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**SECTION 098400**

**TECTUM® DesignArt™ - Shapes Acoustical CEILING & Wall Panels**

**(CEMENTITIOUS WOOD FIBER WALLS)**

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.

Tectum DesignArt Direct-Attached Ceiling & Wall Panels

**Isosceles Triangles (30 Degree)**

5420T11T10 \_ \_ \_

5420T12T10 \_ \_ \_

**Right Triangles (45 Degree)**

5420T01T10 \_ \_ \_

5420T02T10 \_ \_ \_

**Parallelograms (45 Degree)**

5420P01T10 \_ \_ \_

5420P02T10 \_ \_ \_

5420P03T10 \_ \_ \_

5420P04T10 \_ \_ \_

**Right Triangles (60 Degree)**

5420T05T10 \_ \_ \_

5420T06T10 \_ \_ \_

5420T07T10 \_ \_ \_

5420T08T10 \_ \_ \_

**Parallelograms (60 Degree)**

5420P05T10 \_ \_ \_

5420P06T10 \_ \_ \_

**Hexagons (60 Degree)**

5420H01T10 \_ \_ \_

5420H02T10 \_ \_ \_

**Trapezoids (60 Degree)**

5420Z01T10 \_ \_ \_

5420Z02T10 \_ \_ \_

**Equilateral Triangles (60 Degree)**

5420T03T10 \_ \_ \_

5420T04T10 \_ \_ \_

**Squares & Rectangles (90 Degree)**

5420R01T10 \_ \_ \_

5420R02T10 \_ \_ \_

5420R03T10 \_ \_ \_

5420R04T10 \_ \_ \_

5420R05T10 \_ \_ \_

5420R06T10 \_ \_ \_

**Circles (360 Degree)**

5420C01T10 \_ \_ \_

5420C02T10 \_ \_ \_

5420C03T10 \_ \_ \_

5420C04T10 \_ \_ \_

Accessories

Item 5456GAL1\_ \_ \_ - 1 Gallon Touch Up Paint

Item 8187L16 #6 X 1-5/8” Painted Head – Sharp Point screws

Item 8186L16 #6 X 1-5/8” Painted Head – Drill Point screws

Item 8189L22 2-1/4” Painted Head – CMU Screws

* 1. SUMMARY
1. Section Includes:
	1. Cementitious wood fiber plank acoustical wall system
2. Related Sections:
	1. Section 09 20 00 – Plaster and Gypsum Board
	2. Section 01 81 13 – Sustainable Design Requirements
	3. Section 01 81 19 – Indoor Air Quality Requirements
	4. Divisions 23 – HVAC Air Distribution
	5. 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 C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
	2. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
	3. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
	4. 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. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010
9. L.E.E.D. - 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

Direct attached acoustical (Wall or ceiling) systems manufactured from domestic cementitious wood fiber.

* 1. SUBMITTALS
1. Product Data: Submit manufacturer’s technical data for each type of Tectum® DesignArt acoustical wall unit required.
2. Samples: Minimum 6 inch x 6 inch samples of specified Tectum® DesignArt acoustical wall panel.
3. Shop Drawings: Layout and details of Tectum® DesignArt show locations of items that are to be coordinated.
4. Certifications: UL certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. Acoustical performance, products must be tested to the A, D-20, C-20, or C-40 method.
5. Country of Origin: Submittals must be accompanied by letter, label or certification indicating the manufacturing country of origin. Comply with Made in USA requirements as applicable for the project.
6. If the material supplied by the acoustical subcontractor does not have an Underwriter’s Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect’s or owner’s discretion. All products not conforming to manufacturer’s current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.
	1. SUSTAINABLE MATERIALS
7. 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.
8. 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.
9. 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).
10. 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).
11. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
12. 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.
13. 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
14. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
15. Fire Performance Characteristics: Identify acoustical wall components with appropriate markings of applicable testing and inspecting organization.
	1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification.
16. Tectum® DesignArt, as with other architectural features located wall, 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.
17. Coordination of Work: Coordinate Tectum® DesignArt 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
18. Deliver acoustical wall 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.
19. Provide labels indicating brand name, style, size, and thickness.
20. Before installing acoustical wall units, permit them to reach room temperature and a stabilized moisture content.
21. Handle acoustical wall units carefully to avoid chipping edges or damaged units in any way.
	1. PROJECT/SITE CONDITIONS
22. Environmental Requirements:
23. Do not install wall panels until building is closed in and HVAC system is operational.
24. Locate materials onsite at least 24 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
25. 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. Tectum® DesignArt: 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 materials or factory workmanship.
2. Tectum® DesignArt 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® DesignArt Acoustical Wall Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

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1. PRODUCTS
	1. Manufacturer
2. Tectum® DesignArt Custom Wall Panels:
3. Tectum® by Armstrong World Industries, Inc.

