
SECTION 09510 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes suspended acoustical board ceilings and suspension system trim.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Division 15 – A/C Grilles, Diffusers and Fire Sprinklers.
B. Division 16 - Electrical Lighting Fixtures.

1.03 SUBMITTALS

- A. Product Data: Cut sheets, catalog information, technical data, charts and installation instructions.
B. Samples: Acoustic boards, grid components, accessories.
C. Shop Drawings:
1. Show layout of all acoustic ceilings. Accurately locate grid members, fixtures, grilles, fire protection devices, and all penetrations.
2. Show typical details for all connections to abutting construction.
3. Identify each material and product, including suspension components.
4. Reproduced Contract Drawings are not acceptable for shop drawing submittal.
D. Certificates: Submit certificates from manufacturers of acoustical ceiling units and suspension systems attesting their products comply with specification requirements.

1.04 QUALITY ASSURANCE

- A. Requirements of regulatory agencies:
1. In addition to complying with other legal requirements, comply with:
a. UL: Listing and labeling for all fire-rated assemblies.
B. Fire Performance Characteristics:
1. Surface Burning Characteristics: As follows, tested per ASTM E 84.
a. Flame Spread: 25 or less.
b. Smoke Developed: 50 or less.

2. Fire Resistance Ratings: As indicated by reference to design designation in UL Fire Resistance Directory for floor, roof or beam assemblies; tested per ASTM E 119. Provide protection materials for lighting fixtures and air ducts to comply with requirements indicated for rated assembly.
- C. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system components, and partition system.
- D. Allowable tolerances: Completed acoustical ceilings shall be level within 1/8 in. in 12 ft.

1.05 REFERENCE STANDARDS

- A. Except as otherwise specified herein or shown on the Drawings, comply with the latest editions of all applicable codes and regulations including the applicable requirements of the following Reference Standards and Codes which are hereby made a part of this Section, as they relate to the acoustical ceilings.
 1. BOCA Building Code, latest Edition.
 2. The Occupational Health and Safety Administration (OSHA) Code of Federal Regulations(CFR), Volume 29.
 3. American Society for Testing and Materials (ASTM) Test Methods:
 - a. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - b. ASTM C636 -Installation of Metal Ceiling Suspension Systems for Acoustical Tiles and Lay-in Panels.
 - c. ASTM E84 - Surface Burning Characteristics of Building Materials.

1.06 PRODUCT HANDLING

- A. Store cartons open at each end to stabilize moisture content and temperature.
- B. Do not begin installation until materials required to complete a room or space are on the project site.

1.07 PROJECT CONDITIONS

- A. Environmental requirements:
 1. Do not install acoustical materials until "wet" construction has been completed and is "dry".
 2. Maintain humidity of 65% to 75% for 24 hours before and during installation of acoustical materials, and for 24 hours after installation.
 3. Maintain a uniform temperature in the range of 50 degrees F. to 70 degrees F. prior to and during installation of acoustical materials.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acoustical Tile:

1. Acoustical Ceiling Panel: Dune - Angled Tegular, Firecode (UL Label), Class A fire rating, as manufactured by Armstrong, 2500 Columbia Ave., Lancaster, PA 17604. Tel.: 1(888)234-5464.

- a. Size: 2' x 2'.
- b. Thickness: 5/8".
- c. Edge Detail: for Silhouette XL suspension system.
- d. NRC: 0.50.
- e. CAC: 30.
- f. Color: White.

2. Suspension System: Silhouette XL 9/16" bolt-slot system with 1/8" reveal as manufactured by Armstrong. T-Bar, intermediate duty suspension systems complying with ASTM C 635, 9/16" flange width.

- a. Color: Flat White.

C. Accessory Materials:

1. Wall Moldings: To match grid.
2. Hangers: 12 ga. galvanized wire.

- D. Equivalent products of other manufacturers which meet the requirements of the Drawings and this Section may be provided if approved by the Resident.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders.

3.02 INSTALLATION

- A. General

1. Install ceilings in accordance with the manufacturer's written instructions, provisions of ASTM C636, and Cisca publication Acoustical Ceilings - Use and Practice, and a maximum deflection of 1/360th of the span between hangers.
 2. Provide wall moldings at all places where tile abuts a vertical surface.
 3. Install hangers, frames, rings and boxes furnished by other trades, as required.
 4. Arrange acoustical units and orient directionally-patterned units with pattern running in one direction.
 5. Install lay-in acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
 6. Install hold-down clips in all panels located within 20 feet of exterior doors, or spaced as recommended by panel manufacturer, unless otherwise indicated or required.
- B. Suspension System:
1. Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members. Locate hangers not less than 6 in. from each end and spaced 4 ft. along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8 in. in 12 ft.
 2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system.
- C. Suspension Wires:
1. Space suspension wires 48 in. o.c. maximum.
 2. Attachment to structural elements:
 - a. Metal decks: Double-wrap-tie each hanger suspension wire to a 16 in. length of No. 4 (1/2 in. dia.) steel reinforcing bar and drop wire through accurately spaced drilled or punched holes in metal decking. Align length of reinforcing bars across flutes of decking.
 - b. Concrete slabs: Install looped or pigtail (corkscrew) type hanger suspension wires through accurately spaced drilled holes in slab formwork. Assure that loop or pigtail is standing vertical before concrete is placed.
 - c. Wood framing: Double-wrap preformed eyelet type suspension wires around framing members and secure with a 10d nail through each eyelet, or, double-wrap straight wires around framing members and tie with three twists of wire around itself.
 3. Do not make local kinks or bends in hanging wires as a means of leveling main carrying members.
 4. At carrying channels, tightly form loops to prevent any vertical movement or rotation of carrying member within the loops.
 5. At main runners, sharply bend and tightly wrap wires to prevent downward movement or slippage when ceiling loads are imposed.
 6. Do not hang suspension wires more than 1 in 6 out of plumb unless counter-sloping wires are provided.

7. Do not attach to or bend wires around interfering material such as duct work.
8. Use trapeze suspension or equivalent devices where obstructions interfere with direct suspension.
 - a. Trapeze suspension construction: Minimum, back-to-back 1-1/2 in. cold-formed channels for spans up to 6 ft.

D. Exposed Grid System:

1. Space main tee members at 24 in. o.c. for acoustical lay-in panels.
2. Support main tee members by hanger wires at 48 in. o.c. maximum. Secure wire thru tee with a double wrap and three twists.
3. Accurately level all main tee members.
4. Space cross tee members at 24 in. o.c. perpendicular to main tee members, forming a 24 x 48 module or 24 x 24 module as required.
5. Provide separate hanger wire supports for all recessed fluorescent lighting fixtures.
6. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
 - a. Attach wall moldings to perimeter wall surfaces with attachment at approximately 24 in. o.c. Miter all inside and outside corners. Butt joints will not be permitted.
 - b. Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
 - c. Screw-attach moldings to substrate at intervals not over 16 in. o.c. and not more than 3 in. from ends, leveling with ceiling suspension system to tolerance of 1/8 in. in 12 ft.
7. Install acoustical lay-in boards within the exposed tee suspension system.
 - a. Install lay-in boards in moldings with hold-down clips.

3.03 CARE AND CLEANING

- A. Upon completion, clean exposed surfaces of acoustical ceilings, including trim, edge moldings and suspension members, in a manner and with materials recommended by the manufacturer of the tile. Take care in handling, placing, and cleaning, as it is not intended to field paint the tile.
- B. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION