



**SECTION 09 58 13 – USG ENSEMBLE® MONOLITHIC ACOUSTICAL [CEILING] [AND] [WALL] SYSTEM**

**Sustainability Notes: (perforated gypsum board panels)**

- USG Ensemble® utilizes the revolutionary new Sheetrock® Brand EcoSmart Firecode® 30 Panels. These perforated gypsum board panels are produced with the most sustainable manufacturing method to date and offer the following attributes compared to similar gypsum board ceiling products:
  - 27% less global warming potential (GWP)<sup>1</sup>.
  - 28% less water used in the manufacturing process<sup>1</sup>.
  - 30% less weight, which reduces transportation fuel energy.<sup>1</sup>
- Meets Architecture 2030 Challenge Criteria for Products.
- Living Building Challenge Compliant.
- May assist in achieving credits with USGBC® LEED® v4.0.
- Up to 96% recycled content (regionally available).
- USG Sheetrock® Brand EcoSmart Panels Firecode® 30, used as the base panel for USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels, are certified GREENGUARD Gold and qualifies as a low VOC emitting material (meets CA 01350).
- USG Sheetrock® Brand EcoSmart Panels Firecode® 30 have significantly lower carbon dioxide emissions and water usage than standard Type X gypsum board. These values are defined by the Gypsum Association's type III EPD per ISO 14040 for North American type X gypsum board.

Gypsum Panel	CO <sub>2</sub> eq. (kg CO <sub>2</sub> eq. / 1000 ft <sup>2</sup> )	Water per 1,000 ft <sup>2</sup> (m <sup>3</sup> /1000 ft <sup>2</sup> )
EcoSmart Firecode 30 – Eastern USA Per EPD #4787352797.101.1.	193	0.752
EcoSmart Firecode 30 – Western USA Per EPD #4787352797.101.1.	211	0.953

<sup>1</sup>Compared to standard 5/8 in. Type X gypsum panels as presented in the Gypsum Association's 5/8" Type X Environmental Product Declaration (FPI/GA/01/2014) with freshwater usage updated to be in accordance with ISO 14046.

**Product Summary:**

- Ensemble offers the seamless look of drywall with the acoustical properties of a traditional tile-and grid ceiling.
- Ideal for high-end applications, including lobbies, atriums, executive/board rooms, museums—or other spaces with multiple hard surfaces.
- Smooth finish monolithic ceiling system with high acoustical performance up to NRC 0.80 and a CAC of 40.
- Ceiling system utilizes conventional drywall installation and finishing techniques
- Light Reflectance of 0.85, from the spray-applied fine finish
- For More information, reference product information sheet AC3328 and architectural details SC2789.
- Contact your local USG Ensemble® product representative<insert product representative here> or call (800) 874-4968 for technical questions.

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

### 1.2 SUMMARY

- A. Section Includes:

1. Suspension systems for perforated gypsum interior ceilings and soffits.
2. Acoustical Insulation for perforated gypsum board ceilings.
3. Extruded aluminum trim for ceiling height changes and material transitions.

- B. Related Requirements:

1. Section 054000 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- B. Sustainable Design Submittals:

1. **Product Data:** For recycled content, indicating postconsumer and pre-consumer recycled content and cost.

### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Subcontractor is an experienced Installer, approved and trained by product manufacturer to properly install ceiling system.

1. Subcontractor shall provide documentation that they are certified installers of the USG Ensemble® Ceiling System.
2. Subcontractor shall utilize approved equipment and procedures for proper installation.

- B. Source Limitations: The Ensemble® Ceiling is to be purchased and installed by a certified single-source provider.

### 1.5 COORDINATION:

- A. Pre-installation conference: Conduct conference at project site [**coordinate all luminaires, sprinklers, exit signs and MEP devices that are to be installed in the ceiling**].

