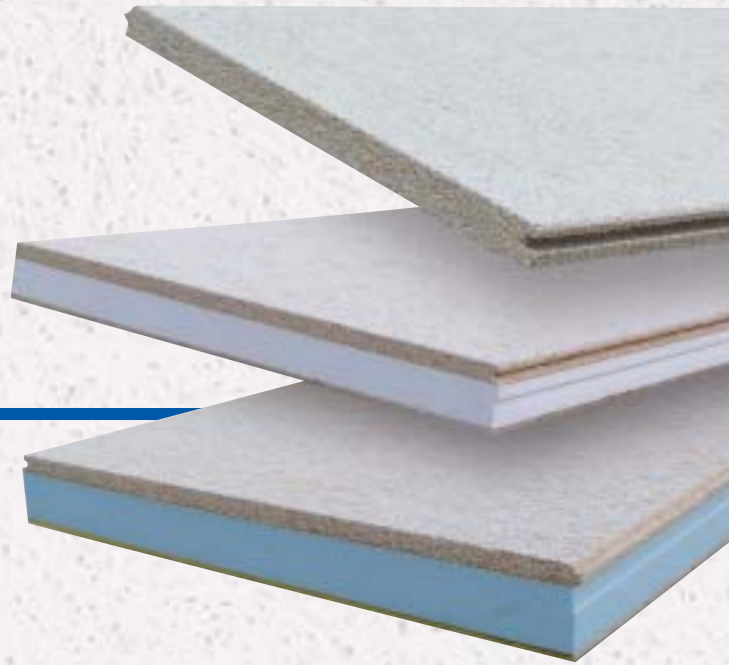


## THE ULTIMATE STRUCTURAL SYSTEM

JANUARY 2008

# Roof Deck Systems

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Palm Valley High School (Palm Valley, CA)

▼ Tectum Structural Roof Deck



## 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.*

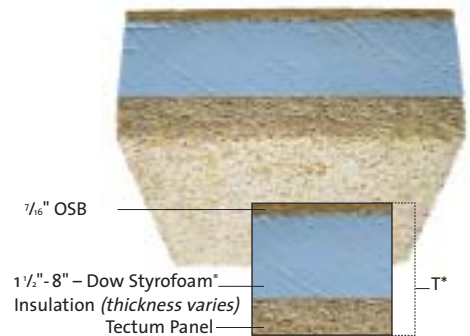


T = 1 1/2", 2", 2 1/2", 3"

### 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.



7/16" OSB

1 1/2" - 8" - Dow Styrofoam®  
Insulation (thickness varies)

Tectum Panel

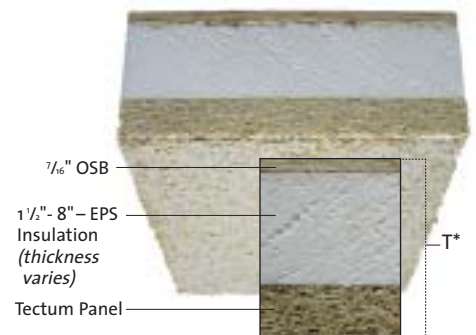
T = 3 1/2", 4", 5", 6", 7", 8", 9", 10"

\*Based on 1 1/2" Tectum Panel

### 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.



7/16" OSB

1 1/2" - 8" - EPS  
Insulation (thickness varies)

Tectum Panel

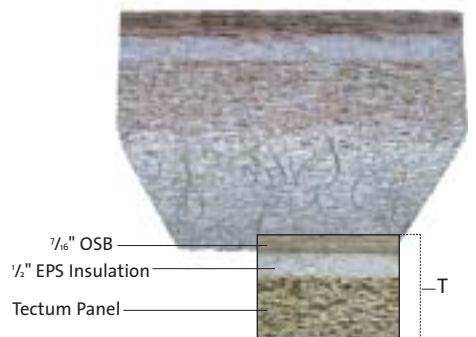
T = 3 1/2", 4", 5", 6", 7", 8", 9", 10"

\*Based on 1 1/2" Tectum Panel

### 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.



7/16" OSB

1/2" EPS Insulation

Tectum Panel

T = 2 1/2", 3", 3 1/2", 4"



## TECHNICAL DATA

## THERMAL PERFORMANCE FOR TECTUM PANELS

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.

