

## TECTUM I, TECTUM III AND TECTUM E ROOF DECK PANELS

TECTUM INC.  
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### 1.0 SUBJECT

Tectum I, Tectum III and Tectum E Roof Deck Panels.

### 2.0 DESCRIPTION

#### 2.1 Tectum I Panels:

Tectum I panels are composed of wood fibers impregnated and bound together into slab form by noncombustible mineral cements. The slabs vary in thickness from 1 inch (25 mm) to 3<sup>1</sup>/<sub>2</sub> inches (89 mm) and have widths up to 48 inches (1219 mm) and lengths up to 192 inches (4877 mm). Tectum I panels are available as Tectum I planks, Tectum I long-span planks and Tectum I roof tiles. The panels have a Class I interior finish classification with a smoke-density rating no greater than 450 when tested in accordance with UBC Standard 8-1. An approved roof covering must be applied over the Tectum I panels. Care must be taken to avoid puddling of asphalt during installation of built-up roof coverings. Tectum I panels are attached to supporting members with nails or screws and are adhesively attached along tongue-and-groove edge joints and to supports in accordance with Section 2.9 of this report. See Figure 1 for typical Tectum panel edge details and Figure 2 for typical connections.

Tectum I planks have 1/2-inch (12.7 mm) tongues and grooves on the unsupported edges. See Table 1 for allowable loads, spans, thicknesses and supports.

Long-span Tectum I planks have tongue-and-groove edges on unsupported edges and incorporate 3/4 -inch-deep-by-1/2-inch-wide (19.1 mm by 12.7 mm), 1-inch-by-1/2-inch (25.4 mm by 12.7 mm), 1 1/2-inch-by-1/2-inch (38 mm by 12.7 mm) or 1 1/2 -inch-by-5/8-inch (38 mm by 15.9 mm), No. 16 gage [0.0635 inch (1.65 mm)] galvanized steel channels in the groove side of the panel. Allowable loads, spans, thicknesses and supports are set forth in Tables 1 and 8.

Tectum I roof tiles have a 1/2-inch-wide (12.7 mm) rabbet along the long edge and are grouted to bulb tees or truss tees attached to and spanning supporting members.

#### 2.2 Tectum III Panels:

Tectum III panels are composite roof planks consisting of 1 1/2-inch- (38 mm) to 6-inch-thick (152 mm) Styrofoam Brand 40 polystyrene foam plastic insulation core (Evaluation Report ER-2257) bonded to facings of minimum 1 1/2-inch-thick (38 mm) Tectum I planks and 7/16-inch-thick (11.1 mm) oriented strand board (OSB) meeting the requirements of UBC Standard 23-3. Tectum III panels are available as Tectum III planks and as Tectum III roof tiles in widths up to 48 inches (1219 mm) and lengths up to 192 inches (4877 mm). Tectum III panels have 1/2-inch-deep (12.7 mm) tongues and grooves along the long edge in the Tectum layer. The Tectum III roof

planks with OSB facings up are placed over steel, wood or concrete framing on flat or sloped roofs. See Figure 1 for typical edge details and Figure 2 for typical connections. Maximum spacing of supports with allowable loads is noted in Table 2. Tectum III planks must be mechanically and adhesively fastened to all support members as noted in Section 2.9 of this report.

Tectum III roof tiles have a 1/2-inch-wide (12.7 mm) rabbet on the long edge and are grouted to bulb tees or truss tees attached to and spanning supporting members, as noted in Section 2.9.