- B. Coordinated Shop Drawings <**Optional Unless Specifier Says Otherwise**>: Contractor shall submit coordinated shop drawings that clearly indicate the following components for Architect

Approval prior to installation. Shop drawings shall include device alignment, dimensions, center lines and indicate the following:

1. Access panels.
2. Ceiling devices.
3. Ceiling framing.
4. Changes in ceiling height elevation.
5. Control joints
6. Drywall edge profile for USG Compäso™ Elite and associated splice clips for vertical joints.
7. Life safety devices.
8. Light fixtures.
9. MEP grilles.
10. Miscellaneous items located on ceiling.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original, unopened packaging and store in an enclosed shelter providing protection from damage and exposure to the elements.
  1. Store within temperature limits required by manufacturer.
  2. Store USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels flat.
  3. Comply with manufacturer's requirements for safety and handling.
- B. Discard joint compounds and sealants that cannot be applied within their stated shelf life.
- C. Store accessory materials in a location with constant ambient temperatures of 50 to 80 °F (15 to 27 °C). Avoid exposure to sustained temperatures exceeding 125 °F (52 °C).

## 1.7 FIELD CONDITIONS

- A. Install Ensemble system in an indoor environment that is climate controlled.
- B. Comply with ASTM C840 requirements for interior drywall installation: Maintain room temperatures at greater than 40 °F (4.4 °C) at least 48 hours before panel installation and greater than 50 °F (10 °C) at least 48 hours before joint treatment or spray-applied finish application, and continuously during and after application.
- C. Avoid exposure and protect from excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
- D. Adequate ventilation shall be maintained in the working area during installation and curing period.

## 1.8 WARRANTY

- A. Product is furnished as is to the contractor.
- B. Reference Division 01 for General Contractor Obligations.

## PART 2 - PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

## 2.2 MONOLITHIC SOUND ABSORBING GYPSUM BOARD SYSTEM

- A. Sound Absorbing Gypsum Ceiling, Wall and Framing System: **<INSERT DESIGNATION HERE>**:
  - 1. Basis of Design: Subject to compliance with project requirements, the design is based on the following: USG Interiors, LLC, "USG ENSEMBLE® ACOUSTICAL DRYWALL SYSTEM".

## 2.3 STEEL FRAMING FOR [HORIZONTAL] [AND] [ANGLED CEILING] [AND] [CURVED] SUSPENDED PANELS

- A. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than [25] **<Insert value>** percent.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Protective Coating: ASTM A 653/A 653M, G40, hot dip galvanized unless otherwise indicated.
- A. Perforated Gypsum Board suspension system complies with applicable requirements per ASTM C 645, direct-hung system.
- B. Framing System:
  - a. Deflection criteria: L/240 per ASTM C635.
  - b. Galvanized Steel: G40 double-web tee, hot-dipped galvanized steel.
  - 2. [HORIZONTAL] [AND] [ANGLED CEILING] Framing Members:
    - a. USG Drywall Suspension system main tees: DGLW26.
    - b. USG Drywall Suspension system 4' cross tees: DGLW-424
  - 3. [CURVED] Framing Members
    - a. USG Drywall Suspension system curved main tees: Item No. Varies
    - b. USG Drywall Suspension system 4' cross tees: DGLW-424
    - c. Curve Radius: **<INSERT RADIUS HERE>**:
      - a. Minimum radius – 240" (6096mm) Vault and 120" (3048mm) Valley
  - 4. Attachment devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements, if applicable.
  - 5. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
    - a. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
    - b. Size: Minimum 12 gage per ASTM C636.

