

SECTION 09 51 00 – ACOUSTICAL CEILING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes furnishing and installing:
 - 1. Exposed tee suspension system and lay-in acoustical panels.
 - 2. Acoustical ceiling trim and accessories.
 - 3. Additional hanger wires to support mechanical and electrical fixture that bear on suspension grid.

1.3 RELATED WORK

- A. Related Work of Other Sections:
 - 1. Section 06 40 00 – Architectural Woodwork: Suspended wood soffts.
 - 2. Section 09 21 16 – Gypsum Board Systems: Drywall suspension systems.
 - 3. Section 09 90 00 – Painting and Coating.
 - 4. Division 23 and 26 Sections - Mechanical and Electrical Fixtures Installed in Acoustical Ceilings.

1.4 DESIGN/PERFORMANCE REQUIREMENTS

- A. Comply with ASTM C 635 for materials and ASTM C 636 for installation. Where fire rated assemblies are indicated, comply with the requirements of the UL designs shown.
 - 1. Provide lighting fixture protection in accordance with UL requirements for the design indicated.
 - 2. Provide hanger wires as recommended by the suspension system manufacturer to comply with the structural classification specified (ASTM C 635), but not less than 12-gage galvanized wire (ASTM A 641).
 - 3. Direct wire tie to structure or provide attachment devices sized for not less than 5x design loads involved as determined by testing (ASTM E 488) conducted by a qualified independent testing agency.

1.5 SUBMITTALS

- A. Submit manufacturer's product data and samples showing compliance with specified requirements.

1.6 QUALITY ASSURANCE

- A. Acoustical Panel Standard: Comply with ASTM E 1264.
- B. Metal Suspension System Standard: Comply with ASTM C 635.

- C. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.
- D. Fire-Test-Response Characteristics:
 - 1. Surface-Burning Characteristics: Acoustical panels complying with ASTM E 1264 for Class A materials, when tested per ASTM E 84 and a smoke-developed index of 450 or less.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size units equal to 2.0 percent of quantity installed, but not fewer than two full cartons.
 - 2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed, but not fewer than two full cartons each.

PART 2 - PRODUCTS

2.1 CEILING SUSPENSION GRIDS

- A. Non-Fire Rated Exposed Grid Suspension System (C-1 Grid for Use With ACT-1 Lay-In Panels): Provide Armstrong "Prelude" 7300 suspension system for 4' x 4' module, with cross tees for lay-in ceiling panel size scheduled, and with 8889 drywall furring shoe for attachment to drywall furring grid and 7883 partition clip for attachment of partition track to ceiling grid, or equivalent by Chicago Metallic or USG as approved. Provide system complying with ASTM C 635 intermediate-duty requirements, with 1-1/2" deep main and cross runners, and smooth 15/16-inch wide matte white painted aluminum cap and angle moldings.

2.2 ACOUSTICAL PANELS

- A. Acoustical Lay-In Panels (Lay-In Panel Type ACT-1): Armstrong "Cortega" design, Item No. 770, 24" x 24" x 5/8" thick, with square edges on 4 sides, white color, NRC 0.55, CAC 0.33, Class A Flame Spread, LR 0.82, for C-1 suspension grid specified in this Section.

PART 3 - EXECUTION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
 - 1. Install non-fire rated assemblies in accordance with manufacturer's instructions; requirements of Article 2 "Installation of Components" of "Standard Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels" ASTM C 636; and as specified.
 - 2. Hangers: Space not more than 6-inch from each end and not more than 4-feet on center between ends of members to be supported. Provide additional hangers as required to prevent eccentric deflection or rotation of supporting runners.
 - 3. Moldings: Install where ceilings meet vertical surfaces. Cut and bend to conform to outside corners; cut and butt at inside corners.
 - 4. Do not bear supporting members on walls or partitions.

- B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders.
- C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers, use trapezes or equivalent devices.
 - 1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
 - 2. Do not attach hangers to steel deck tabs or to steel roof deck.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate with concealed fasteners at intervals not more than 16-inches (400-mm) on center and not more than 3-inches (75-mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8-inch in 12-feet (3.2-mm in 3.66-m). Miter corners accurately and connect securely.
- E. Exposed Grid Systems:
 - 1. Support main runners directly from hangers. Space main runners to support acoustic panels and other work resting in, or on, the ceiling, comply with performance requirements. Provide additional hanger wares at all four corners of grid surrounding lay-in light fixtures and other heavy loads supported directly by ceiling grid. Interlock cross-runners with either main runners or with cross-runners structurally classified as main runners.
 - 2. Install angle type moldings with exposed leg in same plane as bottom flange of runners.
 - 3. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit. Install square edge panels to rest on flanges of grid tees with border units supported by moldings. Install acoustic units in accordance with manufacturer's printed applicable instructions and recommendations only when:
 - 1. Exterior openings have been closed and roofs are weathertight.
 - 2. Mechanical, electrical, and other work above ceilings has been completed.
 - 3. Wet work has been installed.
 - 4. Temperature and relative humidity levels comply with acoustic material manufacturer's recommendations.
- G. Cleaning and Repairs: Clean exposed surfaces; comply with manufacturer's instructions. Remove and replace damaged units and members.

END OF SECTION 09 51 00