

SECTION 09500 - ACOUSTICAL CEILING SYSTEM

City of San Diego, CWP Guidelines

PART 1 -- GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing all acoustical ceiling systems, including all supporting systems and appurtenant work, complete.

1.2 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:

- 1. Uniform Building Code
- 2. Uniform Fire Code

1.3 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:

- 1. Federal Specifications:

SS-S-118 Sound Controlling (Acoustical) Tiles and Panels

- 2. Commercial Standards:

ASTM C 635 Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

- 3. Trade Standards: "Specification for Acoustical Tile and Lay-in Panel Ceiling Suspension Systems" by the Acoustical Material Association.

1.4 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:

- 1. Manufacturer's catalogue containing information on all components of the ceiling system and installation instructions.

- 2. Samples of materials proposed for use.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. **Delivery of Materials:** Manufactured materials shall be delivered in original, unbroken, packages or containers bearing the manufacturer's label.

- B. **Storage:** All materials shall be carefully stored in an area that is protected from deleterious elements in a manner recommended by the product manufacturer. Storage shall be in a manner that will prevent damage to the material or marring of its finish.

PART 2 -- PRODUCTS

2.1 GENERAL

- A. The acoustical ceiling system products shall be in accordance with the manufacturer's published specifications and these Specifications. Products and items not specifically indicated shall be manufacturer's standard products.

2.2 GRID SYSTEM MATERIALS

- A. **Cross Tees:** Cross tees shall be properly sized, cold-rolled, electro-galvanized steel, with [white] [] baked enamel finish.
- B. **Wall Molding:** Wall molding shall be 1-inch by 3/4-inch matching the beams and tees in material and finish. [Wall moldings with reveal shall be provided where indicated.]
- C. **Hanger and Diagonal Bracing Wires:** Hanger and diagonal bracing wires shall be not lighter than 12-gauge, pre-straightened, galvanized, annealed steel wire.
- D. **Spacers:** Spacers shall be tempered spring steel and shall be fitted into wall molding to provide tension on the ceiling system.

2.3 EXPOSED GRID SYSTEMS

- A. The exposed grid system shall be a "Heavy Duty" classified system.
- B. Main beams shall be not less than 1-1/2-inch high by 1-inch wide, cold-rolled, electro-galvanized steel, with [white] [] baked enamel finish.

2.4 CONCEALED GRID SYSTEMS

- A. The concealed grid system shall be a one-direction hung, concealed, "Heavy Duty" grid system.
- B. Main beams shall be not less than 1-1/2-inch high by 7/8-inch wide by 0.016-inch thick, cold-rolled, electro-galvanized steel, with white baked enamel finish.

2.5 SEISMIC RESTRAINT SYSTEMS

- A. The ceiling support system shall be provided with horizontal and vertical seismic restraint systems conforming to code. The restraint systems shall be complete with all components necessary to meet code. The systems shall include support wires and bracing, tie wires, fasteners and anchors, brackets and supports, clips, compressive restraint members, etc. The restraint systems shall be systems approved by the local authorities.

The compressive post for vertical restraint shall be a telescoping movement restraint manufactured of heavy wall galvanized tubing.

2.6 ACOUSTICAL PANEL AND TILE MATERIALS

- A. Tiles or panels shall be mineral fiber tile or panel as indicated and shall conform to Federal Specification SS-S-118.

- B. Tiles or panels shall have a flame spread rating of less than 25 when tested in accordance with UBC Standard 42-1.
- C. **Finish:** Finish shall be factory-applied [white] [] latex paint.

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NTS: Specific tile or panel patterns or locations can be specified below.

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2.7 ACOUSTICAL PANEL AND TILE PATTERNS AND SIZES

- A. Concealed grid system ceiling [panels] [tiles] shall be either [24] [12]-inch by [24] [12]-inch by 3/4-inch [K4C4 square edge [panel] [tile]] [revealed edged [panel] [tile]] of non-directional, fissured design.
- B. Exposed grid system ceiling panels shall be [24-inch by 48-inch by 5/8-inch] [24-inch by 24-inch by 3/4] [5/8]] -inch square edge, laid in panels of non-directional fissured or embossed design.
- C. Glue-on tile shall be 12-inch by 12-inch by 3/4-inch-thick square edge T&G or K4C4 tile with non-directional fissured or embossed pattern.

2.8 MOLDINGS

- A. **"U" Molding:** Slip-on "U" molding shall be a semi-rigid, [white] [] cover molding sized to fit the tile.
- B. **Reveal Wall Molding:** Reveal (shadow) line (wall) molding shall be 3/4-inch by 3/4-inch by 3/4-inch by 3/4-inch [white] [white with black recess].

2.9 ADHESIVE

- A. Tile cement or adhesive shall conform to the printed recommendations of the tile manufacturer for bonding to concrete or other indicated surface material and shall have a fire resistivity similar to ceiling material requirements.

2.10 MANUFACTURERS

- A. Products shall be of the following manufacture and type (or equal):

- 1. Exposed grid system:

- National Rolling Mills Series ["G"] ["FG"]
 - U.S.G. Interiors, Series ["DX"] ["DXL"]

- 2. Concealed grid system:

- National Rolling Mills, Series ["CML"] ["RCML"]
 - U.S. G. Interiors, Series ["DX-26"] ["DXL-26"]

- 3. Acoustical panels [tiles]:

Armstrong; Acousti-Celotex []
U.S. Gypsum []

4. "U" Molding

A.Z. Bogert Co.
Lok-Products

5. Compressive post:

U.S. Interior, Inc., "Compressive Fast"
Donn Corporation

PART 3 -- EXECUTION

3.1 GENERAL

- A. The acoustical ceiling system shall consist of continuous main beams and intersecting cross tees, joined together to form the patterns as indicated and acoustical ceiling panels and tiles. The system shall be complete with all necessary components, anchors, and supports.
- B. The system shall be designed so that the ceiling panels may be removed and replaced without damage, and so that main beams and cross tees can be removed or replaced without deforming the members or disturbing the balance of the grid system.
- C. Suspension systems and tile work shall be coordinated with lighting fixtures, air diffusers, speakers, smoke detectors, sprinklers, and other features so that all installations fit together without interference.

