TECTUM INC.
The Noise Control Solution

1. Product Name

- Tectum I
- Tectum NS
- Tectum III
- Tectum E
- Tectum Roof Deck Tile
- Tectum Roof Deck Plank and Long Span Plank

2. Manufacturer

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3. Product Description

BASIC USE

Roof Deck and Form Systems

For over half a century, Tectum Inc. has manufactured roof deck and interior acoustical products at its plant in Newark, OH. Tectum Inc. specializes in the production of easy-to-install panels and systems that absorb sound and resist abuse. A "green" company, Tectum Inc. manufactures products using only renewable wood and other sustainable raw materials.

With various edge treatments, Tectum panels are used as the substrate for all Tectum Roof Deck Systems. The Tectum panel provides insulation, sound absorption, abuse resistance and a decorative textured interior finish, all in a structurally strong, lightweight panel. Easy to work with and install, Tectum panels and systems are cost-effective and require little maintenance.

COMPOSITION & MATERIALS

Tectum panels are composed of aspen wood fibers (excelsior) bonded with exclusive inorganic hydraulic cement and formed by a continuous process under heat and pressure.

Tectum I

The Tectum I Roof Deck Panel consists of standard Tectum panels in either plank or tile configuration. Tectum I deck is ideal for use in low slope applications and provides a thermal barrier for field applied foam plastics.

Pool House Roof Deck

Tectum NS

The Tectum NS Roof Deck Panel is typically used in sloped applications where minimal insulation is required. This roof deck panel is a composite of a standard Tectum substrate, thin foam core and a top sheathing of 7/16" (11.1 mm) oriented strand board (OSB) with a slip resistant surface. It is bonded with a code listed structural adhesive.

Tectum III

The Tectum III Roof Deck Panel is a composite of a 1 1/2" (38 mm) or thicker Tectum panel, Styrofoam® brand insulation and OSB. This panel is used in sloped applications where insulation and a nailable surface are required.

Tectum E

The Tectum E Roof Deck Panel is a composite of a Tectum substrate, EPS insulation and OSB bonded with code listed structural adhesives. The EPS core exceeds ASTM C578 Type I requirements and bears the UL classification mark.

Tectum Roof Deck Tile

Tectum Roof Deck Tile is an adaptation of any of the Tectum roof deck system panels to make them suitable for use on tees or concrete joists.

Tectum Roof Deck Plank & Long Span Plank

Tectum Roof Plank with a tongue-and-groove edge is available in all Tectum roof deck systems. Tectum Long Span plank available in Tectum I plank has a T&G edge designed to accept a hot dipped galvanized steel channel for increased spans.

SIZES

Panel thickness varies from 1 1/2" - 11" (38 - 279 mm), depending on foam applied. Panel lengths range from 48" - 144" (1219 - 3658 mm). Panel widths range from 23" - 47 1/2" (584 - 1207 mm). Not all products are available in all sizes. See technical literature or contact manufacturer.

COLORS

The natural color of the panels is off-white. Tectum panels can be field painted up to 6 times. See Marketing Bulletin M-77 for details.

LIMITATIONS

- Water Exposure - Tectum Roof Deck Panels are not recommended for installations where the design causes the roof deck to be exposed to water. Contact Tectum Inc. for specific installation requirements for applications where interior relative humidity exceeds 50% during the heating season
- Dimensions - Panel thickness dimensions indicated in Tectum literature are nominal

Tectum Roof Deck Over Wood Truss

- Protection of Foam - All foam insulation should be adequately protected. Styrofoam® brand polystyrene insulation is combustible and may constitute a fire hazard if improperly used or installed. Use only as directed by the specific instructions for this product. Styrofoam® brand insulation contains a flame retardant additive to inhibit accidental ignition from small fire sources. During shipping, storage, installation and use, this material should not be exposed to flame or other ignition sources
- Ventilation - The ventilation recommendations of the current edition of the ASHRAE Handbook of Fundamentals and Guide and Data Book should be followed. In particular, adequate ventilation should be provided to remove construction moisture. Where Tectum roof deck is concealed by a suspended ceiling, venting must be provided. Ventilation may be mechanically induced by drawing some return air through the ceiling openings and across the plenum area into the return air duct or by providing a sufficient number of ceiling grilles to promote uniform gravity air movement through the plenum area
- Thermal and Hygrometric Movement - Tectum plank does not require expansion or control joints to compensate for temperature induced movement. However, when designing and locating control joints, the design professional should consider the linear expansion of Tectum plank, due to changes in relative humidity, as well as the recommendations of manufacturers of adjoining materials which may have potential for expansion or contraction due to temperature changes

