



PRCTI20260341

ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Acoustical units.
- B. Suspension System For Acoustical Ceilings.
- C. Acoustical tile accessories.

Full-Sized legible color report must be on site and made available by the Permittee for all inspections.

1.02 RELATED REQUIREMENTS

- A. Section 01 3000 – Administrative Requirements.
- B. Section 01 6000 - Product Requirements.
- C. Section 01 7419 - Construction Waste Management and Disposal.
- D. Division 23 - Air Outlets and Inlets: Air diffusion devices in ceiling.
- E. Division 26 - Interior Lighting: Light fixtures in ceiling system.
- F. Division 28 - Fire Alarm Systems: Fire alarm components in ceiling system.

1.03 REFERENCE STANDARDS

- A. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2022.
- B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.
- C. 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; 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Sequence work to ensure 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.
- B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements and Section 01 6000 - Product Requirements for submittal procedures.
- B. Shop Drawings: Indicate grid layout and related dimensioning.
- C. Product Data: Provide data on suspension system components and acoustical units.
- D. Evaluation Service Reports: Show compliance with specified requirements.
- E. Product data for each type of product specified.
- F. Coordination drawings for reflected ceiling plans drawn accurately to scale, showing all connections, including bracing, and coordinating penetrations and ceiling-mounted items. Show the following:
 - 1. Ceiling suspension members.
 - 2. Method of attaching hangers to building structure.
 - 3. Ceiling-mounted items including light fixtures; air outlets and inlets; speakers; sprinkler heads; and special moldings at walls, and other junctures with adjoining construction.

4. Scale: 1/8 inch = 1'-0".
- G. Samples: Provide for each type of ceiling.
- H. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for Project.
- B. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 50 or less.
- C. Seismic Requirements: Comply with state and local code requirements for seismic bracing of ceiling suspension system; ASTM E580.
 1. Lateral bracing: Provide vertical lateral bracing as noted on Drawings and as required by Code, placed maximum 12'-0" on center in both directions and within 6'-0" of each wall.
 2. Wire Bracing: Provide as noted on Drawings and as required by Code.
 - a. Splayed wire bracing at all lateral bracing locations.
 - b. Safety wire bracing and clips at light fixtures; two per linear lay-in fixture on diagonally opposite corners, and a single wire at each recessed down light.
- D. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- E. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- F. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components, and partition system.
- G. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division-1 Sections.

1.07 PROJECT CONDITIONS

- A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.08 EXTRA MATERIALS

- A. See Division 1 - Product Requirements for additional provisions.
- B. Provide 1% of total acoustical unit area of each type of acoustical unit and grid system components for the Owner's use in maintenance of project.

1.09 WARRANTY

- A. See Section 01 7800 - Closeout Submittals and Procedures, for additional warranty requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Ceiling Panels:
 - 1. Armstrong World Industries, Inc: www.armstrong.com.
 - 2. CertainTeed Corporation: www.certainteed.com.
 - 3. USG: www.usg.com.
 - 4. Substitutions: See Section 01 6000 - Product Requirements.
- B. Suspension Systems:
 - 1. Same as for acoustical units.
 - 2. Substitutions: Section 01 6000 - Product Requirements..

2.02 ACOUSTICAL UNITS

- A. Acoustical Panels Type ACS-1: Ultima Beveled Tegular
 - 1. Composition: Fine Fissured No. 1729 - 15/16" Square
 - 2. Color: White
 - 3. Size: 24" x 48", as indicated on the Drawings

2.03 SUSPENSION SYSTEM(S) FOR ACOUSTICAL CEILINGS

- A. Exposed Steel Suspension System Type 15/16" and 9/16" as indicated: Formed steel, commercial quality cold rolled; heavy-duty.
 - 1. Reference Standard: Prelude ML by Armstrong World Industries, Inc.
 - 2. Profile: Tee; 15/16" and 9/16" as indicated, wide face.
 - 3. Construction: Double web.
 - 4. Finish: White painted.