#### 2.3 Tectum E Panels:

Tectum E panels are composite roof planks consisting of 3/4-inch- (19.1 mm) to 6 1/2-inch-thick (165 mm), 1.0-pound-per-cubic-foot-density (16 kg/m<sup>3</sup>) expanded polystyrene foam plastic insulation core recognized in a current ICBO ES evaluation report and complying with ASTM C 578, Type I. The foam core is bonded to facings of minimum 1 1/2-inch-thick (38 mm) Tectum I planks and 7/16-inch-thick (11.1 mm) OSB meeting the requirements of UBC Standard 23-3. Panels are available as Tectum E planks and as Tectum E roof tiles in widths up to 48 inches (1219 mm) and lengths up to 192 inches (4877 mm). Tectum E planks have 1/2-inch-deep (12.7 mm) tongues and grooves along the long edge in the Tectum layer. Tectum E roof tiles have a 1/2-inch-wide (12.7 mm) rabbet on the long edge and are grouted to bulb tees or truss tees attached to and spanning supporting members. Tectum E panels are mechanically and adhesively attached to all support members, as noted in Section 2.9 of this report. Maximum spacing of supports and allowable loads are noted in Table 3. An approved roof covering must be applied over the Tectum E panels. See Figure 1 for typical edge details and Figure 2 for typical connections.

#### 2.4 Acoustical Board and Suspended Ceiling Tile:

Tectum I planks and tiles are fabricated from 1-to-2-inch-thick (25.4 to 51 mm) material and are available in various sizes with square, beveled or face-rabbeted edges. Panels with face-rabbeted edges are also available in maximum 3-inch (76 mm) thicknesses. The tiles may be applied between suspended ceiling runners, to steel subpurlins or to furring strips spaced 24 inches (610 mm) on center on walls or ceilings.

#### 2.5 Tectum I, III and E Nailed/Glued or Screwed/Glued Roof Diaphragm:

Thicknesses, fastenings, supports and length-to-width ratios are set forth for Tectum I plank in Table 7; and for Tectum I long-span plank, 3-inch Tectum I plank, Tectum III plank and Tectum E plank in Table 8. Tectum I diaphragms noted in Table 6 require No. 22 gage [0.0336 inch (0.85 mm)] galvanized steel nailing strips, 1 1/2 inches (38 mm) wide at the periphery and 4 inches (102 mm) wide over supporting subpurlins.

Tectum planks laid perpendicular to purlins are installed with square-edge supported ends staggered in adjacent rows. Unsupported tongue-and-groove edges between adja-

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cent rows are adhered with a  $\frac{3}{8}$ -inch (9.5 mm) continuous bead of adhesive placed in the groove of each plank and the tongue-and-groove joints driven tight. Each supported end is butted tight against the adjacent plank. Each supported end and crossing where planks are continuous over purlins is adhered to the purlins or the diaphragm periphery supports with a  $\frac{3}{8}$ -inch (9.5 mm) continuous bead of adhesive and by nails or screws. The minimum length of plank is sufficient to span three purlins, except end filler to accommodate staggered-joint installation.

### 2.6 Tectum I Roof Tile Diaphragm:

Tectum I roof tiles, 2 inches (51 mm) or more in thickness and  $3\frac{1}{2}$  inches (800 mm) wide, are grouted between truss tees of a minimum size of 000-5-14-2. The truss tees are welded to steel structural supports using a 1-inch (25.4 mm) fillet weld on each side of the tee at each support. The supports are spaced a maximum of 96 inches (2438 mm) on center. Tile ends are attached with two screws per panel end and glued using a  $\frac{3}{8}$ -inch (9.5 mm) bead of construction adhesive. The perimeter of the diaphragm is attached using a  $\frac{3}{8}$ -inch (9.5 mm) bead of construction adhesive and screws with 2-inch (51 mm) washers spaced at  $10\frac{1}{2}$  inches (267 mm). Screws are minimum No. 11 gage [0.200 inch (5.08 mm)] and the adhesive meets the requirements of APA Specification AFG-01. Allowable shear value is 278 pounds per lineal foot (4057 N/m).

