

SECTION 095113

ACOUSTICAL AND METAL CEILINGS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Work of this Section, as shown or specified, shall be in accordance with the Contract Documents.

1.2 SECTION INCLUDES

- A. Suspended acoustical and metal panel ceilings.
- B. All accessories, hardware and supports required for a complete installation.

1.3 RELATED SECTIONS

- A. Ceiling registers, diffusers, and sprinklers: Division 23.
- B. Lighting fixtures: Division 26.

1.4 REFERENCES

- A. The following standards are cited in this Section. They govern the work of this Section only to the extent specified in each citation.
- B. American Society for Testing and Materials (ASTM):
 - 1. A641-89 Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - 2. C635-91 Specification for Metal Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - 3. C636-91 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 - 4. C841-90 Specification for Installation of Interior Lathing and Furring.
 - 5. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 6. E1264-88 Classification for Acoustical Ceiling Products.
- C. National Association of Architectural Metal Manufacturers (NAAMM): ML/SFA 540-87: Lightweight Steel Framing Systems Manual.

1.5 SUBMITTALS

- A. Comply with Division 1 requirements.

B. Shop Drawings

1. Reflected ceiling plans, prepared by the ceiling installer, coordinated with other construction that is concealed or supported by ceilings and/or penetrates or adjoins ceilings.
2. Show grid centering points, dimensioned in relation to walls and columns, locations of lighting fixtures, sprinkler heads, diffusers, registers, and other ceiling-mounted work.
3. Show suspension system, anchorage to building structure, bridging and supplementary support, accommodation for built-in and supported items, and other data necessary to fabricate, install, and coordinate ceiling work with affected trades.

C. Product Data: Manufacturers' technical data showing dimensions, capacities, and performance of prefabricated products including (but not limited to) anchoring devices, grid systems, and acoustical lay-in panels.

D. Samples:

1. Acoustical and Metal Panels: One pair of each type of panels showing extremes of the appearance range of exposed finished surfaces.
2. Grid System: One complete set of components for specified types and structural classification.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Have experience and capacity, per ASTM E699 evaluation criteria, to perform required testing without delaying the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Division 1 requirements.
- B. Deliver products in original, unopened packages, labeled to show brand name and manufacturer's or supplier's name. Store them in an enclosed space.
- C. Keep products dry. Protect them from soil and damage during delivery, storage, and handling.

1.8 PROJECT CONDITIONS

- A. Environmental Requirements: Comply with manufacturer's instructions.
1. Work spaces shall be satisfactorily closed and protected against weather. They shall be dry and all work that introduces dampness shall be completed.
 2. Temperature during ceiling installation shall be maintained at 50 F or above. Do not tie ceiling systems perimeters before HVAC plant is operating and ambient occupancy conditions attained.

1.9 ATTIC STOCK

- A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Package with protective covering for storage and identified with appropriate labels.
 - 1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
 - 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

1.10 WARRANTY

- A. Metal and Acoustical Ceiling Panels: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Metal and Acoustical Ceiling Panels: Sagging and warping as a result of defects in materials or factory workmanship.
 - 2. Grid System: Rusting and manufacturer's defects
 - 3. Acoustical Panels with BioBlock Plus or designated as inherently resistive to the growth of micro-organisms installed with Armstrong suspension systems: Visible sag and will resist the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
- B. Warranty Period Humiguard:
 - 1. Acoustical panels: Ten (10) years from date of substantial completion.
 - 2. Grid: Ten (10) years from date of substantial completion.
 - 3. Acoustical panels and grid systems with HumiGuard Plus or HumiGuard Max performance supplied by one source manufacturer is thirty (30) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 SUSPENDED ACOUSTICAL PANEL CEILINGS

- A. Acoustical Ceiling Tile: Incombustible, molded mineral fiber with scrub-resistant, white-painted, fine textured face; Ultima 1912 and Ultima 1915 very fine texture, beveled tegular, by Armstrong World Industries, with HumiGard Plus for dimensional stability and BioBlock Plus for antimicrobial protection, complying with ASTM E1264 and the following:

G-Wing Renovation and Adler Center
Ramapo College of New Jersey

Acoustical and Metal Ceilings
095113-3
Issued for Construction: 1/15/13

1. Size: Nominal 24" x 24" x 3/4" and 24" x 48" x 3/4" thick.
 2. Properties: Incombustible. Class A Flame Spread, 0.70 NRC Range, and 0.90 Light Reflectance, per ASTM E1264.
 3. Color: Matte White.
- B. Exposed Tee Grid System for Acoustical Ceiling Tile: Non-fire-rated system of painted galvanized steel flush-fit and center protrusion main beams and cross tees; Suprafine XL 9/16" exposed tee by Armstrong World Industries, complying with the following:
1. Structural Classification: Intermediate Duty per ASTM C635.
 2. Grid: 24" x 24" and 24" x 48" grid of interlocking tees, and as shown on drawings.
 3. Edge Moldings and Trim: Room perimeter: manufacturer's standard stepped molding. Metal or extruded aluminum of types and profiles indicated, or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runners.
 4. Finish: Matte White.
 5. Accessories: Splicers, hold-down clips, and other accessories to complete the system.
- C. Moisture Resistant Acoustic Ceiling Panel (MRACP 1): Incombustible, molded mineral fiber with scrub-resistant, white-painted, fine textured face; Fine Fissured Ceramaguard 607, square lay-in, by Armstrong World Industries, with HumiGard Plus for dimensional stability and inherent antimicrobial protection, complying with ASTM E 1264 and the following:
1. Size: Nominal 24" x 24" x 5/8" thick.
 2. Properties: Fire Resistive, 0.55 NRC Range, and 0.82 Light Reflectance, per ASTM E 1264.
 3. Color: Matte White.
- D. Moisture Resistant Acoustic Ceiling Panel (MRACP 2): Incombustible, molded mineral fiber with scrub-resistant, white-painted, non-perforated face; Ceramaguard Unperforated #605, square lay-in, by Armstrong World Industries, or equal by Celotex or USG Interiors, Inc., with HumiGard Max complying with the following:
1. Size: Nominal 24" x 24" x 5/8" thick.
 2. Properties: Fire Resistive and 0.88 Light Reflectance.
 3. Panels shall meet ASTM E 1264, Type XX, Form E, Pattern G, Class A with flame spread rating of 0 to 25.
 4. Panels shall have factory-applied, scrubbable paint white finish.

- E. 2" Thick Acoustical Ceiling Tile (1.15 NRC): C-100 Ceiling Tiles by Sound Quality, Agawam, MA, 800-569-1294, or approved equal meeting the following requirements:
 - 1. Incombustible, 6-7# PCF rigid fiberglass core; with a 2 mil white pebblegrain facing. 2" thick panels to fit a 2' x 2' lay-in ceiling tile grid with an NRC rating of 1.15. All components shall have a Class A fire rating per ASTM E 84.
- F. Exposed Tee Grid System for Moisture Resistant Acoustic Ceiling Panel (MRACP 1 and MRACP 2) 2" Thick Acoustical Ceiling Tile (1.15 NRC): Non-fire-rated system of painted galvanized steel flush-fit and center protrusion main beams and cross tees; Prelude XL 15/16" exposed tee by Armstrong World Industries, complying with the following:
 - 1. Structural Classification: Intermediate Duty per ASTM C 635.
 - 2. Grid: 24" x 24" grid of interlocking tees, and as shown on drawings.
 - 3. 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, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runners.
 - 4. Finish: Matte White.
 - 5. Accessories: Splicers, hold-down clips, and other accessories to complete the system.

