

## A UNIQUE ACOUSTICAL PRODUCT

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# Environmental Statement



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Tectum panels are made from renewable and sustainable raw materials.

## TECTUM: A GREEN PRODUCT

Long before the environmental practices of business were scrutinized, Tectum Inc. was manufacturing sustainable building products in an environmentally safe, non-toxic process. Since 1949, Tectum panels have been made from renewable wood sources, magnesium from sea water, and recovered magnesium waste. The panels contain no toxic binders, no asbestos or formaldehyde, and are naturally degradable in a landfill.

### Composition of Tectum Panels

The wood fibers (excelsior) used in Tectum panels come from Aspen trees. Aspen is a self-propagating type tree. When cut, a new tree will begin to grow back from its root structure. In addition, all Aspen used for Tectum is air dried. No drying kilns are used. The wood is stored in ranks to age naturally. No chemicals are used in the production of any excelsior purchased by Tectum Inc.

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. All loggers are trained to adhere to SFI principles.

Magnesium oxide, obtained from sea water, is mixed with magnesium sulfate (Epson's salt) to form the primary binder. Tectum Inc. manufactures the magnesium sulfate solution on site using waste material that has been generated since production began in 1949. The secondary binder is composed of sodium silicate and calcium carbonate (limestone). All of the water used in the manufacture of Tectum is captured and recycled.

### Durability

Tectum Inc. offers a Limited Lifetime Warranty on all Tectum products. While many other building materials have replacement rates greater than twenty percent, replacement of Tectum acoustical panels is seldom required. Tectum panels can also receive up to six coats of spray applied paint with no loss in acoustical value, increasing the life span of the panels.

When recommended installation procedures are observed, Tectum panels can be removed and re-installed, or installed in other areas. Tectum panels can be painted without diminishing their acoustical properties, a trait that also adds to their reusability.

### Disposal

Tectum panels are a non-hazardous waste and can be safely deposited in landfills. As an alternative, the panel waste has been successfully added to compost and used as a soil amendment.

Tectum panels provide acoustical treatment when abuse resistance is also a priority. The panels are manufactured in an environmentally friendly process from sustainable raw materials and can be renewed by repainting and reused by demounting. They will last for years and waste may be safely deposited in landfills. Tectum products continue to meet the needs of owners, architects and building industry professionals who require green building products.



John Heinz National Wildlife Refuge



Mississippi Interpretive Center

## 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, LEED 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.

Tectum Inc. fully endorses the LEED Green Building Rating System. A number of our representatives are LEED Accredited Professionals and members of local USGBC Chapters. Our products contribute to the following credits of the LEED rating system:

**EA Prerequisite 2: Fundamental Energy Performance** - Tectum Structural Roof Deck Systems provide high R-Values. Installations have few thermal shortcuts providing very complete R-value coverage.

**EA Credit 1: Optimized Energy Performance** - Tectum Structural Roof Deck Systems provide high R-Values up to R-43.

**MR Credits 2.1 and 2.2: Construction Site Waste Management** - Tectum products are typically cut to 1'-0" length increments at the factory reducing or eliminating field cuts and waste at the site. Tectum products are shipped without the need for boxing and minimal if any crating, reducing packaging for minimal site waste. Tectum products are biodegradable and can be composted or ground up for soil amendment, eliminating landfill needs.

**MR Credits 4.1 and 4.2: Recycled Content** - The Tectum Finale Wall Panel has 40% Post Industrial recycled content by Weight and 9% Post Consumer recycled content by value. Tectum Fabri-Tough Wall Panels have 33% Post Industrial recycled content by weight as the Hytex Acoustical Fabric is 100% recycled material. Fabri-Tough Wall Panels have 27% Post Consumer recycled content by value.

**MR Credit 7: Certified Wood** - Tectum products are made from Wisconsin Aspen wood fibers, harvested in Wisconsin by American Excelsior Company. American Excelsior Company is FSC and SFI certified. A chain-of-custody letter is available upon request.

**EQ Prerequisite 3: Minimum Acoustical Performance** - (LEED For Schools) Tectum products are manufactured primarily as an acoustical product. Tectum products apply directly to this strategy by providing abuse resistant acoustical solutions. Tectum products can be field painted up to six times without degrading acoustical performance, offering a life-of-the-building, long service life, low maintenance acoustical solution.

**EQ Credit 3.1 and 3.2: Construction IAQ Plans** - Tectum products can be field painted if required, but do not need to be painted for use. Tectum may contribute to this strategy by eliminating the need for field painting. If field painting is desired, Tectum products do not require priming. Consult Tectum Bulletin M-77 for field painting information.

**EQ Credit 4.1: Low-Emitting Materials, Adhesives and Sealants** - Tectum products do not contain VOC's.

**EQ Credit 4.4: Low-Emitting Materials, Composite Wood & Agifiber Products** - Tectum products contain no Urea Formaldehyde.



## TECTUM PRODUCTS AND LEED\* CONTINUED

**EQ 10: Mold Prevention (LEED for Schools)** - Tectum products do not support the growth of mold or bacteria. Tested per ASTM D3273, three Tectum product samples scored a 10, 9 & 9 out of a possible 10. Tectum products are available with an anti-microbial paint if desired.