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- ASTM C578 Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials

Building Officials and Code Administrators International, Inc. (BOCA)

Factory Mutual (FM)

International Conference of Building Officials (ICBO)

New York City Board of Standards & Appeals (BSA) Calendar No. L391-52-SM

Southern Building Code Congress International, Inc. (SBCCI)

Underwriters Laboratories, Inc. (UL)

Underwriters' Laboratories of Canada, Ltd. (ULC)

BUILDING CODE COMPLIANCE & ASSEMBLY DESIGNS

Current data on building code requirements and product compliance may be obtained from Tectum technical support specialists. Installation must comply with the requirements of all applicable local, state and national code jurisdictions.

- BOCA Research Report No. 86-39
- SBCCI Report 9406B
- See ICBO Research recommendation No. 1116, for allowable values and conditions of use concerning materials presented in this document. ICBO reports are subject to reexamination, revision and possible cancellation. See ICBO Report No. 1116, Section IV Findings for information on product use where noncombustibility is required
- FM approved Class I roof deck (Tectum I decks)
- UL Class 90 wind uplift resistance. Tectum I, E and III plank have been tested in roof assemblies in accordance with UL 580, resulting in UL Class 90 uplift resistance
- UL Design No. NM504 - Tectum I Tile - Nominal 2" (51 mm) on bulb tees, not to exceed 71" (2159 mm)
- UL Design No. NM511 - Tectum Tile - Nominal 2" - 3" (51 - 76 mm). T&G on bulb tees, spans not to exceed 8' (2438 mm)
- UL Design No. NM512 - Tectum Tile - With filler strips on bulb tees, spans not to exceed 76" (2286 mm)
- UL Design NM517 - Tectum III T&G plank on bar joists at 48" (1219 mm) oc
- UL Design NM533 - Tectum LS plank 2" - 3" (51 - 76 mm)
- UL Design 474 and 475 - Tectum E/III plank on steel 84" (2134 mm)
- UL Design 451 - Tectum E/III plank/tile on steel 96" (2438 mm)

ENVIRONMENTAL CONSIDERATIONS

Tectum panels are made from sustainable domestic, raw materials. The wood excelsior is harvested from new forest growth that reaches maturity in 25 - 30 years. Tectum Inc. only purchases excelsior from companies that are part of the Sustainable Forestry Initiatives (SFI) Program. This program is a comprehensive system of objectives and performance measures that integrates the perpetual growing and harvesting of trees with the protection of wildlife, plants, soil and water quality.

The primary source of magnesium oxide used in the binder is seawater. The silicate used is made from sand. Tectum Inc. recovers waste magnesium and recycles water during the manufacturing process. The recovered magnesium waste is used in the manufacturing of magnesium sulfate, a primary ingredient in the binder. These recovery programs have been successful in reducing the water consumed and in reducing the magnesium requirement for the manufacture of magnesium sulfate. Tectum products continue to meet the needs of owners, architects and engineers who require green building products.

PHYSICAL/CHEMICAL PROPERTIES

Test reports and additional technical information are available to design professionals upon request.

LIGHT REFLECTANCE

Typical range: natural - 60%; field painted white - 70%.

THERMAL BARRIER

Tectum panels 1 1/2" (38 mm) or thicker qualify as a thermal barrier for foam plastic insulation.

VAPOR RETARDANCE

Styrofoam® brand insulation used in the Tectum III panel qualifies as a vapor retarder under BOCA Section 1202.0 and the ASHRAE Handbook definition with perm ratings of 1.0 (57.45 ng/(Pa x s x m^2)) or less.

THERMAL EXPANSION

Tectum roof deck, when tested from 70 degrees F (21 degrees C) 50% RH to 90 degrees F (32 degrees C) 90% RH, has maximum linear expansion of 0.2%.

FIRE PERFORMANCE

Fire Endurance Test ASTM E119 - Hourly Rated Systems. When tested in roof-ceiling assemblies, Tectum products are used to achieve the following assembly performance:

- 2 Hr UL Design No. P402 - Tectum plank 2" (51 mm) thick on steel joists with metal lath and perlite plaster ceiling
- 2 Hr UL Design No. P403 - Tectum plank 3" (76 mm) thick on steel joists with metal lath and perlite plaster ceiling
- 1 or 1 1/2 Hr UL Design No. P253 - Tectum Plank 2 1/2" (64 mm) and 3" (76 mm) thick with listed acoustical ceiling
- 1 Hr UL Design P675 - Tectum Formboard 2" (51 mm) thick with gypsum concrete and truss tee subpurlins
- 1 Hr UL Design P678 - Tectum Formboard 2" (51 mm) thick with vermiculite or perlite concrete on bulb or truss tee subpurlins

