

**USG ENSEMBLE™
ACOUSTICAL
DRYWALL CEILING**

INSTALLATION OVERVIEW

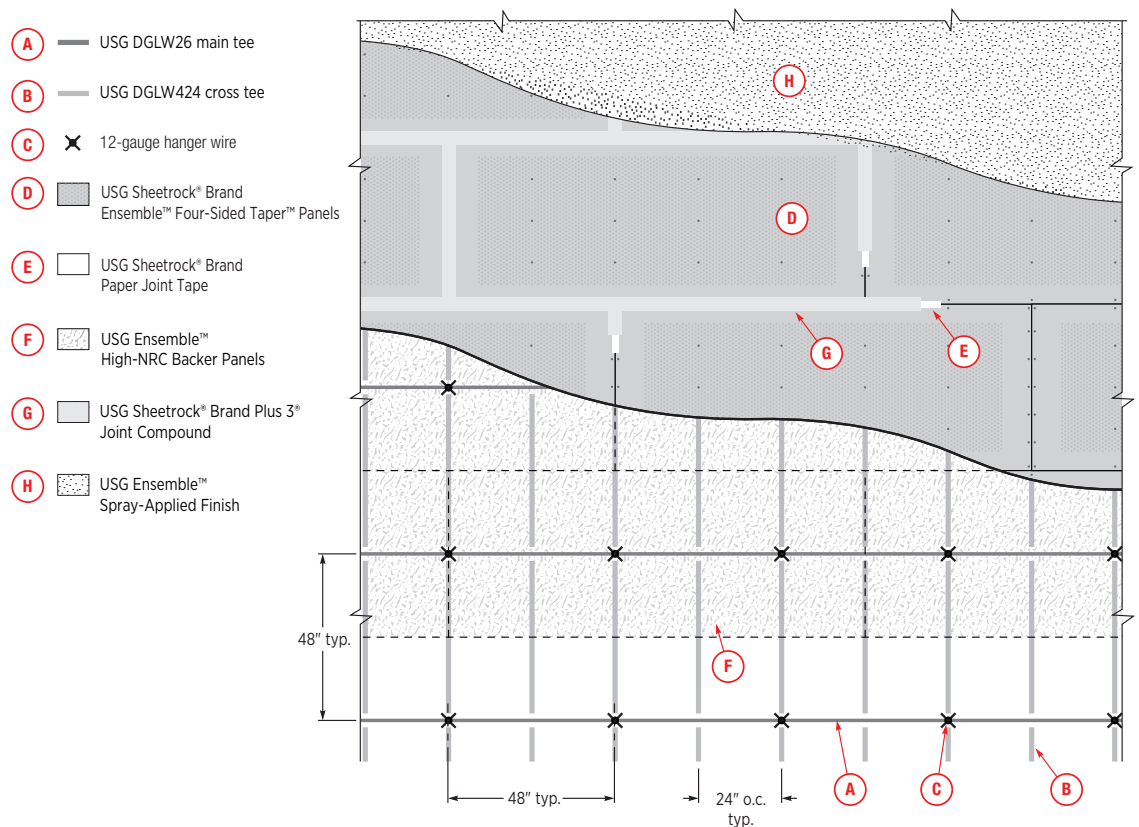


IT'S YOUR WORLD. BUILD IT.™

USG ENSEMBLE™ ACOUSTICAL DRYWALL CEILING OVERVIEW

The USG Ensemble™ Acoustical Drywall Ceiling offers the seamless look of drywall with superior acoustical performance. Installation is similar to standard wallboard and drywall suspension systems. However, it requires more precision and a higher level of finishing to achieve an acceptable appearance. Lighting conditions can magnify surface imperfections, especially natural light that shines from oblique angles. It is strongly recommended that a job site mockup be constructed with representative lighting so that expectations regarding the finished appearance are managed.

