left unpainted.

**USG Sheetrock® Brand Wall and Ceiling Spray Texture Sand Finish Texture 12** Spray-applied powder product that yields a fine sand finish on walls and ceilings. Combines easy mixing, fast drying, excellent coverage and good concealment. Ideal base for wall paints. May be left unpainted on ceilings, but unpainted it is not washable.



*Close-up view shows typical sand effect finish obtained with aggregated USG Sheetrock® Brand wall and ceiling spray texture—sand finish texture 12. In application, fan technique is used on walls, cross-spray on ceilings.*



*Simple roller-applied texture is obtained with vinyl-base USG Sheetrock® Brand powder, joint compounds. Same products can be used for joint finishing and texturing on job.*

**USG Sheetrock® Brand Powder Joint Compound (All Purpose)** Easy-mixing, smooth-working product that can be used to produce attractive light to medium textures. It is applied with a brush, roller or trowel. Color is white but may vary in degree of whiteness. Surfaces should be painted. It is not washable if left unpainted.



**USG Sheetrock® Brand ceiling spray texture (qt)–(fine) (medium) (coarse)**



**USG Sheetrock® Brand wall and ceiling spray texture—(unaggregated) (aggregated)**



**USG Sheetrock® Brand wall and ceiling texture (Tuf-Tex)**

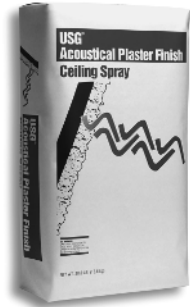


**USG Sheetrock® Brand wall and ceiling texture—multipurpose**



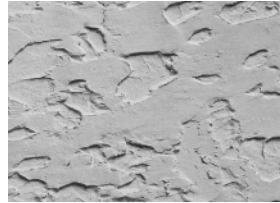
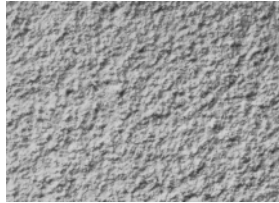
**USG Sheetrock® Brand wall and ceiling spray texture sand finish texture 12**

## Sound-Absorbing Plaster Finish



**USG acoustical plaster finish**

*USG acoustical plaster finish absorbs sound and gives dramatic appeal to ceilings and other non-contact surfaces (left). Extra-thick finish applied in one coat provides eye appeal and decorative charm (right).*



**USG Acoustical Plaster Finish** An attractive spray plaster texture for application to gypsum basecoats, interior monolithic concrete, metal decks and gypsum panel ceilings. Chemically setting-type product gives a sound-absorbing, sound-rated decorative finish to gypsum panels, concrete and non-veneer-type plaster ceilings and other non-contact surfaces. Produces a natural-white, evenly textured finish. Requires no application of a bonding agent except over metal decking. Reduces surface preparation time and costs. For use on new or renovation construction. Surface-burning characteristics: flame spread 10, smoke developed 25, per ASTM E1042-85. Sound rated: NRC 0.55 for concrete and conventional plaster at 1/2" finish thickness; NRC 0.75 for concrete and conventional plaster at 1" finish thickness, NRC 0.50 for gypsum panels at 1/2" finish thickness. Use on noncontact surfaces only. For additional information, see P720, USG Acoustical Plaster finish Data Submittal Sheet.

## Ready-Mixed Texture Products



**USG Sheetrock® Brand wall and ceiling texture**

**USG Sheetrock® Brand Wall and Ceiling Texture** Offers unique superthickness with just one coat, plus the fast start of ready-mixed material. Massive thickness in just one pass eliminates doubling back. This white, latex-type finish develops a tough, durable surface with stubborn resistance to fissure cracks. Apply with trowel, roller, brush or spray, depending on pattern desired. Bonds well with excellent hide over many surfaces—gypsum panels, concrete, primed plaster, interior masonry and nonstaining wood surfaces. Painting not required on non-contact surfaces. Overpaint if desired. Not washable unpainted.



**USG Sheetrock® Brand wall and ceiling spray texture**

**USG Sheetrock® Brand Wall and Ceiling Spray Texture** A ready-mixed vinyl formulation for texturing interior, above-grade surfaces. Ideal where moderate to bold texture patterns are desired. Designed for spray application over gypsum panel, concrete and most other interior wall and ceiling surfaces. Formulated to create unique texture patterns such as spatter, spatter/knockdown and orange peel designs. Dries to a white surface but should be overpainted when dry. Not washable unpainted.



