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SECTION 098400
Tectum® High NRC Direct-Attached ACOUSTICAL Interior Panels
(CEMENTITIOUS WOOD FIBER 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

A. Section Includes:

1. Cementitious wood fiber plank acoustical wall and ceiling system

B. 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

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 compliance with the basis of design.
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); Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

Tectum® High NRC Direct Attached Wall Panels

Item 5338W2L04T10_ _ _

Item 5338W4L04T10_ _ _

Item 5338W2L08T10_ _ _

Item 5338W4L08T10_ _ _

Accessories

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

1.3 REFERENCES

1. American Society for Testing and Materials (ASTM)
 2. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 3. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
 4. ASTM E2768-11(2018) Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials
 5. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
 6. ASTM C636 / C636M - 19 Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
 7. ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board
 8. ASTM E 1264 Classification for Acoustical Ceiling Products
 9. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- B. International Building Code
- C. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
- D. NFPA 70 National Electrical Code
- E. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010

- F. 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
- G. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
- H. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
- I. International Well Building Standard
- J. Mindful Materials
- K. Living Building Challenge
- L. U.S. Department of Agriculture BioPreferred program (USDA BioPreferred).

1.4 SYSTEM DESCRIPTION

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

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of Tectum® Direct-Attached™ ceilings or walls required.
- B. Samples: Minimum 12-inch x 12-inch samples of specified Tectum® High NRC Direct-Attached interior panels.
- C. Shop Drawings: Layout and details of Tectum® Direct-Attached interior panels show locations of items that are to be coordinated with the installation as required.
- D. 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.
- E. 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.
- F. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance as specified in Section 2.2, subcontractor shall be required to send material from every production run appearing on the job, finished as intended to be installed, 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.

1.6 SUSTAINABLE MATERIALS

- A. Transparency: Manufacturers will be given preference when they provide third party verified 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.
- B. Health Product Declaration. The end use product has a published, complete third party verified Health Product Declaration with disclosure at a minimum of 1000ppm of known hazards in compliance with the Health Product Declaration open Standard.
- C. Declare Label. The end use product has a published third party verified 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).
- D. Low Emitting products with VOC emissions data. Preference will also be given to manufacturers that can provide third party verified emissions data showing their products meet CDHP Standard Method v1.1 (Section 01350).
- E. Life cycle analysis. Products that have communicated lifecycle data through Environmental Product Declarations (EPDs) will be preferred.
- F. 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.
- G. 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

1.7 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate UL markings.
 1. Surface Burning Characteristics: Tested per ASTM E 84 and complying with ASTM E 1264 Classification.
- C. Tectum® Direct-Attached, 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.
- D. 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.

1.8 DELIVERY, STORAGE & 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. Provide labels indicating brand name, style, size and thickness.
- C. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- D. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.9 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
- B. Do not install ceiling panels until building is closed in and HVAC system is operational.
- C. Locate materials onsite at least 72 hours before beginning installation to allow materials to reach temperature and moisture content equilibrium.
- D. Maintain the following conditions in areas where acoustical materials are to be installed 72 hours before, during and after installation:
 1. Relative Humidity: 25 - 85%.
 2. Uniform Temperature: 32 - 120 degrees F (0 - 49 degrees C).

1.10 WARRANTY

- A. Tectum® High NRC Direct-Attached Wall and Ceiling Panels: 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.
- B. Tectum® High NRC Direct-Attached Wall and Ceiling Panels warranty - 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.

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. Tectum® High NRC Direct-Attached Wall and Ceiling Panels: Furnish quality of full-size units equal to 5.0 percent of amount installed.

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PART 2 PRODUCTS

2.1 Manufacturer

- A. Tectum® High NRC Direct-Attached Wall or Ceiling Panels:
 - 1. Tectum® by Armstrong World Industries, Inc.

- B. Suspension System and Accessories:
 - 1. Armstrong World Industries, Inc.

2.2 TECTUM® DIRECT-ATTACHED CEILING PANELS

- A. Acoustical Panels Type AP-1:
 - 1. Surface Texture: Coarse
 - 2. Composition: Aspen wood fibers bonded with inorganic hydraulic cement
 - 3. Finish: Surface appearance shall be consistent from panel to panel
 - 4. Color: (Standard Selection: Natural or White) (Custom: Coloration or Sherwin Williams colors available as specials)
 - 5. Size: Standard (23 ¾" x 48", 47 ¾" x 48", 23 ¾" x 96", 47 ¾" x 96")
 - 6. Thickness: (Standard 1")
 - 7. Edge Profile: (long edge/short edge – Bevel, Square)
 - 8. UL Classified Noise Reduction Coefficient (NRC): ASTM C 423 ; D-20(0.60) Classified with UL label.
 - 9. UL Classified Flame Spread: ASTM E 1264; Class A. Product must be able to meet this criteria after being painted six times.
 - 10. Light Reflectance (LR) White Panel: ASTM E 1477; (Light Reflectance)
 - 11. Dimensional Stability/Mold Resistance: HumiGuard Plus and no significant mold growth when tested by ASTM D3273.
 - 12. Sustainable: Third party verified EPD (Environmental Product Declaration) and HPD (Health Product Declaration)
 - 13. USDA Certified Biobased Product, 98%
 - 14. Acceptable Product: Tectum® High NRC Direct-Attached (Standard Items 5338W2L04T10 __ __ __, 5338W4L04T10 __ __ __, 5338W2L08T10 __ __ __, 5338W4L08T10 __ __ __ (Custom item) as manufactured by Armstrong World Industries

2.3 METAL SUSPENSION SYSTEMS

- A. Accessories:
 - 1. #6 x 1-5/8" Painted Head Sharp Point Screws, item 8187L16
 - 2. #6 x 1-5/8" Painted Head Drill Point Screws, item 8188L16
 - 3. 2-1/4" Painted Head CMU Screws, item 8189L22
- B. Suspension Components for Alternative Direct Attach – by Method of Armstrong Drywall Suspension
 - 1. Drywall Grid main beam item HD8906
 - 2. Drywall Grid cross tees item XL8945
 - 3. Perimeter angle item KAM 12
 - 4. 1-5/8" sharp point screws item 8187L16
- C. Attachment Component for Direct Attached to Heavy gauge metal steel
 - 1. 1-5/8" drill point screws item 8188L16

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 wall area and establish layout of wall units. 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

- A. Install Tectum® High NRC Direct-Attached Panels in accordance manufacturer's installation instructions.

3.4 ADJUSTING AND CLEANING

- A. Replace damaged and broken Tectum® High NRC Direct-Attached Panels.
- B. 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 Tectum® High NRC Direct-Attached Ceiling Panels that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

END OF SECTION