**SECTION 035114 CEMENTITIOUS ROOF DECK**

**NOTES TO SPECIFIER**

Tectum Structural, Acoustical Decks are an excellent choice for clients who are interested in an environmentally friendly exposed structure solution that has 3x better carbon footprint than metal deck and delivers predictable acoustical performance. These notes will help you understand the selection process and criteria for evaluating the system.

Tectum decks are essentially a Structural Insulated Panel System (SIPS) with Acoustics.

The specification section will require several decisions to be made by the specifier:

1. **Joist spacing** – This will dictate the size of the roof deck panel. If you have a 4’0” OC spacing the panel size will be 8’0” as testing was done in a two-span condition.
2. **R value** – This will dictate the thickness of the deck assembly. EPS (R3.85/inch), Neopor / GPS (R4.8/inch). or XPS (R5.0/inch).
3. **Space use/location** – This will drive acoustics as well as deck selection. (For Miami NOA areas = Tectum IIIW, for Natatoriums = Tectum IIIP; All other areas you may wish to consult with a Tectum and Exposed Structure representative)

Key Questions:

**What acoustical performance is required?** Tectum decks provide NRC .60, .70 and .80 depending on the thickness of the Tectum used as a stand alone deck or laminated as part of a composite.

**What seismic design category is the project?** Tectum decks can be used in all seismic design categories but may require an overlay in categories D,E,F.

**What live and dead loads are required?** Tectum decks can be used from X to Y and depending on the need may dictate the joist spacing on the project.

**What diaphragm shear values are needed?** Building height and exposure class may dictate various diaphragm requirements. Tectum decks can meet most all diaphragm requirements.

**What fire rating is required?** Tectum can be considered as fire retardant treated lumber per ASTM E2768 and as a fire barrier for foam plastic insulation per NFPA 275..

**What R value is required?** Tectum decks can be used in exterior canopies and pavilion type structures with no R Value and up to R44.

**What wind load is required?** If your project is in High Velocity Hurricane zone or requires and Miami Dade NOA, Tectum IIIW has been designed to meet those requirements.

**What kind of roofing is being used?** Tectum decks can be used in low and high slope applications and can receive all types of roofing. Tectum decks can be modified with thicker OSB if needed.

Please contact your local Tectum manager or Armstrong’s Techline for assistance in design and specification of this type of assembly.

<https://www.armstrongceilings.com/commercial/en/systems/tectum-roof-deck/products.html>

# SECTION 035114 CEMENTITIOUS ROOF DECK

**(CEMENTITIOUS WOOD FIBER COMPOSITE ACOUSTIC PLANK)**

**TECTUM E**

PART 1 - GENERAL

* 1. SUMMARY
     1. Section Includes:
        1. Cementitious Wood Fiber Composite Acoustic Plank Roof Deck System known as Tectum E Composite Acoustic Roof Deck System.
     2. Related Sections:
        1. Division 5 Section: Steel Framing.
        2. Division 6 Sections: Wood Framing.
        3. Division 7 Sections: Roofing.
        4. Division 9 Sections: Acoustical Materials
  2. REFERENCES
     1. ASTM International:
        1. ASTM C177 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
        2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
        3. ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
        4. ASTM D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
        5. ASTM D2842 Standard Test Method for Water Absorption of Rigid Cellular Plastics.
        6. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
     2. Underwriters Laboratories, Inc. (UL):
        1. UL 580 Standard for Safety for Tests for Uplift Resistance of Roof Assemblies.
  3. SYSTEM DESCRIPTION
     1. Design Requirements: Provide roof deck assembly designed and tested according to the following:
        1. Underwriters Laboratories UL 580 (UL Class 90 Design): [Design No. NM504] [Design No. NM511] [Design No. NM512] [Design No. NM517] [ Design No. NM533] [ Design No. 474] [Design No. 451]. (Select One, only required if there are atypical wind unload requirements. Default is none).
        2. Structural Performance Requirements: Provide a roof deck system that has been manufactured, fabricated, and installed to provide deflection of [Less than l/240 at design load (Default)] [Specify required maximum deflection.].
        3. Acoustic Performance: NRC Value 0.60 Minimum generated from UL Classified face material of 1-1/2” to 3” thickness.
  4. SUBMITTALS:
     1. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittals Procedures Sections.
     2. Product Data: Submit manufacturer’s product data and installation instructions.
     3. Shop Drawings: Provide drawings indicating locations and spacing of structural supports and penetrations including panel layout, attachment details and termination details.
     4. Samples:
        1. 6 inch square sample of each wood fiber composite deck unit required indicating exposed texture expected in completed work.
        2. Labeled set of required fasteners and accessories for a complete installation.
     5. Quality Assurance/Control Submittals:
        1. Test Reports: Upon request, submit certified test reports from recognized test laboratories.
        2. Sustainability Reports:
           1. Third Party Verified Environmental Product Declaration (EPD).
           2. Third Party Verified Health Product Declaration (HPD).
           3. Living Product Imperative Certification for Cementitious Wood Fiber Plank.