**USG Sheetrock® Brand wall and ceiling texture paint (sand finish texture 1)**

**USG Sheetrock® Brand Wall and Ceiling Texture Paint (Sand Finish Texture 1)** White; produces a sand finish on walls and ceilings. Sanded effect is obtained by brush, roller or spray application. Durable finish; may be left unpainted.

**USG Sheetrock® Brand Wall and Ceiling Texture Paint (Ripple Finish Texture 2)** Produces an orange peel to moderate ripple texture patterns on ceilings and sidewalls; textured effect obtained by roller or spray, depending on the desired texture finish; may be left unpainted.

**USG Sheetrock® Brand Wall and Ceiling Texture Paint (Texolite® Sanded Paste Stipple)** White; produces a sand finish on ceilings and sidewalls. Texture effect is obtained by roller application that can be left as is or brushed to create a sanded-swirl texture finish. Durable finish; may be left unpainted.

**USG Sheetrock® Brand Ready-Mixed Joint Compounds (Topping or All Purpose)** Virtually ready to use, these products will produce textures ranging from light to medium depending upon method of application. Color is white but may vary. Surfaces should be painted. Applied with brush, roller or trowel. Not recommended for spray application or for texturing in all areas. Not washable unpainted. Check local sales office for suitability of formulation for texturing in your area.



**USG Sheetrock® Brand wall and ceiling texture paint (ripple finish texture 2)**



**USG Sheetrock® Brand wall and ceiling texture paint (texolite sanded paste stipple)**



**USG Sheetrock® Brand ready-mixed topping joint compound**



**USG Sheetrock® Brand ready-mixed all-purpose joint compound**

## Texture/Compound Selector

Product		USG Sheetrock® Brand Brand Textures			
		USG Sheetrock® Brand Ceiling Spray Texture (QT) (Fine)	USG Sheetrock® Brand Ceiling Spray Texture (QT) (Medium)	USG Sheetrock® Brand Ceiling Spray Texture (QT) (Coarse)	USG Sheetrock® Brand Wall and Ceiling Spray Texture (Aggregated)
Surfaces	prime coat required	yes	yes	yes	yes
	Ceilings	yes	yes	yes	yes
	Walls	no	no	no	yes
Properties	type of aggregate	polystyrene	polystyrene	polystyrene	perlite
	aggregate size	fine	medium	course	fine-med
	ability to hide substrate Imperfections	good	excellent	excellent	very good
	water dilution, gal./lb. <sup>(4)</sup>	varies**	varies**	varies**	4-5/50, 3-4/40
Application	solution time	very good	very good	very good	good
	machine	yes	yes	yes	yes
	hand	no	no	no	yes
Spray Equipment	pole gun	yes	yes	yes	no
	7E2-type texture gun	yes	yes	yes	yes
	18D-type texture gun	no	no	no	yes
	hopper gun	yes	yes	yes	yes
	aggregate fallout (bounce)	min. to. mod.	min. to. mod.	min. to. mod.	min
	abrasiveness on equipment	min.	min	min.	mod
Features	drying time	slow-med.	slow-med	slow-med.	very fast
	bond of dry aggregate	mod.	mod	mod.	good
	dried whiteness	excellent	excellent	excellent	good
	crack resistance	good	good	good	good
	Coverage, SF/lb spray <sup>(1)</sup>	up to 8	up to 8	up to 8	up to 40
	Coverage, SF/lb hand <sup>(1)</sup>	N/A	N/A	N/A	N/A

N/A—not applicable \*\*no primer required under painted walls. \*\*Varies—see Chapter 5, "Finishing Drywall Systems." Also see footnotes.