Surface Burning Characteristics - Tectum Roof Deck 3" (76 mm)

- United States Testing Co. Inc. Number 090168 - flamespread, 5; smoke developed, 5

Surface Burning Characteristics - Tectum III Panels 8" (203 mm)

- Underwriters' Laboratories of Canada - flamespread, 5; smoke developed, 10

SOUND PERFORMANCE

The unique open texture of Tectum panels forms an effective sound trap and the use of Tectum roof deck may eliminate the need for other acoustical treatment such as lay-in ceilings. Noise reduction coefficients (NRC values) range from 0.55 to 1.05, depending on the Tectum product chosen. Consult Tectum technical literature or the Tectum technical support group for more information.

5. Installation

PREPARATORY WORK

Handle and store product according to Tectum Inc. recommendations. Verify that the

Swimming Pool Roof Deck

structural framing members to which Tectum panels are to be attached are installed properly, and do not proceed with the installation until all unsatisfactory conditions are corrected. Complete installation recommendations are available from Tectum Inc.

METHODS

Tectum panels may be installed over steel, wood and concrete framing and are applicable to flat or pitched roof construction. Tectum panels can be easily cut to fit irregular spaces with tools used to cut wood.

Maximum joist spacings are shown in the load tables in Tectum's technical literature. Tectum panels should have sufficient length to span multiple purlin spacings whenever possible. Tectum panels must be laid with ends staggered and must be mechanically attached to all framing members of substrate per recommendations.

Tectum Tile is available with rabbeted edges and square ends. Maximum spans are determined by the size of the subpurlin tee-bulb tees or truss tees. If ends of Tectum Tile do not fall on the structural member, a lightweight cross tee must be used to conceal the end joints. Spaces between the tile and tees are filled with Tectum grout at least to the top of the tee. The remaining void should be filled with a foam filler strip.

Roofing Over Tectum I, NS, III and E

Tectum I panels are designed to accept all types of field applied insulation and roofing membranes. Tectum III and Tectum E panels are ideally suited as a roof deck base for shingles, standing seam roofing, slate or tile and can be used for single ply or built-up roofing systems. A vented overlay is available for Tectum Roof Composite Deck products.

Attaching Roofing Felt to Tectum I Roof Deck

Tube-lok roofing nails are available from Simplex Nails, Inc., Americus, GA, in lengths from 1" - 6 1/2" (25.4 - 165 mm). E.S. Roofing nails are available from E.S. Products Inc., Bristol, RI.

Attaching Insulation to Tectum Roof Deck

Additional information may be obtained by contacting Tectum Inc. and requesting Bulletin T-38.

PRECAUTIONS

The roofing systems manufacturer should be consulted for recommendations on the specification and system best suited to the deck and conditions applicable to each roof. Attaching shingles to Tectum I panels is not recommended. Do not use solvent based adhesives to attach roofing membranes to Tectum III/E/NS panels.

6. Availability & Cost

AVAILABILITY

Tectum products are well represented by a team of approved distributor-applicators around the country and around the world. Contact Tectum for more information.

COST

Budget installed cost information may be obtained from a local Tectum distributor-applicator or through the manufacturer.

7. Warranty

Tectum Inc. believes the information and recommendations herein to be accurate and reliable and the products mentioned herein are fit for the recommended purposes. However, as use conditions are not within its control, Tectum Inc. does not guarantee results from use of such products or other information herein.

Tectum Inc. assumes full responsibility for its products and systems when installed and erected by an approved contractor in accordance with published recommendations at the time of the purchase. No responsibility will be assumed for other applications not referred to in the literature. Liability is limited to a refund of the purchase price or replacement of the material.

As governmental regulations and use conditions may change, it is the Buyer's responsibility to determine the appropriateness of Seller's products for Buyer's specific end uses.

A 15 year thermal warranty for Tectum III panels made with blue Styrofoam® brand insulation is available.

8. Maintenance

As with all roof assemblies, periodic inspection of the roof, roof deck and flashing system components is recommended in order to ensure system integrity and maximum service life.

9. Technical Services

A staff of service personnel offers design assistance and technical support. Technical and design information on the use of Tectum roof deck for diaphragm construction and use over swimming pools is also available. For technical assistance, contact Tectum Inc.

10. Filing Systems

- Reed First Source
- MANU-SPEC®
- Sweet's Catalog Files
- Additional product information is available from the manufacturer upon request.