

## SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

### PART 1 - GENERAL

#### 1.1 SUMMARY

A. Section includes:

1. Acoustical panels and exposed suspension systems for ceilings.

#### 1.2 QUALITY ASSURANCE

- A. Surface-Burning Characteristics: Provide acoustical panels with surface burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.
- B. Seismic Standard: Provide acoustical panel ceilings designed and installed to withstand the effects of earthquake motions according to the following:
1. International Building Code
  2. CISCA's Recommendations for Acoustical Ceilings: Comply with CISCA's "Recommendations for Direct-Hung Acoustical Tile and Lay-in Panel Ceilings."
- C. Seismic Loads: Design and size components to withstand seismic loads in accordance with the International Building Code, Section 1613.1 for Category C.

#### 1.3 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 Panels: One full, unopened box of each type and color of ceiling tile installed.

### PART 2 - PRODUCTS

#### 2.1 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, light reflectances, and humidity resistance unless otherwise indicated.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

#### 2.2 ACOUSTICAL PANELS

- A. Manufacturers:
1. Armstrong Ceilings & Wall Solutions.
  2. CertainTeed Corporation; Saint-Gobain North America.

3. USG Corporation.

B. Panel Types:

1. **Type 1:** ASTM E1264, Type III, mineral base with painted finish; Form 2, Pattern C E, square edge, 24 by 48 inches (610 by 1220 mm) by 5/8 inch (16 mm) thick with mold and mildew inhibitor.
  - a. Basis-of-Design Product and Color: As specified in Division 01 Section "General Interior Finishes and Colors" and "Décor Interior Finishes and Colors."
  - b. Light Reflectance (LR): 0.84.
  - c. Ceiling Attenuation Class (CAC): 35.
  - d. Noise Reduction Coefficient (NRC): 0.55.
  - e. Metal Suspension System: Type A.
2. **Type 5:** ASTM E1264, Type XX, 1/2 inch (13 mm) gypsum base with a 2 mill minimum washable membrane-faced overlay, Pattern G, square edge, 24 by 48 inches (610 by 1220 mm). by 1/2 inch (13 mm) thick.
  - a. Basis-of-Design Product and Color: As specified in Division 01 Section "General Interior Finishes and Colors."
  - b. Light Reflectance (LR): 0.77.
  - c. Ceiling Attenuation Class (CAC): 35.
  - d. Metal Suspension System: Type B.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

A. Manufacturers:

1. Armstrong Ceiling & Wall Solutions.
2. CertainTeed Corporation; Saint-Gobain North America.
3. Rockfon (Rockwool International).
4. USG Corporation.

- B. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," and the International Building Code, Section 1613.1 for seismic building category indicated.

- D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire, ASTM A 641/A 641M, Class 1 zinc coating, soft temper or nickel-copper-alloy wire, ASTM B 164, nickel-copper-alloy UNS No. N04400.

1. Size: 12-gage minimum or as required so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, and in accordance with the International Building Code, Section 1613.1 for seismic building category indicated.

- E. Slotted Channel Framing: As specified in Division 05 Section "Metal Fabrications."

## 2.4 METAL SUSPENSION SYSTEM

- A. **Type A:** Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized according to ASTM A 653/A 653M, **G30 (Z90)** coating designation, with prefinished, cold-rolled, **15/16-inch- (24-mm-)** wide, metal caps on flanges.
1. Structural Classification: Intermediate-duty system.
  2. End Condition of Cross Runners: Butt-edge or override type.
  3. Face Design: Flat, flush.
  4. Cap Material: Steel cold-rolled sheet.
  5. Cap Finish: Factory painted to match adjacent acoustical panel, unless noted otherwise.
- B. **Type B:** Wide-Face, Capped, Double-Web, Hot-Dip Galvanized, **G60 (Z180)**, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized according to ASTM A 653/A 653M, **G60 (Z180)** coating designation, with prefinished, cold-rolled, **15/16-inch- (24-mm-)** wide, metal caps on flanges.
1. Structural Classification: Intermediate-duty system.
  2. End Condition of Cross Runners: Override type.
  3. Face Design: Flat, flush.
  4. Cap Material: Aluminum.
  5. Cap Finish: Factory painted to match adjacent acoustical panel, unless noted otherwise.

## 2.5 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed Sheet-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.
1. Provide **7/8 inch (22 mm)** horizontal flange.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Screw attach moldings to substrate 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.
  2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

- C. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- D. 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.
- E. Protect lighting fixtures and air ducts to comply with requirements indicated for fire-resistance-rated assembly.

### 3.2 INSTALLATION, SEISMIC DESIGN CATEGORY C

- A. Installed in accordance with ASTM C 636 and CISCA 0-2.
- B. Ceiling Weight: No more than 2.5 psf., including grid, panels, light fixtures, and air terminals. Support other services independently from the ceiling system.
- C. Wall Molding:
  - 1. Minimum 7/8-inch horizontal flange
  - 2. Provide grid terminal ends with 3/8-inch clearance from the wall and at least 3/8-inch perch on the molding.
  - 3. Perimeter attachment of grid is not permitted.
- D. Hangers: Meet requirements of ASTM C 636. Attach hangers to top chord or flange of structural members or to slotted channel framing installed at top chord or flange of structural members. Do not attach hangers to roof deck.
- E. Suspension System: 60-pound connection strengths in compression and tension at main beam and cross tee intersections and splices.
- F. Perimeter Spacers: Provide spacer bars at perimeter to prevent spreading.
- G. Light fixtures: For light fixtures weighing 56 lbs or less, provide 12-gage wires attached slack at diagonal corners. For light fixtures weighing in excess of 56 pounds, independently support from building structure.
- H. Penetrations: Allow 3/8-inch minimum clearance.

### 3.3 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13