USG Sheetrock® Brand Ensemble™ Four-Sided Taper™ Panels are highly engineered gypsum panels that perform like acoustical ceiling panels. The joints are finished with USG Sheetrock® Brand Paper Joint Tape embedded in USG Sheetrock® Brand All Purpose Joint Compound. USG Sheetrock® Brand Plus 3® Joint Compound is used for the fill and finish coats over the joints. The surface is then coated with USG Ensemble™ Spray-Applied Finish. All system components are designed to work together as a system, using accessory components designed for 5/8" drywall ceilings. **No product substitutions are allowed.**



IMPORTANT

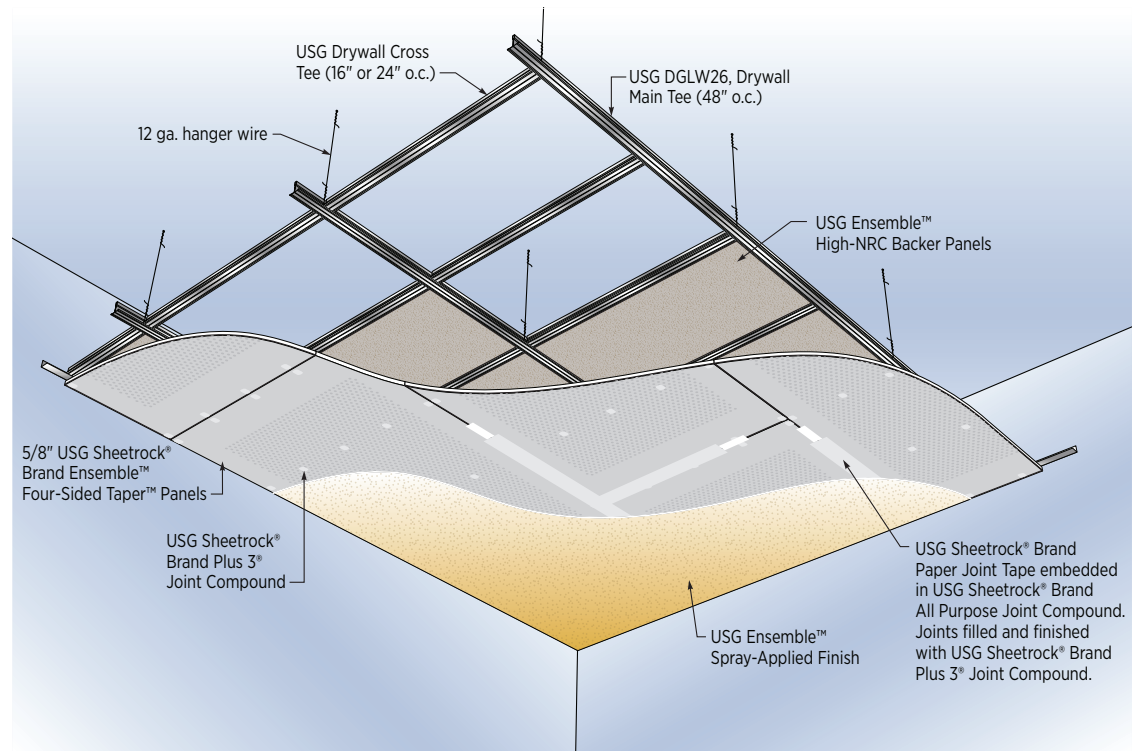
The USG Ensemble™ Acoustical Drywall Ceiling shall be installed by certified contractors only. This installation overview is not a substitute for USG Ensemble™ hands-on training. Qualified trained installers will be given a more extensive manual covering other job conditions and more detailed instruction.

Note: No marks can be made in the field of the panels (i.e., pencil, marker, or similar). Use only USG Sheetrock® Brand Plus 3® Joint Compound to finish the joints. DO NOT USE TINTED JOINT COMPOUND.

Care should be taken to maximize the open area of the perforated panels. Excessive joint compound coverage can reduce the acoustical performance of the product.

Small spaces (such as conference rooms) with frequent gypsum panel penetrations (e.g. closely spaced light fixtures in a narrow rip of panel) may not be an appropriate application to achieve the published system acoustical performance. Consult your USG architectural sales representative for details.

COMPONENTS



USG Sheetrock® Brand Ensemble™ Four-Sided Taper™ Panels with 1" USG Ensemble™ High-NRC Backer Panels laid into the USG Drywall Suspension System. Note these are typical components. For complete design and system performance options, please refer to the *USG Ensemble™ Acoustical Drywall Ceiling Systems Selector Guide*, SC365856.