(1) Coverage, as considered here, is intended to provide a relative comparison between products when mixed and applied according to directions—not to provide a figure for job estimating. Coverage can vary widely depending on factors such as condition of substrate, amount of dilution, spray techniques and procedures, thickness and uniformity of coating and market preferences in texture appearance. (2) Joint compounds are designed for treating joints, fasteners, metal bead and trim. However, these products have been used in many markets for hand-applied textures and, because of this trade practice, are included as texturing materials. (3) USG Sheetrock® Brand ready-mixed topping joint compound is not recommended for texturing in all areas. Check local sales office for suitability of joint compound in your area. (4) Water dilution properties shown here are only approximate. Check product container for actual dilution requirements

**Texture/Compound Selector**

	<b>Product</b>	<b>USG Sheetrock® Brand Wall and Ceiling Spray Texture (Unaggregated)</b>	<b>USG Sheetrock® Brand Wall and Ceiling Spray Texture (Tuf-Tex)</b>	<b>USG Sheetrock® Brand Wall and Ceiling Texture Multipurpose</b>	<b>USG Sheetrock® Brand Wall and Ceiling Spray Texture Sand Finish Texture 12</b>
Surfaces	prime coat required	yes	yes	yes	yes
	ceilings	yes	yes	yes	yes
	walls	yes	yes	yes	yes
Properties	type of aggregate	N/A	N/A	N/A	perlite
	aggregate size	N/A	N/A	N/A	fine
	ability to hide substrate Imperfections	good	good	good	good
	water dilution, gal./lb. <sup>(4)</sup>	4-5/50, 3-4/40	4-4.8/40	2-3/25, 3-4/40	2-1/2-3-1/4/25
Application	solution time	good	good	good	good
	machine	yes	yes	yes	yes
	hand	yes	yes	yes	no
Spray Equipment	pole gun	no	no	no	no
	7E2-type texture gun	yes	yes	yes	no
	18D-type texture gun	yes	yes	yes	yes
	hopper gun	yes	yes	yes	yes
	aggregate fallout (bounce)	N/A	N/A	N/A	min.
	abrasiveness on equipment	min.	min	min.	mod.
Features	drying time	fast	fast	fast	fast
	bond of dry aggregate	N/A	N/A	N/A	excellent
	dried whiteness	good	good	good	very good
	crack resistance	good	good	good	good
	Coverage, SF/lb. spray <sup>(1)</sup>	up to 40	up to 40	up to 20	20-35
	Coverage, SF/lb. hand <sup>(1)</sup>	N/A	10-20	10-15	N/A

N/A—not applicable \*no primer required under painted walls. \*\*Varies—see Chapter 5. Also see footnotes.

(1) Coverage, as considered here, is intended to provide a relative comparison between products when mixed and applied according to directions—not to provide a figure for job estimating. Coverage can vary widely depending on factors such as condition of substrate, amount of dilution, spray techniques and procedures, thickness and uniformity of coating and market preferences in texture appearance. (2) Joint compounds are designed for treating joints, fasteners, metal bead and trim. However, these products have been used in many markets for hand-applied textures and, because of this trade practice, are included as texturing materials.

(3) USG Sheetrock® Brand ready-mixed topping joint compound is not recommended for texturing in all areas. Check local sales office for suitability of joint compound in your area. (4) Water dilution properties shown here are only approximate. Check product container for actual dilution requirements

**Texture/Compound Selector**

	Product	Texture Finishes		
		USG Acoustical Plaster Finish	USG Ready-Mixed Texture Compound	USG Sheetrock® Brand Powder All Purpose <sup>(2)</sup>
Surfaces	prime coat required	yes	yes*	yes
	ceilings	yes	yes	yes
	walls	no	yes	no
Properties	type of aggregate	polystyrene	N/A	N/A
	aggregate size	fine-medium	N/A	N/A
	ability to hide substrate imperfections	excellent	very good	very good
	water dilution, gal./lb. <sup>(4)</sup>	3.5/30	1/2-2/50	2-1/4-2-3/4/25
Application	solution time	good	N/A	good
	machine	yes	yes	no
	hand	no	yes	yes
Spray Equipment	pole gun	yes	no	no
	7E2-type texture gun	yes	yes	no
	18D-type texture gun	no	yes	no
	hopper gun	no	yes	no
	aggregate fallout (bounce)	min. to. mod.	N/A	N/A
	abrasiveness on equipment	min.	min	min.
Features	drying time	slow	slow-med	slow-med.
	bond of dry aggregate	very good	N/A	N/A
	dried whiteness	good	fair	good
	crack resistance	excellent	good	good
	Coverage, SF/lb. spray <sup>(1)</sup>	1-1/2-3	7-8	N/A
	Coverage, SF/lb. hand <sup>(1)</sup>	N/A	4-6	4-7

N/A—not applicable \*no primer required under painted walls. \*\*Varies—see Chapter 5. Also see footnotes

