

THE ULTIMATE STRUCTURAL SYSTEM

JANUARY 2007

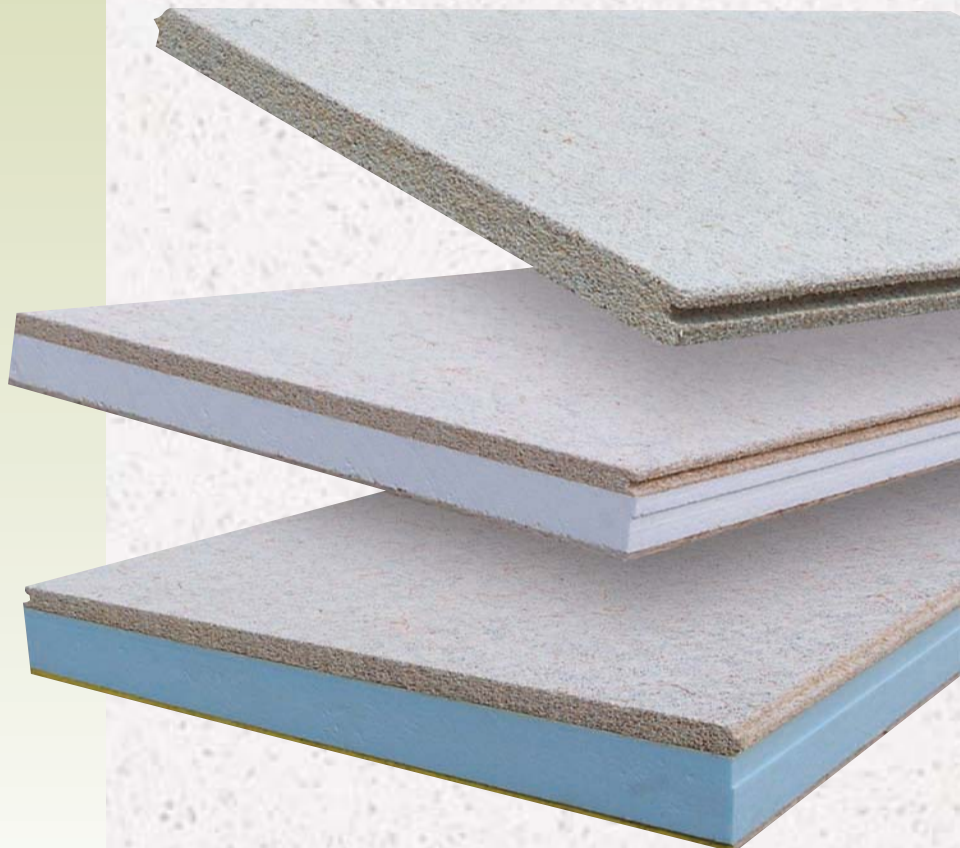
Roof Deck Systems



Palm Valley High School, Palm Valley, California.

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Tectum panels are made from renewable and sustainable raw materials.

ROOF DECK PANELS

Tectum™ panels are composed of aspen wood fibers (excelsior) bonded with an exclusive inorganic hydraulic cement and are formed by a continuous process under heat and pressure. Tectum panels combine several materials to create a decorative product that provides excellent sound absorption, abuse resistance, insulation and a textured interior finish. These panels are structurally sound and lightweight and can be used either alone or as the underside of a composite panel to form a limited combustible roof deck system. A silicone treatment to the panel resists water and water migration. There are no urea formaldehydes or CFCs in any Tectum product or composite.

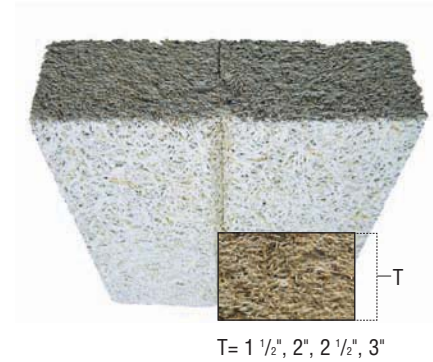
Tectum roof deck panels are available in natural (color may vary), white or custom colors.

NOTE: There is no asbestos, nor has there ever been any asbestos, used in Tectum products.

TECTUM I

Tectum I is typically used in low slope applications and provides a thermal barrier for field-applied foam plastics. It is compatible with virtually all roof installation materials. Underside exposed joints have attractive beveled edges. LS (long span) panels available with steel channel reinforcement.

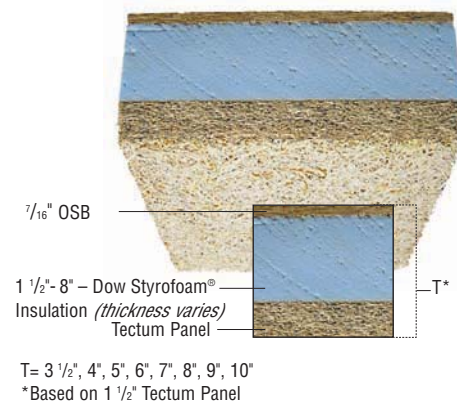
The Tectum I roof deck system consists of standard TECTUM panels in either plank or tile configurations. *See pgs. 3 and 5 for more about Tectum Roof Deck Systems.*



TECTUM III

The Tectum III roof deck panel is a composite of a 1 1/2" or thicker Tectum substrate, Dow Styrofoam® brand XPS (extruded polystyrene) insulation 1 1/2" to 8" thick and 7/16" OSB (oriented strand board) sheathing with a slip-resistant surface (see pg. 3). Components are bonded with code-listed structural adhesives.

