

This MANU-SPEC™ utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat*™, *SectionFormat*™ and *PageFormat*™. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies a roof deck and form system. This product is manufactured by Tectum Inc. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 035113
CEMENTITIOUS ROOF DECK
(CEMENTITIOUS WOOD FIBER PLANK)

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Cementitious wood fiber plank roof deck and form system, including [Bulb-tee] [Or] [And] [Truss-tee] subpurlins.

Specifier Note: Revise paragraph below to suit project requirements. If a reader of this section could reasonably expect to find a product or component specified in this section, but it is actually specified elsewhere, then the related section number(s) should be listed in the paragraph below. Add section numbers and titles per CSI *MasterFormat* and specifier's practice. In the absence of related sections, delete paragraph below.

- B. Related Sections:
1. Division 5 Sections: Steel Framing.
 2. Division 6 Sections: Wood Framing.
 3. Division 7 Sections: Roofing.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain References Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard. It is a listing of all references used in this section.

1.02 REFERENCES

- A. 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.
- B. Underwriters Laboratories, Inc. (UL):
1. UL 580 Standard for Safety for Tests for Uplift Resistance of Roof Assemblies.

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Limit descriptions to composite and operational properties required to link components of a system together and to interface with other systems.

1.03 SYSTEM DESCRIPTION

- A. 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. 475] [Design No. 451].
- B. Performance Requirements:
 - 1. Provide a roof deck system that has been manufactured, fabricated and installed to provide deflection of [Less than L/240 at design load] [Specify required maximum deflection.].

Specifier Note: Retain subparagraph below for Tectum I decks.

- 2. Comply with requirements of Factory Mutual Class I Roof Deck.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data and installation instructions.
- C. Shop Drawings: Provide drawings indicating locations and spacing of planks and purlins.
- D. Samples: Submit selection and verification samples as follows:
 - 1. Set of 12 inch (305 mm) square samples for each wood fiber deck unit required, showing full range of exposed texture to be expected in completed work.
 - 2. Labeled set of all accessories required for a complete installation.
- E. Quality Assurance/Control Submittals: Submit the following:
 - 1. Test Reports: Upon request, submit certified test reports from recognized test laboratories.
 - 2. Certificates: Submit manufacturer's certificate that products meet or exceed specified requirements.
- F. Closeout Submittals: Submit the following:
 - 1. Warranty documents specified herein.

Specifier Note: Article below should include statements of prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- B. Regulatory Requirements and Approvals: [Comply with requirements below.] [Specify applicable requirements of regulatory agencies].
 - 1. International Code Council (ICC):
 - a. ICC-ES Evaluation Report ESR-1112.
- C. Certifications: [Specify requirement for certifications.].

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

- D. Preinstallation Meetings: [Specify requirements for meeting.].

Specifier Note: Article below should include specific protection and environmental conditions required during storage. Coordinate article below with Division 1 Product Requirements Section.

1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirement Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
 - 1. Provide labels indicating brand name, deck style, plank size and plank thickness.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature

and humidity conditions recommended by the manufacturer.

1. Prevent soiling, physical damage or wetting.
2. Store cartons open at each end to stabilize moisture content and temperature.

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.

1.07 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents.

Specifier Note: Coordinate subparagraph below with manufacturer's warranty requirements.

1. Warranty Period (Thermal for Tectum III): 15 years beginning with date of substantial completion.

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards, and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 ROOF DECK AND FORM SYSTEMS

Specifier Note: Paragraph below is an addition to *CSI SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Tectum Inc.
 1. Contact: 105 South Sixth Street, Newark, OH 43055; Telephone: (888) 977-9691, (740) 345-9691; Fax: (800) 832-8869; E-mail: info@tectum.com; website: www.tectum.com.
- B. Proprietary Systems. Cementitious deck formboard systems, including the following configurations:

Specifier Note: Retain one or more of the configurations below to suit project requirements.

1. Tectum Roof Deck Tile.
2. Tectum Roof Deck Plank.
3. Tectum Concealed Tee Deck.

Specifier Note: Edit Article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

2.03 ROOF DECK PANEL COMPONENTS

- A. Proprietary Products. Cementitious deck formboard products, including the following:

Specifier Note: Tectum I Roof Deck Panels consist of standard Tectum Panels in either plank or tile configuration. Tectum I is typically used in low slope applications and provides a thermal barrier for field applied foam plastics.

1. Tectum I Roof Deck Panels:
 - a. Material: Aspen wood fibers bonded with inorganic hydraulic cement.
 - b. Nominal Panel Thickness: [1½ inches (38 mm)] [2 inches (51 mm)] [2½ inches (64 mm)] [3 inches (76 mm)].

