

Recommended Levels of Finish for Gypsum Board, Glass Mat and Fiber-Reinforced Gypsum Panels



The Finishing & Decorating of Interior Gypsum Panel Surfaces

This document is intended to assist specification writers, architects, contractors, and building owners to more precisely describe in written project documents the finishing requirements for walls and ceilings prior to the application of paints and other decorative finishes.

As part of the gypsum panel finishing process, the abutting gypsum panel seams/joints, fasteners, and accessories must be concealed with fill and finish coats of joint compound. It is not possible to achieve a finish surface that is a flat plane. This gypsum panel finishing process occurs above the plane of the gypsum panels. Achieving proper concealment involves finishing the joints and fasteners in graduated arcs that minimize recesses and/or ridges that would otherwise remain visible.

Determining the appropriate level of finish over interior walls and ceilings is dependent on a number of factors. Primary architectural considerations include the specific type of gypsum panel product, its location within the

structure, the critical lighting conditions present, surface smoothness desired, and the color, type and sheen/gloss of the decorative finish required.

Once all of the factors have been evaluated, documents can be written in specific terms, enabling all contractual and interested parties to understand the expectations of a particular project.

This document is presented by the Association of the Wall and Ceiling Industry (AWCI), Ceilings & Interior Systems Construction Association (CISCA), Drywall Finishing Council, Inc. (DWFC), Gypsum Association (GA), and the Painting and Decorating Contractors of America (PDCA). Incorporating the appropriate sections of these recommendations into the project documents will enable the architect, general contractor, and building owner to agree upon the final appearance. Where mock-ups are required, consideration should be given to enable the mock-ups to remain as a part of the permanent structure.

RECOMMENDATIONS

I. SCOPE

These recommendations describe various levels for finishing gypsum board, glass mat and fiber-reinforced gypsum panel surfaces prior to the application of final decoration. The scope of use determines the level of finish and the finishing steps required. The scope of use provided within each level of finish should guide the specification process.

II. TERMINOLOGY

The following definitions are applicable to this document.

Accessories - Control joints, corner reinforcement trim or moulding used to protect or conceal corners, edges, wall terminations, or abutments of the gypsum panel.

Critical Lighting - Strong side lighting from windows or surface-mounted light fixtures, *syn.* severe lighting. See “Comments” section of this document.

Drywall Primer - A priming material specifically formulated to equalize the porosity difference between the gypsum panel surface and joint compound. See “Comments” section of this document.

Fiber-Reinforced Gypsum Panels - A generic name for a family of sheet products consisting essentially of gypsum with fibers dispersed throughout.

Flat Paint - A paint material specifically manufactured to produce 0 to 5 Gloss Units (GU) at 60° and 0 to 10 Gloss Units (GU) at an 85° angle when measured using a gloss meter.

Glass Mat Gypsum Panels - A generic name for a family of sheet products consisting of a non-combustible core of essentially gypsum surfaced with glass mat partially or completely embedded in the core.

Gypsum Board - A generic name for a family of sheet products with a paper facing, consisting of a noncombustible core primarily of gypsum.

Gypsum Panel Products - A general name for a family of sheet products consisting essentially of gypsum.

Joint Photographing - The shadowing of the finished joint areas through the surface decoration, *syn.* telegraphing.

Non-Flat Paint - A paint material specifically manufactured to produce greater than 5 Gloss Units (GU) at 60° and greater than 10 Gloss Units (GU) at an 85° angle when measured using a gloss meter.

Skim Coat - Either a thin coat of joint compound applied at a trowel consistency or a material manufactured specifically for this purpose, applied in accordance with manufacturer’s recommendations over the entire surface. For further discussion of trowel consistency and skim coating operation see “Comments” section of this document.

Spotting - To cover fastener heads with joint compound.

Texture - A decorative treatment of gypsum panel surfaces.

NOTE: A “non-continuous texture” is a pattern where a portion of the panel surface remains exposed after application.

Wallcovering - A flexible sheet of sized paper, fabric, plastic, etc., usually laminated and printed with a pattern intended to be pasted to a wall as decoration.

III. JOBSITE MOCK-UP

A jobsite mock-up is required for all appearance areas finished to a Level 3, 4, or 5 as described in this document in Section IV. LEVELS OF FINISH. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents unless waived in writing.

Where specified, the mock-up shall be of sufficient size to represent the requirements found in the specified Level of Finish, the location within the building, and may include texture and/or other decorative finishes such as a final paint, wallcovering, trim, or other wall treatments. Lighting conditions representative of those present when the building is occupied (natural or artificial) should be incorporated into the mock-up details.

The completed mock-up shall provide a visual project standard that will enable the architect, general contractor, subcontractors, and building owner to agree upon the final appearance prior to beginning any widespread finish work. See “Comments” section of this document.