### 2.7 Tectum III and Tectum E Roof Tile Diaphragm:

Tectum III and Tectum E roof tiles,  $3\frac{1}{2}$  inches (89 mm) or more in thickness and  $47\frac{1}{2}$  inches (1206 mm) wide, are grouted between truss tees of a minimum size of 000-3-14- $3\frac{1}{2}$ . The truss tees are welded to steel structural supports using a 1-inch (25.4 mm) fillet weld on each side of the tee at each support. The supports are spaced a maximum of 96 inches (2438 mm) on center. Tile ends are attached with three screws with  $1\frac{1}{2}$ -inch-diameter (38 mm) washers per tile end, and are glued using a  $\frac{3}{8}$ -inch (9.5 mm) bead of construction adhesive. The perimeter of the diaphragm is attached using a  $\frac{3}{8}$ -inch (9.5 mm) bead of construction adhesive and screws with  $1\frac{1}{2}$ -inch (38 mm) washers spaced at 12 inches (305 mm). Screws are a minimum of No. 14 gage [0.240 inch (6.10 mm)] and the adhesive meets the requirements of APA Specification AFG-01. Allowable shear value is 312 pounds per lineal foot (4553 N/m).

### 2.8 Form Plank:

Form plank which consists of 1-inch (25.4 mm),  $1\frac{1}{2}$ -inch (38 mm), 2-inch (51 mm),  $2\frac{1}{2}$ -inch (63.5 mm) and 3-inch (76 mm) material used as forming for concrete, remains in place as a finished ceiling. Special form-plank clips are provided to anchor the material to the concrete. Allowable spans for shoring during construction are in Table 9.

### 2.9 Installation:

Tectum I panels are fastened to wood framing with cork nails of sufficient length to penetrate at least  $1\frac{1}{2}$  inches (38 mm) or screws that penetrate at least 1 inch (25.4 mm). Tectum III and Tectum E panels are fastened to wood framing with screws that penetrate at least 1 inch (25.4 mm). Fastening to steel supports for all panels is with screws long enough to penetrate steel at least  $\frac{1}{2}$  inch (12.7 mm). On concrete supports, a steel or wood insert must be cast in the concrete for installation. Cork nails are No. 9 gage [0.148-inch-diameter (3.76 mm) shank] galvanized nails with a  $\frac{1}{2}$ -inch-diameter (12.7 mm) head supplied by Tectum. Screws for Tectum I pan-

els are Construction Fasteners, Inc., Dekfast 14 [0.234-inch-diameter (5.9 mm) shaft, 0.441-inch-diameter (11.2 mm) head] screws with a 2-inch-diameter (51 mm) Construction Fasteners, Inc., washer. Screws for Tectum III and Tectum E panels are Dekfast 14 screws with a  $1\frac{1}{2}$ -inch-diameter (38 mm) Construction Fasteners, Inc., washer; or SIP screws [0.194-inch-diameter (4.9 mm) shaft, 0.610-inch-diameter (15.5 mm) head]. When adhesion is required, a continuous  $\frac{3}{8}$ -inch-diameter (9.5 mm) bead of Miracle Construction adhesive, meeting the requirements of APA Specification AFG-01 and of caulking gun consistency, is used.

### 2.10 Wind Uplift:

Tectum I panels fastened with cork nails spaced as noted in Table 4 may be installed in areas subject to basic wind speeds up to 80 miles per hour (129 km/h), on structures up to 40 feet (12 192 mm) in height, in Exposure C areas. Uplift resistance for Tectum I, III and E panels fastened with screws is noted in Tables 5 and 6.

### 2.11 Identification:

Labels bearing the product name, evaluation report number (ICBO ES ER-1116) and name of inspection agency (Professional Service Industries, Pittsburgh Testing Laboratory Division) are affixed on stacks, skid loads or crates.

## 3.0 EVIDENCE SUBMITTED

Reports of tests for vertical load, full-scale diaphragm load capacity, flame-spread, roof-covering classification, finish rating, and wind uplift; reports of room fire tests in accordance with UBC Standard 26-3; and quality control manual.

