

B. Gypsum Board and Accessories:

1. Celotex Corp.
2. Domtar Gypsum.
3. Georgia-Pacific Corp.
4. Gold Bond Building Products Div. of National Gypsum Co.
5. United States Gypsum Co.

2.02 METAL FRAMING MATERIALS:

- A. Provide galvanized metal framing materials in accordance with ASTM C645.
- B. Studs: Screw-type, Cee-shaped, size and gage shown on Drawings.
- C. Runners: Match studs.
- D. Blocking: 1-1/2 inch steel channels.

2.03 GYPSUM WALLBOARD:

- A. Provide gypsum wallboard in accordance with ASTM C36 unless otherwise indicated.
- B. Regular Gypsum Board: 5/8 inch thick; maximum permissible lengths; ends square cut, tapered edges.
- C. Fire Rated Gypsum Board: Type X, 5/8 inch thick; maximum permissible lengths; ends square cut, tapered edges.

2.04 GYPSUM WALLBOARD ACCESSORIES:

- A. Trim Accessories: Corner beads, edge trim beads and control joint beads made from galvanized steel or plastic, designed for their intended use.
- B. Fasteners: ASTM C1002 Type S screws for fastening gypsum board to metal framing.
- C. Joint Reinforcing Tape and Joint Compound: ASTM C475, type recommended by manufacturer for application indicated.

PART 3 - EXECUTION

3.01 METAL FRAMING ERECTION:

- A. Erect metal framing in accordance with ASTM C754.
- B. Install members true to lines and levels to provide surface flatness with maximum variation of 1/8 inch in 10 feet in any direction.

3.02 GYPSUM BOARD INSTALLATION:

- A. Install gypsum board in accordance with recommendations of GA 216.
- B. Erect single-layer regular gypsum board with ends and edges occurring over firm bearing.
- C. On ceilings, offset joints between layers. Fasten both base and face layers separately to supports with screws.
- D. Fastenings: Use screws when fastening gypsum board to metal framing or furring.
- E. Place corner beads at external corners. Use longest practical lengths. Place edge trim where gypsum board abuts dissimilar materials.
- F. Tape, fill, and sand exposed joints, edges, corners, openings, and fasteners to produce surface ready to receive surface finishes. Feather coats onto adjoining surfaces so that camber is maximum 1/16 inch. Finishing of taping is not required above suspended ceilings.

* END OF SECTION 09260 *

Gypsum

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ASTM C36

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beads and

steel or

fastening

ASTM C475,

application

SECTION 09511 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.01 SUMMARY:

- A. This Section includes acoustical panel ceilings installed with exposed suspension systems.

1.02 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract.
- B. Product data for each type of product specified.
- C. Coordination drawings for reflected ceiling plans drawn accurately to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. Ceiling suspension members.
 2. Method of attaching hangers to building structure.
 3. Ceiling-mounted items including light fixtures; and special moldings at walls, column penetrations, and other junctures with adjoining construction.
 - a. Scale: 1/8 inch = 1'-0"

1.03 QUALITY ASSURANCE:

- A. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
- B. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
- C. Flame Spread: 25 or less.
- D. Smoke Developed: 50 or less.
- E. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
1. Obtain suspension system from same manufacturer that produces acoustical ceiling units.

F. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).

1.04 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.05 EXTRA MATERIALS:

- A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.
- B. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of amount installed.
- C. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Products: Subject to compliance with requirements, provide the following:
 - 1. Mineral Base Panels - Water Felted, with Painted Finish and Perforated and Fissured Pattern, Non-Fire-Resistance Rated:
 - a. "Cortega Colortone," Armstrong World Industries, Inc.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Non-Fire-Resistance-Rated Steel Suspension Systems and edge moldings:
 - a. Armstrong World Industries, Inc.