(1) Coverage, as considered here, is intended to provide a relative comparison between products when mixed and applied according to directions—not to provide a figure for job estimating. Coverage can vary widely depending on factors such as condition of substrate, amount of dilution, spray techniques and procedures, thickness and uniformity of coating and market preferences in texture appearance. (2) Joint compounds are designed for treating, fasteners, metal bead and trim. However, these products have been used in many markets for hand-applied textures and because of this trade practice, are included as texturing materials. (3) USG Sheetrock® Brand ready-mixed topping joint compound is not recommended for texturing in all areas. Check local sales office for suitability of joint compound in your area. (4) Water dilution properties shown here are only approximate. Check product container for actual dilution requirements.



**Texture/Compound Selector**

	Product	Texture Finishes	
		USG Sheetrock® Brand Ready-Mixed Topping <sup>(3)</sup> or All Purpose <sup>(2)</sup>	USG Sheetrock® Brand Lightweight All-Purpose Joint Compound (Plus 3) <sup>(2)</sup>
Surfaces	prime coat required	yes*	yes*
	ceilings	yes	yes
	walls	yes/no <sup>(3)</sup>	no
Properties	type of aggregate	N/A	N/A
	aggregate size	N/A	N/A
	ability to hide substrate Imperfections	very good	very good
	water dilution, gal./lb. <sup>(4)</sup>	1-1-1/2/62	1-1-1/2/40
Application	solution time	N/A	N/A
	machine	no	no
	hand	yes	yes
Spray Equipment	pole gun	no	no
	7E2-type texture gun	no	no
	18D-type texture gun	no	no
	hopper gun	no	no
	aggregate fallout (bounce)	N/A	N/A
	abrasiveness on equipment	min.	min
Features	drying time	slow-med.	slow-med.
	bond of dry aggregate	N/A	N/A
	dried whiteness	good	fair
	crack resistance	good	good
	Coverage, SF/lb. spray <sup>(1)</sup>	N/A	N/A
	Coverage, SF/lb. hand <sup>(1)</sup>	6-11	9-17

N/A—not applicable \*no primer required under painted walls. \*\*Varies—see Chapter 5. Also see footnotes.

(1) Coverage, as considered here, is intended to provide a relative comparison between products when mixed and applied according to directions—not to provide a figure for job estimating. Coverage can vary widely depending on factors such as condition of substrate, amount of dilution, spray techniques and procedures, thickness and uniformity of coating and market preferences in texture appearance. (2) Joint compounds are designed for treating joints, fasteners, metal bead and trim. However, these products have been used in many markets for hand-applied textures and, because of this trade practice, are included as texturing materials. (3) USG Sheetrock® Brand ready-mixed topping joint compound is not recommended for texturing in all areas. Check local sales office for suitability of joint compound in your area. (4) Water dilution properties shown here are only approximate. Check product container for actual dilution requirements.

## Interior Patch and Repair Products

Finished interior walls are subject to abuse and damage from time to time. USG has developed a line of repair products to deal with a variety of holes, cracks, dents and abrasions. Many of these products may be found in retail hardware and home center stores.

**USG Sheetrock® Brand Spackling Powder** Easy-to-mix hole-filling compound.



**USG Sheetrock® Brand spackling powder**

**USG Sheetrock® Brand Plaster of Paris** Fast-setting plaster excellent for first fill of large holes. Expands upon setting. Not sandable.



**USG Sheetrock® Brand plaster of Paris**

**USG Sheetrock® Brand Floor Patch/Leveler** High-compressive-strength compound for leveling concrete floors or patching holes in concrete. Expands upon setting.



**USG Sheetrock® Brand floor patch/leveler**

**USG Sheetrock® Brand Patching Plaster** Fiber-reinforced plaster for patching larger holes in plaster or drywall walls. Expands upon setting. Not sandable.



**USG Sheetrock® Brand patching plaster**

**USG Sheetrock® Brand Patching Compound, Easy Sand 5** Easy-to-mix, low-expansion compound for quick fills and rapid finishing of cracks and holes. Working time of 5–10 minutes.



**USG Sheetrock® Brand patching compound**

**USG Sheetrock® Brand Drywall Repair Clips** Metal clips that provide for ready attachment of a drywall patch to an existing wall. Use with replacement drywall to repair larger holes.



**USG Sheetrock® Brand drywall repair clips**