## 4.0 FINDINGS

**That the Tectum I, III and E panels described in this report comply with the 1997 *Uniform Building Code*™, subject to the following conditions:**

- 4.1 They are classified as Class I interior finish materials.
- 4.2 Decks  $1\frac{3}{4}$  inches (44.5 mm) and thicker may be classified as heavy-timber roof deck.
- 4.3 Tectum I panels are permitted where noncombustible construction is required. Tectum III and E panels are permitted where noncombustible construction is required, provided the spans are limited to those as specified in Table 1 for Tectum I roof plank.
- 4.4 Special inspection is provided during the gluing in accordance with Section 1701 for Tectum nailed/glued and screwed/glued diaphragm construction.
- 4.5 The Tectum I, III and E panels comply as a thermal barrier under Section 2602 for ceiling installation, provided the edges are tongue and groove, covered with a 1-inch-thick (25.4 mm) wood strip, or joints are filled with a solid gypsum cement grout.
- 4.6 An approved roof covering is applied over Tectum I, III or E roof decks. Care must be taken to avoid puddling of asphalt during installation of built-up roof coverings.
- 4.7 The products are manufactured at the Tectum plant located in Newark, Ohio, with follow-up inspections by Professional Service Industries, Inc., Pittsburgh Testing Laboratory Division (AA-560).

**This report is subject to re-examination in two years.**

TABLE 1—ALLOWABLE ROOF DECK SPANS FOR TECTUM I PANELS

TECTUM NOMINAL THICKNESS (inches)	APPROXIMATE WEIGHT (psf)	ALLOWABLE SPANS (inches) <sup>2</sup>			
		4-inch-wide Purlins			3-inch-wide Purlins
		35-psf Design Load	40-psf Design Load	45-psf Design Load	50-psf Design Load
1 <sup>1</sup> / <sub>2</sub>	2.4	—	—	—	24
2	3.5	42	40	38	36
2 <sup>1</sup> / <sub>2</sub>	4.5	48	46	44	42
3	5.3	54	52	50	48
2 long span	3.8	60	—	—	48
2 <sup>1</sup> / <sub>2</sub> long span	4.7	66	—	—	60
3 long span	5.5	—	—	—	72

For **SI**: 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

<sup>1</sup>The tabulated design load is the total permitted and does not include the weight of the Tectum plank.

<sup>2</sup>Center to center of supports.

TABLE 2—ALLOWABLE ROOF DECK SPANS FOR TECTUM III PLANKS<sup>1,2</sup>

TECTUM III NOMINAL THICKNESS (inches)	APPROXIMATE WEIGHT (psf)	ALLOWABLE SPANS <sup>3</sup> (inches)		
		30-psf Superimposed Design Load	50-psf Superimposed Design Load	60-psf Superimposed Design Load
3 <sup>1</sup> / <sub>2</sub>	4.4	—	72 <sup>4</sup>	—
4	4.6	—	72	—
5	5.0	96	—	72
8	5.5	—	96	—

For **SI**: 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

<sup>1</sup>Values based on maximum deflection of L/240 where L is the span in inches.

<sup>2</sup>Support conditions require a minimum 4-inch bearing width.

<sup>3</sup>Center to center of supports.

<sup>4</sup>Support conditions require a minimum 1-inch bearing width.

TABLE 3—ALLOWABLE ROOF DECK SPANS FOR TECTUM E PLANK<sup>1,2</sup>

TECTUM E NOMINAL THICKNESS (inches)	APPROXIMATE WEIGHT (psf)	ALLOWABLE SPANS <sup>3</sup> (inches)	
		40-psf Superimposed Design Load	50-psf Superimposed Design Load
2 <sup>3</sup> / <sub>4</sub>	4.4	—	48
4	4.6	72	60
5	5.0	—	72
6	5.2	—	84
8 <sup>1</sup> / <sub>2</sub>	5.5	—	96

For **SI**: 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

<sup>1</sup>Values based on maximum deflection of L/240 where L is the span in inches.

<sup>2</sup>Support conditions require a minimum 4-inch bearing width.

<sup>3</sup>Center to center of supports.

TABLE 4—NAIL SPACING FOR TECTUM I PANELS EXPOSED TO BASIC WIND SPEEDS UP TO 80 mph, ON STRUCTURES UP TO 40 FEET IN HEIGHT, IN EXPOSURE C AREAS<sup>1,2</sup>

PANEL WIDTH (inches)	SPAN (inches)	NAILS PER JOIST
31	24	4
	36	6
	42	7
	48	8
47	24	6
	36	9
	42	11
	48	12

For **SI**: 1 inch = 25.4 mm.