ACOUSTICAL PANEL CEILINGS

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2.02 ACOUSTICAL

A. Standards:
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B. Colors:
characteristics

2.03 MINERAL

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B. Fissured:
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2.04 METAL

A. Standards:
classification
application

B. Finish:
application

C. Attachment:
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D. Powder:
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2.02 ACOUSTICAL CEILING UNITS, GENERAL:

- A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
- B. Colors and Patterns: Provide products to match appearance characteristics indicated under each product type.

2.03 MINERAL-BASE ACOUSTICAL PANELS - NODULAR, CAST OR MOLDED:

- A. Type, Form, and Finish: Provide Type III, Form 1 units per ASTM E 1264 with painted finish that comply with pattern and other requirements indicated.
- B. Fissured Pattern: Units fitting ASTM E 1264 pattern designation D, with other characteristics as follows:
 - 1. Color: as selected by Owner.
 - 2. Noise Reduction Coef. ent: NRC 0.55.
 - 3. Ceiling Sound Transmission Class: CSTC 35.
 - 4. Edge Detail: Square.
 - 5. Size: 24 inches by 48 inches by 5/8 inch.
 - 6. Fissured and Textured Pattern: Units matching pattern indicated by reference to manufacturers' standard pattern designations.

2.04 METAL SUSPENSION SYSTEMS, GENERAL:

- A. Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
- D. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attachment of hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing laboratory.

- E. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
- F. Gage: Provide wire sized so that stress at 3 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 diameter (12 gage).
- G. Hanger Rods: Mild steel, zinc coated, or protected with rust-inhibitive paint.
- H. Flat Hangers: Mild steel, zinc coated, or protected with rust-inhibitive paint.
- I. Angle Hangers: Angles with legs not less than 7/8 inch wide, formed with 0.0365-inch-thick galvanized steel sheet complying with ASTM A 446, Coating Designation G90, with bolted connections and 5/16-inch-diameter bolts.
- J. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
- K. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
- L. Hold-Down Clips for Non-Fire-Resistance-Rated Ceilings: For interior ceilings composed of lay-in panels weighing less than 1 lb per sq. ft., provide hold-down clips spaced 2'-3" o.c. on all cross-tees.

2.05 NON-FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS:

- A. Steel Suspension System: Main and cross-runners roll-formed from prepainted or electrolytic zinc-coated cold-rolled steel sheet, with prepainted 15/16-inch-wide flanges; other characteristics as follows:
 1. Structural Classification: Heavy-Duty System.
 2. Finish: Painted, match color of acoustical unit.

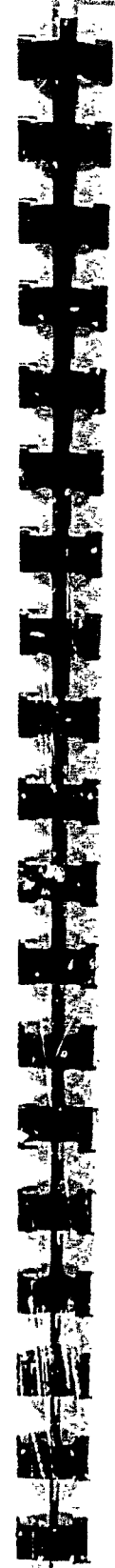
2.06 MISCELLANEOUS MATERIALS:

- A. Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other



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sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION:

- A. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
- 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, and comply with reflected ceiling plans.

3.03 INSTALLATION:

- A. General: Install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook."
- B. Standard for Installation of Ceiling Suspension Systems: Comply with ASTM C 636.
- C. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.
- D. Suspend ceiling hangers from building structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 - 3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by

attaching to inserts, eyescrews, or other devices that are secure and appropriate for structure to which hangers are attached as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.

5. Do not attach hangers to steel roof deck. Attach hangers to structural members.
6. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.
7. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
8. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
9. Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.
10. Install 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.
11. Install hold-down clips in areas indicated and in areas where required by governing regulations or for fire-resistance ratings; space as recommended by panel manufacturer, unless otherwise indicated or required.

3.04 CLEANING:

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

* END OF SECTION 09511 *

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