IV. LEVELS OF FINISH

The following levels of finish are applicable when finishing gypsum panel products. The levels of finish are established as a guide prior to final decoration. The minimum requirements and scope of use for each independent level of finish shall be as described herein. Based upon the scope of use, the requirements for the selected level of finish shall be followed.

All gypsum panel products shall be applied and prepared in accordance with GA-216, *Application and Finishing of Gypsum Panel Products*.

It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration where required by the specified level of finish.

Where fire resistance, smoke resistance, or sound control is required for systems using gypsum panel products, the applicable building codes shall be followed. Refer to the Gypsum Association’s *Fire Resistance Design Manual*, GA-600.

LEVEL 0: *Typically specified in temporary construction or whenever the final decoration has not been determined.*

No taping, finishing, or accessories required.

LEVEL 1: *Typically specified joint treatment in smoke barrier applications and areas not normally open to public view such as plenum areas above ceilings, attics, and other areas where the assembly would generally be concealed.*

All joints and interior angles shall have tape embedded in joint compound. Excess joint compound, tool marks and ridges are acceptable.

Accessories are optional unless specified in the project documents.

LEVEL 2: Typically specified where gypsum panel products are used as a substrate for tile; may be used in garages, warehouse storage, or other similar areas where surface appearance is not a concern.

All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.

Fastener heads and accessories shall be covered with one (1) coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.

LEVEL 3: Typically specified in appearance areas that are to receive heavy- or medium-texture finishes (spray or hand applied) before final painting, or where heavy-duty/commercial grade wallcoverings are to be applied as the final decoration. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is not recommended for smooth wall designs or applications where light textures, non-continuous textures, or lightweight wallcoverings are applied.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. One (1) separate coat of joint compound shall be applied over all joints and interior angles. Fastener heads and accessories shall be covered with two (2) separate coats of joint compound. The surface shall be smooth and free of tool marks and ridges.

Jobsite mock-up(s) shall be used to determine acceptance of the finish within the building.

NOTE: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.

LEVEL 4: Typically specified in appearance areas where smooth wall designs are decorated with flat paints, light textures, non-continuous textures, or where wallcoverings are to be applied. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is not recommended where non-flat or dark/deep tone paints are applied.

In critical lighting areas, flat paints applied over light continuous textures tend to reduce joint photographing.

The weight, texture, and sheen level of wallcoverings applied over this level of finish should be carefully evaluated. Joints and fasteners must be adequately concealed if the wallcovering used is of lightweight construction, contains limited pattern, has a sheen level other than flat, or any combination thereof. Unbacked vinyl wallcoverings are not recommended over this level of finish.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Two (2) separate coats of joint compound shall be applied over all flat joints and one (1) separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three (3) separate coats of joint compound. The surface shall be smooth and free of tool marks and ridges.

Where glass mat and/or fiber-reinforced gypsum panels are installed, refer to the gypsum panel manufacturer for specific finishing recommendations.

Jobsite mock-up(s) shall be used to determine acceptance of the finish within the building.

NOTE: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.

LEVEL 5: Typically specified in appearance areas where smooth wall designs are decorated with non-flat paints (i.e., sheen/gloss) or other glossy decorative finishes, dark/deep tone paints are applied, or critical lighting conditions occur. The design professional shall specify the mock-up procedure and mock-up construction details within the project documents. This level of finish is the most effective method to provide a uniform surface and minimize the possibility of joint photographing and/or fasteners showing through the final decoration.

All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin consistent coating of joint compound over all joints and interior angles. Two (2) separate coats of joint compound shall be applied over all flat joints and one (1) separate coat of joint compound shall be applied over interior angles. Fastener heads and accessories shall be covered with three (3) separate coats of joint compound. A thin skim coat of joint compound (see Skim Coat in Comments) or a material manufactured especially for this purpose shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.

Where glass mat and/or fiber-reinforced gypsum panels are installed, refer to the gypsum panel manufacturer for specific finishing recommendations.

Jobsite mock-up(s) shall be used to determine acceptance of the finish within the building.

NOTE: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration.

V. COMMENTS

Critical (Severe) Lighting Areas: Examples include wall and ceiling areas that are illuminated or flooded with artificial and/or natural light. Strong oblique light from windows or surface-mounted light fixtures may exaggerate minor surface differences. Where critical lighting cannot be avoided, the effects can be minimized by either skim coating the entire wall or ceiling surface, decorating the surface with medium to heavy textures, or the use of draperies and blinds which soften shadows. In general, non-flat and dark/deep tone paints highlight minor surface differences, whereas, textures conceal these minor differences.

Drywall Primer: A priming material applied over the entire prepared gypsum panel surface prior to decoration. The priming material must be suitable for the substrate and applied as recommended by the coating manufacturer. Where final appearance is critical, the application of a flat drywall primer with high pigment solids tends to minimize most decorating problems.