**2.2 ACOUSTICAL WALL 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 (TNA), Basalt (TBT), Polar (TPO), Oat (TOT), Rainstorm (TRS), Lilac (TLC), Boxwood (TBW), Feldspar (TFS), Rose (TRO), Riverstone (TRS), Limestone (TLM), Hay (THY), Pacific (TPC), Twilight (TTT), Fern (TFN), Topaz (TTZ), Honeysuckle (THS), Coffee (TCE), Fossil (TFL), Sandstone (TSS), Mist (TMT), Ocean (TOC), Ivy (TIV), Bronzite (TBZ), Marigold (TMG) (Custom: Sherwin Williams colors available as specials)
4. Size: (Standard Selection: Square - 12" x 12", Square - 24" x 24", Rectangle - 12" x 24", Rectangle - 12" x 36", Rectangle - 12" x 48", Rectangle - 24" x 48", Circle - 12", Circle - 24", Semicircle - 6" x 12", Semicircle - 12" x 24", 45 Degree Right Triangle - 12" x 12", 45 Degree Right Triangle - 24" x 24", 45 Degree Parallelogram - 12" x 24" – Right, 45 Degree Parallelogram - 24" x 48" – Right, 45 Degree Parallelogram - 12" x 24" – Left, 45 Degree Parallelogram - 24" x 48" – Left, Hexagon - 12" x 14", Hexagon - 24" x 28", Trapezoid - 6" x 14", Trapezoid - 12" x 28", 60 Degree Equilateral Triangle - 12" x 14", 60 Degree Equilateral Triangle - 24" x 28", 60 Degree Right Triangle - 12" x 7" – Right, 60 Degree Right Triangle - 24" x 14" – Right, 60 Degree Right Triangle - 12" x 7" – Left, 60 Degree Right Triangle - 24" x 14"- Left, 60 Degree Parallelogram - 24" x 14", 60 Degree Parallelogram - 48" x 28", 30 Degree Isosceles Triangle - 24" x 7", 30 Degree Isosceles Triangle - 48" x 14") (Custom available as specials)
5. Thickness: (Standard: 1”) (Custom 1-1/2” or 2”)
6. Edge Profile: Beveled
7. Noise Reduction Coefficient (NRC): ASTM C 423 (A-mounting); (Standard NRC 0.40) Classified with UL label.
8. Flame Spread: ASTM E 1264; (Fire Class A)
9. Dimensional Stability: HumiGuard Plus
10. Sustainable: EPD (Environmental Product Declaration) and HPD (Health Product Declaration)
11. USDA Certified Biobased Product, 98%
12. Acceptable Product: Tectum® DesignArt Wall Panels as manufactured by Armstrong World Industries

Standard Shapes:

**Isosceles Triangles (30 Degree)**5420T11T10 \_ \_ \_
5420T12T10 \_ \_ \_
**Right Triangles (45 Degree)**5420T01T10 \_ \_ \_
5420T02T10 \_ \_ \_
**Parallelograms (45 Degree)**
5420P01T10 \_ \_ \_
5420P02T10 \_ \_ \_
5420P03T10 \_ \_ \_
5420P04T10 \_ \_ \_
**Right Triangles (60 Degree)**
5420T05T10 \_ \_ \_
5420T06T10 \_ \_ \_
5420T07T10 \_ \_ \_
5420T08T10 \_ \_ \_
**Parallelograms (60 Degree)**5420P05T10 \_ \_ \_
5420P06T10 \_ \_ \_

**Hexagons (60 Degree)**
5420H01T10 \_ \_ \_
5420H02T10 \_ \_ \_
**Trapezoids (60 Degree)**
5420Z01T10 \_ \_ \_
5420Z02T10 \_ \_ \_
**Equilateral Triangles (60 Degree)**
5420T03T10 \_ \_ \_
5420T04T10 \_ \_ \_
**Squares & Rectangles (90 Degree)**
5420R01T10 \_ \_ \_
5420R02T10 \_ \_ \_
5420R03T10 \_ \_ \_
5420R04T10 \_ \_ \_
5420R05T10 \_ \_ \_
5420R06T10 \_ \_ \_
**Circles (360 Degree)**
5420C01T10 \_ \_ \_
5420C02T10 \_ \_ \_
5420C03T10 \_ \_ \_
5420C04T10 \_ \_ \_

**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 each wall area and establish layout of Tectum® DesignArt units. Coordinate panel layout with mechanical and electrical fixtures.

**3.3 INSTALLATION**

1. Install Tectum® DesignArt system in accordance manufacturer’s installation instructions. Follow the requirements pf the International Building Code and in accordance with the local building code and the authorities having jurisdiction.

**3.4 ADJUSTING AND CLEANING**

1. Replace damaged and broken Tectum® DesignArt.
2. Comply with manufacturer’s instructions for cleaning and touch up of minor finish damage. Remove any Tectum® DesignArt products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

 **END OF SECTION**