1. Section 095416   
   Luminous Ceilings - USG
   1. PART 1  GENERAL
      1. SECTION INCLUDES
         1. Luminous infill panels.
         2. Metal suspension systems.
      2. RELATED REQUIREMENTS
         1. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.
         2. Section 031000 - Concrete Forming and Accessories:  Placement of special anchors or inserts for suspension system.
         3. Section 033000 - Cast-in-Place Concrete:  Placement of special anchors or inserts for suspension system.
         4. Section 053100 - Steel Decking:  Placement of special anchors or inserts for suspension system.
         5. Section 083100 - Access Doors and Panels:  Access panels.
         6. Section 092116 - Gypsum Board Assemblies - USG:  Gypsum board and metal framing products.
         7. Section 095100 - Acoustical Ceilings - USG:  Metal suspension system.
         8. Section 095400 - Specialty Ceilings - USG:  Metal suspension system.
2. *The paragraph below is optional text*
   * + 1. Section 099123 - Interior Painting.
       2. Section 260529 - Hangers and Supports for Electrical Systems.
       3. Section 265100 - Interior Lighting:  Luminaires for installation above luminous infill panels.
     1. REFERENCE STANDARDS
        1. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.
        2. ASTM A580/A580M - Standard Specification for Stainless Steel Wire; 2018.
        3. ASTM A492 - Standard Specification for Stainless Steel Rope Wire; 1995 (Reapproved 2019).
        4. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2022.
        5. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2023.
        6. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
        7. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
        8. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
3. *The paragraph below is optional text*
   * + 1. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2017.
4. *The paragraph below is optional text*
   * + 1. 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.
       2. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023.
       3. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
     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.
        2. Preinstallation Meeting:  Convene [one week] prior to commencing work of this section.
        3. Sequence work to ensure ceilings are not installed until building is enclosed, dust generating activities have terminated, and overhead work is completed.
     2. SUBMITTALS
        1. See Section 013000 - Administrative Requirements for submittal procedures.
        2. Shop Drawings:  Indicate layout of [luminaires] [light boxes], support locations and details for ceiling suspension, and orientation of the images or patterns on luminous panels.
        3. Product Data:  Provide data showing ceiling component construction and finishes.
        4. Ceiling Support Samples:   [Two] samples of exposed ceiling support members, 12 inches (305 mm) in length, showing material and finish.
        5. Luminous Element Samples:   [Two] samples, 12 by 12 inches (305 by 305 mm) in size, showing material, finish, and support details.
        6. Manufacturer's Installation Instructions:  Indicate application conditions and limitations of use stipulated by product testing agency specified under Quality Assurance.  Include instructions for storage, handling, protection, examination, preparation, and installation of product.
        7. Maintenance Data:  Manufacturer's instructions for cleaning and replacement.
        8. Manufacturer's qualification statement.
        9. Maintenance Materials:  Furnish the following for Owner's use in maintenance of project.
           1. See Section 016000 - Product Requirements for additional provisions.
           2. Extra Luminous Ceiling Components:  [Two percent] percent] of total product installed[, but not less thanof each type] [None - N/A].