NOTE: It is recommended that the final decoration specification (e.g., painting specification) include the application of a priming material prior to the decoration where required by the specified level of finish.

Environmental Control: The potential for finishing and decorating problems are minimized when temperature, humidity, and airflow remain constant and as close to occupancy environmental conditions as possible. A minimum temperature of 50°F (10°C) should be maintained continuously for 48 hours prior to and throughout the finishing process until applied materials are thoroughly dry.

Inspection Criteria: The normal viewing position shall be at a minimum distance of five (5) feet (1.5 m) perpendicular from the surface and viewed at any angle. Inspection lighting conditions are described as those in place when the project is finished. This includes, but is not limited to; design lighting (e.g., wall washers, spots and floods, etc.) and natural lighting. Consideration shall be given to window treatment and/or any other decorative finishes that could affect lighting and viewing.

Jobsite Mock-Up: For Levels 3, 4, or 5 the mock-up should be specified by the design professionals for two critical reasons;

- 1) To verify that the industry/maker's recommendations are appropriate for the selected location within the building after considering the decorative finish.
- 2) To serve to determine if the desired final appearance is achieved.

Approved jobsite mock-ups may become part of the completed work if undisturbed at time of substantial completion of the building. Alternative mock-up designs or any changes in the final decoration that deviate from the contract documents should be specifically approved by design architect in writing.

Manufacturer's Recommendations: Individual manufacturer's recommendations may vary from what is recommended herein, in which case, the manufacturer's recommendations should be followed.

Sanding: Joint compound applied over the joints, fasteners, and accessories should be finished, as smoothly as possible, to minimize sanding. Do not sand compound flush to panel surface over joints, fasteners, and accessories. Select sandpaper, sanding film, and/or abrasive mesh with grit as fine as possible that still allows for an acceptable sanding rate. Use caution when sanding to minimize sanding marks that may remain visible after painting.

Skim Coat: A skim coat of joint compound is intended to conceal minor surface differences and create a more uniform surface to which the final decoration can be applied.

A skim coat is essentially a "film" of joint compound and is not a readily measurable thickness. There is no specific mil thickness that constitutes a proper skim coat. A skim coat is described as having a "trowel consistency" with the intent being that the viscosity of the joint compound be such that it can be applied by a trowel. Other tools may be used for application so long as the trowel consistency is achieved.

The objective of the application is to achieve total coverage of the entire surface with the skim coat. This is typically accomplished by delivering the compound to the surface and using a drywall broad knife to force the compound into the surface pores and imperfections while shearing off excess compound from the surface.

A skim coat will not approximate a plastered surface. Once the skim coat dries, the gypsum panel surface may show through and the treated joints, filled voids, and spotted fastener heads will likely be visible.

Texturing: Texture material applied by brush, roller, spray, or trowel, or a combination of these tools, to create the desired effect. It is recommended that a priming material be applied over the finished gypsum panel (a.k.a drywall) surface prior to decorating with texture. Textured wall surfaces are normally painted with a protective paint coating after installation. Consult the texture material manufacturer for specific recommendations.

VI. RESOURCES

Designers and specifiers are encouraged to consult the following reference documents:

ASTM C11, *Standard Terminology Relating to Gypsum and Related Building Materials and Systems*. ASTM International, West Conshohocken, PA.

ASTM C840, *Standard Specification for Application and Finishing of Gypsum Board*. ASTM International, West Conshohocken, PA. www.astm.org.

Method For Inspecting Interior Joint Treated Gypsum Panel Surfaces. Drywall Finishing Council, www.dwfc.org.

Recommended Surface Treatment For Finishing Gypsum Board To Attain A Level 5 Finish. Drywall Finishing Council, www.dwfc.org.

GA-216, *Application and Finishing of Gypsum Panel Products*. Gypsum Association, Hyattsville, MD. www.gypsum.org.

Master Painters Glossary. Painting and Decorating Contractors of America, Maryland Heights, MO. www.pdca.org.

Contact one of the following associations for additional assistance or copies of these recommendations:

Association of The Wall and Ceiling Industry

513 West Broad Street, Suite 210
Falls Church, VA 22046-3257
Telephone: (703) 538-1600
www.awci.org

Ceilings & Interior Systems Construction Association

1010 Jorie Blvd, Suite 30
Oak Brook, IL 60523
Telephone: (630) 584-1919
www.cisca.org

Drywall Finishing Council

c/o Walsworth, Franklin, Bevins & McCall, LLP
One City Boulevard West, 5th Floor
Orange, CA 92868-3677
www.dwfc.org

Gypsum Association

6525 Belcrest Road, Suite 480
Hyattsville, MD 20782
Telephone: (301) 277-8686
www.gypsum.org

Painting and Decorating Contractors of America

2316 Millpark Drive
Maryland Heights, MO 63043
Telephone: (800) 332-7322
www.pdca.org