* + 1. Closeout Submittals
       1. Standard Manufacturer’s Warranty Document.
  1. QUALITY ASSURANCE:
     1. Installer Qualification:
        1. Utilize an installer having documented experience on projects of a similar size and complexity.
        2. Letter of certification for the manufacturer stating that the installer has appropriate experience and is certified to install system.
     2. Regulatory Requirements and Approvals: [Comply with requirements below.] [Specify applicable requirements of regulatory agencies. (Default is ICC-ES ESR-1112)].
        1. International Code Council (ICC):
           1. ICC-ES Evaluation Report ESR-1112.
        2. State of California:
           1. DSA Number PA-008.
     3. Certifications: [Specify requirement for certifications.].

Specifier Note: Retain paragraph below if reinstallation meeting is required.

* + 1. Preinstallation Meetings: [Specify requirements for meeting.].
  1. DELIVERY, STORAGE AND HANDLING
     1. General: Comply with applicable Division 1 Sections.
     2. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.
        1. Provide labels indicating brand name, deck type, panel size, and panel thickness.
     3. Storage and Protection: Store materials protected from exposure to harmful environmental condition and at temperature and humidity conditions recommended by the manufacturer.
        1. Prevent soiling, physical damage or wetting.

Specifier Note: Retain article below when requiring compliance with thermal performance warranty.

Coordinate article with Conditions of the Contract and with Division 1 Closeout Submittals (Warranty) Section. Use this article to require special or extended warranty or bond covering the work of this Section.

* 1. WARRANTY
     1. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
     2. Manufacturer’s Warranty: Submit manufacturer’s standard 15 year thermal performance warranty.

PART 2 - PRODUCTS

* 1. ROOF DECK AND FORM SYSTEMS.
     1. Manufacturer: Tectum Inc.
        1. Armstrong World Industries
           + Contact: Jonathan Gatten [**jwgatten@armstrongceilings.com**](mailto:jwgatten@armstrongceilings.com)

740.364.8196

* + 1. Proprietary Systems. Cementitious deck form board systems, including the following configurations:
       1. Tectum Roof Deck Plank
  1. MANUFACTURED UNITS:
     1. Tectum E Composite Roof Deck Panel consisting of factory bonded layers of Tectum Cementitious Wood Fiber Board, Expanded Polystyrene Insulation (EPS), and Oriented Strand Board.
        1. Total Panel Thickness and R-Value. Composite Panel Total Thickness Based on 1-1/2” Tectum Base Layer: [Select one.].