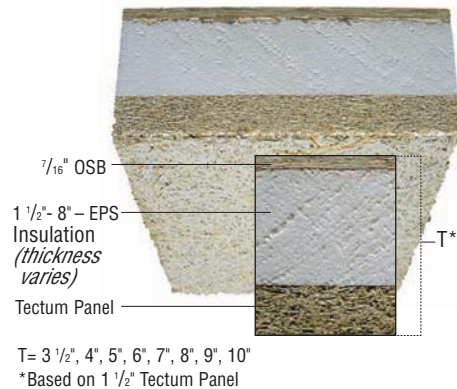
Tectum III panels are typically used in sloped applications where insulation and a nailable surface are required.



TECTUM E

The Tectum E roof deck panel is a composite of a 1 1/2" or thicker Tectum substrate, EPS (expanded polystyrene) insulation and 7/16" OSB sheathing with a slip-resistant surface (see pg. 3). Components are bonded with code-listed structural adhesives.

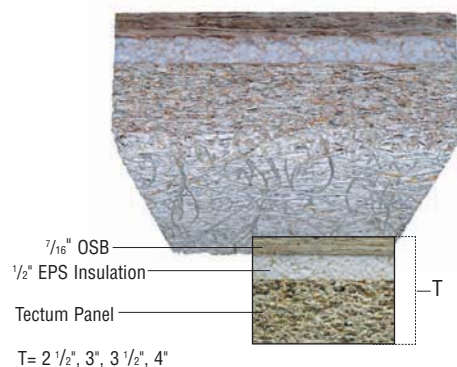
The EPS core exceeds the requirements of ASTM C-578 Type I and bears the UL classification mark.



TECTUM NS

The Tectum NS (nailable surface) roof deck panel is a composite of a 1 1/2" or thicker Tectum substrate, 1/2" thick EPS (expanded polystyrene) insulation and 7/16" OSB sheathing with a slip-resistant surface (see pg. 3). Components are bonded with code-listed structural adhesives.

Tectum NS Panels are typically used in sloped applications where minimal insulation is required, such as outdoor pavilions.



TECHNICAL DATA

With various edge treatments, Tectum panels are used as the substrate for all Tectum roof deck systems. Tectum **roof plank** panels have T&G long edges and square ends. Plank is designed to span structural supports. Tectum **roof tile** systems have rabbeted long edges and either square or T&G ends. Tiles span between structural tees. Tees span between supports.

LIMITATIONS – TECTUM I, III, E, NS

When designing for high-humidity applications such as pools or ice arenas, please contact the Tectum Inc. technical department for assistance.

COMBUSTIBILITY

WARNING: All foam insulation should be adequately protected. Styrofoam brand and EPS insulation are combustible and may constitute fire hazards if improperly used or installed. Use only as directed by the specific instructions for these products. Styrofoam brand and EPS insulation contain 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.

THERMAL PERFORMANCE FOR TECTUM PANELS

TECTUM THERMAL PERFORMANCE

Panel Type	Substrate Thickness (Inches)	Insulating Foam Thickness	Total Panel Thickness (Inches)	R-Value for Tectum Substrate	Heat Flow Up*	Heat Flow Down*	Weight PSF
Tectum I Roof Deck	1 1/2"	N/A	1 1/2"	2.63	3.75	4.14	2.3
	2"	N/A	2"	3.50	4.62	5.01	3.5
	2 1/2"	N/A	2 1/2"	4.38	5.50	5.89	4.5
	3"	N/A	3"	5.25	6.37	6.76	5.3
Tectum III Roof Deck	1 1/2"	1 1/2"	3 1/2"	10.63	11.92	12.31	4.0
	1 1/2"	2"	4"	13.13	14.42	14.81	4.1
	1 1/2"	3"	5"	18.13	19.42	19.81	4.3
	1 1/2"	4"	6"	23.13	24.42	24.81	4.5
	1 1/2"	5"	7"	28.13	29.42	29.81	4.7
	1 1/2"	6"	8"	33.13	34.42	34.81	4.8
	1 1/2"	7"	9"	38.13	39.42	39.81	5.0
	1 1/2"	8"	10"	43.13	44.42	44.81	5.2
Tectum E Roof Deck	1 1/2"	3/4"	2 3/4"	6.02	7.31	7.70	3.8
	1 1/2"	1 1/2"	3 1/2"	8.91	10.20	10.59	3.8
	1 1/2"	2"	4"	10.83	12.12	12.51	3.9
	1 1/2"	3"	5"	14.68	15.97	16.36	4.0
	1 1/2"	4"	6"	18.53	19.82	20.21	4.1
	1 1/2"	5 1/4"	7 1/4"	23.34	24.63	25.02	4.2
	1 1/2"	6 1/2"	8 1/2"	28.16	29.45	29.84	4.3
	1 1/2"	7"	9"	30.08	31.37	31.76	4.4
	1 1/2"	8"	10"	33.93	35.22	35.61	4.5
Tectum NS Roof Deck	1 1/2"	1/2"	2 1/2"	5.06	6.35	6.74	3.8
	2"	1/2"	3"	5.93	7.22	7.61	5.0
	2 1/2"	1/2"	3 1/2"	6.81	8.10	8.49	6.0
	3"	1/2"	4"	6.18	7.47	7.86	6.8