<sup>1</sup>Nails are cork nails described in Section 2.9 of this report, with 1<sup>1</sup>/<sub>2</sub>-inch penetration into wood framing with minimum specific gravity of 0.50.

<sup>2</sup>Values are based on nails acting alone, a factor of safety of 3, and panels installed in a two-span condition.

TABLE 5—UPLIFT RESISTANCE FOR TECTUM I DECKS IN POUNDS PER SQUARE FOOT<sup>1, 2</sup>

PANEL WIDTH (inches)	SPAN (inches)	SCREWS PER JOIST	UPLIFT RESISTANCE FOR 1-INCH PENETRATION IN WOOD	UPLIFT RESISTANCE FOR ATTACHMENT TO STEEL OR 1.5-INCH PENETRATION IN WOOD
31	24	2	110	130
47	24	2	73	86
31	36	2	74	87
47	36	2	49	57
47	36	3	73	86
31	42	2	63	74
47	42	2	42	49
47	42	3	63	74
31	48	2	55	65
31	48	3	83	98
47	48	2	37	43
47	48	3	55	65
31	60	2	37	44
31	60	3	55	65
31	72	2	30	35
31	72	3	46	54

For **SI**: 1 inch = 25.4 mm, 1 psf = 0.0479 kN/m<sup>2</sup>.

<sup>1</sup>Screws are Dekfast No. 14 screws with a 2-inch-diameter washer described in Section 2.9 of this report.

<sup>2</sup>All values are based on screws acting alone, a factor of safety of 3, and panels installed in a two-span condition.

TABLE 6—UPLIFT RESISTANCE OF TECTUM III AND TECTUM E DECK IN POUNDS PER SQUARE FOOT<sup>1</sup>

PANEL WIDTH (inches)	SPAN (inches)	SCREWS PER JOIST	UPLIFT RESISTANCE FOR 1-INCH PENETRATION INTO WOOD <sup>2</sup>	UPLIFT RESISTANCE FOR ATTACHMENT TO STEEL <sup>3</sup>
47	48	2	50	69
47	48	3	75	104
47	60	3	60	83
47	60	4	79	110
47	72	3	50	69
47	72	4	66	92
47	84	3	43	59
47	84	4	57	79
47	96	3	37	52
47	96	4	50	69

For **SI**: 1 inch = 25.4 mm, 1 psf = 0.0479 kN/m<sup>2</sup>.

<sup>1</sup>All values are based on screws acting alone, a factor of safety of 3, and panels installed in a two-span condition.

<sup>2</sup>Screws are SIP screws described in Section 2.9 of this report.

<sup>3</sup>Screws are Dekfast No. 14 screws described in Section 2.9 of this report.

TABLE 7—TECTUM I ALLOWABLE SHEAR OR SEISMIC LOAD IN POUNDS PER LINEAL FOOT<sup>6,7,8</sup>

TECTUM THICKNESS	WOOD PURLINS OR WOOD NAILERS BOLTED TO METAL PURLINS												METAL PURLINS			
	Length-to-Width Ratio <sup>1</sup>						Length-to-Width Ratio Not Over 2:1			Length-to-Width Ratio Not Over 3:1			Length-to-Width Ratio Not Over 3:1			
	Nail Size	Unblocked Diaphragm, Uniform Nail Spacing on Supports <sup>2,3,5</sup>		Blocked Diaphragm, Uniform Nail Spacing on All Panel Edges <sup>2,5</sup>		Unblocked Diaphragm, Nails Spaced 4 inches o.c. through Metal Strips <sup>2,3</sup>			Unblocked Diaphragm, Nails Spaced 4 inches o.c. through Metal Strip and Glued <sup>3</sup>			Unblocked Diaphragm, Nails Spaced 8 inches o.c. through Metal Strip and Glued <sup>3</sup>			Unblocked Diaphragm, Self-tapping Screws Spaced 8 inches o.c. through Metal Strip and Glued <sup>3</sup>	
		4" o.c.	2" o.c.	4" o.c.	2" o.c.	Nail Size	3-inch Purlin Width <sup>4</sup>	4-inch Purlin Width <sup>4</sup>	Nail Size	3-inch Purlin Width <sup>4</sup>	4-inch Purlin Width <sup>4</sup>	Nail Size	3-inch Purlin Width <sup>4</sup>	4-inch Purlin Width <sup>4</sup>	Screw Size	4-inch Nominal Top Flange Width
1 1/2"	16d	120	175	175	300	16d	150	150	16d	195	250	16d	170	215	3/16"	215
2"	4" Cork	140	200	200	350	16d	175	175	16d	230	300	16d	200	250	3/16"	250
2 1/2"	4" Cork	140	200	200	350	20d	—	200	20d	250	330	20d	210	280	3/16"	280
3"	—	—	—	—	—	30d	—	200	30d	250	360	30d	220	300	3/16"	300
Long span	30d	90	130	—	—	—	—	—	—	—	—	—	—	—	—	—