Total Thickness R-Value

|  |  |
| --- | --- |
| 2 3/4” | 7.24 |
| 3 1/2” | 10.13 |
| 4” | 12.06 |
| 5” | 15.91 |
| 6” | 19.76 |
| 7 1/4” | 24.57 |
| 8 1/2” | 29.38 |
| 9” | 31.31 |
| 10” | 35.16 |

* + - 1. Panel Width: [47 inches (Standard).] [31 inches.] [23 inches.].
      2. Panel Length(s): As indicated on structural drawings. Maximum panel length 16’-0”.
  1. COMPONENTS:
     1. Cementitious Wood Fiber Board, [1 1/2 inch/NRC 0.60], [2 inch/NRC 0.70] [2 1/2 inch/NRC 0.75] or [3 inch/NRC 0.80] thick Tectum consisting of FSC Certified aspen wood fibers bonded with inorganic hydraulic cement.
     2. Expanded Polystyrene Insulation (EPS). Exceeds the requirements of ATSM C-578, Type 1 and bears the UL Classification mark.
     3. Oriented Strand Board: 7/16” thickness, Slip Resistant surface.
        1. Meets Voluntary Product Standard PS2-10 Performance Standard for Wood-Based Structural-Use Panels.
  2. ACCESSORIES:
     1. Fasteners:
        1. TRUFAST 14 gage steel. Length to penetrate structural member minimum of 1-1/2 inch.
        2. DEKFAST 14-gauge steel. Length to penetrate structural member minimum of 1-1/2 inch.
     2. Washers:
        1. 1-1/2” Washers.
        2. 2” Washers.
     3. Adhesive:
        1. BASF MasterWeld 948, low VOC.
        2. SFA-66
     4. Expanding Foam:
        1. Expanding Foam Sealant: Available from Manufacturer.
     5. Foam Scoop:
        1. Foam scoop to match insulation thickness.

PART 3 - EXECUTION

* 1. EXAMINATION:
     1. Site Verification of Conditions:
        1. Verify that site conditions are acceptable for installation of roof deck system.
        2. Do not proceed with installation of roof deck system until unacceptable conditions are corrected.
        3. Do not proceed with installation if precipitation or freezing temperatures are forecast during installation.
     2. INSTALLATION: Comply with Manufacturer’s published instructions and recommended installation procedures.
     3. Place panel on joists with square cut ends butted tightly together.
     4. Stagger end joints. Seal joints larger than 1/4 inch with adhesive and larger joints with foam strips or expanding foam.
     5. Support panels with bent plates (steel or other support material) at roof transitions. Including, but not limited to ridge, valley, perimeter, and panel direction change conditions.
     6. Panels require a minimum 1-inch bearing on structural members. Must be glued and screwed at transitions.
     7. Panel ends are required to terminate over structural members or supports with a minimum of 1 inch bearing on structural members.
     8. Cut panels neatly to abut to parapets around openings and penetrations. Use manufacturer recommended saw and techniques for field cutting.
     9. Apply adhesive to support members and on top of plank tongue in accordance with manufacturer’s recommendations.
     10. Use manufacturer’s recommended slide hammer or other tools to assure a tight joint at panel-to-panel joints. Hold panels in position until screws are installed.
     11. Install screws at each structural support in conformance with approved Shop Drawings and manufacturer’s recommended spacing and quantity.
     12. Field Installed Overlay: If indicated on Shop Drawings, install continuous 7/16-inch OSB overlay staggering panel joints in both directions for a minimum joint coverage of 1’-0”. Install overlay with adhesive and 1-inch staples as indicated on approved Shop Drawings.
  2. CLEANING:
     1. Clean exposed surfaces of panel installation.
     2. Remove visible adhesive from exposed surfaces.
     3. Remove and replace work that cannot be successfully cleaned or repaired, or which indicates structural damage.
  3. PROTECTION:
     1. Protect installed work from damage due to weather related moisture.
     2. Protect installed work from damage due to subsequent construction activity.
     3. Provide temporary protection as necessary to protect installed material from exposure to excessive moisture prior to installation of roofing material.

# END OF SECTION