**SECTION 095100**

**ACOUSTICAL Tectum® Shapes and Clouds CEILINGS**

**(CEMENTITIOUS WOOD FIBER CEILINGS)**

1. GENERAL
	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. SUMMARY
1. Section Includes:
	1. Cementitious wood fiber plank acoustical ceiling system
	2. Exposed Suspension System
2. Related Sections:
	1. Section 09 51 00 – Acoustical Ceilings
	2. Section 09 53 00 – Acoustical Ceiling Suspension Assemblies
	3. Section 09 20 00 – Plaster and Gypsum Board
	4. Section 01 81 13 – Sustainable Design Requirements
	5. Section 01 81 19 – Indoor Air Quality Requirements
	6. Divisions 23 – HVAC Air Distribution
	7. Division 26 – Electrical
3. 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.
	3. REFERENCES
4. American Society for Testing and Materials (ASTM)
	1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low Alloy and High-Strength Low-Alloy with Improved Formability
	2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
	3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
	4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
	5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
	6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
	7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
	8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
	9. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
	10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
	11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation between Rooms Sharing a Common Ceiling Plenum
	12. ASTM E 1264 Classification for Acoustical Ceiling Products
5. International Building Code
6. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
7. NFPA 70 National Electrical Code
8. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
9. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of nonstructural components
10. International Code Council-Evaluation Services Report – Seismic Engineer Report
11. ESR 1308 – Armstrong Suspension Systems
12. ICC-ES Evaluation Report ESR-1112.
13. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010
14. LEAD - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings
	1. SYSTEM DESCRIPTION

Build Type / Finished Form as selected by customer

* 1. SUBMITTALS
1. Product Data: Submit manufacturer’s technical data for each type of Tectum® Shapes and or Clouds and suspension system required.
2. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of suspension system.
3. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.
4. Certifications: Manufacturer’s certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.
5. If the material supplied by the acoustical subcontractor does not conform to manufacturer’s current published values it must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.
	1. SUSTAINABLE MATERIALS
6. Transparency: Manufacturers will be given preference when they provide documentation to support sustainable requirements for the following: Material ingredient transparency, Removal of Red List Ingredients per LBCV3, Life Cycle impact information, Low-Emitting Materials, and Clean Air performance.
7. Health Product Declaration. The end use product has a published, complete Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.
8. Declare Label. The end use product has a published Declare label by the International Living Future Institute with disclosure of 100 ppm with a designation of Red List Free or Compliant (less than 1% proprietary ingredients).
9. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).
10. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
11. End of Life Programs/Recycling: Where applicable, manufacturers that provide the option for recycling of their products into new products at end-of-life through take-back programs will be preferred.
12. Products meeting LEED V4 requirements including;
	1. Storage & Collection of Recyclables
	2. Construction and Demolition Waste Management Planning
	3. Building Life-Cycle Impact Reduction
	4. Building Product Disclosure and Optimization Environmental Product Declarations
	5. Building Product Disclosure and Optimization Sourcing of Raw Materials
	6. Building Product Disclosure and Optimization Material Ingredients
	7. Construction and Demolition Waste Management
	8. QUALITY ASSURANCE
13. Single-Source Responsibility: Provide Tectum® Shapes and or Clouds and grid components by a single manufacturer.
14. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
	1. Surface Burning Characteristics: As follows, per ASTM E 84 and complying with ASTM E 1264 Classification.
15. Tectum® Shapes and or Clouds, 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.
16. 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. DELIVERY, STORAGE & HANDLING
17. 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.
18. Provide labels indicating brand name, style, size and thickness.
19. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
20. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.
	1. PROJECT/SITE CONDITIONS
21. Environmental Requirements:
22. Do not install ceiling panels until building is closed in and HVAC system is operational.
23. Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
24. Maintain the following conditions in areas where acoustical materials are to be installed 24 hours before, during and after installation:
	1. Relative Humidity: 65 - 75%.
	2. Uniform Temperature: 55 - 70 degrees F (13 - 21 degrees C).
	3. WARRANTY

1. Acoustical 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. Defects in Material or factory workmanship
2. Tectum® Shapes and or Clouds and suspension systems one source manufacturer is Thirty (30) years from date of substantial completion.
3. 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. 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. Tectum® Shapes and or Clouds: 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.

*(****Attention Specifiers****, all areas in* ***red*** *require you to make selection based on requirements of the project before issuing specification. Please refer to the appropriate Tectum data page when making your selection. All data pages are available at* [*www.armstrongceilings.com*](http://www.armstrongceilings.com) *)*

1. PRODUCTS
	1. Manufacturer
2. Tectum® Shapes and or Clouds:
3. Tectum® by Armstrong World Industries, Inc.
4. Suspension Systems:

 1. Armstrong World Industries, Inc.

**2.2 ACOUSTICAL CEILING UNITS**

A. Acoustical Panels Type AP-1:

1. Surface Texture: Coarse
2. Composition: Aspen wood fibers bonded with inorganic hydraulic cement
3. Color: (Standard Selection: Natural or White) (Custom: Coloration or Sherwin Williams colors available as specials)
4. Size: (Size; widths;23¾” to 47 ¾”, Lengths up to 96”)
5. Thickness: (Custom 1-1/2” or 2”)
6. Edge Profile: (square or radius edges)
7. Noise Absorption; ( up to 0.41 Sabins S/F)
8. Flame Spread: ASTM E 1264; (Fire Class)
9. Light Reflectance (LR) White Panel: ASTM E 1477; (Light Reflectance)
10. Dimensional Stability: HumiGuard Plus
11. Sustainable: EPD (Environmental Product Declaration) and HPD (Health Product Declaration)
12. Acceptable Product: Tectum® Shapes and or Clouds as manufactured by Armstrong World Industries

**2.3 METAL SUSPENSION SYSTEMS**

1. Components: Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A653. Main beams and cross tees are double-web steel construction with 15/16” type exposed 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 (Intermediate or Heavy) duty
	2. Color: (Standard White) unless noted otherwise.
	3. Acceptable Product: Prelude XL 15/16” as manufactured by Armstrong World Industries
2. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
3. 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.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

1. 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**

1. Measure ceiling area and establish layout of Tectum® Shapes and or Clouds. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
2. 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. Install Tectum® Shapes and or Clouds in accordance manufacturer’s installation instructions. Follow the requirements pf the International Building Code, ASCE 7 and ASTM E580 and in install in accordance with the authorities having jurisdiction.

**3.4 ADJUSTING AND CLEANING**

1. Replace damaged and broken Tectum® Shapes and or Clouds.
2. Clean exposed surfaces of Tectum® Shapes and or Clouds 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**