SUSPENSION SYSTEM

- 12-gauge hanger wire (per ASTM C636 *Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels*)
- USG Drywall Suspension Systems Main Tees, DGLW26
- USG Drywall Suspension Systems Cross Tees, DGLW424

PANELS

USG Sheetrock® Brand Ensemble™ Four-Sided Taper™ Panels
USG Sheetrock® Brand Ensemble™ RAP Four-Sided Taper™ Panels

- 5/8" x 48" x 120"
- 5/8" x 48" x 96"

USG Ensemble™ High-NRC Backer Panels

- 1" x 15.5" x 47.75"
- 1" x 23.5" x 47.75"

FINISHING SYSTEM

- USG Sheetrock® Brand Paper Joint Tape
- USG Sheetrock® Brand All Purpose Joint Compound (for embedding paper joint tape)
- USG Sheetrock® Brand Plus 3® Joint Compound (for topping coats).
- USG Sheetrock® Brand Ensemble™ Spray-Applied Base (for 2-coat systems only, contact your USG representative).
- USG Ensemble™ Spray-Applied Finish, Standard White, Standard Black, Custom Colors

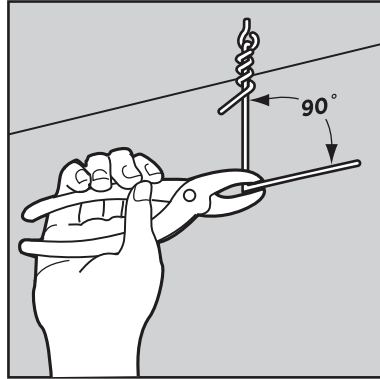
TOOLS

Typical tools for installing ceiling grid, and gypsum panels are used for installation.

Exception: The proper texture machine must be used to apply the USG Ensemble™ Spray-Applied Finish. Contact your local USG Representative for more details and to setup a hands-on training.

INSTALLATION

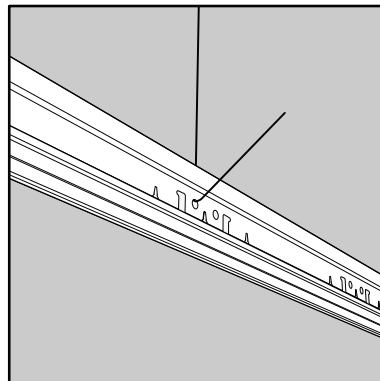
1. SUSPENSION SYSTEM



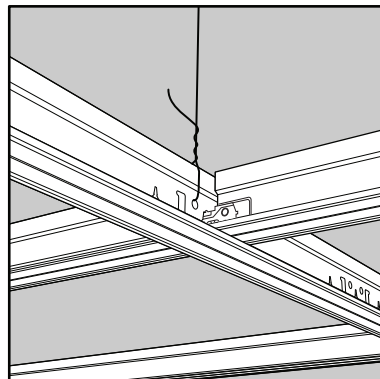
Determine the finished ceiling height. If the ceiling extends to the sidewalls, screw attach DGWM24 wall angle to the sidewalls at 5/8" above the finished ceiling height. Fasteners must be in the framing members. Attach hanger wires to structure above using the appropriate method. Hanger wires shall be spaced 48" o.c. max in each direction. Using pliers, pre-bend the hanger wires. For more information, refer to *USG Drywall Suspension System Catalog*, AC3152. Installation of framing members shall be in accordance with ASTM C754 *Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products*.

Notes: Ensemble™ ceiling elevation level should be 3" below the lowest obstruction in the ceiling plenum.

If using direct mount system, adjust ceiling height accordingly to accommodate 1" or 2" z-furring channel of preferred system. Install hanger wires at 36" o.c.



Insert the hanger wires through the utility holes in the main tees. The main tees will run perpendicular to the cross tees at 48" o.c. max. The hanger wires must be within 5 degrees of plumb.



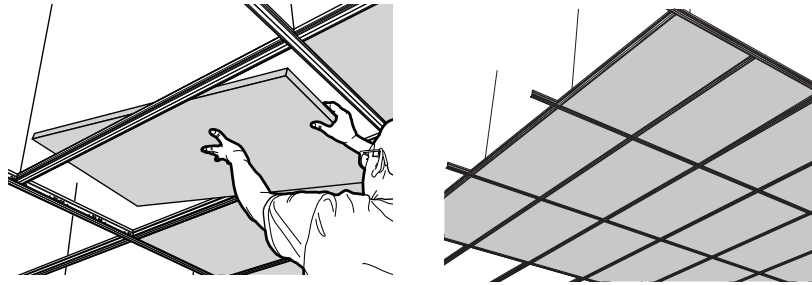
Space the cross tees at 16" or 24" o.c. If the ceiling extends wall to wall, square up the cross tees and screw attachment to the DGWM24 wall angle.