2.04 ACCESSORIES

- A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.
- B. Lateral and Wire Bracing to meet seismic requirements.
 - 1. Rigid vertical lateral bracing: Galvanized steel shapes and sizes to suit application.
 - 2. Wire bracing: 12 gauge minimum galvanized steel wire.

- C. Aluminum Edge Moldings and Trim: Extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated. At rooms with exposed masonry use shadowline profile.
- D. Perimeter Moldings: Same material and finish as grid; in conjunction with seismic wall clip as described herein.
 - 1. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
- E. Touch-up Paint: Type and color to match acoustical and grid units.
- F. Transition metal: Same material and finish as grid. Profile as show on the drawings. 24 gauge metal profiles for transitions between different ceiling heights at suspended ceilings.
- G. Seismic wall clip (Install at all perimeter edge moldings per manufacturer's instructions):
 - 1. Seismic Rx™
 - 2. Manufacturer: Armstrong World Industries.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that layout of hangers will not interfere with other work.

3.02 PREPARATION

- A. Install after major above-ceiling work is complete.
- B. Coordinate the location of hangers with other work.
- C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

3.03 INSTALLATION - SUSPENSION SYSTEM FOR ACOUSTICAL CEILINGS

- A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.
 - 1. Lateral force bracing is required for all ceiling areas greater than 1,000 square feet.
 - 2. Where required, install rigid vertical lateral bracing and splayed safety wire bracing as noted herein.
- B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.
- C. Lay out system to a balanced grid design with edge units no less than 50 percent of acoustical unit size.
- D. Locate system on room axis according to reflected plan.
- E. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Install in bed of acoustical sealant.
 - 2. Use longest practical lengths.
 - 3. Overlap and rivet corners.
- F. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.
- G. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

- H. 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.
- I. 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.
- J. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- K. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.
- L. Do not eccentrically load system or induce rotation of runners.
- M. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
 - 1. Use longest practical lengths.
 - 2. Overlap and rivet corners.

3.04 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Lay directional patterned units with pattern parallel to longest room axis.
- D. Fit border trim neatly against abutting surfaces.
- E. Install units after above-ceiling work is complete.
- F. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.
- G. Cutting Acoustical Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Make field cut edges of same profile as factory edges.
- H. Where round obstructions occur, provide preformed closures to match perimeter molding.
- I. Install hold-down clips on panels within 20 ft (6 m) of an exterior door.

3.05 TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

3.06 INSTALLATION - SUSPENSION SYSTEM FOR GYPSUM BOARD CEILINGS

- A. General:
 - 1. Install in accordance with reference standards and manufacturer's instructions and as required to comply with seismic requirements.
 - 2. Tolerances:
 - a. Do not exceed 1/8 inch in 8'-0" variation from plumb or level in exposed lines of surface, except at joints between gypsum board units.
 - 3. Do not exceed 1/16 inch variation between planes of abutting edges or ends.

4. Shim as required to comply with specified tolerances.
- B. Ceiling and Soffit Support Systems:
1. Secure hangers or rods to structural support by connecting directly to structure where possible; otherwise connect to inserts, clips or other anchorage devices or fasteners indicated.
 2. Space main runners, hangers and furring according to requirements of ASTM C754, except as otherwise indicated.
 3. Where spacing of structural members, or width of ducts or other equipment, prevents regular spacing of hangers, provide supplemental hangers and suspension members and reinforce nearest affected hangers to span extra distance.
 4. Attach directly to structural elements only; do not attach to metal deck. Loop hangers and wire tie directly or provide anchors or inserts.
 5. Install compression posts, splay wires and other accessories as required to comply with seismic requirements.
 6. Extend runners to within 6 inches of walls.
 7. Wire-tie or clip furring members to main runners and to other structural supports indicated. In fire resistance rated assemblies, wire-tie furring members; do not clip.

END OF SECTION