**EQ Credit 11: Low Impact Cleaning and Maintenance Equipment Policy (LEED for Schools)** - Tectum products contribute favorably to this strategy as they are extremely abuse resistant and intended life-of-the-building service. Tectum products can be cleaned using a vacuum cleaner or a broom and do not require special cleaning supplies.

**ID 1 - 1.4: Innovation in Design** - Tectum Composite Structural Roof Decks may qualify for this strategy as they provide structural roof deck, finished ceiling, acoustics, thermal value and nailable roofing substrate in one quick to install panel. Use of Tectum Structural Roof Deck Systems provide the synergy of four trades into one product, reducing construction time and shipping miles and energy, as the panels are factory assembled and shipped complete and ready for installation.

Tectum™ products are 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 The U.S Green Building Council

\*\*Trademark of Building Green, Inc.

## CRAILO TECTUM B.V. IN AMSTERDAM FUNGI TEST

The following are the results of a test performed by Crailo Tectum B.V. in Amsterdam to determine the growth of fungi on Tectum panels.

After 10 weeks of exposure at 23°C and 70 - 75% R.A., no growth of fungi has been observed (magnification 8x) on the surface of the Tectum panels, both natural and coated with paint.

Sample Number	Mass increase (%) after 10 weeks 23 oC/ 70 - 75% R.A.	Visual inspection (Magnification 8x) On growth of fungi of the Tectum panels After 10 weeks exposure
A, natural	14.0	None
B, natural	12.1	None
C, painted white	11.2	None
D, painted white	9.9	None

## FUNGUS RESISTANCE TEST: ENGINEERING REPORT No. 31106-1JJ

### Object

Subject three (3) samples of Tectum Natural to a Fungus Resistance Test in accordance with ASTM D3273.

### Conclusions

Post-exposure examination found minimal fungal growth on the front surface of the samples and moderate growth on the back surfaces. The three test units had an ASTM D3273 rating of 10, 9, 9 on the front surfaces with a 10 rating being the total absence of mold.

### TEST REQUESTED

Subject the test samples to a Fungus Test in accordance with ASTM D 3273-94 "Standard Test Method: Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber."

The fungus used in the test shall be: (1) *Aureobasidium pullulans*, (2) *Aspergillus niger*, and (3) *Penicillium*. The test soil shall be greenhouse-grade potting soil containing 25% peat moss. The test soil shall be spread across the bottom of the test cabinet. The soil shall be inoculated with mold suspensions prepared using the three fungi. Allow 2 weeks of continuous operation for the mold to sporulate and equilibrate with the environment before starting the test. Viability of the mold growth can be checked by placing several agar plates in the cabinet. Mold growth should be medium-heavy to heavy and cover the complete surface of the agar plate.

The test specimens shall be suspended vertically with the bottom of each specimen approximately 3 inches above the surface of the inoculated soil. There shall be sufficient spacing between test units to allow free air movement. The samples shall be incubated at 90°F ±2°F and 95% to 98% relative humidity for 7 weeks. The test articles shall be inspected every week and mold growth recorded.

### RESULTS

The final rating in the following table is in accordance with ASTM D3273-94. An ASTM rating of 10 is the total absence of mold growth. (For more information on mold growth on Tectum products or to request a copy of the test results, please contact Tectum Inc.)

Sample	% Fungal Growth on Front Face	Final ASTM Rating on Front Face
1	5%	10
2	10%	9
3	10%	9

## FUNGUS RESISTANCE TEST: ENGINEERING REPORT No. 31106-1KK

### Object

Subject three (3) samples of Tectum Painted White to a Fungus Resistance Test in accordance with ASTM D3273.

### Conclusions

Post-exposure examination found minimal fungal growth on the front surface of the samples and medium growth on the back surfaces. The three test units had an ASTM D3273 rating of 9, 9, 9 on the front surfaces with a 10 rating being the total absence of mold.

### TEST REQUESTED

See Page 4 (TEST REQUESTED).

### RESULTS

The final rating in the following table is in accordance with ASTM D3273-94. An ASTM rating of 10 is the total absence of mold growth. (For more information on mold growth on Tectum products or to request a copy of the test results, please contact Tectum Inc.)

Sample	% Fungal Growth on Front Face	Final ASTM Rating on Front Face
1	10%	9
2	10%	9
3	10%	9

## ENVIRONMENTAL STATEMENT/GREEN ARCHITECTURE

Tectum panels are made from sustainable 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 integrate 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.

**THERE IS NO ASBESTOS, NOR HAS THERE EVER BEEN ANY ASBESTOS, USED IN TECTUM PRODUCTS.**



**John Heinz National Wildlife Refuge** at Tinicum, PA, required a "Green" building products. They turned to Tectum Inc. for aesthetically pleasing acoustic wall and ceiling panels.

**The North Mississippi Interpretive Center** was made from shells of sunflower seeds, wheat, and recycled woods and plastics. Tectum panels proved to be the environmental choice for acoustical control in this space.



**Happy Feet Plus in Clearwater FL.** is the first retail GOLD certified LEED building in the country. Tectum roof deck helped contribute to the 39 overall points that Happy Feet earned.