For SI: 1 inch = 25.4 mm, 1 plf = 14.5939 N/m.

<sup>1</sup>The diaphragm length-to-width ratio for wood frame construction shall not exceed 3:1. The diaphragm length-to-width ratio for masonry or concrete construction shall be determined as follows:

$$\Delta p = \frac{h^2 f}{0.01(Ew)(t)}$$

where:

- $\Delta p$  = Allowable diaphragm deflection, inches.
- $h$  = Unsupported height of the wall, feet.
- $f$  = Allowable flexural compressive strength of the wall, pounds per square inch.
- $Ew$  = Modulus of elasticity of the wall, pounds per square inch.

The diaphragm deflection is determined by the formula

$$\Delta d = \Delta s + \Delta b = \frac{(F)(Q_{avg})(L)}{2 \times 10^6} + \frac{5wL^4 \times 1728}{384EI}$$

where:

- $\Delta d$  = Total diaphragm deflection, inches.
- $\Delta s$  = Shear deflection, inches.
- $\Delta b$  = Bending deflection, inches.

$$F = \frac{33,000 Q_{avg}}{(Qd)^2}$$

(For a diaphragm having a uniform shear distribution across its span)

$Q_{avg}$  = Average unit shear on diaphragm in pounds per foot between points for which deflection is to be determined. (For a simply supported diaphragm uniformly loaded, " $Q_{avg}$ " is equal to the actual diaphragm shear per foot divided by two.)

$Qd$  = Allowable diaphragm shear in pounds per foot from table.

- $w$  = Uniform load on diaphragm in pounds per foot.
- $L$  = Diaphragm span, feet.
- $E$  = Modulus of elasticity of diaphragm chord, psi.
- $I$  = Moment of inertia of chords, inches<sup>4</sup>.

<sup>2</sup>Values may be increased one-fourth if the boundary nailing of the diaphragm has the nail spacing reduced one-half.

<sup>3</sup>Values shall be decreased one-fourth when continuous unblocked joints are parallel to the direction of horizontal forces.

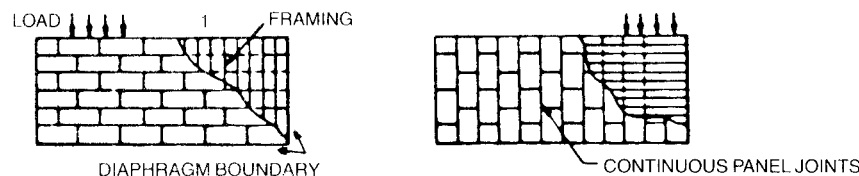
<sup>4</sup>Purlin widths are nominal dimensions.

<sup>5</sup>Three-sixteenths-inch self-tapping screws with metal washers may be substituted for nails shown for direct attachment to metal purlins.

<sup>6</sup>In addition to screw or nail fastening, all boards are fastened to one another at tongue-and-groove edge joints and to supports with 3/8-inch-diameter bead of adhesive.