2.2 ~~SUSPENDED~~ CUSTOM METAL PANEL CEILINGS

- A. Metal Panels Type ACT-4: Smooth, ~~white painted; MetalWorks Tegular 9320U6A1, by Armstrong World Industries~~ **factory applied powder coat paint**, complying with ~~ASTM E1264~~ and the following:
 - 1. Size: Nominal 24" x 24" **and in sizes indicated on the drawings to sit into adjacent ceiling grid systems. Provide cutouts with upturned edges and collars as indicated on drawings.**
 - 2. Properties: Incombustible. Class A Flame Spread, ~~0.10 NRC Range, and 0.77 Light Reflectance, per ASTM E 1264~~, **18 gauge minimum steel.**
 - 3. Color: Matte White **to match ceiling grid.**
- ~~B. Exposed Tee Grid System for ACT 4: Non fire rated system of painted galvanized steel flush fit and center protrusion main beams and cross tees; Suprafine XL 9/16" exposed tee by Armstrong World Industries, complying with the following:~~
 - ~~1. Structural Classification: Intermediate Duty per ASTM C 635.~~
 - ~~2. Grid: 24" x 24" grid of interlocking tees, and as shown on drawings.~~
 - ~~3. 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, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runners.~~

~~4. Finish: Matte White.~~

~~5. Accessories: Splicers, hold down clips, and other accessories to complete the system.~~

2.3 ACOUSTICALLY TRANSPARENT CEILING SYSTEM

A. System: Concealed extruded aluminum grid and fully accessible panels; with reveal perimeter condition. Suspension system consists of panel retaining springs, spring retaining clips, and grid; Ceilencio Custom, by Decoustics (800-387-3809), or approved equal.

B. Panels: 6-7 pcf density core with a 1/16" thick 16-20 pcf high density integral facer designed to receive a non-bridging acoustically transparent coating, and a 1 mil clear vapor retard or adhered to panel back; Claro by Decoustics (800-387-3809), or approved equal.

1. Sizes: 48" x 48", and as shown on drawings.

2. Properties: NRC 0.90 acoustical performance rating. Flame spread 25/Smoke developed 50.

3. Color: Matte White.

2.4 CUSTOM PERIMETER TRIM (FOR ACOUSTICAL PANEL CEILINGS ~~AND SUSPENDED METAL PANEL CEILINGS~~)

A. Product/Manufacturer: Axiom-Classic Custom Perimeter Trim; Armstrong World Industries, Inc.

B. Components: Edge trim system for suspended ceiling system, extruded aluminum alloy 6063 trim channel, 10 foot straight or curved profiles to minimum (36 inch for 10 and 12 inch high) inside and outside radii for acoustical and for drywall applications.

1. Axiom Trim Channel: 12" wide face with 3/4 inch horizontal legs, straight or curved sections with special bosses formed for attachment to the Axiom tee-bar connection clip or hanging clip; commercial quality, extruded aluminum, factory-finished in (factory-applied baked polyester paint to match Armstrong) () color; (custom paint finish color-matched to approved sample).

2. Axiom Outside Corner Posts (Straight Only): Commercial quality extruded aluminum sections formed to match the Axiom trim channel profile; pre-assembled with built-in splice plates that connect to straight Axiom sections; 7/8 inch x 7/8 inch x 12"; factory-finished in (factory-applied baked polyester paint to match Armstrong) () color; (custom paint finish color-matched to approved sample).

a. AX12OSCP - 12" Axiom Classic Outside Corner Post

3. Axiom Inside Corners (Straight Only): Commercial quality extruded aluminum sections formed to match the Axiom trim channel profile that connect to straight Axiom sections, 12 inch x 3/4 inch x 12" factory-finished in (factory-applied baked polyester paint to match Armstrong) () color); (custom paint finish color-matched to approved sample).
 - a. AX12QSI - 12" inside corner
4. Accessories:
 - a. AXHGC - Hanging clip, commercial quality aluminum, unfinished, used to align grid members that extend beyond the lower edge of the trim.
 - b. AX2HGC - Hanging clip, commercial quality aluminum, unfinished, used when suspension wires must be attached directly to the trim sections.
 - c. AXSPICE - Splice with set screws, galvanized steel, unfinished, used to attached factory-mitered inside corners
 - d. AX4SPICE - Splice with set screws, galvanized steel, unfinished, used to attach joints between sections of trim.
 - e. AXTBC - T-bar Connector Clip, galvanized steel, unfinished, used to attach channel trim to supporting suspension members.
 - f. AXSPHDC - Perimeter Trim Hold Down Clip used to secure cut edges of metal panels at the Axiom trim.
 - g. AXBTSTR - Drywall Bottom Trim Straight, extruded aluminum, 120 inches x 1-9/64 inch x 27/32 inch, used to finish edges of 5/8 inch drywall that is applied to the bottom surface of the Axiom.
 - h. AXBTCUR - Drywall Bottom Trim Curved, extruded aluminum, 120 inches x 1-9/64 inch x 27/32 inch, used to finish edges of 5/8 inch drywall that is applied to the bottom surface of the Axiom.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Comply with Division 1 requirements.
- B. Field check Project for access, construction tolerances, and other conditions that affect work. Do not install products until unsatisfactory conditions are corrected. Defects resulting from unsatisfactory conditions or untimely installation shall be corrected at no cost to the Owner.