INSTALLATION

2A. 1" USG ENSEMBLE™ HIGH-NRC BACKER PANELS SUSPENSION SYSTEM

For high-NRC system performance, lay the USG Ensemble™ High-NRC Backers in the DGLW26 main tees from above. The acoustical backers are either 15.5" x 47.75" or 23.5" x 47.75" and lay into the USG Drywall Suspension System. For 1" backers, ensure the white-side is facing up.

Note: If using direct mount - return air plenum system, skip to step 2B. For all other system options, see: *USG Ensemble™ Acoustical Drywall Ceiling Systems Selector Guide, SC365856.*



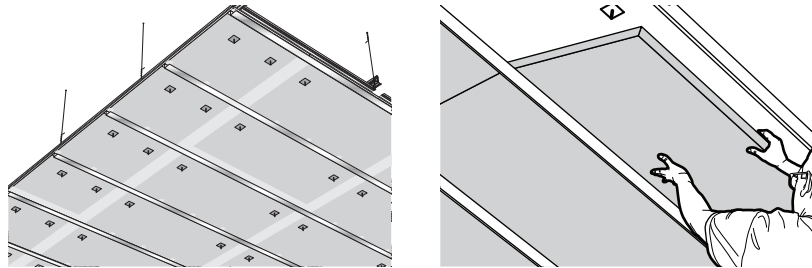
2B. 1" OR 2" DIRECT MOUNT APPLICATION

Install 1/2" USG Sheetrock® Brand UltraLight Panels on the USG Drywall Suspension System using 1-1/4" fine thread screws. All penetrations must be sealed with USG Sheetrock® Brand Firecode® Smoke-Sound Sealant. Finish to a Level 2 finish as described in GA-214 *Levels of Finish for Gypsum Panel Products* or ASTM C840 *Standard Specification for Application and Finishing of Gypsum Board* with USG Sheetrock® Brand Joint Tape and Compound.

Install 1" or 2" z-furring channel (16" or 24" o.c.) in line with the cross tees.

Ceiling applications require two insulation impaling clips per panel.

The 1" USG Ensemble™ High-NRC Backer Panels (white side face up) or 2" 6 PCF density fiberglass panels (by others) are supported by the lower leg of z-furring channel and secured with insulation impaling clips on the opposing side.



3. 5/8" USG SHEETROCK® BRAND ENSEMBLE™ FOUR-SIDED TAPER™ PANELS (Applies to both systems)

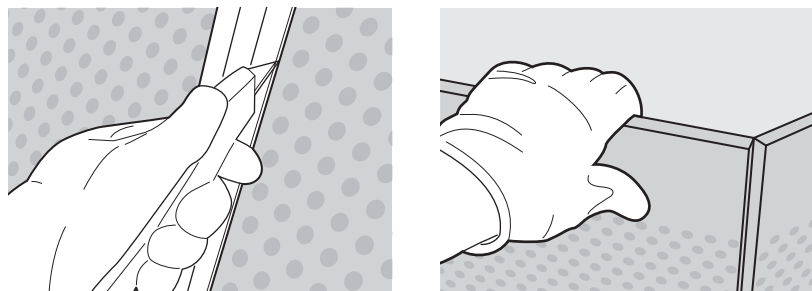
The USG Sheetrock® Brand Ensemble™ Four-Sided Taper™ Panels can be cut like standard USG Sheetrock® Brand wallboard panels using a T-square and utility knife. Score the face of the panels at the desired length, making sure to cut completely through the fiberglass face scrim. Snap the panels and then cut completely through the back scrim.

The USG Sheetrock® Brand Ensemble™ RAP Four-Sided Taper™ Panels can be cut like standard USG Sheetrock® Brand wallboard panels using a T-square and utility knife. Score the face of the panels at the desired length, making sure to cut completely through the fiberglass face scrim. Snap the panels and then cut completely through the back film.

Note: No marks can be made in the field of the panels (i.e., pencil, marker, or similar). Use only USG Sheetrock® Brand Plus 3® Joint Compound to finish the joints. DO NOT USE TINTED JOINT COMPOUND.

If pre-marking cutouts from the back of the panel, using a silver or white marker is recommended.