Notes for Thermal Performance Data:

- * Includes air films and roofing
- ** R-values based on the following k-factors:
k for Tectum Panels is .57
k for Dow Styrofoam is .20
k for Expanded Polystyrene (EPS) is .26

DOW STYROFOAM® INSULATION

Property	Test	Result
Water Vapor Permeability*	E96-80	0.6
Compressive Strength	D1621-73	40 lb. sq. in. Min. 20 lb./sq. in.
Water Absorption	D2842-69	1% by Volume
Linear Coef. of Thermal Expansion (in/in°F)		3.5 x 10 ⁻⁵
Thermal Resistance		R=5.0/inch

* Styrofoam brand insulation qualifies as a vapor retarder as defined by ASHRAE Fundamentals Handbook 1989.

EPS INSULATION

Property	Test	Result
R-Value* @ Nominal Density		1.0 lb./ft ³
Thermal Resistance Per Inch of Thickness	C177/C518	4.17 @ 40°F 3.85 @ 75°F

* Typical tested R-values based on data from BASF Corp. and Huntsman Chemical Co.

OSB SHEATHING

Property	Result
Internal Bond	50 p.s.i.
Average Roofing Nail Withdrawal	50 lbs.
Average Roofing Staple Withdrawal	137 lbs.
Average Screw Withdrawal*	355 lbs.
Maximum Linear Expansion (50 to 90% RH)	0.20%

* Structural Board Association Note: OSB meets the requirements of PS2-92 performance standard for wood-based structural use panels.

TECTUM ROOF DECK DESIGN GUIDELINES

DESIGN LOAD DATA**

Span in inches based on nominal 3" wide structural support members Deflection L/240 or less.
Contact Tectum Inc. for recommended spans when used in high-humidity applications.

System	Thickness***	Wt. (psf)***	Product	24"	30"	36"	38"	40"	42"	44"	48"	50"	52"	54"	60"	66"	72"	84"	96"
Plank	2"	3.5	I	130	75	50	45	40	35										
	2 1/2"	4.5	I	150	120	80	70	60	50	45	35								
	3"	5.3	I	200	125	102	91	82	74	65	50	45	40	35					
LS Plank	2"	3.8	I	130	75	75	75	70	64	57	50	45	40	35					
	2 1/2"	4.7	I	150	120	120	120	114	103	93	77	70	65	60	50	35			
	3"	5.5	I	200	125	125	125	125	120	115	110	104	96	88	71	58	50		
Comp. Plank	3 1/2"	4.4	III	200	180	165	150	135	125	115	95	85	75	70	60	55	50		
	4"	4.6	III		200	195	175	155	140	120	110	100	95	85	70	60	50	35	
	5"	5.0	III						200	175	135	125	115	105	85	70	60	50	35
T-III	6", 7"	5.2	III								200	180	170	160	150	125	105	75	60
	8", 9", 10"	5.5	III												200	165	136	100	75
NS Plank	2 1/2"	4.7	NS	200	125	100	90	80	74	65	50								
	3"	5.6	NS	200	195	135	120	110	100	90	75	70	65	60	50				
	3 1/2", 4"	6.4	NS		200	195	175	155	140	120	110	100	95	85	70	60	50		
E Plank	2 3/4"	4.4	E	200	125	100	90	80	74	65	50								
	3 1/2"	4.5	E	200	150	135	120	110	100	90	75	70	65	60	50				
	4"	4.6	E	200	180	165	150	135	125	115	95	85	75	70	60	55	50	35	
	5"	5.0	E		200	195	175	155	140	120	110	100	95	85	70	65	60	45	
	6", 7"	5.2	E								200	180	170	160	150	125	105	75	60
	8", 9", 10"	5.5	E												200	165	130	100	75

** All published design loads are based on minimum safety factor of four. For example, 50 psf design load has an ultimate load of 200 psf.