3.2 CEILING SUSPENSION

- A. General: Comply with ASTM C636 as amended herein.
 1. Install ceiling suspension to meet specified performance requirements and allowable tolerances.
 2. Install lather's channel bridging and additional anchors, hangers, and braces necessary to span obstructions and keep spans and loads within acceptable limits. Install lather's channels to frame openings for lighting fixtures, diffusers, registers and access panels.

3. Keep hangers and braces at least 2" clear of ducts, pipes and conduits. Do not penetrate ductwork without specific approval in each case. Do not tie work to or suspend it from ducts, pipes, or conduits. Obtain required levels without crimping or bending hangers.
 4. Comply with ASTM C 754 as amended herein.
- B. Anchorage:
1. Secure hangers to anchorage devices in concrete-filled metal deck by means of rod hanger brackets. Secure hangers to structural steel framing with beam/flange clamps and/or drill screws and rod hanger brackets. Clamp rod hangers to lather's channel bridging. Secure hangers to sides of cold-formed steel joists by means of screw-applied rod hanger brackets.
 2. Additional Anchors: If additional anchors are required, use beam/flange clamps for structural steel and brackets screw-anchored to concrete-filled metal deck. Do not use powder-actuated fasteners.
- C. Carrying Channels: Install lather's channels 48" (max.) o.c. Support channels 36" (max.) o.c. with hanger flats. Sway-brace suspended channels with hanger rods or 12 gage (min.) galvanized steel wire.
- D. Lay-In Ceiling Grid and Tee System Installation:
1. Main Runners: Attach main runners to carrying channels with direct-hang clips. Install runners continuously, in long lengths. Secure end joints with concealed splicers. Space main runners on 24" (max.) centers.
 2. Cross Runners: Align and lock them securely to main runners. Butt exposed cross-runners to main runners with hairline flush joints.
 3. Custom Length Runners: Field punch and trim runners for custom sizes (unless they have been ordered as custom factory-made units). Custom-size runners shall have the same appearance as standard units.
 4. Moldings: Install moldings at walls and at all interrupting vertical surfaces. Use one-piece-for-length where possible; do not piece out runs with short lengths. Install concealed splicers to maintain alignment.

3.3 PANEL INSTALLATION

- A. For reveal edge and cut tegular panels: Cut reveals and rabbetted edges of ceiling panels at border areas, vertical surfaces, light fixtures, and/or custom shapes (see reflected ceiling plans). Carefully cut and field tegularize all panels using a jig so all edges are straight and uniform. Recolor all cut edges that are exposed to view.
- B. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.
- C. Install metal panels in accordance with the manufacturer's installation instructions:

1. MetalWorks Tegular Installation Instructions, LA 295519
2. MetalWorks Cutting Instructions, LA 295518
3. Follow the instructions found in "MetalWorks Tegular Installation Instructions", LA-295519 for border treatment of the MetalWorks Tegular panels. The face of the suspension system rests directly on the molding or trim flange.

3.4 ADJUSTING, CLEANING, AND PROTECTION

- A. Correct nonconforming and damaged work. Replace damaged panels and other work that cannot be field corrected.
- B. Clean finished surfaces of dirt and finger marks including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage.
 1. Use Ceiling Touch-Up Paint, (Item #5760, 8oz. bottles) (Item #5761, quart size cans), "global white" latex paint to hide minor scratches and nicks in the surface and to cover field tegularized edges exposed to view.
- C. Protection: Protect work from damage.

END OF SECTION