1. Section 095100   
   Direct-Applied Acoustical Walls and Ceilings - USG
   1. PART 1  GENERAL
      1. SECTION INCLUDES
         1. Suspended metal grid ceiling systems.
         2. Direct-applied wall and ceiling Acoustical and acoustical units.
2. *The paragraph below is optional text*
   * + 1. Supplementary acoustical insulation above ceiling.
       2. Wall angles and shadow moldings.
3. *The paragraph below is optional text*
   * + 1. Special trims and accessories.
     1. RELATED REQUIREMENTS
4. *The paragraph below is optional text*
   * + 1. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.
5. *The paragraph below is optional text*
   * + 1. Section 031000 - Concrete Forming and Accessories:  Placement of special anchors or inserts for suspension system.
6. *The paragraph below is optional text*
   * + 1. Section 033000 - Cast-in-Place Concrete:  Placement of special anchors or inserts for suspension system.
7. *The paragraph below is optional text*
   * + 1. Section 053100 - Steel Decking:  Placement of special anchors or inserts for suspension system.
       2. Section 072100 - Thermal Insulation.
       3. Section 083100 - Access Doors and Panels.
       4. Section 092216 - Non-Structural Metal Framing: Metal framing products.
       5. Section 092116 - Gypsum Board Assemblies:  Gypsum board and metal framing products.
       6. Section 092116 - Gypsum Board Assemblies:  Acoustical insulation.
       7. Section 095100 - Acoustical Ceilings.
       8. Section 09 8100 - Acoustic Insulation: Acoustical insulation.
       9. Section 211300 - Fire-Suppression Sprinkler Systems:  Sprinkler heads.
       10. Section 233700 - Air Outlets and Inlets:  Air diffusion devices.
       11. Section 265100 - Interior Lighting:  Light fixtures.
       12. Section 275116 - Public Address Systems:  Speakers.
       13. Section 284600 - Fire Detection and Alarm:  Fire alarm components.
     1. REFERENCE STANDARDS
        1. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2018.
        2. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
        3. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
        4. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2022.
        5. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
        6. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
        7. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
        8. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2022.
8. *The paragraph below is optional text*
   * + 1. ASTM E413 - Classification for Rating Sound Insulation; 2022.
       2. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2022.
       3. FGI [Guidelines for Design and Construction of Hospitals] [Guidelines for Design and Construction of Outpatient Facilities] [Guidelines for Design and Construction of Residential Health, Care, and Support Facilities].
       4. UL (GGG) - GREENGUARD Gold Certified Products; Current Edition.
     1. ADMINISTRATIVE REQUIREMENTS
        1. Coordination:  Coordinate work of this section with installation of mechanical and electrical components and with other construction activities affected by work of this section.
           1. Review with affected installers those locations of facility services lines and equipment within ceiling plenum that prevent installation of hangers at spacings compliant with limitations established in referenced standards.  Arrange for each affected mechanical or electrical installer to provide necessary number of additional structural support points for ceiling installer.
        2. Preinstallation Meeting:  Convene one week before starting work of this section.
        3. Sequencing:  Schedule work of affected trades to minimize or eliminate installation conflicts and rework.
9. *The paragraph below is optional text*
   * + - 1. Supply hanger clips during steel deck erection.  Supply additional hangers and inserts as required.
         2. Ensure that acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.  Do not install acoustical units until after interior wet work is dry.
     1. SUBMITTALS
        1. See Section 013000 - Administrative Requirements for submittal procedures.
        2. Shop Drawings:  Indicate [mechanical and electrical items installed in the ceiling] [grid layout and related dimensioning] [junctions with other ceiling finishes] .
        3. Product Data:  Provide data on suspension system components and acoustical units.
        4. Evaluation Service Reports:  Show compliance with specified requirements.
        5. Samples:   [Two] samples [\_\_\_\_\_] by [\_\_\_\_\_] inches ([\_\_\_\_\_] by [\_\_\_\_\_] mm) in size indicating material and finish of acoustical units.
        6. Samples:   [Two] full size samples indicating material and finish of acoustical units.
        7. Samples:  Two samples each, [\_\_\_\_] inches ([\_\_\_\_] mm) long of suspension system main runner, cross runner, perimeter molding, and [main runner] [cross runner] [perimeter molding].
10. *The paragraph below is optional text*
    * + 1. Manufacturer's Installation Instructions:  Indicate special procedures, perimeter conditions requiring special attention, and [perimeter conditions requiring special attention] [special procedures].
        2. Designer's qualification statement.
        3. Manufacturer's qualification statement.
        4. Installer's qualification statement.
        5. Maintenance Materials:  Furnish the following for Owner's use in maintenance of project.
11. *The paragraph below is optional text*
    * + - 1. See Section 016000 - Product Requirements for additional provisions.
12. *The paragraph below is optional text*
    * + - 1. Extra Acoustical Units:  [\_\_\_\_] sq ft ([\_\_\_\_] sq m) of each type and size.
13. *The paragraph below is optional text*
    * + - 1. Extra Acoustical Units:   [Quantity equal to 5 percent of total installed] [Quantity equal topercent of total installed].
      1. QUALITY ASSURANCE
14. *The paragraph below is optional text*
    * + 1. Designer Qualifications for Seismic Design:  Perform under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.
        2. Suspension System Manufacturer Qualifications:  Company specializing in manufacturing the products specified in this section with minimum [three] years[None - N/A] [documented] experience.
        3. Acoustical Unit Manufacturer Qualifications:  Company specializing in manufacturing the products specified in this section with minimum [three] years[None - N/A] [documented] experience.
        4. Installer Qualifications:  Company specializing in performing work of the type specified and with at least [three] years of [None - N/A] [documented] experience[and approved by manufacturer] [None - N/A].
      1. FIELD CONDITIONS
         1. Maintain uniform temperature of minimum [60 degrees F (16 degrees C)] [[\_\_\_\_] degrees F ([\_\_\_\_] degrees C)], and maximum humidity of [40] percent before, during, and after acoustical unit installation.
    1. PART 2  PRODUCTS
       1. CEILING ASSEMBLIES
          1. Refer to [Room Finish Schedule] [Reflected Ceiling Plans] and [Room Finish Schedule] [Reflected Ceiling Plans] on drawings for additional ceiling assembly information.
          2. Acoustical Ceiling Assembly Type [APC-1]:
             1. Acoustical Units:  [Heradesign 1 Direct-Mount] [Heradesign 2 Direct-Mount] [Heradesign 3 Lay-In] [Heradesign micro Direct-Mount] [Heradesign plano Direct-Mount], Item No. [\_\_\_\_\_].