<sup>7</sup>Minimum thickness of structural steel support is 0.20 inch.

<sup>8</sup>The planks are oriented to the load and framing as follows:



**TABLE 8—ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES IN POUNDS PER FOOT FOR TECTUM III OR E PLANKS, TECTUM I LONG-SPAN PLANK AND 3-INCH TECTUM I PLANK<sup>1,2,3</sup>**

ITEM	NAIL OR SCREW SIZE	MINIMUM PENETRATION INTO FRAMING (inches)	MINIMUM TECTUM III/E THICKNESS (inches)	MAXIMUM SUPPORT SPACING (inches)	MINIMUM NORMAL WIDTH OF WOOD FRAMING MEMBER (inches)	FIELD FASTENER SPACING (inches)	PERIMETER FASTENER SPACING (inches)	UNBLOCKED DIAPHRAGM
Tectum III/E	No. 7 wire gage annular ring shank nail	1 <sup>1/2</sup>	3 <sup>1/2</sup>	60	4	12	12	200
			5	72	4	11	11	165
Tectum III/E	No. 14 self-tapping with 1 <sup>1/2</sup> -inch-diameter steel washer	1	3 <sup>1/2</sup>	60	Steel support only <sup>4</sup>	18	18	265
			5	72		18	18	230
Tectum III/E	No. 14 self-tapping with 1 <sup>1/2</sup> -inch-diameter steel washer	1 <sup>4</sup>	5	48	Steel support only <sup>4</sup>	16	16	310
Tectum III/E	No. 14 with 5/8-inch-diameter head	2	5	72	4	16	12	320
		2 <sup>1/2</sup>	3 <sup>1/2</sup>	60	4	16	12	360
		2 <sup>1/2</sup>	3 <sup>1/2</sup>	72	4	16	12	340
Tectum III/E <sup>5</sup>	No. 14 self-tapping with 1 <sup>1/2</sup> -inch-diameter steel washer	1 <sup>4</sup>	5	72	4	8	6	785
2-inch-thick long-span plank <sup>4</sup>	No. 14 with 2-inch-diameter washer	1 <sup>1/4</sup>	2	48	4	16	12	320
2 <sup>1/2</sup> -inch-thick long-span plank <sup>6</sup>	No. 14 with 2-inch-diameter washer	1 <sup>1/4</sup>	2 <sup>1/2</sup>	60	4	16	10	390
3-inch-thick long-span plank <sup>7</sup>	No. 14 with 2-inch-diameter washer	1 <sup>1/2</sup>	3	72	4	16	12	280
3-inch-thick plank	No. 11 with 2-inch-diameter washer	15/16	3	48	Steel support only <sup>4</sup>	10	10 ends 16 length	450

For **SI**: 1 inch = 25.4 mm, 1 pound per foot = 14.6 N/m.

<sup>1</sup>In addition to screw or nail fastening, all boards are fastened to one another at tongue-and-groove edge joints and to supports with a 3/8-inch-diameter bead of adhesive.

<sup>2</sup>See Footnote 1 to Table 4.

<sup>3</sup>See Footnote 8 to Table 4.

<sup>4</sup>Minimum thickness of structural steel support is 0.20 inch.

<sup>5</sup>An overlayment of 7/16-inch OSB is attached to the top of the panels. Two-inch, No. 16 gage staples at 4 inches o.c. are at the perimeter of each overlayment and at 8 inches o.c. at 24-inch intervals. A 3/8-inch bead of adhesive is applied at the perimeter and at 24-inch intervals. All overlayment joints offset panel joints.

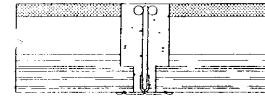
<sup>6</sup>Long-span plank utilizes a 1/2-inch-by-3/4-inch, No. 16 gage channel section along the tongue-and-groove edges.

<sup>7</sup>Long-span plank utilizes a 5/8-inch-by-1/2-inch, No. 16 gage channel section along the tongue-and-groove edges.