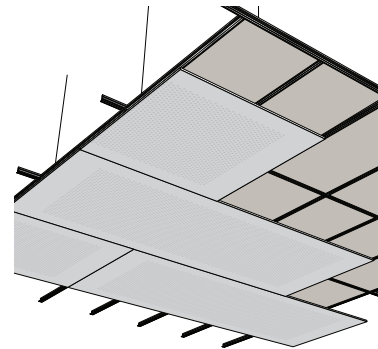
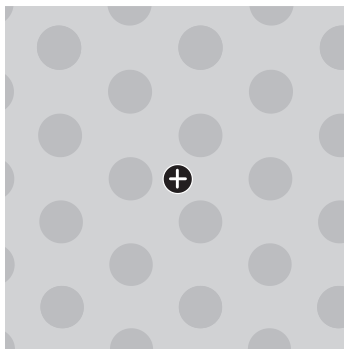
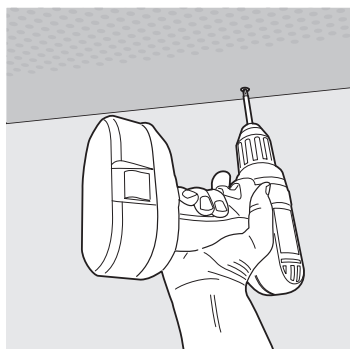
In order to avoid tearing the film, use a sharp blade on your utility knife.



For curved applications, do not wet the Ensemble™ panels.

INSTALLATION

Fasten the Ensemble™ panels to the USG Drywall Suspension System with 1-1/4" fine thread bugle head drywall screws. Insert screws every 12" o.c. in the field and every 8" o.c. on the butt ends. The fasteners must be in the field of the board, not the perforations. The fastener head should be just below the surface without tearing the fiberglass scrim. If a fastener falls in a perforation or breaks through the paper, insert another one next to it.



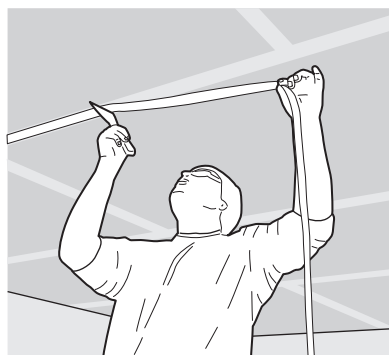
Layout panels with the butt-end joints broken on the cross tees.

A router or keyhole saw can be used to cut penetrations like standard wallboard. Install beads and trims using the same method as standard wallboard. If the ceiling design is a floating island, trim the perimeter using USG Compasso® Elite for Drywall (see data sheet AC3317).

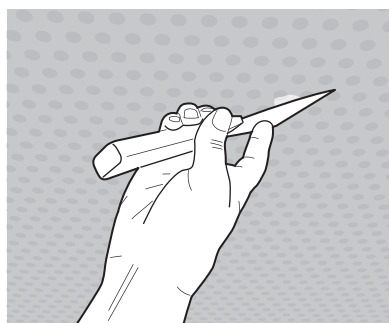
Notes: If using USG Ensemble™ RAP, cutouts for penetrations are recommended to be made from back/film side of the board. Silver or white markers work best for layout marks on black film.

4. JOINT FINISHING

The joints are finished using the USG Sheetrock® Brand All Purpose Joint Compound, Sheetrock® Brand Paper Joint Tape and USG Sheetrock® Brand Plus 3® Joint Compound. It is imperative to finish the joints as flat and level with the surface of the board as possible. Even slightly hollow or crowned joints will show as imperfections under critical lighting after the Spray-Applied Finish is applied.



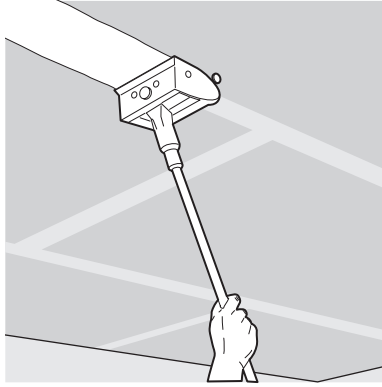
Prefill any voids between Ensemble™ panel seams with USG Sheetrock® Brand Easy Sand™ Lightweight Setting-Type Joint Compound. Embed joint tape with the USG Sheetrock® Brand All Purpose Joint Compound. This can be done by hand with a joint knife or a standard taping bazooka. Wipe excess compound with a joint knife and allow to dry completely.



Spot all fastener heads with USG Sheetrock® Brand Plus 3® Joint Compound using a 1" or 2" joint knife. Keep the compound area small to minimize covering the perforations.