3.2 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's published directions, installation instructions, and specifications.

3.3 PROBLEM AREAS

- A. Manufacturer's published recommendations and specifications shall be followed for installation, materials, and treatment of problem areas; provided, that the manufacturer's published recommendations and specifications are not less than those required by "Specification for Acoustical Tile and Lay-In Panel Ceiling Suspension Systems" of the Acoustical Materials Association, and the Uniform Building Code.

3.4 DEFLECTIONS

- A. The ceiling system shall be engineered to carry the applied dead and live loads with a deflection of less than 1/360 of the span and shall be level to within 1/8-inch in 12 feet. The ceiling system shall conform to ASTM C 635 (Heavy Duty classification) with a minimum load carrying capacity of the main runner of 16 lb/linear foot (for a span of 4 ft 0 in.).

3.5 PATTERN AND SYMMETRY

- A. Unless otherwise indicated, the layout scheme shall be such that all ceiling [panels] [tiles] are symmetrical about the center of the rooms to provide the least number of cut [panels] [tiles]. The [panels] [tiles] shall be laid in a pattern with all edges in alignment and with all faces in a plane. There shall be no noticeable variations in the finished ceiling plane. Items located within the ceiling plane such as light fixtures, air diffusers, speakers, smoke detectors, and fire sprinklers shall be coordinated with other trades and shall be installed at the locations indicated. Whenever the CONTRACTOR is not sure of an installation location he shall obtain approval, of its proposed installation, from the CONSTRUCTION MANAGER.
- B. Nondirectional tile shall be laid so no fissure pattern direction is established.
- C. Tiles shall be held down by use of hold down clips.

3.6 BEAM SPLICES AND TEE INTERSECTIONS

- A. **General:** All main beams shall be joined together by a splice clip which draws the members tightly together with bottom flanges flush. Cross tee intersections shall be joined together by interlock methods, by positioning the ends of the cross tees snugly against the main beam and in holding the cross tees in vertical alignment with bottom flanges flush. All main beam splices and cross tee intersections shall be capable of withstanding at least 100 lb tension or compression.
- B. **Termination at Walls:** The main beams and cross tees which terminate at the walls shall be attached to a perimeter wall molding, which shall be continuous along at least 2 intersecting walls, with spring steel clips. Wall molding shall be securely attached to the walls at approximately 16-inch intervals.

3.7 HANGER WIRES

- A. Hanger wires shall be spaced at maximum 48-inches on center along the main beams and at the corners of lay-in-fixtures [and elsewhere as required for a fire-rated system].
- B. Hanger wires shall be secured to the supporting structure with approved fastenings. Hangers and fastenings shall be capable of carrying at least 4 times the design load but not less than 100 lbs.

3.8 MOLDINGS

- A. All outside edges such as against walls shall be provided with [wall moldings] [reveal wall moldings]. Slip-on "U" moldings shall be provided wherever tile does not abut against a wall molding or where the edge is otherwise exposed.

3.9 SEISMIC RESTRAINT SYSTEMS

- A. Seismic restraint systems shall conform to code and shall be provided at all locations required by code.
 - 1. **Horizontal Restraint:** Ceiling systems shall be provided with diagonal bracing wires. Horizontal restraints shall be effected by 4 No. 12-gauge wires secured to the main beams within 2 inches of the cross tee intersection and splayed 90 degrees from each other at an angle not exceeding 45 degrees from the plane of the ceiling. These horizontal restraint points shall be placed 12 feet on center in both directions with the first point within 4 feet from each wall. The restraint wire attachment to the supporting

structure shall be adequate for the loads imposed. Side wall ties shall be provided where necessary.

2. Vertical Restraint: Ceiling system shall be provided with a vertical restraint system to resist seismic uplift movements. The system shall be [telescoping compressive post], [vertical metal strut] attached to the main [channel], [tees], [runners], and fastened, secured and anchored to the underside of the structural system in a manner which meets code requirements. Restraint locations shall be not less than required by code and at horizontal restraint locations.

3.10 FIRE RATING

- A. Where a fire rating is indicated, the complete ceiling system shall meet the requirements for the indicated rating.

3.11 FINISHED CONDITION

- A. After installation, the acoustical ceiling system shall be free from any discoloration, dirt, smudges, scratches, chips, blemishes, and/or any misalignment. All damaged materials shall be replaced so that a new uniform acoustical ceiling system is provided.

3.12 EXTRA MATERIALS

- A. The CONTRACTOR shall furnish the CONSTRUCTION MANAGER with not less than two extra panels or tile for each 100 square feet of area for repair work.
- B. The extra materials shall be wrapped in plastic and paper and shall be marked to identify the product for easy identification.

3.13 ACCESS PANELS

- A. In the concealed grid system, access panels shall comprise at least 5 percent of the ceiling area, with a minimum of one per room. Access panels shall be located as indicated or where directed by the CONSTRUCTION MANAGER.

** END OF SECTION **