

SECTION 09511 – ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes acoustical panels and exposed suspension systems over bakery.

1.2 SUBMITTALS

- A. Product Data: For each product indicated.

1.3 JOB CONDITIONS

- A. Humidity and Temperature: Installation of acoustical materials shall be made only when temperature and humidity conditions closely approximate interior conditions which will exist when building is occupied. This condition shall be maintained prior, during and after installation.
 - 1. Maintain humidity of 65%-75% in area where acoustical materials are to be installed 24 hours before, during and 24 hours after installation.
 - 2. Maintain a uniform temperature in the range of 55° F to 80° F for at least 48 hours prior to installation and for duration of project.
- B. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed, is weatherproof, and until network in space is completed and nominally dry and until work above ceilings is completed and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Acoustical Panel Standard: Comply with ASTM E 1264.
- B. Metal Suspension System Standard: Comply with ASTM C 635.
- C. Attachment Devices: Size for five time the design load indicated in ASTM C 635, Table 1, “Direct Hung,” unless otherwise indicated.
 - 1. Anchors in Concrete: Expansion anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five (5) times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

- D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 1. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.
- E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.
- F. Accessories:
 - 1. Hangar Wire, 1-1/2" cold rolled channels, clips, splices, edge moldings and hold down clips required for suspended grid system.

2.2 ACOUSTICAL PANELS AND METAL SUSPENSION SYSTEMS

A. Suspension System:

- 1. Manufacturers:
 - a. Armstrong World Industries, Style AFG.
 - b. Chicago Metallic Corporation, Style 250.
 - c. Consolidated Systems, Style 1500.
- 2. Components:
 - a. Grid: Heavy duty, non-fire rated, exposed T configuration; components die cut and interlocking.
 - b. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
 - c. Grid Finish: White color, baked polyester finish.
 - d. Support Channels and Hanger: Galvanized steel, size and type to suit application.

B. Acoustical Units – Washable, ACT-2:

- 1. Manufacturers:
 - a. USG: Vinyl faced gypsum lay-in tile.
 - b. Gold Bond: To match.
- 2. Panel:
 - a. Size: 24 x 48 inches.
 - b. Thickness: ½ inch.
 - c. Surface: White vinyl facing.
 - d. Edge: Square.

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2.3 ACCESSORIES

- A. Acoustical Batt Insulation: ASTM C 655, friction fit type, unfaced.

PART 3 – EXECUTION

3.1 COORDINATION OF WORK

- A. 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 (if any), and partition system (if any).

3.2 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636, UBC Standard 25-2 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
 - 1. Tolerances:
 - a. Level to within 1/8 inch in 12 feet.
 - b. Deflection:
 - 1) Suspension system components, hangers and fastening devices supporting light fixtures, ceiling grilles and acoustical units shall have maximum deflection 1/360 of the span.
 - 2) Deflection Test: ASTM C 635.
- 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 obstruction; 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.
 - 3. Install system in accordance with ASTM C 636 and manufacturer's instructions.
 - 4. Locate system on room axis leaving equal border units if not indicated on reflected ceiling plan, or according to reflected plan.

- 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) o.c. 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. 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.
 - 1. Lay directional patterned units one way with pattern parallel to longest room axis.
 - 2. Install hold down clips to retain panels tight to grid system within 20 ft. of an exterior door.
 - 3. Hold tile field in compression by inserting leaf-type, spring-steel spaces between tile and moldings, spaced 12 inches (305 mm) o.c.