## 2.4 STEEL FRAMING FOR [VERTICAL] [AND] [ HORIZONTAL] [AND] [ANGLED] DIRECT APPLIED PANELS

- A. Recycled Content of Steel Products: Post-consumer recycled content plus one-half of pre-consumer recycled content not less than [25] <Insert value> percent.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Protective Coating: ASTM A 653/A 653M, G40, hot dip galvanized unless otherwise indicated.
- C. Direct Applied system: Z-Channel with slotted or unslotted web.
  - 1. [Channel Depth: 1" (25mm).]
  - 2. Minimum Base-Metal Thickness: [As indicated on Drawings] [As required by performance requirements for horizontal deflection criteria: L/240 per ASTM C635] [0.0179 inch (0.455 mm)].
- D. Impaling Clip: Galvanized impaling clip to retain acoustical insulation until Engineered Gypsum Board is attached.
  - 1. Size: 2 ½" x 1 ½" (62mm x 38mm) by ATS Acoustics or equal. (Ceiling application - x2 clips per NRC Panel, Wall application – x1 clips per NRC panel)
- E. Direct Mount application with air barrier required for wall-to-wall ceiling systems that use a Return Air Plenum HVAC system.
  - 1. Framing System:
    - a. Minimum Base-Metal Thickness: [As indicated on Drawings] [As required by performance requirements for horizontal deflection criteria: L/240 per ASTM C635.
    - b. Galvanized Steel: G40 double-web tee, hot-dipped galvanized steel.
    - c. 20-Gauge Galvanized Steel: Hot-Dipped Galvanized, Cold Formed Steel.
  - 2. Framing Members:
    - a. USG Drywall Suspension system main tees: DLGW26.
    - b. USG Drywall Suspension system cross tees: DGLW424
    - c. 1" (25mm) Z Furring Channel (by other)
  - 3. Impaling Clip:
    - a. Galvanized impaling clip to retain acoustical insulation until Engineered Gypsum Board is attached. Size: 2 ½" x 1 ½" (62mm x 38mm) by ATS Acoustics or equal. (x2 clips per NRC Panel)
  - 4. Air Barrier:
    - a. USG Sheetrock® Brand ½" ULTRALIGHT Panels.
    - b. USG Sheetrock® Brand Paper Joint Tape.
    - c. USG Sheetrock® Brand All Purpose Joint Compound.
    - d. USG Sheetrock® Brand Firecode® Smoke-Sound Sealant. (around penetrations as needed)
  - 5. Attachment devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements, if applicable.
  - 6. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
    - a. 12-Gauge Zinc-Coated, Carbon-Steel Wire 36" on center: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

## 2.5 ENGINEERED GYPSUM-BASED PANEL PRODUCT FOR [CEILING] [AND] [WALL] APPLICATION

- A. Engineered Acoustical Gypsum-Based Panel product for [CEILING] [AND] [WALL] application.
1. Perforated non-fire rated gypsum panel with acoustically transparent scrim complies with ASTM C1396 Non-Type X.
  2. Subject to compliance with project requirements, the base panel is made from the following: USG Corporation, LLC, “USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels 5/8”.
  3. ISO 14040 Environmental Management, Life Cycle Assessment, Principles and Framework:
    - a. Carbon emissions per Product Category Rules for North American Gypsum Boards; FPIInnovations – Gypsum PCR-2013: v1; Global Warming Potential of **[193 kg CO<sub>2</sub> eq./1000 ft<sup>2</sup> for Eastern USA] [211 kg CO<sub>2</sub> eq./1000 ft<sup>2</sup> for Western USA]**.
    - b. Water reduction per Product Category Rules for North American Gypsum Boards; FP Innovations – Gypsum PCR-2013: v1 yields a net use of freshwater value of **[0.752 m<sup>3</sup>/1000 ft<sup>2</sup> for Eastern USA] [0.953 m<sup>3</sup>/1000 ft<sup>2</sup> for Western USA]**.
  4. UL Type Designation “FC30” (prior to modifications)
  5. ASTM C 1396/C 1396M: 5/8” wallboard, non-type X (prior to modifications).
  6. ASTM E136 Non-combustibility: Meets or exceeds criteria.
  7. ASTM C473:
    - a. Core Hardness: Meets or Exceeds 11 (ASTM C473 B)
    - b. Flexural Strength (lbf).
      - a. Parallel: Not less than 46.
      - b. Perpendicular: Not less than 147.
    - c. Nail Pull Resistance (lbf) ASTM C473 (B): Not less than 87.
  8. Thickness: 5/8 inch (12.7 mm).
  9. Length: 8’ (2438.4 mm) or 10’ (3048 mm).
  10. Widths: 4’ (1220 mm).
  11. Weight: 1.65-1.8 lbs./sq. ft.
  12. Edges: Tapered