Specifier Note: Tectum NS is typically used in sloped applications where minimal insulation is required.

2. Tectum NS Roof Deck Panels:
 - a. Material: Aspen wood fibers bonded with inorganic hydraulic cement, bonded to EPS foam insulation, bonded to top surface of 7/16 inch (11.1 mm) oriented strand board (OSB).
 - b. Nominal Panel Thickness: [2½ inches (64 mm)] [3 inches (76 mm)] [3½ inches (89 mm)] [4 inches (102 mm)].
 - c. OSB meets Voluntary Product Standard PS2-92 Performance Standard for Wood-Based Structural-Use Panels.

Specifier Note: Tectum III roof deck panel is typically used in sloped applications where insulation and a nailable surface are required.

3. Tectum III Roof Deck Panels:

- a. Material: Aspen wood fibers bonded with inorganic hydraulic cement, bonded to Styrofoam brand foam insulation, bonded to top surface of 7/16 inch (11.1 mm) oriented strand board (OSB).
- b. Nominal Panel Thickness: [3½ inches (89 mm)] [4 inches (102 mm)] [5 inches (127 mm)] [6 inches (152 mm)] [7 inches (178 mm)] [8 inches (203 mm)] [9 inches (229 mm)] [10 inches (254 mm)].
- c. Insulation Water Vapor Permeability (ASTM E96): 0.6 perm (34 ng/(Pa × s × m²)).
- d. Insulation Compressive Strength (ASTM D1621): 40 psi (276 kPa).
- e. Insulation Water Absorption (ASTM D2842): 1% by volume.
- f. Insulation Linear Coefficient of Thermal Expansion: 3.5 × 10E5 in/in/deg F.
- g. Insulation Thermal Resistance: R-value R5 per inch.
- h. EPS Core Compliance (ASTM C578): Exceeds Type IV.
- i. OSB meets Voluntary Product Standard PS2-92 Performance Standard for Wood-Based Structural-Use Panels.

Specifier Note: Tectum E roof deck panel is typically used in sloped applications where insulation and a nailable surface are required.

4. Tectum E Roof Deck Panels:

- a. Material: Aspen wood fibers bonded with inorganic hydraulic cement, bonded to expanded polystyrene (EPS) foam insulation, bonded to top surface of 7/16 inch (11.1 mm) oriented strand board (OSB).
- b. Nominal Panel Thickness: [Specify 2¾ inches - 10 inches (70 - 254 mm)].
- c. OSB meets Voluntary Product Standard PS2-92 Performance Standard for Wood-Based Structural-Use Panels.
- d. EPS Core Compliance (ASTM C578): Exceeds Type I.
- e. EPS Classification: Bears UL classification mark.
- f. EPS Nominal Density: 1.0 pcf (16.02 kg/m³).
- g. EPS Thermal Resistance (ASTM C177, ASTM C518 at 40 degrees F (4 degrees C)): 4.17 per inch.
- h. EPS Thermal Resistance (ASTM C177, ASTM C518 at 75 degrees F (24 degrees C)): 3.85 per inch.

Specifier Note: Tectum IIIP roof deck panel is typically used in sloped applications where insulation and a nailable surface are required.

5. Tectum IIIP Roof Deck Panels:

- a. Material: Aspen wood fibers bonded with inorganic hydraulic cement, bonded to Styrofoam brand foam insulation, bonded to top surface of 7/16 inch (11.1 mm) oriented strand board (OSB).
- b. Nominal Panel Thickness: [3½ inches (89 mm)] [4 inches (102 mm)] [5 inches (127 mm)] [6 inches (152 mm)] [7 inches (178 mm)] [8 inches (203 mm)] [9 inches (229 mm)] [10 inches (254 mm)].
- c. Panel sides are detailed with kerfs in Dow Styrofoam to accept Dow Styrofoam spline.
- d. Insulation Water Vapor Permeability (ASTM E96): 0.6 perm (34 ng/(Pa × s × m²)).
- e. Insulation Compressive Strength (ASTM D1621): 40 psi (276 kPa).
- f. Insulation Water Absorption (ASTM D2842): 1% by volume.
- g. Insulation Linear Coefficient of Thermal Expansion: 3.5 × 10E5 in/in/deg F.
- h. Insulation Thermal Resistance: R-value R5 per inch.
- i. EPS Core Compliance (ASTM C578): Exceeds Type IV.
- j. OSB meets Voluntary Product Standard PS2-92 Performance Standard for Wood-Based Structural-Use Panels.

Specifier Note: Specify subordinate or secondary items that aid and assist primary products specified above or are necessary for repair or installation of those items.