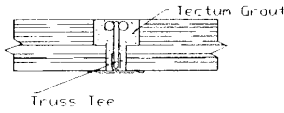
**TABLE 9—TECTUM FORM PLANK ALLOWABLE SPANS**

THICKNESS OF PANEL (inches)	MAXIMUM CONCRETE SLAB THICKNESS (inches)	
	4	8
1	11	10
1 <sup>1/2</sup>	17	15
2	23	20
2 <sup>1/2</sup>	28	24
3	35	29

For **SI**: 1 inch = 25.4 mm.



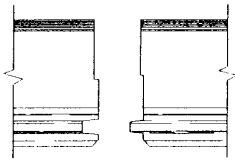
Tectum III/E Roof Tile Edge Detail



Tectum I Roof Tile Edge Detail



Tectum I Roof Plank Edge Detail

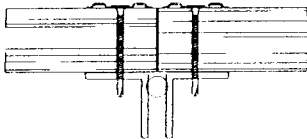


Tectum III/E Roof Plank Edge Detail

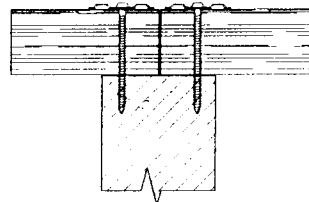


Tectum I Long Span Edge Detail

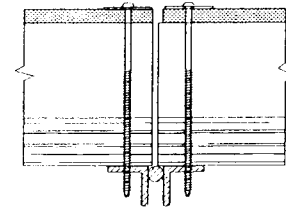
FIGURE 1—TYPICAL EDGE DETAILS



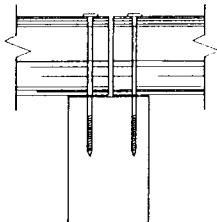
Tectum I Panel Typical End Condition on Steel



Tectum I Panel Typical End Condition on Wood

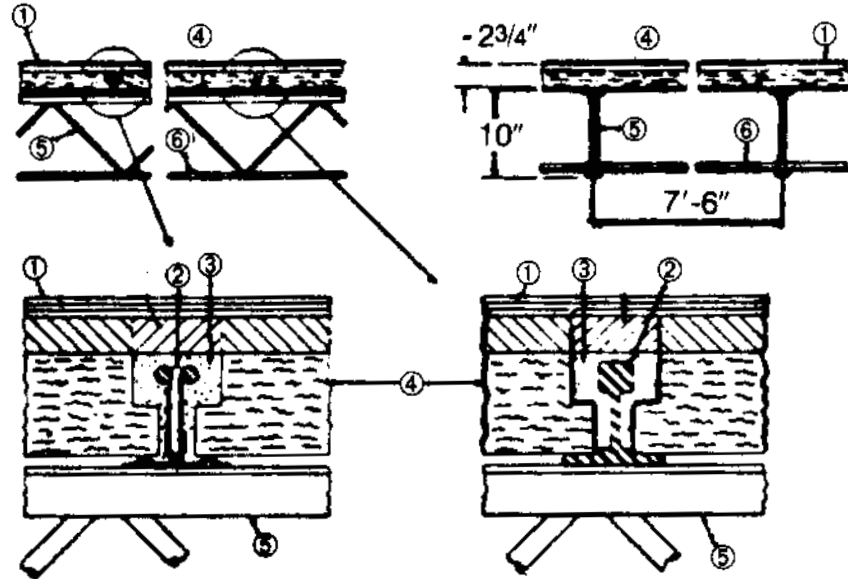


Tectum III/E Typical End Condition on Steel



Tectum III/E Typical End Condition on Wood

FIGURE 2—TYPICAL END CONDITIONS



1. Built-up roofing
2. Bulb Tee
3. Grout Mixture—Tectum grout shall be used as cementitious mixture between structural cement fiber units and bulb tees.
4. Structural Cement-Fiber Units—Tectum Inc.—Care is to be taken to ensure that units are tightly butted at end joints.
5. Joists
6. Bridging Angle—Bridging angle shall be welded to joists with spacing of bridging in accordance with recommended practice.

FIGURE 3—TYPICAL ROOF CONSTRUCTION