## 2.6 ACOUSTICAL BACKER PANEL

- A. Acoustical Backer Panel: USG Interiors, LLC, “USG Ensemble™ High-NRC Backer Panel”.
1. Classification: Provide un-faced acoustical panels with the following physical attributes:
    - a. NRC: Not less than 0.80.
    - b. CAC: Not less than 40.
    - c. Edge/Joint Detail: SQ Square.
    - d. Panel Thickness: [1 inch (25.4 mm)] [2 inch (50.8 mm)]
    - e. Modular Size: 23.5 by 48 inches (596.9 by 1220 mm).
    - f. Recycled Content: Not less than 66%.
  2. High Recycled Content Product: Classified as containing greater than 50% total recycled content. Total recycled content is based on product composition of post-consumer and pre-consumer post-industrial recycled content per FTC guidelines.
  3. VOC Emissions: Meets CA Specification 01350, CHPS listed for low emitting materials.

## 2.7 [CEILING] [AND] [WALL] PANEL JOINT TREATMENT

- A. Perforated Gypsum Board Joint Treatment.
1. General: Comply with ASTM C 475/C 475M, Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board:
    - a. USG Sheetrock® Brand Easy Sand™ Joint Compound
    - b. USG Sheetrock® Brand Paper Joint Tape.
    - c. USG Sheetrock® Brand All Purpose Joint Compound
    - d. USG Sheetrock® Brand Ensemble™ Ceiling Compound
  2. Application:
    - a. Joint Compound for Interior Gypsum Board: For each coat, use formulation that complies with USG Ensemble® Acoustical Monolithic Ceiling System applied on previous and or successive coats.
  3. Prefilling:
    - a. At open joints or beveled panel edges, use USG Sheetrock® Brand Easy Sand™ Joint Compound.
  4. Embedding and First Coat:
    - a. For embedding tape, use USG Sheetrock® Brand All Purpose Joint Compound and embed USG Sheetrock® Brand Paper Joint Tape.
  5. Finish Coat:

For finish coats on joints, fasteners, and trim flanges, as well as all 3 finish coats over joint tape, use USG Sheetrock® Brand Ensemble™ Ceiling Compound. Finish to create a final coat equal to a Level 4 finish. **DO NOT SKIM COAT OVER PERFORATIONS.**

## 2.8 [CEILING] [AND] [WALL] PANEL SPRAY-APPLIED FINISH

- A. Acoustically Transparent Finish
1. USG Interiors, LLC, “USG Ensemble™ Spray-Applied Finish”:
    - a. Finish: Fine Finish.
    - b. [Color: White (standard)]
    - c. [Color: Black]
    - d. [Custom Color:
      - a) Benjamin Moore
      - b) Sherwin Williams
      - c) Pantone]
  2. Classification: Provide acrylic based spray-applied finish complying with USG Ensemble™ Spray-Applied Finish.

## 2.9 ACCESSORIES

- A. Gypsum Board Trim Accessories.
1. Trim Accessories: Galvanized steel sheet per ASTM 1047: Provide manufacturer approved and tested metal trim that is chemically compatible with the specified ceiling system.
    - a. USG Sheetrock Brand Metal Trim:

- a. Corner Bead
  - b. Reveal Joint
  - c. L Bead
  - d. U Bead
  - e. Control Joint
  - f. USG Sheetrock® Brand Paper Faced Metal Trim.
- B. Extruded-Aluminum Edge Moldings and Trim.
1. Where indicated, provide manufacturer's extruded-aluminum edge moldings and trim of profile indicated or referenced by manufacturer's designations, including splice plates, corner pieces, and attachment and other clips, complying with seismic design requirements and the following: Provide manufacturer approved and tested metal trim that is chemically compatible with the specified ceiling system.
    - a. Drywall Ceilings: USG Compäso™ Elite for Drywall, height: [2 1/2" (40)], [4" (100)], [6" (150)] or [8" (200)].
    - b. Drywall to upper grid ceiling: USG Compäso™ Elite Transitions DAS, height: [2" (50)], [3" (75)], [4" (100)], [5" (125)] or [6" (150)].