Panel Size:  [24 inches by 48 inches (2 by 4) panel (609.6 mm by 1219.2 mm)] [24 inches by 96 inches (2 by 8) plank (609.6 mm by 2438.4 mm)] [As indicated on drawings].

Panel Edge:  [BEV/BEV] [BEV/SQ] edge.

Color: [Beige] [To be selected from manufacturer's Premium color range] [To be selected from manufacturer's Standard color range] [To be selected from manufacturer's Advantage color range] [As indicated on drawings] [Custom].

Characteristics:  Noise Reduction Coefficient = [Up to 0.90], Ceiling Attenuation Class = [\_\_\_], Light Reflectance = [\_\_\_], Recycled Content = [\_\_\_], Environmental Product Declaration: [\_\_\_], Health Product Declaration: [\_\_\_], GreenGuard Gold: [\_\_\_], EC3 Score: [\_\_\_], ClimaPlus Warranty: [\_\_\_].

* + - * 1. Suspension Grid:  Donn DXW 1-1/2-inch Suspension System.
    1. Ceiling PERFORMANCE REQUIREMENTS
       1. Design for maximum deflection of 1/360 of span.
       2. Fire-Resistance Rating:  Determined in accordance with test procedures in ASTM E119 and complying with the following:
          1. UL (FRD) Assembly Design No. [\_\_\_\_].
          2. ICC-ES Evaluation Report No. [\_\_\_\_\_\_\_\_\_\_].

