

SECTION 09 51 23
ACOUSTICAL TILE CEILINGS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards that may be referenced in this section:

1. ASTM International (ASTM):
 - a. A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - b. C635/C635M, Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
 - c. C636/C636M, Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
 - d. E1264, Standard Classification for Acoustical Ceiling Products.
2. UL: Fire Resistance.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
 - a. Detailed layout of grid indicating hanger spacing, fastening and splicing details, change in level details, and access location.
 - b. Anchorage and bracing drawings and/or catalog information, as required by Section 01 88 15, Anchorage and Bracing, for loads shown on General Structural Notes on the Drawings.
2. Samples:
 - a. One 12-inch square of each acoustical unit material to illustrate range of appearance.
 - b. One full-size Sample of each suspension system member and molding.
 - c. Mark with name of manufacturer and specific design and technical data.

B. Informational Submittals:

1. Anchorage and bracing calculations as required by Section 01 88 15, Anchorage and Bracing, for loads shown on General Structural Notes on the Drawings.
2. Manufacturer's recommendation for installation of system.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials with manufacturer's labels indicating brand name, pattern, size, thickness, and fire rating.
- B. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Where acoustical materials are to be installed, maintain humidity of 65 percent to 75 percent in area for 25 hours before, during, and 25 hours after installation.
- B. Maintain a uniform temperature of 55 degrees F to 70 degrees F during installation of materials.

PART 2 PRODUCTS

2.01 SUSPENSION SYSTEMS

- A. Physical Characteristics:
 - 1. ASTM C635/C635M, Intermediate Duty:
 - a. Exposed Tee Grid: Fire-rated spaced to fit lay-in panels.
 - b. Main and Cross Members:
 - 1) Double web design, cold-rolled steel, minimum thickness of 0.020 inch, electrozinc-coated and factory-painted low-sheen satin white finish.
 - 2) Exposed Flange Width: 15/16 inch.
 - c. Edge Molding:
 - 1) Minimum 0.020-inch steel, channel- or angle-shaped.
 - 2) Flange Width: 15/16 inch, minimum.
 - 3) Finish to match main members.
 - d. Hanger Wire: ASTM A641/A641M, minimum 12-gauge, galvanized, soft-annealed, mild steel wire.
 - e. Wire Ties: ASTM A641/A641M, 18-gauge, galvanized, annealed steel wire.
- B. Functional Characteristics:
 - 1. Furnish manufacturer's hold down clips and accessories required for a complete system incorporating Seismic Design Category indicated in General Structural Notes on the Drawings.

2. Components, Materials, and Accessories: Product of a single manufacturer.

C. Performance Characteristics: None.

2.02 ACOUSTICAL UNITS

A. Physical Characteristics:

1. Flat Lay-In Panels:
 - a. Pattern: Random fissured.
 - b. Nominal Size: 24 inches by 24 inches by 5/8 inch thick.
 - c. Edges: Square.
 - d. Finish and Color: Painted white.

B. Functional Characteristics: Provide acoustical units from same production run as installed equal to 1 percent of area.

C. Performance Characteristics:

1. Material: Fire-resistive mineral fiber, Class A.
2. In accordance with ASTM E1264, Type III, Form 2.
3. Noise Reduction Coefficient (NRC): 0.55 to 0.65.
4. Ceiling Attenuation Class (CAC): 35 minimum.
5. Light Reflectance: LR 0.75 or over.

PART 3 EXECUTION

3.01 SEQUENCING

- A. Lay out grid.
- B. Coordinate with mechanical and electrical equipment in framing and cutting material around ceiling penetrations.
- C. Install suspension systems after mechanical work above is complete.
- D. Install acoustical units.

3.02 INSTALLATION OF SUSPENDED GRID SYSTEM

- A. Hang level and in straight alignment directly from structure following ASTM C636/C636M and manufacturer's current printed instructions.
- B. Hanger Wires:
 1. Space maximum 4 feet on center each direction and securely attach to structure above.

2. Install additional hangers at ends of each suspension member and at light fixtures, 6 inches from vertical surfaces.
3. Do not splay wires more than 5 inches in a 4-foot vertical drop.
4. Provide four-way wire splays at 45 degrees from main runner to support structure for every 144 square feet of ceiling area.
5. Wrap wire minimum three times horizontally, turning ends upward.
6. Where hanger wires cannot be hung vertically from structure above because of ducts, pipes, cable trays, or other interferences, provide steel channel trapezes (minimum 2-inch deep, 16-gauge cold-rolled carrying channels) hung on steel rods or 8-gauge wire from structural members above. Hang ceiling wires from these trapezes or similar members supporting ducts or pipes. Do not hang directly from ducts or pipes.
7. Follow suspension system manufacturer's instructions for modified installation required for Seismic Design Category indicated in General Structural Notes on the Drawings.

C. Edge Molding:

1. Install at intersection of suspended ceiling and vertical surfaces.
2. Miter corners where moldings intersect or install corner caps.
3. Attach to vertical surface with mechanical fasteners.

D. Provide additional channels, hangers, and trapezes as required to support edges of ceiling around and under mechanical and electrical work.

3.03 INSTALLATION OF ACOUSTICAL UNITS

- A. Upon completion of suspended grid system and other concealed work, install with pattern running in one direction.
- B. Place material to bear all around on suspension members.

3.04 CLEANING

- A. Clean soiled or discolored unit surfaces after installation.
- B. Touch up scratches, abrasions, voids, and other defects in painted surfaces.

3.05 SCHEDULE OF CEILING TYPES

- A. Areas to Receive Acoustical Ceilings (ACT): As scheduled on Interior Finish Schedule as shown on the Drawings.

END OF SECTION