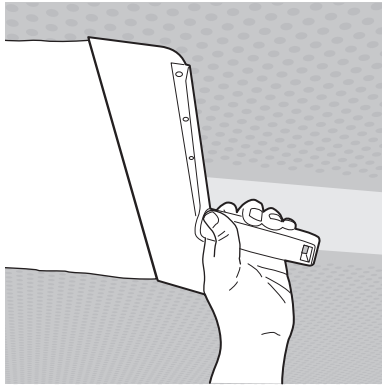
INSTALLATION

4. JOINT FINISHING CONT.

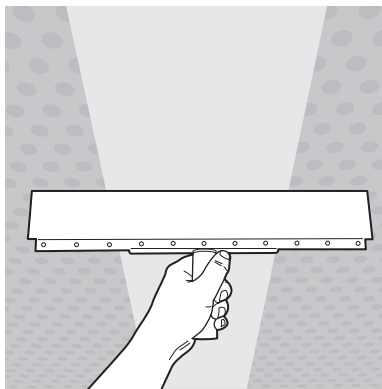


Apply the fill coat to all joints using USG Sheetrock® Brand Plus 3® Joint Compound. This can be done using hand tools or a flat box. Spot all screws for the second time with USG Sheetrock® Brand Plus 3® Joint Compound. Allow to dry completely.

Note: If using USG Ensemble™ RAP, apply minimum 4" width of USG Sheetrock® Brand Plus 3® Joint Compound around any MEP's without mud flanges.



Apply the finish coat to all joints using USG Sheetrock® Brand Plus 3® Joint Compound. This can be done using hand tools or a flat box. Spot all screws for the third time with USG Sheetrock® Brand Plus 3® Joint Compound. Allow to dry completely.



Sand joints with 180-220 grit sandpaper to remove any excess joint compound. Check for flatness with a 20" knife or straight edge and a critical light source. See SDS for Safety details.

Note: Avoid over-sanding the fiberglass scrim as much as possible.

INSTALLATION

4. JOINT FINISHING CONT.



Lightly sand entire surface to remove particles from the field of the panels. See SDS for Safety details.

Starved joints must be filled and leveled with the surface of the board. Crowned joints must be sanded level. It is important to thoroughly check each joint down the entire length for flatness, not just at a few random locations.

Note: Standard gypsum panels (non-acoustical) can be coated with the USG Ensemble™ Spray-Applied Finish (for an aesthetic match). Standard gypsum panels require priming with a high-solids primer before application of the USG Ensemble™ Spray-Applied Finish. Do not prime USG Sheetrock® Brand Ensemble™ Panels.

5. SPRAY-APPLIED FINISH

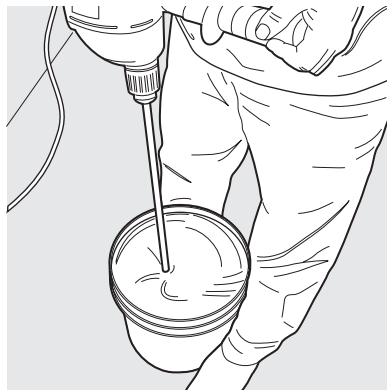
Important! The proper spray equipment must be used to achieve the desired acoustical performance and aesthetics.

Required Equipment:

- Please contact your local USG Contractor Specialty Representative for specifications of required spray equipment to apply USG Ensemble™ Spray-Applied Finish and to schedule a hands-on training demonstration.
- Read safety instructions for the sprayer and the SDS for the USG Ensemble™ Spray-Applied Finish.

Mask off all areas that need protecting from overspray with plastic sheathing. Use a floor protector as required. Set up the spray machine and compressor according to the guidance demonstrated in the hands-on training.

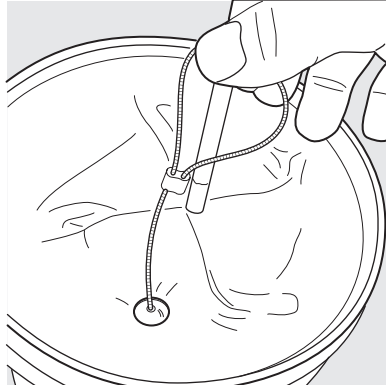
MIXING



Spray-Applied Finish must be thoroughly mixed prior to application. Mix it in the 4.5-gallon container prior to filling the spray machine hopper. Using a 450-rpm electric drill and a high shear paddle mixer, thoroughly blend the Spray-Applied Finish until it has a smooth, creamy consistency.