1. *The paragraph below is optional text*
   * + 1. Seismic Performance:  Ceiling systems designed to withstand the effects of earthquake motions determined according to ASCE 7 for Seismic Design Category D, E, or F and complying with the following:
2. *The paragraph below is optional text*
   * + - 1. Local authorities having jurisdiction.
3. *The paragraph below is optional text*
   * + - 1. ICC-ES Evaluation Report No. [\_\_\_\_\_\_\_\_\_\_].
     1. Acoustical Wall Assemblies
        1. Acoustical Wall Assembly Type [AW-1]:
           1. Acoustical Units: [Heradesign 1] [Heradesign 2] Wood Wool Direct Mount Wall Panels.

Product ID: [HDMSF124B] [HDMSF128B] [HDMSF5828] [HDMSF124] [HDMSF128] [HDMF124B] [HDMF128B] [HDMF124] [HDMF128]

Panel Size: [As indicated on drawings] [24 inches by 48 inches (2 by 4) panel (610 mm by 1219 mm)] [24 inches by 96 inches (2 by 8) plank (610 mm by 2438 mm] [\_\_ inches by \_\_ inches (\_\_ mm by \_\_ mm)].

Panel Edge: [BEV/BEV] [BEV/SQ] edge.

Color: [Beige] [As indicated on drawings] [To be selected from manufacturer's Standard color range] [To be selected from manufacturer's Premium color range] [or \_\_\_\_\_\_\_\_].

Characteristics: Noise Reduction Coefficient = Up to 0.90, Ceiling Attenuation Class = \_\_\_, Light Reflectance = \_\_\_, Recycled Content = \_\_\_, Environmental Product Declaration: \_\_\_, Health Product Declaration: \_\_\_, GreenGuard Gold: \_\_\_, EC3 Score: \_\_\_, ClimaPlus Warranty: \_\_\_.

* + 1. Ceiling COMPONENT PRODUCTS
       1. Acoustical Units:
          1. Acoustical Units - General:  ASTM E1264, Fire Class A.

1. *The paragraph below is optional text*

VOC Content:  As specified in Section 016116.

1. *The paragraph below is optional text*

VOC Content:  Certified as Low Emission by one of the following:

1. *The paragraph below is optional text*

Product listing in UL (GGG).

1. *The paragraph below is optional text*

Product listing in CHPS (HPPD).

Noise Reduction Coefficient (NRC) rating, Ceiling Attenuation Class (CAC) rating, and Light Reflectance Coefficient (LR) performance for each type of unit specified below, as determined in accordance with ASTM E1264.

Fire Class / Surface Burning Characteristics:  Determined in accordance with test method ASTM E84.

Surface Burning Characteristics:  Unless otherwise indicated, flame spread index of [25 or less] , smoke developed index of [50 or less].

* + - * 1. Acoustical Panels:  Magnesite-bonded wood wool, with the following characteristics:

Application(s):  [\_\_\_\_\_\_\_\_\_\_].

Classification:  ASTM E1264 Type XIV.

Form(s):  Includes the following, as applicable to each product specified.

Form 1 - No backing.

Form 2 - Mineral or glass fiber base backing.

Pattern(s):  Includes the following, as applicable to each product specified.

L - Random wood fibers.

Panel Size:  [As indicated on drawings] [[\_\_] inches by [\_\_] inches ([\_\_] mm by [\_\_] mm)] [24 inches by 96 inches (2 by 8) plank (610 mm by 2438 mm)] [24 inches by 48 inches (2 by 4) panel (610 mm by 1219 mm)].

Panel Thickness: [5/8 inch (16 mm)] [1 inch (25 mm)] [[\_\_\_\_\_] inch ([\_\_\_\_\_] mm)].

Edges Configuration:  BEV/SQ.

Ashlar Installation Clips:  Manufacturer's standard for the application.

Texture:  [Heradesign 1 (Super Fine Texture)] [Heradesign 2 (Fine Texture)].