*** Thickness and weight are nominal. For loads greater than 200 lbs., contact Tectum Inc.

DIAPHRAGM DESIGN DATA

TECTUM ROOF DECK FASTENER SPACING SCHEDULE

Type	Panel Size	Test No.	Joist	Span ⁴	Fasteners	Field Spacing ²	Perimeter	Adhesive ^{1,3}	Grout	ULT/ LF	DSN/ LF
T-I Plank	3"x31"x96"	88-3113-1	Steel	48"	S-25/2" Washer	3/Joist/Panel	16" o.c.	No	None	825	275
T-I Plank	3"x31"x96"	88-3113-1	Steel	48"	S-25/2" Washer	3/Joist/Panel	16" o.c.	T&G+Joist	None	1350	450
T-I LS	2 1/2"x31"x120"	94-30037D	Wood	60"	3 3/4" 14 Gauge Scr/2"w	2/Joist/Panel	10" o.c. sides + ends	T&G+Joist	None	1170	389
T-I LS	3"x31"x144"	94-30037D	Wood	72"	4 1/2" 14 Gauge Scr/2"w	2/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	860	286
T-I LS	2"x31"x96"	94-30270	Wood	48"	3 1/4" 14 Gauge Scr/2"w	2/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	964	321
T-I LS ⁵	3" x 31" x 144"	02-030070B	Wood	72"	4 1/2" 14 Gauge Scr/2"w	2/Joist/Panel	12" o.c. sides + ends	T&G + Joist	None	1631	542
T-I Tile	2"x23 1/2"x143"	88-3113-1	Steel	72"	112 Ts/112 x Ts	24" o.c.	112 Ts	No	4 Sides	925	313
T-I Tile	2"x31 1/2"x95"	88-3113-1	Steel	96"	168 Ts/112 x Ts	32" o.c.	168 Ts	No	4 Sides	575	200
T-I RT/TG	2"x31 1/2"x96"	91-3222	Steel	96"	000-5-14-2+S-25/2"w	32" o.c.+2/Joist	S-25@16"+3/End	T&G+Per	Long Edge	696	231
T-I Tile	2"x31 1/2"x95"	94-30037H	Steel	96"	000-5-14-2+S-25/2"w	2/Joist	10 1/2" o.c.	Joist	Long Edge	835	278
T-I Tile ⁹	2"x31 1/2"x96"	02-030070A	Steel	96"	218 Ts/3 1/4" 14 Gauge/2"w	2/Joist/panel	12" o.c. sides + ends	Joist	Long Edge	1530	509
T-III Plank	3 1/2"x47"x144"	94-30037A	Wood	72"	6" 14 Gauge Sip Scr	3/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	1068	355
T-III Plank	3 1/2"x47"x120"	94-30037B	Wood	60"	6" 14 Gauge Sip Scr	3/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	1093	363
T-III Plank	5"x47"x144"	94-30037E	Wood	72"	6" 14 Gauge Sip Scr	3/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	964	320
T-III Tile	3 1/2"x47 1/2"x96"	95-30060	Steel	96"	000-3-14-3 1/2"+14GA/1 1/2"w	3/Joist/Panel	12" o.c. sides + ends	Joist	Long Edge	939	312
T-E Plank	4"x47"x144"	94-30037C	Wood	72"	6" 14 Gauge Sip Scr	3/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	1042	346
T-E Plank	5"x47"x168"	98030199	Wood	84"	6" 14 Gauge Sip Scr	3/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	1012	336
T-E Plank	5"x48"x96"	94030321	Wood	96"	6" 14 Gauge Sip Scr	4/Joist/Panel	12" o.c. sides + ends	T&G+Joist	None	604	201
T-III Plank/ Overlay	5"x47"x144"	92-3777	OSB	72"	6" 14 Gauge Scr/1 1/2"w	6/Joist/Panel	6" o.c. sides + ends	T&G+Joist	None		
	7/16"x48"x144"		OSB	—	2"x16 Gauge Staples	8"@24" Centers	4" o.c. sides + ends	Per&24"o.c.	None	2363	786
T-E Plank/ Overlay	5"x47"x96"		Wood	96"	6" 14 Gauge Sip Scr	4/Joist/Panel	8" o.c. sides + ends	T&G+Joist	None		
	7/16"x48"x96"	98030262	OSB	—	2"x16 Gauge Staples	8"@24" Centers	4" o.c. sides + ends	Per&24"o.c.	None	1315	437

NOTES: 1. Adhesive is to meet the requirements of AFG-01. A 3/8" bead of adhesive is to be used. Approximately 50 lin. ft. of adhesive per quart tube.

2. All panels were installed with staggered ends except Tectum I tile with 168 bulb tees and Tectum III tile on truss tees.

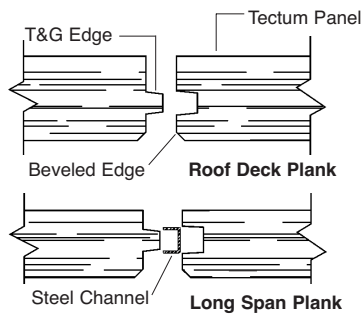
3. Specific adhesive used on test assemblies was Miracle Construction adhesive SFA-66.

4. Values over wood joists are conservative when supports are steel.

5. Visit our Web site to download technical bulletin T-77 for more information. Call for assistance when designing and detailing this Tectum roof deck system.

TECTUM I PLANK, TILE, AND CTD

TECTUM I ROOF DECK PLANK AND LONG SPAN PLANK



Tectum **Roof Plank** with a T&G edge is available in all Tectum roof deck systems.

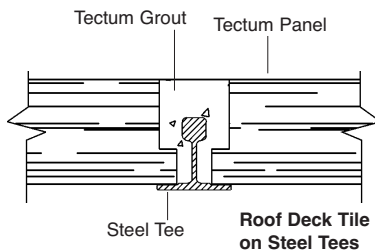
Tectum **Long Span Plank**, available only in Tectum I panel, uses a 16 gauge galvanized steel channel for increased spans.

These products are applicable to flat and pitched roofs.