### 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
Tectum E Roof Deck	1 1/2"	3/4"	2 1/4"	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
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

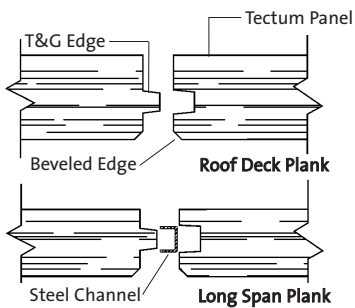
k for Dow Styrofoam is .20

k for Expanded Polystyrene (EPS) is .26



▲ Plainfield Recreation Center (Plainfield, IN)  
Tectum III Pool Installation

### TECTUM I ROOF DECK PLANK AND LONG SPAN PLANK



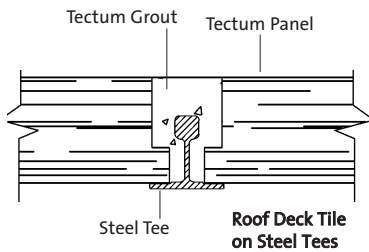
Tectum **Roof Plank** with a T&G edge is available in all Tectum roof deck systems.

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.

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

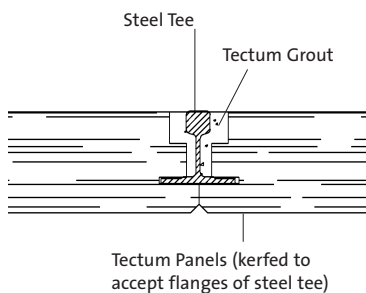


Tectum **Roof Deck Tile** uses any of the Tectum panels to span between steel tees or concrete joists.

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 Panel
Beveled Kerfed & Rabbeted	3"	31 1/2" x 48 - 144"	I



◀ Bay District Volunteer Fire Station (Lexington Park, MD)  
Tectum I Roof Plank



▶ Leawood Activity Center (Leawood, KS)  
Tectum E Roof Deck

## PRODUCT SELECTOR

	TECTUM I	TECTUM III/E	TECTUM LS	ROOF DECK – LWIC	TECTUM I – CTD
<b>SPANS</b>					
Up to 48"	✓	✓	✓	✓	✓
Up to 72"		✓	✓	✓	✓
Up to 96"		✓			✓
<b>DIAPHRAM/SHEER</b>					
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		✓			
<b>ACOUSTICS (NRCs)</b>					
Up to .60	✓	✓	✓	✓	
Up to .70	✓		✓	✓	
Up to .80	✓		✓	✓	✓
<b>R-VALUE</b>					
Up to 5.25	✓	✓	✓	✓	✓
Up to 44		✓			
<b>NAILABLE SURFACE</b>					
		✓		✓	
<b>SLOPED APPLICATION</b>					
		✓			

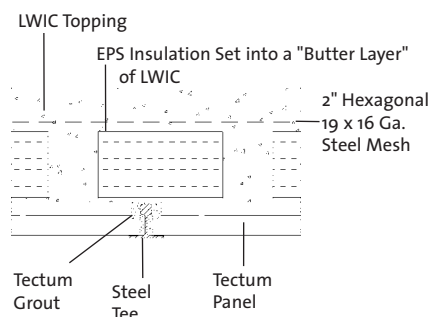
## TECTUM ROOF DECK – LIGHTWEIGHT INSULATING CONCRETE

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.



### 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.

### 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") Tectum III 2" Tectum	A	.16	.23	.49	.78	.88	.88	.60
2" EPS 2 1/2"	A	.19	.34	.71	1.00	.83	.93	.70
Tectum 2" EPS	A	.28	.38	.82	.91	.90	.92	.75
3" Tectum 2" EPS	A	.22	.48	1.02	.79	.99	.97	.80
2" Tectum 2 1/4"								
Fiberglass 6 lbs/ft. <sup>2</sup>	A	.63	1.13	1.13	.89	1.09	.96	1.05



▲ Tectum III Installation

## 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, NE) ▶  
Tectum E Roof Deck

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



Lorain Co. Metro Park Pool (Lorain, OH)  
▼ Tectum III Roof Deck





## 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 SWEETS CATALOG FILE:

*Tectum Acoustical Ceilings, Walls, and Special Applications*

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Fax: 800-832-8869  
Email: [info@tectum.com](mailto:info@tectum.com)

More information about available Tectum products and specifications available online at [www.tectum.com](http://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 or the Forestry Stewardship Council (FSC). These programs are 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](http://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.