Recycled Content:  As applicable to selected products.

Material Ingredients Transparency:  Products included in the USG EcoBlueprint Program.

1. *The paragraph below is optional text*

Low Emissions (VOC):  Greenguard-certified products.

NRC:  [0.50] [0.65] [0.70] [0.80] [0.75].

Direct-Mounting:  Drywall suspension system DWSS

Products:

USG Corporation; Heradesign Wood Wool Direct-Mount Ceiling Panels:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - 1. Suspension Systems:
         1. Metal Suspension Systems - General:  Complying with ASTM C635/C635M; die cut and interlocking components, with [wall angles and moldings] [transition trim] [perimeter trim] [curtain pockets] [hold down clips] [seismic clips] [splices] , [wall angles and moldings] [transition trim] [perimeter trim] [curtain pockets] [hold down clips] [seismic clips] [splices] , and [wall angles and moldings] [transition trim] [perimeter trim] [curtain pockets] [hold down clips] [seismic clips] [splices] as required.

Materials:

Steel Grid:  ASTM A653/A653M G30 coating, unless otherwise indicated.

1. *The paragraph below is optional text*
   * + - 1. Concealed Drywall Suspension System: Hot-dipped galvanized steel grid and cap.

Application(s): [Seismic; Fire-resistance-rated assemblies] [Seismic and fire-resistance-rated assemblies; \_\_\_\_\_ ].

Structural Classification: Heavy-duty, when tested in accordance with ASTM C635/C635M.

Recycled Materials Content: Less than 50 percent.

Profile: Tee; 1-1/2 inch face width.

Finish: G90 hot-dipped galvanized coating.

Products:

USG Corporation; DWSS 1-1/2 Inch Concealed Drywall Suspension System: [www.usg.com/ceilings/#sle](http://www.usg.com/ceilings/#sle).

Substitutions: [See Section 016000 – Product Requirements] [Not permitted].

* + - * 1. Seismic Clips:  Manufacturer's standard clips designed to provide a rigid connection between suspension grid tees and wall moldings.
      1. Moldings and Trim:
         1. Edge Molding[, Expansion Joints,] [None - N/A] and Splices - General:  Same material, thickness, and finish as metal pan panels, unless otherwise indicated.
         2. Perimeter Wall Moldings:  [Same metal and finish as grid] [Aluminum] .

Size:  As required for installation conditions[and [and specified Seismic Design Category] [None - N/A].

Angle Moldings:  L-shaped, for mounting at same elevation as face of grid.

* + - * 1. Trim Accessories:  Manufacturer's standard clips, cleats splice plates, extension plates, closure plates, corner pieces, and similar accessories required for a complete installation.
    1. ACOUSTICAL WALL SYSTEMS
       1. Sound-Absorbing Wood Wool Wall System:  Magnesite-bonded wood wool with acoustic backer insulation panels.
          1. Panel Size:  [24 inches by 48 inches (2 by 4) panel (610 mm by 1219 mm)] [24 inches by 96 inches (2 by 8) plank (610 mm by 2438 mm)] [As indicated on drawings] [[\_\_] inches by [\_\_] inches ([\_\_] mm by [\_\_] mm)].
          2. Panel Thickness: 5/8 inch (16 mm).
          3. Edges Configuration:  [BEV/BEV] [BEV/SQ].
          4. Texture:  [Heradesign 2 (Fine Texture)] [Heradesign 1 (Super Fine Texture)] .
          5. Test Mounting:  [Type C-40] [Type A] [Type [Type C-20] [Type D-20].
          6. Noise Reduction Coefficient (NRC):  Not less than [0.55] [0.50] [0.90] [0.75] [0.85] [0.80] when measured and calculated in accordance with ASTM C423.
          7. Installation Method:  [2-inch (50.8 mm)] [1-inch (25.4 mm)] Z-furring direct-mount system.
          8. Installation Method: [3/4-inch (19 mm)] [1-1/2-inch (38.1 mm)] wood furring direct-mount system
          9. Installation Accessories:  Manufacturer's standard.
          10. Products:

USG Corporation; Heradesign Wood Wool Direct-Mount Wall Panels:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + 1. ACCESSORIES
       1. Z-Shaped Furring: Galvanized steel with slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 3/4 inch.
          1. Depth: [As indicated on Drawings; As required to fit insulation thickness indicated[1-1/2 inch] [3/4 inch] [or \_\_\_\_\_ ].
          2. Minimum Metal Thickness: [30 mil] [18 mil] [or \_\_\_\_\_ ].
          3. Wood Furring Boards: [No. 2 Construction] [No. 2 Common] [No. 3 Standard] [No. 3 Common] [or \_\_\_\_\_] grade [lumber] [any species]. Select boards with no knots capable of hindering proper screw penetration and damage to wall panels.
       2. Suspension Wire:  Size and type as required for application[, seismic requirements,] [None - N/A] and ceiling system flatness requirement specified.
          1. Concealed Suspension:

Suspension Wire:  Steel, annealed, [plain] [galvanized] finish, [[\_\_\_] gauge, [\_\_\_] inch ([\_\_\_] mm)] [9 gauge, 0.1144 inch (2.91 mm)] [12 gauge, 0.0808 (2.05 mm)] diameter, complying with ASTM A641/A641M.

* + - 1. Hold-Down Clips:  Manufacturer's standard clips to suit application.