TECTUM PANEL SIZES

Edge Detail	Thickness	Width x Length	Tectum Panels
T&G Sides w/ Square Ends	All	23" x 48 - 144"	I, III, E, NS

ROOF DECK TILE

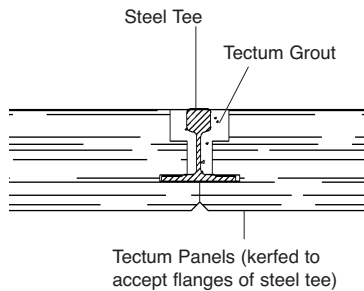


Tectum **Roof Deck Tile** uses any of the Tectum panels to span between steel tees or concrete joists.

The rabbeted edges of Tectum tile rest on steel tee flanges or on top of concrete joists. Spaces between tile and tees, or tile and anchors in concrete joists, are filled with Tectum grout for excellent anchorage and wind uplift resistance. Custom lengths allow roof design with no exposed end joints.

Edge Detail	Thickness	Width x Length	Tectum Panels
Rabbeted Sides w/ Square Ends	All	23 1/2" x 48 - 144"	I, III, E, NS
	All	31 1/2" x 48 - 144"	I
	Over 2 1/2"	47 1/2" x 48 - 144"	I, III, E, NS
Rabbeted Sides w/ T&G Ends	All	23 1/2" x 48 - 96"	I
	All	31 1/2" x 48 - 96"	I
	Over 2 1/2"	47 1/2" x 48 - 96"	I, III, E, NS

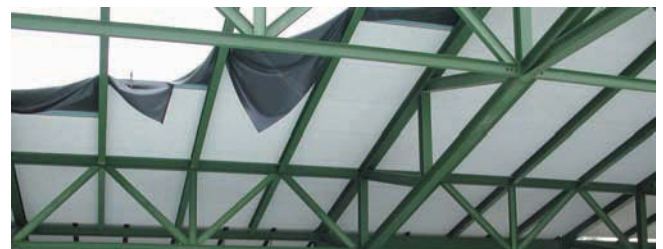
TECTUM I – CTD



Tectum I – CTD (Concealed Tee Deck) system uses a 3" thick Tectum I panel kerfed to accept a maximum size #218 bulb tee. The flanges of the steel tee are concealed in the body of the Tectum panel.

The Tectum CTD system allows spans up to 10' without visible edge support.

Edge Detail	Thickness	Width x Length	Tectum Panels
Beveled Kerfed & Rabbeted	3"	31 1/2" x 48 - 144"	I



▲ **Tectum III installation at the Plainfield Recreation Center in Plainfield, Indiana.**

PRODUCT SELECTOR

	TECTUM I	TECTUM III/E	TECTUM LS	ROOF DECK – LWIC	TECTUM I – CTD
SPANS					
Up to 48"	✓	✓	✓	✓	✓
Up to 72"		✓	✓	✓	✓
Up to 96"		✓			✓
DIAPHRAM/SHEER					
Up to 312 dsn/lf	✓	✓	✓	✓	✓
Up to 389 dsn/lf	✓	✓	✓	✓	
Up to 450 dsn/lf	✓	✓		✓	
Up to 542 dsn/lf		✓		✓	
Up to 786 dsn/lf		✓			
ACOUSTICS (NRCs)					
Up to .60	✓	✓	✓	✓	
Up to .70	✓		✓	✓	
Up to .80	✓		✓	✓	✓
R-VALUE					
Up to 5.25	✓	✓	✓	✓	✓
Up to 44		✓			
NAILABLE SURFACE					
		✓		✓	
SLOPED APPLICATION					
		✓			

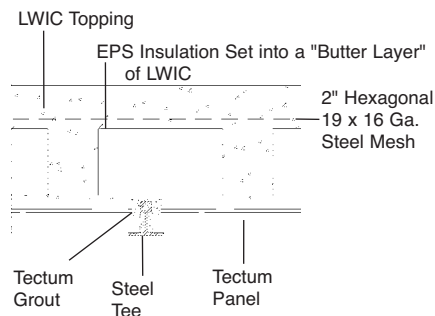
TECTUM ROOF DECK – LIGHTWEIGHT INSULATING CONCRETE

Tectum Roof Deck – LWIC System uses Tectum roof plank and tile to provide a unique and structural substrate for LWIC (Lightweight Insulating Concrete) topping. This system can be used over steel or wood structural systems.

The porous nature of Tectum decks allows the LWIC to dry from the underside of the LWIC slurry. The result is a structural, acoustical deck with permanent insulation. The deck can be re-roofed without costly replacement and disposal of the existing insulation.

This roof deck system has proven long lasting and economical for flat and low slope roof decks. It is an ideal solution in areas where higher allowable shear values are required.

Structure of Tectum Roof Deck with LWIC



▲ Installation of lightweight insulating concrete over a Tectum I roof deck.

