Drywall & Veneer Plaster Products

1

Since their introduction over 90 years ago, SHEETROCK® brand gypsum panels from 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 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** and **usgdesignstudio.com**).

Gypsum Panel Products

SHEETROCK 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, SHEETROCK brand gypsum panels provide high-performance walls and ceilings.

A 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.

Advantages

Interior walls and ceilings built with SHEETROCK 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 SHEETROCK 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, SHEETROCK 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.

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 foil-back panel limitation, page 6). DUROCK® brand cement board, FIBEROCK® brand AQUA-TOUGH™ interior panels, or FIBEROCK AQUA-TOUGH tile backerboard are 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" SHEETROCK 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 x 2 minimum (may be 1 x 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" o.c.; 2.4 psf for 1/2" panels on 16" o.c. framing (or 1/2" SHEETROCK brand interior gypsum ceiling board, sag-resistant 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 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.