1. *The paragraph below is optional text*
   * + 1. Seismic Clips:  Manufacturer's standard clips for seismic conditions and to suit application.
       2. Unopposed Tee Attachment Clip:  Manufacturer's standard clip designed to create code-compliant cross tee connections when a cross tee is installed in a main tee without another cross tee directly opposite ("ashlar" installations).
       3. Screws for Attaching Panels to Wood or Metal Furring: Rust protected, partial thread, universal drywall screws with Torx T20 star-drive head recess; length to provide penetration as required by panel manufacturer.
       4. Screws for Attaching Panels Directly to Masonry: Tapcon masonry screws, rust protected, flat-head with Torx T20 star-drive head recess; length to provide penetration as required by panel manufacturer.
       5. Acoustical Insulation: [Specified in Section 07 2100] or [ASTM C665] [friction fit type] [unfaced batts].
          1. Thickness: [2 inches (51 mm)] [6 inches (152 mm)] [\_\_\_\_ inches (\_\_\_\_ mm)]
          2. Size: To fit acoustical suspension system.
       6. Thermal Insulation:  Specified in Section 072100.
       7. Thermal Insulation:  ASTM C665,  preformed [glass] [mineral] fiber batt;[friction fit,] [None - N/A] complying with the following:
          1. Thermal Resistance:  R-value (RSI-value) of [\_\_\_\_] ([\_\_\_\_]).
          2. [Batt] [Roll] Size:  [\_\_\_]  by [\_\_\_] inch ([\_\_\_]  by [\_\_\_] mm).
          3. Facing:  Unfaced at [\_\_\_\_\_].
          4. Facing:  Faced on one side with foil at [\_\_\_\_\_].
       8. Touch-Up Paint For Concealed Items:   [Zinc rich] [Zinc oxide] type, as recommended by ceiling system manufacturer.
     1. Fabrication
        1. Shop fabricate ceiling components to the greatest extent possible.
        2. Fabricate components to allow access to ceiling plenum as required.
   1. PART 3  EXECUTION
      1. EXAMINATION
         1. Verify existing conditions before starting work.
         2. Verify that layout of hangers will not interfere with other work.
         3. Verify that field measurements are as [indicated on shop drawings] [instructed by the manufacturer] [indicated].
         4. Start of installation constitutes acceptance of project conditions.
      2. Preparation
         1. Coordinate the location of hangers with other work.
         2. Provide hanger clips during steel deck erection.  Provide for anticipated additional hangers and inserts as required.
         3. Install ceiling system after major above-ceiling work is complete.
         4. Acclimate wood ceiling materials by removing from packaging in installation area a minimum of [72 hours] prior to installation.
      3. INSTALLATION - SUSPENSION SYSTEM
         1. Install suspension system in accordance with [ASTM E580/E580M] [ASTM C636/C636M] [manufacturer's instructions] and [ASTM E580/E580M] [ASTM C636/C636M] [manufacturer's instructions] and as supplemented in this section.
         2. Install hangers and inserts coordinated with overhead work.  Provide additional hangers and supports as required.
         3. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
2. *The paragraph below is optional text*
   * + 1. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
3. *The paragraph below is optional text*
   * + 1. Locate system on room axis according to reflected ceiling plan.
       2. Suspension System, Nonseismic:  Hang suspension system independent of walls, columns, ducts, pipes and conduit.  Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
4. *The paragraph below is optional text*
   * + 1. Seismic Suspension System, Seismic Design Category C:  Hang suspension system independent of walls, columns, ducts, pipes and conduit.  Maintain a 3/8 inch (9 mm) clearance between grid ends and wall.
5. *The paragraph below is optional text*
   * + 1. Seismic Suspension System, Seismic Design Categories D, E, F:  Hang suspension system with grid ends attached to the perimeter molding on two adjacent walls; on opposite walls, maintain a 3/4 inch (19 mm) clearance between grid ends and wall.
       2. Where ducts, facility services, or equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers[None - N/A] [and related carrying channels] to span the extra distance.
       3. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
       4. Support fixture loads using supplementary hangers located within [[\_\_\_\_] inches ([\_\_\_\_] mm)] [6 inches (152 mm)] of each corner, or support components independently.
       5. Do not eccentrically load system or induce rotation of runners.
       6. Form expansion joints [as detailed] .  Form to accommodate plus or minus [1 inch (25 mm)] [[\_\_\_\_] inch ([\_\_\_\_] mm)] movement.  Maintain visual closure.
       7. Install unopposed tee attachment clips at appropriate locations to enable installation of acoustical units in an ashlar pattern.
       8. Edge Moldings:  Install at intersection of ceiling and vertical surfaces and penetrations, using components of maximum length; set level.[None - N/A] [Provide edge moldings at junction with other ceiling finishes.][None - N/A] [Miter corners.][Provide preformed edge closures to match bullnosed cornered partitions.] [None - N/A]
          1. Install [in bed of acoustical sealant] [with continuous gasket].
          2. Use longest practical lengths.
          3. [Overlap] [Miter] [Overlap and rivet] corners.
6. *The paragraph below is optional text*
   * + 1. Install light fixture boxes constructed of [gypsum board] [acoustical panel] above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.
     1. INSTALLATION - ACOUSTICAL UNITS
        1. Install acoustical units in accordance with manufacturer's instructions.
        2. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
        3. Fit edge trim neatly against abutting surfaces.
        4. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
        5. Cutting Acoustical Units:
           1. Cut to fit irregular grid and perimeter edge trim.
           2. Make field cut edges of same profile as factory edges.
        6. Lay acoustical insulation for a distance of 48 inches (1219 mm) either side of acoustical partitions as indicated.