           3. Extra Support Grid Members:  [Two percent] percent] of total product installed[, but not less thanof each type] [None - N/A].
     3. QUALITY ASSURANCE
        1. Electrical Work:  Comply with requirements of NFPA 70.
        2. Manufacturer Qualifications:  Company specializing in manufacturing the products specified in this section with minimum [three] years[documented] [None - N/A] experience.
        3. Products Requiring Electrical Connection:  Listed and classified by [Underwriters Laboratories Inc.] [testing firm acceptable to the authority having jurisdiction] as suitable for the purpose specified and indicated.
5. *The paragraph below is optional text*
   * 1. MOCK-UP
6. *The paragraph below is optional text*
   * + 1. Provide mock-up of[each type of] [None - N/A] luminous ceiling system, including at least one of each component.
7. *The paragraph below is optional text*
   * + - 1. Minimum Size:  [\_\_\_\_\_]  by [\_\_\_\_] feet ([\_\_\_\_\_]  by [\_\_\_\_] m).
8. *The paragraph below is optional text*
   * + - 1. Locate [where directed] [as indicated on drawings] .
9. *The paragraph below is optional text*
   * + 1. Analyze mock-up to determine illumination level and comfort achieved.
10. *The paragraph below is optional text*
    * + 1. Mock-up [may] [may not] remain as part of the Work.
    1. PART 2  PRODUCTS
       1. LUMINOUS CEILING Assemblies
          1. Refer to [Room Finish Schedule] [Reflected Ceiling Plans] and [Room Finish Schedule] [Reflected Ceiling Plans] on drawings for additional ceiling assemblies information.
          2. Luminous Ceiling Assembly Type LPC-1, Item No. [\_\_\_\_\_]:
             1. Panels:  Translucents luminous infill panels.
             2. Panel Size:  [24 inches by 24 inches (2 by 2) panel (600 mm by 600 mm)] [24 inches by 72 inches (2 by 6) plank (600 mm by 1800 mm)]
             3. Product:   [Clear Matte Polycarbonate] [Standard Décors - PETG] [Color Gallery - Rain Acrylic] [Color Gallery - PETG].
             4. Polycarbonate Panel Colors:  Clear Mat.
             5. Decors Colors:  [Clear Matte] [Ivory Taipei] [Lipstick Meander] [Luna Ice] [Oyster Linen] [Rain] [Rhythm] [Silver Spun] [Stardust] [Take II] [White Fiberoptic] [White Mesh] [To be selected from manufacturer's standards] [As indicated on drawings].
             6. Color Gallery Colors:  [Agave] [Blush] [Calypso] [Cornflower] [Glacier] [Graphite] [Gunmetal] [Honeydew] [Lago] [Lemon] [Mimosa] [Mulberry] [Nutmeg] [Olive] [Olivewood] [Orchid] [Pacific] [Perwinkle] [Pomegranate] [Sahara] [Santorini] [Seaglass] [Spice] [Sunflower] [Sunset] [To be selected from manufacturer's standards.] [As indicated on drawings].
             7. Suspension Grid:  Specified in Section 095100.
             8. Suspension Grid:  [Donn DX] [Centricitee DXT] [Curvatura] [Identitee DXI] [Fineline DXF 3-Dimensional] [Gridware] suspension system.
       2. Performance Requirements:
          1. Design for maximum deflection of [1/360] of span.
          2. Design to support imposed loads of indicated elements without eccentric loading of supports. Where supported elements may induce rotation of ceiling system components, provide stabilizing reinforcement.
11. *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 [C] [D, E, or F] and complying with the following:
12. *The paragraph below is optional text*
    * + - 1. Local authorities having jurisdiction.
13. *The paragraph below is optional text*
    * + - 1. ICC-ES Evaluation Report No. [\_\_\_\_\_\_\_\_\_\_].
        1. Surface Burning Characteristics:  Flame spread index of [25 or less] [75 or less], smoke developed index of 450 or less, when tested in accordance with ASTM E84.
      1. COMPONENT Products
         1. Panels:
14. *The paragraph below is optional text*
    * + - 1. Three-Dimensional Curved Panels:  Preformed three-dimensional curved luminous polycarbonate lay-in panels.
15. *The paragraph below is optional text*

