**SECTION 09 50 00**

##### ACOUSTICAL CEILINGS

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

 Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

**1.2 SUMMARY**

1. Section Includes:
	1. Acoustical Fiberglass Ceiling panels
	2. Concealed metal grid suspension system
	3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
2. Related Sections:
	1. Section 09 51 13 – Acoustical Panel Ceilings
	2. Section 09 51 14 – Acoustical Fabric Faced Panels Ceilings
	3. Section 09 20 00 - Plaster and Gypsum Board
	4. Section 09 53 00 - Acoustical Ceiling Suspension Assemblies
	5. Division 23 – HVAC
	6. Division 26 – Electrical

C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect’s review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters’ Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

**1.3 REFERENCES**

A. American Society for Testing and Materials (ASTM):

* 1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
	2. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
	3. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
	4. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
	5. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
	6. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
1. International Building Code
2. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
3. NFPA 70 National Electrical Code
4. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
5. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
6. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings

**1.4 SYSTEM DESCRIPTION**

 Custom acoustical ceiling system with large format panels that have downward accessibility on a concealed suspension system

**1.5 SUBMITTALS**

A. Product Data: Submit manufacturer’s technical data for each type of acoustical ceiling unit and suspension system required.

B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.

C. Shop Drawings: Layout and details of acoustical fiberglass ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

D. Certifications: Manufacturer’s certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

**1.6 QUALITY ASSURANCE**

1. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
2. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
	1. Surface Burning Characteristics: As follows, tested per ASTM E 84
		1. Class A
3. Acoustical panels, as with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
4. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

**1.7 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.

1. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

**1.8 PROJECT CONDITIONS**

A. Space Enclosure:

 HumiGuard Plus Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Products with HumiGuard Plus performance and hot dipped galvanized steel, aluminum or stainless steel suspension systems can be installed up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Cannot be used in exterior applications where standing water is present or where moisture will come in direct contact with the ceiling.

**1.9 LEED**

1. Armstrong Ceilings qualify for the following credits:
	1. Category - Material & Resources
		1. MR Credit 4.1, 4.2 - Recycled Content
		2. MR Credit 5.1, 5.2 - Regional Materials (dependent on location)
			1. LEED NC - 10% Extracted, Processed & Manufactured Regionally LEED CI - 20% Manufactured Regionally
	2. Category - Innovation and Design Process
		1. ID Credit - Acoustic Performance

**1.10 WARRANTY**

A. Acoustical Fiberglass Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Ceiling System: Sagging and warping

1. Warranty Period:
2. Acoustical Ceiling System: One (1) year 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.

**1.11 MAINTENANCE**

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Ceiling System: Furnish quality of full-size units and suspension equal to 3.0 percent of amount installed.

**PART 2 – PRODUCTS**

(Select the appropriate Size, Color and Suspension components before finalizing the specification, remove unused information)

**2.1 MANUFACTURERS**

A. Fiberglass Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

 1. Armstrong World Industries, Inc.

**2.2.1 ACOUSTICAL CEILING PANEL UNITS**

1. Acoustical Panels Type ACT-1:
2. Surface Texture: Smooth Textured
3. Composition: Aluminum Framed 6-7 pcf fiberglass and 16-20 pcf impact resistant molded fiberglass
4. Colors: Choose Colors from Sherwin Williams Duration or Harmony flat interior paint families (Contact 877-276-7876)
5. Size: Custom, up to 48” X 96”
	* 1. Curved Custom Panels (Contact 877-276-7876)
6. Edge Profile: Beveled
7. Noise Reduction Coefficient (NRC): 0.85
8. Flame Spread: ASTM E 84; Class A per IBC
9. Recycle Content: 35%, with 9% post-consumer
10. Acceptable Product: ALTITUDES™ Torsion spring as manufactured by Armstrong World Industries
11. Accessories
12. Spring Mounting Bracket (Item BP7233)
13. Spring (Item BP7234)
14. Bracket Installation Screw (Item BP7235)

**2.3.1 METAL SUSPENSION SYSTEMS**

1. Metal Suspension System:
2. Components: Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with 15/16” type exposed or dimensional flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
	1. Structural Classification: ASTM C 635 (Heavy duty)
	2. Color: White or Tech Black
	3. Acceptable Product: Prelude XL, as manufactured by Armstrong World Industries
3. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
4. Wire for Hangers and Ties: ASTM A641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12-gauge.
5. Accessories:
6. Spring Mounting Saddle (Item BP7104)
7. Spring Mounting 1/2 Saddle (Item BP7232)
8. Cross Tee Adapter (Item XTAC)
9. 2” Beam End Retaining Clip (Item Berc2)
10. Altitudes™ Panel Removal Tool (Item BP7179)
11. 2”  Hemmed Angle Molding (Item 7807)

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer’s printed recommendations.

**3.2 PREPARATION**

A. 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. Coordinate panel layout with mechanical and electrical fixtures.

B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.

1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

**3.3 INSTALLATION**

1. Follow manufacturer installation instructions for ALTITUDES™ Torsion Spring, literature item BPLA-297961.

**3.4 ADJUSTING AND CLEANING**

1. Replace damaged and broken panels.
2. 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 any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

###### END OF SECTION