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas, verify that installed building services to not interfere with work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
  1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
  1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches (610 mm) O.C.
  2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive



materials below that are required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, and true to line, with connections securely fastened.
- C. Install drywall suspension grid framing, and blocking to support fixtures, equipment services, demountable partition supports, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. This product system installation is similar to a conventional drywall installation. However, there are some differences in both materials and methods of installation that make this system unique. Installers should review and follow all directions of this installation instruction guide.
- F. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING FRAMING SYSTEM

- A. Suspended System
  - 1. 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" OC max in each direction. Using pliers, bend the hanger wires.
  - 2. Insert the hanger wires through the utility holes in the DGLW26 Main Tees. The DGLW26 Main Tees will run perpendicular to the cross tees at 48" OC max. The hanger wires must be within 5 degrees of plumb. Secure the DGLW-424 cross tees to the DGLW26 Main Tees by snapping the clip into the cross-tee holes on the main tee.
  - 3. The cross tees can be spaced at 16" or 24" OC. If the ceiling extends wall to wall, square up the main tees and screw attach to the DGWM24 wall angle.
- B. Curved System (Vaults 20' minimum radius – Valleys 10' minimum radius)
  - 1. 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. For vaults, hanger wires should be spaced such that they are 48" OC along the arc of the curve with bracing back to the structure every 24". For valleys, hanger wires should be 24" OC with bracing back to the structure every 24".
  - 2. Insert the hanger wires through the utility holes in the curved main tees. The curved main tees will run perpendicular to the cross tees at 48" OC max. The hanger wires must be within 5 degrees of plumb. Secure the DGLW-424 cross tees to the curved main tees by snapping the clip into the cross-tee holes on the main tee.

3. Space the cross tees at 16" OC. If the ceiling extends wall to wall, square up the main tees and screw attach to the DGWM24 wall angle.

C. Direct Mount System

1. 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.
2. Ensure the substrate the system is being mounted on is level, then attached the Z-Furring strips 24" OC max to the substrate.
3. Screw attach x2 insulation impaling clips per an NRC, within 6" of the bottom leg on the Z-Furring channel.

D. Direct Mount System - Return Air Plenum

1. Determine the finished ceiling height. (Direct Mount System – Return air Plenum assembly **3.75 inches (95 mm)**) Screw attach DGWM24 wall angle to the sidewalls at 2 1/4" 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 36" OC max in each direction. Using pliers, bend the hanger wires.
2. Insert the hanger wires through the utility holes in the DGLW26 Main Tees. The DGLW26 Main Tees will run perpendicular to the cross tees at 48" OC max. The hanger wires must be within 5 degrees of plumb. Secure the DGLW-424 cross tees to the DGLW26 Main Tees by snapping the clip into the cross-tee holes on the main tee.
3. The cross tees can be spaced at 16" or 24" OC. Square up the main tees and screw attach to the DGWM24 wall angle.
4. Install 1/2" USG Sheetrock® Brand UltraLight Panels on the grid. Fasten the panels parallel to the DWSS Main Tees with screw spacing at 12" OC in the field and 8" OC on the butt ends using 1-1/4" fine thread bugle head drywall screws
5. All penetrations must be sealed with USG Sheetrock® Brand Firecode® Smoke-Sound Sealant.
6. Use USG Sheetrock® Brand Paper Joint Tape and USG Sheetrock® Brand All-Purpose Joint Compound to embed the joints and USG Sheetrock® Brand Ensemble™ Ceiling Compound to spot the screws.
7. Install 1" Z Furring Channel 24" OC in line with the cross tees.
8. Screw attach x2 insulation impaling clips per an NRC, within 6" of the bottom leg on the Z-Furring channel.