TECTUM ROOF DECK DESIGN DATA

ROOF DECK TILE SYSTEMS LOAD CHARACTERISTICS – psf

Tile Thickness	Wt. (psf)	Product	Spacing of Bulb Tees			Span*
			24" Nom.	32" Nom.	48" Nom.	
1 1/2"	2.4	I	50	–	–	**
2"	3.5	I	90	50	–	**
2 1/2"	4.5	I, NS	140	80	–	**
3"	5.3	I, NS	150	100	50	**
3 1/2"	4.4	III, E, NS	150	–	70	**
4"	4.6	III, E, NS	150	–	100	
5"	5.0 + up	III, E	150	–	120	

- * Spans up to 12" as determined by size of bulb tee.
- ** Spans must be determined from subpurlin manufacturer's design catalog. The limiting design load is the smaller span capacity of the design loads for either the Tectum panel or the bulb tee. See bulb tee spacing at right.

SUBPURLINS SPACING ²

Nom. Tile Width	Actual Tile Width ³	Bulb Tee Spacing					
		112 ⁴	158 ⁴	168 ⁴	178 ⁴	218 ⁴	228 ⁴
24"	23 1/2"	24"	24"	24"	24"	24"	24 1/2"
32"	31 1/2"	31 3/4"	31 3/4"	31 3/4"	32"	32"	32 1/4"
48" ¹	47 1/2"	47 3/4"	47 3/4"	47 3/4"	48"	48"	48"

1. Available in 3" Tectum I only or Tectum II/E any thickness.
2. See manufacturers' literature for additional selection data on bulb tee.
3. Special tile widths available to fit existing bulb tee spacings.
4. Special order schedule dependent upon accumulated orders.

TECHNICAL SUPPORT DATA

TOTAL SAFE UNIFORM LOAD – psf

Style	Bulb Tees***	Weight	MOI* in	Height	SPAN **													
					5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	8'6"	9'0"	9'6"	10'0"	10'6"	11'0"	11'6"
158	1.68	0.0170	1 5/8"	92	76	64	54	47										
168	1.87	0.291	2"	109	91	78	67	58	51									
178	2.15	0.353	2"			119	101	87	76	66	59	52						
218	3.19	0.598	2 1/8"					119	103	91	80	72	64	58	52	48		
228	3.87	0.868	2 5/16"							129	114	102	91	82	74	68	64	57

- * Moment of Inertia based on tees acting alone.
- ** Spans are based on three-span condition, 32" nominal spacing. For 24" nominal spacing, multiply total safe uniform load by a factor of 1.32, for 48" nominal multiply by .67. For two-span condition, multiply total safe uniform load by .88, for single-span condition multiply by .64.
- *** Only 218 Bulb tees are distributed by Western Fireproofing of Kansas, Kansas City, MO, 800-659-6577. Call for complete information. The designer/specifier is urged to check theoretical deflection of any section, under the loads, and support conditions which are expected to be encountered.



Tectum III Installation

TECTUM ROOF DECK DESIGN GUIDELINES

SOUND AND NOISE

CONTROL—TECTUM I, E, III

The unique open texture of the Tectum roof deck system provides an effective acoustical treatment demonstrated by tests in accordance with ASTM Test Method C423. The use of a Tectum roof deck may eliminate the necessity of using other acoustical treatments such as lay-in tile ceilings or acoustical baffles. Tectum roof deck compares favorably with products designed exclusively for sound absorption.

EXPANSION

Tectum roof deck, when tested from 70°F (21°C)–50% RH to 90°F (32°C)–90% RH has maximum linear expansion of 0.2 of 1%.

Tectum plank does not require expansion or control joints to compensate for temperature-induced movement. However, when designing and locating control joints, engineers 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/contraction due to temperature changes.

VENTILATION REQUIREMENTS

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.

SOUND ABSORPTION

THICKNESS	MTG.	SOUND ABSORPTION COEFFICIENTS (HZ)						
		125	250	500	1000	2000	4000	NRC
1 1/2"	A	.07	.22	.48	.82	.64	.96	.55
2"		.15	.26	.62	.94	.64	.92	.60
2 1/2"	A	.20	.31	.72	.84	.77	.90	.65
3"	A	.21	.41	1.00	.75	1.00	.97	.80
3 1/2"								
(1 1/2" + 1 1/2")	A	.16	.23	.49	.78	.88	.88	.60
Tectum III								
2" Tectum								
2" EPS	A	.19	.34	.71	1.00	.83	.93	.70
2 1/2"								
Tectum	A	.28	.38	.82	.91	.90	.92	.75
2" EPS								
3" Tectum	A	.22	.48	1.02	.79	.99	.97	.80
2" EPS								
2" Tectum								
2 1/4"								
Fiberglass	A	.63	1.13	1.13	.89	1.09	.96	1.05
6 lbs/ft. ²								

R VALUES OF FIELD-APPLIED INSULATION TO TECTUM I

REQUIRED TO PREVENT CONDENSATION WITHIN THE TECTUM I DECK (2", 2 1/2" or 3")

JANUARY OUTSIDE MEAN TEMPERATURE		INSIDE RELATIVE HUMIDITY AT 70°F					
°F	°C	10%	20%	30%	40%	50%	60%
-20	-29	R-2	R-5	R-8	R-12	R-18	R-26
-10	-23	R-1	R-4	R-7	R-10	R-15	R-22
0	-18	–	R-3	R-5	R-8	R-12	R-19
+10	-12	–	R-2	R-4	R-6	R-10	R-16
+20	-7	–	–	R-2	R-4	R-7	R-12
+30	-1	–	–	–	R-2	R-5	R-9
+40	+4	–	–	–	–	R-2	R-5

