1. Section 095422   
   Recycled Polyester Felt Ceilings - USG
   1. PART 1  GENERAL
      1. SECTION INCLUDES
         1. Linear blades.
         2. Linear baffles.
         3. Radial fins.
         4. Panels.
         5. Direct suspension wire hanger system.
         6. Direct suspension threaded rod system.
         7. Suspended metal support system and perimeter trim.
2. *The paragraph below is optional text*
   * + 1. Supplementary acoustical insulation over system units.
     1. RELATED REQUIREMENTS
3. *The paragraph below is optional text*
   * + 1. Section 033000 - Cast-in-Place Concrete:  Execution requirements for placement of attachment anchors to structure above.
       2. Section 053100 - Steel Decking:  Execution requirements for placement of attachment anchors to structure above.
       3. Section 095100 - Acoustical Ceilings - USG:  Suspension system.
4. *The paragraph below is optional text*
   * + 1. Section 095421 - Metal Pan Ceilings - USG:  Specialty suspension system.
5. *The paragraph below is optional text*
   * + 1. Section 211300 - Fire-Suppression Sprinkler Systems:  Sprinkler heads.
6. *The paragraph below is optional text*
   * + 1. Section 233700 - Air Outlets and Inlets:  Air diffusers.
7. *The paragraph below is optional text*
   * + 1. Section 265100 - Interior Lighting:  Light fixtures.
8. *The paragraph below is optional text*
   * + 1. Section 275116 - Public Address Systems:  Audio speakers for [\_\_\_\_\_\_\_\_] system.
9. *The paragraph below is optional text*
   * + 1. Section 284600 - Fire Detection and Alarm:   Fire alarm components in ceiling.
     1. REFERENCE STANDARDS
        1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
        2. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023.
        3. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
        4. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
        5. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.
        6. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023a.
        7. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009 (Reapproved 2016).
        8. ASTM E413 - Classification for Rating Sound Insulation; 2022.
        9. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2022.
        10. CAL (CDPH SM) - Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2; 2017.
     2. DESIGN REQUIREMENTS
        1. Design components to ensure light fixtures will not induce eccentric loads.  Where components may induce rotation of ceiling system components, provide stabilizing reinforcement.
     3. 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.
        2. Preinstallation Meeting:  Convene one week before starting work of this section.
        3. Sequencing:  Supply hanger clips during steel deck erection.  Supply additional hangers and inserts as required.
     4. SUBMITTALS
        1. See Section 013000 - Administrative Requirements for submittal procedures.
        2. Product Data:  Furnish for component profiles.
        3. Shop Drawings:  Indicate reflected ceiling plan.
10. *The paragraph below is optional text*
    * + - 1. Seismic Design:  Include seal and signature of design professional on each drawing.
        1. Samples:  Submit [two] samples [\_\_\_] by [\_\_\_] inch ([\_\_\_] by [\_\_\_] mm) in size illustrating color and finish of exposed to view components.
        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.
           1. See Section 016000 - Product Requirements for additional provisions.
           2. Extra Blades:  [Two] [One] [Ten] [Five], of each type, color, and length in the project.
           3. Extra Fins:  [Ten] [Five] [Two] [One], of each type, color, and length in the project.
           4. Extra Panels:   [Two] [One] [Five] [Ten], of each type, color, and length in the project.
      1. QUALITY ASSURANCE
         1. Designer Qualifications for Seismic Design:  Perform under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.
         2. Manufacturer Qualifications:  Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
         3. Installer Qualifications:  Company specializing in performing the work of this section.
            1. Minimum [\_\_\_\_\_\_\_\_\_\_] years documented experience.
            2. Approved by ceiling manufacturer.
      2. MOCK-UPS
         1. See Section 014000 - Quality Requirements for additional requirements.
         2. Construct [\_\_\_\_\_\_\_\_] mock-up, [\_\_\_\_] feet ([\_\_\_\_] m) long by [\_\_\_\_] feet ([\_\_\_\_] m) wide; include suspension system, baffles in mock-up.
         3. Locate mock-up where directed.
11. *The paragraph below is optional text*
    * + 1. Mock-up may remain as part of the Work.
      1. DELIVERY, STORAGE, AND HANDLING
         1. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.
         2. Accept factory-finished products on site in manufacturer's unopened factory packaging only; reject opened packages.
         3. Protect factory-finished products from damage to appearance by storing products in manufacturer's unopened factory packaging in dry storage area.
      2. WARRANTY
         1. See Section 017800 - Closeout Submittals for additional warranty requirements.
         2. Manufacturer Warranty:  Provide [5-year] manufacturer warranty for polyester felt components.  Complete forms in Owner's name and register with manufacturer.
    1. PART 2  PRODUCTS
       1. Polyester Felt CEILING ASSEMBLIES
          1. Ceiling Assembly Type PFC-1:
             1. Ceiling System:  Include baffles; suspension members, trim, and accessories as required to provide a complete installation.