Panel Color:   [As indicated on drawings].

1. *The paragraph below is optional text*

Accessories:  Provide manufacturer's standard [hold-down clips] [edge trim] and [hold-down clips] [edge trim].

1. *The paragraph below is optional text*

Products:

1. *The paragraph below is optional text*

USG Corporation; Billo 3-Dimensional Panels: www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

Substitutions:  Not permitted.

* + - * 1. Luminous Infill Panels:  Preformed plastic lay-in panels.

1. *The paragraph below is optional text*

Material:  Acrylic.

1. *The paragraph below is optional text*

Material:  Polycarbonate.

1. *The paragraph below is optional text*

Material:  Polyethylene terephthalate (PET or PETG); PVC-free.

Thickness:  [1/8 inch (3.2 mm)] [[\_\_\_\_\_] inch ([\_\_\_\_\_\_] mm)], nominal.

Color:   [As selected from manufacturer's standard colors] [As indicated].

Pattern:   [As selected from manufacturer's standard patterns] [As indicated].

Panel Size:  [24 by 24 inches (610 by 610 mm)] [24 by 72 inches (610 by 1829 mm)].

Products:

USG Corporation; Translucents Luminous Infill Panels:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - 1. Suspension Systems:
         1. Metal Suspension System:  See Section 095100 - Acoustical Ceilings - USG.
         2. Metal Suspension System:  See Section 095400 - Specialty Ceilings - USG.
         3. Metal Suspension Systems - General:  Complying with ASTM C635/C635M; die cut and interlocking components, with [perimeter moldings] [hold down clips] [stabilizer bars] [seismic clips] [splices], [perimeter moldings] [hold down clips] [stabilizer bars] [seismic clips] [splices], [perimeter moldings] [hold down clips] [stabilizer bars] [seismic clips] [splices], [perimeter moldings] [hold down clips] [stabilizer bars] [seismic clips] [splices], and [perimeter moldings] [hold down clips] [stabilizer bars] [seismic clips] [splices] as required.

Materials:

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

* + - * 1. Exposed Acoustical Suspension System:  Hot-dipped galvanized steel grid and cap.

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

1. *The paragraph below is optional text*

Recycled Materials Content:  Classified as containing greater than 50% total recycled content.  Available for specific sizes and lengths.

Profile:  Tee; [15/16 inch (24 mm)] [[\_\_\_\_] inch ([\_\_\_\_] mm)] face width.

Finish:   [Baked enamel].

Color:   [As indicated on drawings] [White] [To be selected from manufacturer's standards].

Products:

USG Corporation;  DX 15/16 Inch Suspension System:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - * 1. Exposed Acoustical Suspension System:  Hot-dipped galvanized steel grid and cap.

1. *The paragraph below is optional text*

Application(s):  Seismic.

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

1. *The paragraph below is optional text*

Recycled Materials Content:  Classified as containing greater than 50% total recycled content.  Available for specific sizes and lengths.

Profile:  Tee; [9/16 inch (14 mm)] [[\_\_\_\_] inch ([\_\_\_\_] mm)] face width.

Finish:   [Baked enamel].

Color:   [As indicated on drawings] [White] [To be selected from manufacturer's standards].

Products:

USG Corporation; Centricitee  DXT 9/16 Inch Suspension System:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - * 1. Open-Cell System:  Hot-dipped galvanized steel main and cross tee ceiling system, powder coat finish.

1. *The paragraph below is optional text*

Application(s):  Seismic.

Sizes:  2 foot by 2 foot (610 by 610 mm) module, with [24 by 24 inches (610 by 610 mm)] [24 by 48 inches (610 by 1219 mm)] [48 by 48 inches (1219 by 1219 mm)] [[\_\_\_\_\_] inches ([\_\_\_\_\_] mm)] cells.

Grid Profile: [9/16 inch GWM9 (14 mm GWM9)] [9/16 inch GWDXT (14 mm GWDXT)] [15/16 inch GWDX (24 mm GWDX)] [1-1/2 inch GWDXW (38 mm GWDXW)] [[\_\_\_\_] inch ([\_\_\_\_] mm)] ceiling grid.

Finish:  100 percent tee coverage.

Color:  [[Flat White] [Silver Satin] [Flat Black]].

1. *The paragraph below is optional text*

Accessories:  Provide manufacturer's standard [perimeter trim].

Products:

USG Corporation;  Gridware Open Cell Decorative System: www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - * 1. Exposed Suspension System:  Hot-dipped galvanized steel grid and cap.

1. *The paragraph below is optional text*

Application(s):  Seismic.

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

1. *The paragraph below is optional text*

Recycled Materials Content:  Classified as containing greater than 50% total recycled content.

Profile:   Double reveal Tee; [[\_\_\_\_] inch ([\_\_\_\_] mm)] [9/16 inch (14 mm)] face width.

Intersections:  Seamless reveal.

Finish:    [Baked enamel].

Color:   [To be selected from manufacturer's standards] [White] [As indicated on drawings].

Products:

USG Corporation; Identitee DXI Suspension System:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - * 1. Exposed Acoustical Suspension System:  Hot-dipped galvanized steel grid.

1. *The paragraph below is optional text*

Application(s):  Seismic.

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

1. *The paragraph below is optional text*

Recycled Materials Content:  Classified as containing greater than 50% total recycled content. Available for specific sizes and lengths.

Profile:  Slotted Reveal Tee; [9/16 inch (14 mm)] [[\_\_\_\_] inch ([\_\_\_\_] mm)] face width, with  1/4-inch wide center reveal.

Intersections:  Mitered.

Finish:   [Baked enamel] .

Color:   [As indicated on drawings] [White] [To be selected from manufacturer's standards].

Products:

USG Corporation Fineline DXF Suspension System:  www.usg.com/ceilings/#sle.

Substitutions:  Not permitted.