Specifier Note: Coordinate accessories below with manufacturer's literature.

2.04 ACCESSORIES

A. Provide accessories as follows:

1. Bulb-Tee Subpurlins (For use with Tectum Tile):
 - a. Material: Steel.
 - b. Style: [218] [As indicated on drawings] [Specify style].

- c. Manufacturer: Western Fireproofing Co., Kansas City, MO.
- 2. Tectum Grout (For use with Tectum Tile):
 - a. Material: Gypsum cement grout, ready for mixing with potable water.
- 3. Tectum Screws:
 - a. Material: Steel.
 - b. Type: [14 gauge with 2 inch (51 mm) diameter washer] [14 gauge with 5/8 inch (15.9 mm) head] [Tectum S-25 with 2 inch (51 mm) diameter washer, 2 15/16 inch (75 mm) length] [Tectum S-25 with 2 inch (51 mm) diameter washer, 3 7/16 inch (87 mm) length] [Tectum S-25 with 2 inch (51 mm) diameter washer, 3 15/16 inch (100 mm) length].
- 4. Low VOC Adhesive (For use over swimming pools and similar high humidity environments or as the construction adhesive for any LEED Certified Project):
 - a. Manufacturer: BASF
 - b. Type: BASF DegaBond 948
- 5. Construction Adhesive:
 - a. Manufacturer: Miracle Construction Adhesive.
 - b. Type: Adhesive SFA-66.

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Comply with the instructions and recommendations of the roof deck panel manufacturer.

3.02 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Verify that site conditions are acceptable for installation of roof deck panel system.
 - 2. Do not proceed with installation of roof deck panel system until unacceptable conditions are corrected.

Specifier Note: Coordinate article below with manufacturer's recommended installation requirements. Retain language applicable to project and to the products specified in Part 2. Consult Tectum Inc. and manufacturer of roofing system for technical information and recommendations.

3.03 INSTALLATION

- A. Roof Deck Tile Installation:
 - 1. Furnish subpurlins in lengths to span 3 purlins.
 - 2. Position subpurlins within plus or minus 1/16 inch (1.6 mm) of manufacturer's recommended spacing and securely position by means of templates during welding.
 - 3. Weld tees at every crossing point over support members with a 3/4 inch (19.1 mm) long fillet weld on alternate sides of the flange. Weld both sides of flange at all tee ends.
 - 4. Mix and place grout in accordance with manufacturer's printed instructions. Remove excess grout once initial set has been achieved.
 - 5. Do not allow foot traffic on tile panels until after grout has set.
- B. Roof Deck Plank Installation:
 - 1. Place planks on joists with square cut ends butted tightly together.
 - a. Stagger end joints.
 - b. Tectum panels must be supported by bent plates (steel or other support) at all transitions of the roof. This includes but is not limited to the ridge, valleys, perimeter and panel direction change. Panels must have a minimum of 1 inch bearing and should be glued and screwed at these transitions.
 - c. Panel ends must fall over structural supports and have a minimum of 1 inch bearing.
 - 2. Secure planks to joists with screws and spacing recommended by plank manufacturer.
 - 3. Do not allow foot traffic on planks until after screws are installed.
 - 4. Apply adhesive recommended by manufacturer to ensure diaphragm performance as designed.
- C. Roof Deck Long Span Plank Installation:
 - 1. Cut plank neatly to abut parapets, around openings and penetrations.

2. Apply adhesive recommended by manufacturer to ensure diaphragm performance as designed.
- D. Roof Deck Formboard Installation:
1. Cut plank neatly to abut parapets, around openings and penetrations.
 2. Apply adhesive recommended by manufacturer to ensure diaphragm performance as designed.
- E. Roof Deck Composite Plank:
1. Cut plank neatly to abut parapets, around openings and penetrations.
 2. Apply adhesive recommended by manufacturer to ensure diaphragm performance as designed.

Specifier Note: Specify the final actions required to clean installed equipment or other completed work to properly function or perform. Coordinate article below with Division 1 Execution Requirements (Cleaning) Section.

3.04 CLEANING

- A. Clean exposed surfaces of all deck surfaces.
- B. Remove and replace work that cannot be successfully repaired to permanently eliminate evidence of structural damage.

Specifier Note: Specify provisions for protecting work after installation but prior to acceptance by the owner. Coordinate article below with Division 1 Execution Requirements Section.

3.05 PROTECTION

- A. Protect installed work from damage due to weather related moisture.
- B. Protect installed work from damage due to subsequent construction activity on the site so that the work will be without damage and deterioration at the time of acceptance by the Owner.

END OF SECTION