Layout:  As indicated on drawings.

* + - * 1. Panels:  Colortex Design Solutions Trimetrix.

Shapes:  As indicated on drawings.

Reveal Distance: [36” (914mm) panel side = 2.50” (64mm)] [50” (1270mm) panel side = 5.75”(146mm)]

Nominal Panel Thickness:  1/2 inch (12 mm).

Colors:  [Ocean] [Lake] [Nautical] [Reef] [Prairie] [Pesto] [Summer] [Bengal] [Chili] [Sedona] [Coffee] [Black] [Charcoal] [Ash] [Marble] [Stone] [Iceberg] [Cocoa] [Sand] [Granite] [Cream] [Clay] [Cloud] [Snow] [White Oak] [Pecan Oak] [Brazilian Walnut].

* + 1. CEILING Systems
       1. Performance Requirements:
          1. Design to support imposed loads of indicated items without eccentric loading of supports.

1. *The paragraph below is optional text*
   * + - 1. Design for maximum deflection of 1/360 of span.
2. *The paragraph below is optional text*
   * + - 1. Design to resist seismic load by using practices specified in ASTM E580.
         2. Surface Burning Characteristics:  Flame spread index of [\_\_\_\_], smoke developed index of [\_\_\_\_], when tested in accordance with ASTM E84.
         3. Noise Reduction Coefficient (NRC):  [\_\_\_\_\_\_], measured in accordance with ASTM C423 with insulation installed.
     1. COMPONENTS
        1. Polyester Felt Elements:  Manufacturer's standard.
           1. Design Solutions Trimetrix Panels:  3D-shaped pre-engineered panels.

Overhead Attachment Method:  Direct suspension for each hub, downward-accessible assemblies.

Plenum Accessibility:  Downward, by disengaging individual panels from supporting hubs.

* + - 1. Polyester Felt Material:  Manufacturer's standard 100 percent integrally colored polyester with high recycled material content.
         1. Surface Burning Characteristics:  Class A, with flame spread index of 0-25; smoke-developed Index of 0450; when tested in accordance with ASTM E84.
         2. Moisture Absorbtion:  Less then 0.03 percent by weight after 96 hour-long exposure to 120 degrees F (48.9  degrees C) temperature at 90 percent RH.

1. *The paragraph below is optional text*
   * + - 1. VOC:  Meets products and testing requirements of CAL (CDPH SM) Section 01350.
       1. Suspension Systems:
          1. Direct Suspension Hanger Rod System:  Colortex – Trimetrix suspension system.

Suspension system Hardware:

Open Reveal suspension components: Panel bracket tabs, Hub assemblies.

No Reveal suspension components: Joiner bracket, Peak bracket.

Threaded Rods:   ASTM A193/A193M 3/8-Inch-16 thread, all-thread rods in lengths as required for installation conditions.

Installation Hubs:  Manufacturer's standard assemblies.

Include types indicated on drawings or required for complete installation.

Include types [CTHA9000-1],[CTHA9000-2],[CTHA9000-3],[CTHA9000-4],[CTHA9000-5],[CTHA9000-6],[CTHA9000-7].

Anchors and Fasteners:  As required for installation.

* + - * 1. Grid Suspension Systems:

Metal Suspension Systems - General:  Complying with ASTM C635/C635M; die cut and interlocking components, with [\_\_\_\_\_\_\_\_] as required.

1. *The paragraph below is optional text*

Lengths:  As applicable to module dimensions, main tee spacing, and panel sizes of ceiling assemblies specified.

Materials:

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

* + 1. Accessories
       1. Accessories:  clips as required for suspended grid system; sight-exposed surfaces same color and finish as sight-exposed surfaces of linear panels.
       2. Suspension Members:  Formed steel sections, with integral attachment points; galvanized finish; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
       3. Suspension Wire:  Steel, annealed, galvanized finish, 9 gauge, 0.1144 inch (2.91 mm) diameter.
       4. Suspension Wire:  Size and type as required for application, seismic requirements, and ceiling system flatness requirement specified.
       5. Touch-up Paint For Concealed Items:  Zinc rich type.
    2. FABRICATION
       1. Shop cut ceiling components to accommodate mechanical and electrical items.
       2. Factory-form internal and external corners of same material, thickness, finish, and profile to match exposed faces of components; back brace internal corners.
       3. 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.