        7. Install hold-down clips on acoustical units within 20 ft (6 m) of an exterior door.
     2. INSTALLATION - DIRECT-MOUNTED SOUND-ABSORBING Panel CEILING FRAMING
        1. Install framing members in accordance with ASTM C754 and manufacturer's instruction.
        2. Install framing and accessories plumb, and true to line, with connections securely fastened.
        3. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.
        4. Determine the finished ceiling height.  If the ceiling extends to the sidewalls, screw attach wall angles to the sidewalls at recommended distance above the finished ceiling height.  Fasteners must be in the framing members.
        5. Confirm substrates are level within their installation tolerances.  Shim as required. Attach [Z-Furring channels] [Wood Furring Strips] maximum 24 inches (610 mm) on center.
        6. Install acoustical insulation between furring members where indicated.
     3. INSTALLATION - ACOUSTICAL PANEL UNITS
        1. Install acoustical units in accordance with manufacturer's instructions.
        2. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
        3. Install ceiling units with long edges [as indicated on Drawings] [parallel to longest room axis] [parallel to shortest room axis] in ashlar pattern.
        4. Install wall units in ashlar pattern with long edges [as indicated on Drawings] [vertical] [horizontal].
        5. Fit edge trim neatly against abutting surfaces.
        6. Install acoustical units plumb, level, in uniform plane, and free from twist, warp, dents, and defects.
        7. Cutting Acoustical Units:
        8. Cut to fit irregular grid and perimeter edge trim.
        9. Make field cut edges of same profile as factory edges.
        10. Double cut and field paint exposed cut edges.
        11. Where [round obstructions] [bullnose concrete block corners] [and \_\_\_\_] occur, provide preformed closures to match perimeter molding.
     4. INSTALLATION – Direct-mounted SOUND-ABSORBING GYPSUM BOARD CEILING FRAMING
        1. Install suspension system in accordance with [ASTM E580/E580M] [manufacturer's instructions] [ASTM C636/C636M], [ASTM E580/E580M] [manufacturer's instructions] [ASTM C636/C636M], and [ASTM E580/E580M] [manufacturer's instructions] [ASTM C636/C636M] and as supplemented in this section.
        2. Framing for Items by Other Installers:  Install supplementary framing and blocking as required to support fixtures, equipment services, demountable partition supports, or similar construction.
        3. System Bracing:  Install bracing at terminations in assemblies.
        4. Planar Suspended System:
           1. Determine the finished ceiling height.  If the ceiling extends to the sidewalls, screw attach wall angles to the sidewalls at recommended distance above the finished ceiling height.  Fasteners must be in the framing members.  Attach hanger wires to structure above using method appropriate for material of structure.  Space hanger wires maximum 48 inches (1219 mm) on center in each direction.
           2. Secure the cross tees to the indexed support bars by snapping the clip into the cross tee holes on the main tee.
           3. Space the cross tees at 24 inches (610 mm) on center.  If the ceiling extends wall to wall, square up the main tees and screw attach to wall angle.
     5. INSTALLATION - SOUND-ABSORBING GYPSUM BOARD WALL SYSTEM FRAMING
        1. Install framing members in accordance with ASTM C754 and manufacturer's instruction.
        2. Install framing and accessories plumb, and true to line, with connections securely fastened.
        3. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.
        4. Confirm substrates are plumb within their installation tolerances.  Shim as required. Attach Z-Furring channels maximum 24 inches (610 mm) on center.
     6. INSTALLATION OF Perimeter "Cloud" TRIM
        1. General:  Install in accordance with manufacturer's instructions.
7. *The paragraph below is optional text*
   * + - 1. Examine the reflected ceiling layout and carefully plan the layout of the trim on the ceiling grid.
8. *The paragraph below is optional text*
   * + - 1. Lay trim segments on top of the grid in the desired pattern and temporarily secure them in place.
9. *The paragraph below is optional text*
   * + - 1. Temporarily splice the segments together.
10. *The paragraph below is optional text*
    * + - 1. Assemble trim system, arranging the trim into smooth curves.
11. *The paragraph below is optional text*
    * + - 1. Mark and cut the suspension grid.
12. *The paragraph below is optional text*
    * + - 1. Install an attachment clip to each cut end of the grid. Attach the clip to trim section segment.
13. *The paragraph below is optional text*
    * + - 1. Join trim and permanently splice the segments together.
        1. 10-Inch and 12-Inch Trim:
14. *The paragraph below is optional text*
    * + - 1. Support segments by attaching diagonal braces to the installation clips using fasteners recommended by manufacturer.  Attach one end of the brace to back of trim segment and the other to the tee. Ensure that the clip remains at 90 degrees to the ceiling plane. Repeat this procedure at  24 inches (610 mm) increments along the entire perimeter of the grid.
15. *The paragraph below is optional text*
    * + - 1. Attach trim segments to the grid.
        1. Corners:
16. *The paragraph below is optional text*
    * + - 1. Outside Corners:  Slide a permanent splice plate into each side of the preformed outside corner. Attach one side of the outside corner to a trim segment. Connect a trim segment to the other side of the corner and secure with appropriate splice plate.
17. *The paragraph below is optional text*
    * + - 1. Inside Corners:  Follow manufacturer's instructions for installation of preformed and welded corners or for field-assembled corners from separate premitered pieces.
      1. Installation of Curtain Pocket Trim
         1. Mounting:  Mount curtain pocket trim in accordance with manufacturer's instructions and as appropriate for project conditions:
            1. Wall Cleat Mounting:
18. *The paragraph below is optional text*