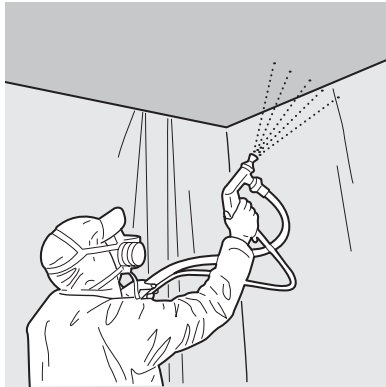
INSTALLATION

MIXING CONT.



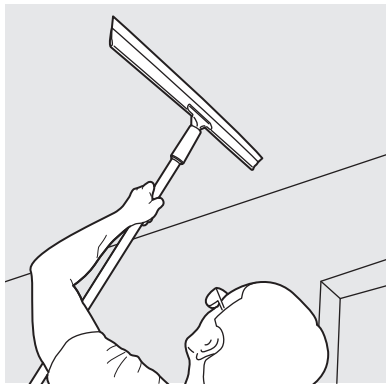
Check for proper viscosity using the material thickness gauge provided by the spray equipment manufacturer (small steel ball). When the ball sinks completely, enveloped by the Spray-Applied Finish within 3 seconds, it is ready for spray application. If the ball does not sink within 3 seconds, add more water (4 oz. at a time) and mix thoroughly until the proper viscosity is reached.

SPRAY THE FINISH



In order to achieve proper sound performance and appearance, the USG Ensemble™ Spray Applied Finish must be applied in a cross-hatch, half-lap spray pattern. Apply each coat very lightly with 36" min. gun clearance. Start in one corner and work progressively across the ceiling, immediately cross-hatch. After the first coat is applied wait until it is 100% dry (see drying time listed on SC2863, Standard White, or SC5446, Custom Color). For more information, please refer to the *USG Ensemble™ Spray-Applied Finish Submittal Sheet* SC2863 (Standard White) or SC5446 (Custom Color). Maintain proper job site conditions and wear proper personal protective equipment (safety goggles, dust masks, coveralls) while applying USG Ensemble™ Spray-Applied Finish.

Note: In less than ideal drying conditions, you may have longer dry times between coats. Check that the surface is dry to the touch before spraying subsequent coats. Using fans for air movement will typically help reduce drying time. The finish can be applied directly to primed metal, plastic beads and trims. Any non-white trims, beads, or access doors must be primed white prior to spraying with the finish.



Use a soft rubber squeegee trowel to remove any loose finish from the ceiling. Repeat this step between each coat once 100% dry. Apply successive coats until the desired appearance is achieved.

Maintain proper job site conditions and wear proper protective equipment (safety goggles, NIOSH-approved respirator, coveralls) while applying the finish.

PRODUCT INFORMATION

For the most up-to-date technical information, visit usgdesignstudio.com or cgcdesignstudio.com

CUSTOMER SERVICE

USG: 800 950-3839

CGC: 800 387-2690

TECHNICAL SERVICE

800 USG.4YOU (874-4968)

WEBSITES

usg.com/ensemble
cgcinc.com
usgdesignstudio.com
cgcdesignstudio.com
ecomedes.com

SAMPLES/LITERATURE/FAX

USG: 866 528-7089

CGC: Contact Local Sales Rep

NOTES AND LIMITATIONS

1. For interior ceilings only.
2. Not for use in areas subject to continuous high heat and/or humid conditions.
3. Only suspended Ensemble™ RAP systems or direct mount Ensemble™ systems are designed for use in return air plenums with differential pressure.
4. In ducted return applications, ducts shall be installed according to ASHRAE standards and guidelines.
5. Install according to Section 5 Environmental Conditions listed in ASTM C840.
6. In order to ensure installed performance, component substitutions are not permitted.
7. Products described here may not be available in all geographic markets. Consult your USG/CGC Company sales office or representative for information.

For all design and system performance options, see *USG Ensemble™ Acoustical Drywall Ceiling Systems Selector Guide*, SC365856.

NOTICE

We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered. Terms and conditions and limits of liabilities apply. For all terms and conditions see usg.com/terms-and-conditions.

SAFETY FIRST!

Follow good safety and industrial hygiene practices during handling and installation of all products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read Safety Data Sheets and related literature on products before specification and/or installation.