* + - 1. Luminaires:  See Section 265100.

1. *The paragraph below is optional text*
   * + 1. Moldings and Trim:
2. *The paragraph below is optional text*
   * + - 1. Edge Molding and Splices:  Same material, thickness, and finish as metal pan panels, unless otherwise indicated.
3. *The paragraph below is optional text*
   * + - 1. Perimeter (Wall) Moldings:  Same metal and finish as grid.
4. *The paragraph below is optional text*

Size:  As required for installation conditions.

1. *The paragraph below is optional text*

Angle Moldings:  [M7] [M9] [M9-10] [M12] [M18] [M20] L-shaped and galvanized G90, for mounting at same elevation as face of grid.

1. *The paragraph below is optional text*

Shadow Moldings:  [MS125] [MS144] [MS154] [MS174] [MS274] Shaped to create a perimeter reveal.

1. *The paragraph below is optional text*

Channel Moldings:  [US12], [US20], [US28], [US31], [UA31] U-shaped, for hold-down type installations.

1. *The paragraph below is optional text*

Gaskets For Perimeter Moldings:  Closed-cell foam, factory-applied to molding.

1. *The paragraph below is optional text*

USG Sheetrock brand Acoustical Sealant For Perimeter Moldings:  Non-hardening, non-skinning, for use in conjunction with suspended ceiling system.

1. *The paragraph below is optional text*
   * + - 1. Metal Transition Trim:  Steel or extruded aluminum; provide attachment clips, splice plates and preformed corner pieces for complete trim system:
2. *The paragraph below is optional text*

Trim Height:  [2-1/4 inch (57 mm)] [4 inch (102 mm)] [6 inch (152 mm)] [8 inch (203 mm)] [10 inch (254 mm)] [[\_\_\_\_\_] inch ([\_\_\_\_\_] mm)].

1. *The paragraph below is optional text*

Finish:   [Baked enamel].

1. *The paragraph below is optional text*

Color:   [White].

1. *The paragraph below is optional text*

Products:

1. *The paragraph below is optional text*

USG Corporation; Compasso Elite Transitions - Acoustical to Acoustical:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Elite Transitions - Acoustical to Drywall:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Elite Drywall:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Suspension Trim: www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Slim Perimeter Trim: www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

Substitutions:  Not permitted.

1. *The paragraph below is optional text*
   * + - 1. Metal Perimeter Trim for "Cloud" Suspension Systems:  Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
2. *The paragraph below is optional text*

Trim Height:  [2-1/4 inch (57 mm)] [4 inch (102 mm)] [6 inch (152 mm)] [8 inch (203 mm)] [10 inch (254 mm)] [[\_\_\_\_\_] inch ([\_\_\_\_\_] mm)].

1. *The paragraph below is optional text*

Finish:   [Baked enamel].

1. *The paragraph below is optional text*

Color:   [White].

1. *The paragraph below is optional text*

Products:

1. *The paragraph below is optional text*

USG Corporation; Compasso Suspension Trim - Standard:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Suspension Trim - Slim:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Suspension Trim - Elite:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

USG Corporation; Compasso Suspension Trim - Elite with Island Accent Lighting:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

Substitutions:  Not permitted.

1. *The paragraph below is optional text*
   * + - 1. Metal Curtain Pocket Trim:  Steel or extruded aluminum; provide attachment clips, splice plates and preformed corner pieces for complete trim system:
2. *The paragraph below is optional text*

Trim Height:  [2-1/4 inch (57 mm)] [4 inch (102 mm)] [6 inch (152 mm)] [8 inch (203 mm)] [10 inch (254 mm)] [[\_\_\_\_\_] inch ([\_\_\_\_\_] mm)].

1. *The paragraph below is optional text*

Finish:   [Baked enamel].

1. *The paragraph below is optional text*

Color:   [White].

1. *The paragraph below is optional text*

Products:

1. *The paragraph below is optional text*

USG Corporation; Compasso Elite Curtain Pocket:  www.usg.com/ceilings/#sle.

1. *The paragraph below is optional text*

Substitutions:  Not permitted.

* + 1. Accessories
       1. Support Channels, Carriers, and Hangers:  Galvanized steel; size and type to suit application[None - N/A] [seismic requirements] [Logix Yoke] and ceiling system flatness requirement specified.
       2. Suspension Wire[and Rope] [None - N/A]:  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, galvanized finish, [12 gage, 0.0808 (2.05 mm)] [9 gage, 0.1144 inch (2.91 mm)] [[\_\_\_] gage, [\_\_\_] inch ([\_\_\_] mm)] diameter.