1. *The paragraph below is optional text*
   * + 1. Provide hanger clips during steel deck erection.  Provide additional hangers and inserts as required.
       2. Install after major above-ceiling work is complete.
     1. INSTALLATION - SUSPENSION SYSTEM
        1. Install suspension system in accordance with [ASTM E580/E580M] [manufacturer's instructions] [ASTM C636/C636M] and [ASTM E580/E580M] [manufacturer's instructions] [ASTM C636/C636M] and as supplemented by 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.
        4. Locate system on room axis according to reflected ceiling plan.
        5. Suspension System, Non-Seismic:  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.
2. *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.
3. *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 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 6 inches (152 mm) of each corner, or support components independently.
       5. Do not eccentrically load system or induce rotation of runners.
       6. Install unopposed tee attachment clips at appropriate locations to enable installation of acoustical units in an ashlar pattern.
       7. Edge Moldings:  Install at intersection of ceiling and vertical surfaces and penetrations, using components of maximum length, set level. Provide edge moldings at junction with other ceiling finishes. Miter corners. Provide preformed edge closures to match bullnosed cornered partitions.
          1. Use longest practical lengths.
          2. [Overlap] [Overlap and rivet] [Miter] corners.
     1. INSTALLATION - LINEAR COMPONENTS:
        1. Install linear  polyester felt components and system supports and accessories in accordance with manufacturer's instructions.
        2. Stagger end joints minimum 12 inches (300 mm).
        3. Align end joints.
        4. Maintain 1/4-inch (6 mm) reveal between end joints of baffles.
4. *The paragraph below is optional text*
   * + 1. Install edge moldings at junctions with other finishes and at vertical surfaces; use maximum piece lengths.
5. *The paragraph below is optional text*
   * + 1. Where bullnose masonry units occur, install radiused closures to fit edge molding.
6. *The paragraph below is optional text*
   * + 1. Install end caps at sight-exposed ends of linear panels.
7. *The paragraph below is optional text*
   * + 1. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.
8. *The paragraph below is optional text*
   * + 1. Insulation:  Install above panel members; fit tight between grid members ; place insulation with facing side down.
9. *The paragraph below is optional text*
   * 1. INSTALLATION - Directly-Suspended Panels:
10. *The paragraph below is optional text*
    * + 1. Locate hangers in coordination with panel locations and layout.
11. *The paragraph below is optional text*
    * + 1. Attach deck mount hardware to structure above using appropriate fasteners or anchors appropriate for substrates encountered.
12. *The paragraph below is optional text*
    * + 1. Install panels and other system supports and accessories in accordance with manufacturer's instructions.
13. *The paragraph below is optional text*
    * + 1. Acoustic Insulation:  Install above panel members; place insulation with facing side down.
14. *The paragraph below is optional text*
    * 1. INSTALLATION - SUSPeNSION-GRID-ATTACHED PANELS:
15. *The paragraph below is optional text*
    * + 1. Install panels and other system supports and accessories in accordance with manufacturer's instructions.
16. *The paragraph below is optional text*
    * + 1. Align end joints.
17. *The paragraph below is optional text*
    * + 1. Butt interior end joints tight.
18. *The paragraph below is optional text*
    * + 1. Install edge moldings at junctions with other finishes and at vertical surfaces; use maximum piece lengths.
19. *The paragraph below is optional text*
    * + 1. Where bullnose masonry units occur, install radiused closures to fit edge molding.
20. *The paragraph below is optional text*
    * + 1. Exercise care when site cutting sight-exposed finished components to ensure surface finish is not defaced.
21. *The paragraph below is optional text*
    * + 1. Acoustic Insulation:  Install above panel members; place insulation with facing side down.
      1. TOLERANCES
         1. Maximum Variation from Flat and Level Surface:  1/8 inch in 10 feet (3 mm in 3 m).
         2. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads:  2 degrees.
         3. Maximum Variation From Dimensioned Position:  1/4 inch (6 mm).
      2. CLEANING
         1. See Section 017000 - Execution and Closeout Requirements for additional requirements.
         2. Clean polished surfaces.
         3. Replace damaged or abraded components.
22. END OF SECTION