### 3.5 Installing Ensemble® High-NRC Backer Panels

A. Suspended System and Curved System

1. For high NRC system performance, lay the USG Ensemble® High-NRC Backers in the framing system from above. The acoustical backers are 15.5"x 47.75" or 23.5" x 47.75" and lay on the back of the flanges of the main tees. Installation is similar to standard lay-in ceiling panels. Do not screw attach USG Ensemble® High-NRC Backers panels to the main tees.

B. Curved System

1. For high NRC system performance, lay the USG Ensemble® High-NRC Backers in the framing system from above. The acoustical backers are 15.5"x 47.75" and lay on the back of the flanges of the main tees. Installation is similar to standard lay-in ceiling panels. Do not screw attach USG Ensemble® High-NRC Backers panels to the main tees.

C. Direct Mount System - Direct Mount System - Return Air Plenum

1. Place the bottom of the USG Ensemble® High-NRC Backers in the open leg of the Z-furring. While sliding it into the Z-Furring gap, also press the High-NRC Backer into the impaling clip to secure it in place.

3.6 Perforated Gypsum Board Installation

A. Suspended System

1. The USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels can be cut like standard Sheetrock 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. No marks can be made in the field of the panels unless they are covered by USG Sheetrock® brand Ensemble™ Ceiling Compound prior to spraying. (I.e., pencil, marker, or similar).
2. Fasten the perforated panels parallel to the DWSS Main Tees with screw spacing at 12” OC in the field and 8” OC on the butt ends using 1-1/4” fine thread bugle head drywall screws. 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.

Tip: Break all butt joints on DWSS Cross Tees and avoid breaking panel joints on the DWSS Main Tees.

3. A router or keyhole saw can be used to cut penetrations like standard wallboard.
4. 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.

B. Curved System

1. The USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels can be cut like standard Sheetrock 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. No marks can be made in the field of the panels unless they are covered by USG Sheetrock® brand Ensemble™ Ceiling Compound prior to spraying. (I.e., pencil, marker, or similar).
2. Fasten the perforated panels parallel to the DWSS Main Tees with screw spacing at 12” OC in the field and 8” OC on the butt ends using 1-1/4” fine thread bugle head drywall screws. 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.

Tip: Break all butt joints on DWSS Cross Tees and avoid breaking panel joints on the DWSS Main Tees.

Tip: If possible, avoid butt joints near the top of the curve.

Tip: When pushing the USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels into the curve, only apply pressure on the unperforated area to avoid damaging the perforations.

3. A router or keyhole saw can be used to cut penetrations like standard wallboard.
4. Install beads and trims using the same method as standard wallboard. If the ceiling design is a floating island, trim the perimeter using USG Compäso™ Elite for Drywall.

C. Direct Mount, Direct Mount – Return Air Plenum

1. The USG Sheetrock® Brand Ensemble® Four-Sided Taper™ Panels can be cut like standard Sheetrock 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. No marks can be made in the field of the panels unless they are covered by USG Sheetrock® brand Ensemble™ Ceiling Compound prior to spraying. (I.e., pencil, marker, or similar).
2. Fasten the perforated panels to the Z-Furring with screw spacing at 12” OC in the field and 8” OC on the butt ends using 1-1/4” fine thread bugle head drywall screws. 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.
3. A router or keyhole saw can be used to cut penetrations like standard wallboard.