UPLIFT RESISTANCE OF TECTUM SCREW ASSEMBLIES

USED WITH TECTUM I, E, NS, III PLANK

SPAN	PLANK WIDTH	FASTENERS PER FRAME INTERSECT	UPLIFT RESISTANCE** (psf)	PRODUCTS
36"	31"	2	150	I, LS
36"	47"	2	100	I, LS, NS, E, III
36"	47"	3	150	I, LS, NS, E, III
42"	31"	2	133	I, LS
42"	47"	2	89	I, LS, NS, E, III
42"	47"	3	133	I, LS, NS, E, III
48"	31"	2	117	I, LS
48"	47"	2	77	I, LS, NS, E, III
48"	47"	3	116	I, LS, NS, E, III
60"	31"	2	92	LS
60"	31"	3	138	LS
60"	47"	2	60	NS, E, III
60"	47"	3	90	NS, E, III
72"	31"	2	77	LS
72"	31"	3	116	LS
72"	47"	2	50	NS, E, III
72"	47"	3	75	NS, E, III
72"	47"	4	100	NS, E, III
96**	47"	2	50	E, III
96**	47"	3	75	E, III
96**	47"	4	100	E, III

* Single Span

** A safety factor of 2 has been used to determine uplift resistance. Screws to be a minimum of 1" longer than panel thickness.

For Technical Assistance Call: 888-977-9691

TECTUM ROOF DECK PANELS AT WORK

Tectum Roof Deck Systems are delivering attractive noise- and abuse-resistance in thousands of installations every day. Chosen for superior performance, Tectum delivers the best in commercial design, wearability and acoustical function to schools and civic applications throughout the country.

*The Eye Surgical Association,
Lincoln, Nebraska.* ▶

*Call the Tectum technical
department when designing for
high-humidity environments.* ▼



*Lake Chautauqua High School,
Chautauqua, New York.* ▶



MANUFACTURER

TECTUM INC.

For over a half century, the commercial and institutional construction industry has depended on Tectum Inc.'s unique, cost-effective solutions to meet their acoustical challenges. Easy to work with and install, Tectum acoustical roof deck treatments are not only sound absorbing, they are tough enough to stand up to architectural structural demands.

Painted or unpainted, they provide an attractive acoustical finish for the interior. Manufactured at the Tectum Inc. plant in Newark, Ohio, Tectum performance products have stood the test of time. Today, Tectum panels are combined with other construction materials to form composite panel deck systems. These systems provide superior roof deck solutions that are fully compatible with most other roofing products.



Tectum E installed over steel. ▲

TECTUM ROOF DECK INSTALLATION GUIDELINES

INSTALLATION INSTRUCTIONS

Tectum panels may be installed over steel, wood and concrete framing and are applicable to flat or pitched roof construction. Maximum joist spacings are shown in the load tables on page 4. Tectum panels should have sufficient length to span multiple purlin spacings whenever possible. They must be laid with staggered ends and must be mechanically attached to all framing members of substrate per recommendations. Tectum panels can easily be cut, to fit irregular spaces, with tools used to cut wood.

Tectum tile is available with rabbeted edges and square ends. Maximum spans are determined by the size of the bulb tee. If the ends of Tectum tile do not fall on the structural member, a lightweight cross tee or T&G ends 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, III, E AND NS

Tectum I panels are designed to accept all field-applied insulations 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.

Representatives of roofing systems manufacturers should be consulted for recommendations on the specification and system best suited to the deck and conditions pertinent to each roof.

A vented overlay is available for Tectum roof composite deck products. ***Attaching shingles to Tectum I is not recommended.***

VAPOR RETARDER

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 or less.

ATTACHING INSULATION TO TECTUM ROOF DECK

For more information about attaching additional insulation to a Tectum roof deck, contact Tectum Inc. to request Bulletin T-38 or visit our website at www.tectum.com.

ATTACHING ROOFING FELT TO TECTUM I ROOF DECK

Tube-Lok roofing nail is available from Simplex Nails, Inc., Americus, GA, 1" up to 6 1/2". E.S. Roofing nails are available from E.S. Products Inc., Bristol, RI.

FASTENING TECTUM PLANK TO WOOD JOIST

14-gauge screw with 2" diameter washers for Tectum I panels and 5/8" diameter head 14-gauge screws for Tectum III, E and NS. A minimum 1" penetration is required.

FASTENING TECTUM PLANK TO STEEL JOIST

Tectum S-25 screws in 2 15/16", 3 7/16", 3 15/16" lengths and 2" dia. washers available from Tectum Inc. Locate screws approximately 6" from edges and 1" from ends. 14-gauge screw with washers predrilled with 7/32" drill bit is an acceptable method.

CODE COMPLIANCE AND CERTIFICATIONS

CODE COMPLIANCE/STANDARDS

- **International Code Council Evaluation Service**
ICC-ES Report pending
- **Southern Building Code Congress International**
SBCCI Report 9406A
- **International Conference of Building Officials**
See I.C.B.O. Research recommendation No. 1116, for allowable values and/or conditions of use concerning materials presented in this document.

See I.C.B.O. Report No. 1116, Section IV Findings for information on use where noncombustibility is required.