* + - * 1. Exposed (To View) Suspension:

Suspension Wire:  Stainless steel, 18 gage, 0.0403 (1.02 mm) diameter, complying with ASTM A580/A580M.

Suspension Rope:  1/32 inch (0.8 mm) stainless steel rope wire complying with ASTM A492, with loop and crimp-end or turnbuckle connection.

1. *The paragraph below is optional text*
   * + 1. Seismic Clips:  Manufacturer's standard clips designed to provide a rigid connection between suspension grid tees and wall moldings.
2. *The paragraph below is optional text*
   * + 1. Hold-Down Clips:  Furnish and install per Manufacturer's installation criteria to suit code compliant application.
          1. Hold-Down Clips: Panel Retention Clip 20428 N3 Attaches to 1-1/2" main tees and cross tees behind lay-in ceilings.
          2. Hold-Down Clip: Hold-down clip O1, to maintain a clean room seal.
          3. Hold-Down Clips: Variable Locking Hold-Down Clip O2, Use as a locking hold-down clip for various acoustical and metal panels.
          4. Hold-Down Clips: Accessible Hold-Down Clip P, Use as a hold-down clip for 5/8" panels. Provides ready accessibility.
          5. Hold-Down Clips: Variable Hold-Down Clip Q, f or 5/8" to 3/4" panels.
          6. Hold-Down Clips: Wall Spring Clip R, To hold down perimeter ceiling panels. Useful for maintaining Clean Room seal with US28CE molding.
          7. Hold-Down Clip Alternate: Use 6d Galvanized nail, place nail firmly above panel at tee punching, space according to local code, min 1 nail per 2’-0” [600 mm O.C.].
3. *The paragraph below is optional text*
   * + 1. Seismic Clips:  Galvanized Steel clips, furnish and install per Manufacturer's installation criteria to suit code compliant application.

Seismic Attachment Clip: Used to attach tees ends to perimeter angle for seismic design C D E F categories.

Available products: ACM7.

Molding Attachment Clip: 2 in. thick x 1/2 in. thick x 1-5/8 in. Used to attach cross tees and main tees to walls/ wall molding.

Molding Attachment Clip: 9/16 in. thick for SQ panels or FL panels, Available products: MAC2.

* + - 1. Seismic Separation Joints: Galvanized Steel clips, furnish and install per Manufacturer's installation criteria to suit code compliant application.

Two Way Seismic Separation joint accessories: Tee sleeves to accommodate movement: Snap fit sleeve, prefinished to match suspension system components.

Seismic Grid Separation Clip: DH2 2-way seismic separation joint clip, attached to ceiling grid tees intersections [fixed with fasteners] [Unrestrained to accommodate grid tee movement] in a [directional] vector.

Four way Seismic Separation joint clip: Connects 4 way intersection: Snap fit sleeve with optional screw/fixing holes.

Seismic Grid Separation Clip: DH4 4-way seismic separation joint clip, attached to ceiling grid tees intersections [fixed with fasteners] [Unrestrained to accommodate grid tee movement] in a [directional] or [omnidirectional].

* + - 1. 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).
         1. USG UTAC clip.
      2. Three Way off-module connector: Joins cross tees at top of grid, for tees of same height only.
         1. USG DH3 clip.
      3. Compasso Standard clip.
      4. Compasso Celebration clip.
      5. Compasso Elite clip.
      6. Celebration Compasso Elite clip.
      7. Acoustical Insulation:  ASTM C665 friction fit type, unfaced batts.
         1. Thickness:  [2 inch (51 mm)] [6 inch (152 mm)] [[\_\_\_\_] inch ([\_\_\_\_] mm)].
         2. Size:  To fit acoustical suspension system.
      8. Gypsum Board and Framing Materials:  See Section 092116.
      9. Touch-Up Paint for Exposed Surfaces:  Type and color to match suspension system grid and trim elements.
      10. Touch-Up Paint For Concealed Items:  [Zinc rich] [Zinc oxide] type, as recommended by ceiling system manufacturer.
    1. Fabrication
       1. Shop fabricate ceiling[and wall] [None - N/A] 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] [indicated on shop drawings] [instructed by the manufacturer].
        4. Verify that mechanical work above luminous ceiling has been completed and does not interfere with luminous ceiling installation or performance.
        5. 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 additional hangers and inserts as required.
        3. Paint surfaces and mechanical installations in cavity above luminous elements.  Use 90 percent reflectance white paint applied as specified in Section 099123.
        4. Install after major above-ceiling work is complete.
        5. Start of installation constitutes acceptance of project conditions.
     3. Installation - SUSPENSION SYSTEM:
        1. Install suspensions system in accordance with ASTM C636/C636M and 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.
        4. Lay out system to a balanced grid design with edge units no less than 50 percent of luminous ceiling panel size.
        5. Lay out system on room axis as indicated on the reflected ceiling plan.
        6. 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.