3.7 Joint Finishing (Suspended System, Curved System, Direct Mount, Direct Mount – Return Air Plenum)

- A. The joints are finished using the USG Sheetrock® Brand All Purpose Joint Compound, Sheetrock® Brand Paper Joint Tape, and USG Sheetrock® Brand Ensemble™ Ceiling 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 finish is applied.
- B. 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 bazooka. Wipe excess joint compound with a joint knife and allow to dry completely.
- C. Spot all fastener heads with USG Sheetrock® Brand Ensemble™ Ceiling Compound using a 1” or 2” joint knife. Keep the compound area small to minimize covering the perforations.
- D. After the bed and tape coat is dry, apply a second coat of USG Sheetrock® Brand Ensemble™ Ceiling Compound on all the fasteners. Then apply the fill coat of USG Sheetrock® Brand Ensemble™ Ceiling Compound over the joints. This can be done using an 8” joint knife or an 8” flat box with the blade set flat.
- E. After the fill coat is dry, apply a third coat of USG Sheetrock® Brand Ensemble™ Ceiling Compound on all the fasteners. Then apply the finish coat of USG Sheetrock® Brand Ensemble™ Ceiling Compound over the joints. This can be done using a 10” joint knife or a 10” flat box with the blade set for a slight crown.

- F. All joints must be filled and leveled with the surface of the board. Hollow joints require additional USG Sheetrock® Brand Ensemble™ Ceiling Compound and crowned joints must be sanded level using a flat sander. It is important to thoroughly check each joint down the entire length for flatness, not just at a few random locations.
- G. A light sanding of the entire surface will help prep for the spray process but avoid over sanding the fiberglass scrim as much as possible.

### 3.8 Spray-Applied Finish (Suspended System, Curved System, Direct Mount, Direct Mount – Return Air Plenum)

- A. Note: The proper spray equipment must be used to achieve acoustical performance and esthetics.
- B. Please contact your local USG Contractor Specialty Representative for specifications of required spray equipment to apply Ensemble™ Spray-Applied Finish.
- C. 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 using the proper hoses. Set the air and material pressure to achieved desired finish.
- D. The USG Ensemble™ Spray-Applied Finish must be mixed in the 5-gallon bucket prior to filling spray machine hopper. Use a 450-rpm electric drill and a USG Sheetrock® 4-blade mixing paddle, blend until it is a smooth creamy consistency. Before any water is added, check the viscosity using a material thickness gauge provided by the spray equipment manufacturer (small steel ball on a cable). Place the ball on the Finish and let go, if the ball sinks into the Finish and is no longer visible in three seconds the material is ready to put in the sprayer. If the ball is still visible after three seconds, add water in 4-ounce increments and remix until the ball sinks in three seconds.
- E. Prime sprayer equipment with 5 gallons of clean potable water. With the nozzle air off, cycle water through the hose and spray gun back into the hopper for 30 seconds and then drain out the water out of the hopper. Pour the 5 gallons of mixed finish into the hopper. With the nozzle air still off, cycle the remaining water out of the hose into a separate container. When the spray finish has reached the gun, cycle the spray finish through the hose and gun back into the hopper until it is flowing smoothly through the machine.
- F. The Ensemble™ Spray-Applied Finish must be applied in a minimum of four coats to achieve the proper appearance and sound performance. Apply each coat very lightly with 36” minimum gun clearance. Start in one corner and work progressively across the ceiling. Immediately cross hatch. Once the finish is dry to the touch (approx. 20-40 min), use a soft rubber squeegee trowel to remove loose Finish, then recoat using the same technique. Apply successive coats until the desired appearance is achieved and the perforations are no longer visible through the Finish.
- G. Maintain proper jobsite conditions and wear proper protective equipment (safety goggles, NIOSH- approved respirator, coveralls) while applying the finish.

END OF SECTION

Disclaimer: The USG Product Specifications contained herein are intended for use as product reference material by architects, engineers, other design professionals, contractors, building code officials, or other competent construction industry trade professionals having an interest in the selection, specification and use of products manufactured by the subsidiaries of USG Corporation. The Specifications are intended solely as technical support incident to the sale and use of USG products and not intended to be a substitute for the design review and approval of the licensed design professionals for the project. These materials may be printed and/or transferred electronically solely as needed by the user. Because electronic text files can be modified by other parties, without notice or indication of such modifications, modification of USG Product Guide Specifications and Drawings is the sole responsibility of the Design Professional.