I.C.B.O. reports are subject to reexamination, revision and possible cancellation.
- **New York City Board of Standards & Appeals**
Calendar No. L391-52-SM.
- **FM Approved CLASS I Roof Deck. (Tectum I decks)**
- **Underwriters' Laboratories – Canada**

UNDERWRITERS LABORATORIES, CLASS 90 WIND UPLIFT RESISTANCE.

Tectum I, III and E plank have been tested in roof assemblies in accordance with standard UL 580, resulting in UL Class 90 uplift resistance.

Design No. NM504–Tectum I Tile–Nominal 2" on bulb tees, not to exceed 7'1".

Design No. NM511–Tectum Tile–Nominal 2" to 3". T&G on bulb tees, spans not to exceed 8'.

Design No. NM512–Tectum Tile–with filler strips on bulb tees, spans not to exceed 7'6".

Design NM517–Tectum III T&G plank on bar joist 48" o.c.

Design 474 & 475 Tectum E/III plank on steel 84".

Design 451 Tectum E/III plank/tile on steel 96".

Underwriters' Laboratories – Canada

RATED ASSEMBLIES FIRE ENDURANCE TEST ASTM E 119-HOURLY RATED SYSTEMS

Tested in roof/ceiling assemblies.

Tectum products are used in achieving the following:

2-HR U.L. Design No. P402–Tectum plank 2" (50.8mm) thick on steel joists with metal lath and perlite plaster ceiling.

2-HR U.L. Design No. P403–Tectum plank 3" (76.2mm) thick on steel joists with metal lath and perlite plaster ceiling.

1 or 1 1/2 HR U.L. Design P253–Tectum Plank 2 1/2" and 3" thick with listed acoustical ceiling.

1 HR U.L. Design P675–Tectum Formboard 2" thick with gypsum concrete and truss tee subpurlins.

1 HR U.L. Design P678–Tectum Formboard 2" thick with vermiculite or perlite concrete on bulb or truss tee subpurlins.

THERMAL BARRIER

Tectum panels 1 1/2" or thicker are a thermal barrier for foam plastic insulation.

SURFACE BURNING CHARACTERISTICS

3" Tectum Roof Deck*	
Flame Spread Index	5
Flame Spread Index (30 min)	5
Smoke Developed Value	5
8" Tectum III Panels**	
Flame Spread Index	5
Smoke Developed Value	10

The flame spread did not progress more than 10 1/2 ft. during the 30-minute test.

* United States Testing Co. Inc. No. 090168

** Underwriters' Laboratories of Canada

LIGHT REFLECTION

Typical Range:

Natural–60%.

Field painted white–70%.

PAINTING

Tectum panels can be field painted up to six times. For details, see Marketing Bulletin M-77, available at www.tectum.com.

GENERAL INFORMATION

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. TECTUM INC. ASSUMES NO RESPONSIBILITY FOR TYPOGRAPHICAL ERRORS. THE TABLES CONTAINED HEREIN ARE PROVIDED FOR YOUR CONVENIENCE. DESIGN INFORMATION SHOULD BE VERIFIED.

OTHER CATALOGS IN SWEET'S CATALOG FILE:

Tectum Acoustical Ceilings, Walls, and Special Applications

Sweet's Section:

098400/TED

Buyline 7499



TECTUM^{INC}

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FAX: 800-832-8869
EMAIL: info@tectum.com

More information about available Tectum products and specifications available online at www.tectum.com.

ENVIRONMENTAL STATEMENT/GREEN ARCHITECTURE

Tectum panels are made from sustainable domestic, renewable 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 saltwater. The silicate used is made from sand. Tectum Inc. has the ability to recover waste magnesium and to recycle the water used in the manufacturing process. The recovered magnesium oxide can be used in the manufacture of magnesium sulfate, a primary ingredient in the binder. Tectum products continue to meet the needs of owners, architects, and engineers that require "green" building products.

TECTUM PRODUCTS AND LEED

The Leadership in Energy and Environmental Design (LEED*) Green Building Rating System represents the U.S. Green Building Council's effort to provide a national standard for what constitutes a "green building." Through its use as a design guideline and third-party certification tool, it aims to improve occupant well-being, environmental performance and economic returns of buildings using established and innovative practices, standards and technologies.

The LEED building rating system has been established to evaluate every aspect of the construction process and building components used in new and existing buildings. While the main emphasis is on energy efficiency, conservation and the overall "health" of the building, the use of "green" products contributes favorably to the overall rating of a building.

Six rating categories make up the project checklist. Four of the six categories are not applicable to Tectum products. Categories four and five, Materials and Resources and Indoor Environmental Quality, consist of 11 elements applicable to the use of Tectum products. Tectum products contribute favorably in all eleven areas to the overall positive rating of the building. For more information, see our complete environmental statement, available on our website, www.tectum.com.

Tectum is proud to have its products listed in the GreenSpec Directory** published by Building Green from the editors of Environmental Building News. Tectum roof deck is noted on page 69, section 3511 and Tectum interior products are listed on page 230, section 9512.

* Trademark of USGBC

** Trademark of Building Green, Inc.

LIMITED WARRANTY

We at Tectum Inc. believe 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 the 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 the seller's products for the buyer's specific end uses.