1. *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.
2. *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 or other 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)] [[\_\_\_\_] inches ([\_\_\_\_] mm)] of each corner, or support components independently.
       5. Do not eccentrically load system or produce 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. Provide edge moldings at junction with other ceiling finishes.[Miter corners.] [None - N/A][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. [Miter] [Overlap] [Overlap and rivet] corners.
     1. Installation - LUMINOUS INFILL PANELS:
        1. Install panels and other system components in accordance with manufacturer's instructions.
        2. Fit panels in place, free from damaged edges or other defects detrimental to appearance and function.
        3. Lay directional patterned panels [as indicated on drawings] [with pattern parallel to longest room axis] [with pattern parallel to shortest room axis] [in basket weave pattern].
        4. Install flat panels level, in uniform plane, and free from twist, warp, and dents.
        5. Cut to fit irregular grid and perimeter edge trim using panel manufacturer's recommended tools and methods.
3. *The paragraph below is optional text*
   * 1. INSTALLATION OF TRANSITION TRIM
4. *The paragraph below is optional text*
   * + 1. After the grids are installed, for each grid end that meets the transition trim, insert one tee attachment clip into the lower and upper bosses and secure the set screw. Leave enough tension for adjustment.
5. *The paragraph below is optional text*
   * + 1. At drywall suspension systems install gypsum panels after the transition trim is installed.
6. *The paragraph below is optional text*
   * + 1. Secure a tee attachment clip to each grid member that will connect to the transition trim. Install one framing screw into the center of the slotted screw hole. Leave enough tension so the attachment clip can be adjusted if needed. Follow manufacturer's instructions when aligning the attachment clip.
7. *The paragraph below is optional text*
   * + 1. Install the splice plates by sliding them into the bosses at the end of each transition trim joint. Loosely tighten the set screws and align the system square and true.
8. *The paragraph below is optional text*
   * 1. INSTALLATION OF Perimeter "Cloud" TRIM
9. *The paragraph below is optional text*
   * + 1. General:  Install in accordance with manufacturer's instructions.
10. *The paragraph below is optional text*
    * + - 1. Examine the reflected ceiling layout and carefully plan the layout of the trim on the ceiling grid.
11. *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.
12. *The paragraph below is optional text*
    * + - 1. Temporarily splice the segments together.
13. *The paragraph below is optional text*
    * + - 1. Assemble trim system, arranging the trim into smooth curves.
14. *The paragraph below is optional text*
    * + - 1. Mark and cut the suspension grid.
15. *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.
16. *The paragraph below is optional text*
    * + - 1. Join trim and permanently splice the segments together.
17. *The paragraph below is optional text*
    * + 1. 10-Inch and 12-Inch Trim:
18. *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.
19. *The paragraph below is optional text*
    * + - 1. Attach trim segments to the grid.
20. *The paragraph below is optional text*
    * + 1. Corners:
21. *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.
22. *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.
23. *The paragraph below is optional text*
    * 1. Installation of Curtain Pocket Trim
24. *The paragraph below is optional text*
    * + 1. Mounting:  Mount curtain pocket trim in accordance with manufacturer's instructions and as appropriate for project conditions:
25. *The paragraph below is optional text*
    * + - 1. Wall Cleat Mounting:
26. *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. *The paragraph below is optional text*
   * + - 1. Hanger Wire Mounting:
2. *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. *The paragraph below is optional text*
   * + - 1. Metal Framing Mounting:
2. *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] [closure 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 Deflection:  [1/360] [1/240] of span, maximum.
        2. 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)].
        3. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads:  [2] degrees.
     2. CLEANING
        1. Clean luminous ceiling elements in accordance with manufacturer's instructions.
7. END OF SECTION