Determine the mounting height of the pocket and cleat combination.  Mount wall cleats on the perimeter wall at that height.

1. *The paragraph below is optional text*

Mount cleats at framing stud locations, on the center of the stud flange or face for the length of the pocket.

1. *The paragraph below is optional text*

Secure cleat and pocket to wall using fasteners appropriate for attachment substrates.

1. *The paragraph below is optional text*

Hook pocket on the mounting cleats.  Use a metal screw for locking pocket to cleat.

* + - * 1. Hanger Wire Mounting:

1. *The paragraph below is optional text*

Mount using hanger wire located at 16 inches (406 mm) on center by drilling a 1/4 inch (6 mm) diameter hole into vertical mounting leg located on top of the extrusion, no more than 48 inches (1219 mm) on center.

* + - * 1. Metal Framing Mounting:

1. *The paragraph below is optional text*

Hang curtain pockets using standard 2-1/2-Inch (64 mm) metal framing members 48 inches (1219 mm) on center, maximum, hung from and braced with kickers attached to the underside of the structure.

1. *The paragraph below is optional text*
   * + 1. Continuous Lengths Installation:  Use wall cleat, hanger wire, or metal framing mounting method specified above. Connect curtain pocket segments with standard system splice plates. Use three (3) splice plates for a tight, seamless connection; one located on the top of the pocket and two (2) along the vertical surface.
2. *The paragraph below is optional text*
   * + 1. Corners Installation:  For 90-degree turns use manufacturer's pre-engineered inside and outside corners. Position corner segments in place using mounting method selected for the system. Use three (3) splice plates for a tight, seamless connection to the main curtain pocket; one located on the top of the pocket and two (2) along the vertical surface.
3. *The paragraph below is optional text*
   * + 1. End Cap Terminations:  Use the appropriate end cap for the indicated ceiling integration. Install using self-tapping mini screws in two or three locations depending on the end cap selected.
4. *The paragraph below is optional text*
   * + 1. Partition Wall Termination:  Use a single splice plate bent in half at 90-degrees. Mount one flange of the plate to the curtain pocket and mount the other to the partition wall above the ceiling grid wall molding.
5. *The paragraph below is optional text*
   * + 1. Install extension plates in accordance with manufacturer's instructions.
6. *The paragraph below is optional text*
   * + 1. Connection to Suspension Grid:  Use clips recommended by manufacturer.
     1. TOLERANCES
        1. Maximum Variation from Flat and Level Surface:  [1/8 inch in 10 feet (3 mm in 3 m)] [[\_\_\_\_] inch in 10 feet ([\_\_\_\_] mm in 3 m)].
        2. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads:  Two degrees.
     2. Cleaning
        1. Clean and touch up minor finish damage.  Remove and replace components that cannot be successfully cleaned and repaired.
     3. SCHEDULE
7. *The paragraph below is optional text*
   * + 1. Kitchen Areas - Ceiling Assembly APC-1:  24 by 24 inch (610 by 610 mm) metal pan acoustical units, plastic faced, interlocking suspension grid, insulation batts placed over units.
8. *The paragraph below is optional text*
   * + 1. Dining Areas  Ceiling Assembly APC-2:  24 by 48 inch (610 by 1219 mm) square edge mineral acoustical units, interlocking exposed T suspension grid.
9. END OF SECTION