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*Education*  
*Sustainability*

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TANDUS FLOORING®

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## Environmental Responsibility

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At Tandus Flooring®, Environmental Responsibility is one of the company's four pillars of innovation. It is with that core value, we feel a particular accountability to learning institutions since we share equally in our social responsibility to the communities that we serve and the fiscal challenges to build our schools responsibly for current and future generations. As we continue to pioneer new and meaningful ways to improve places where students learn, environments where staff and teachers work and the communities they serve, this is our most significant journey.

The **Infinity Initiative** encourages the forward thinking and risk taking that leads to the breakthrough technology that will fix the environmental problems of today and serve as the springboard to answer the problems of tomorrow. The collective energy within the Tandus Flooring community has led the progression of historic milestones in environmental and social responsibility and sets the stage for future successes.

Well over 100,000,000 pounds of vinyl flooring is installed annually into commercial buildings. Since 1994 Tandus Flooring was the first to recycle these products back into useful flooring, recognizing the need to reduce our dependence on oil derived from natural resources, as well as our initiative towards landfill avoidance. Today, Tandus Flooring recycles for the industry by diverting these floor products from landfills and recycling them into useful ER3®

flooring, our flagship product that is 100% recycled content for both ER3 Modular carpet and Powerbond ER3 Cushion. Over 65% of products mined from existing buildings are not initially manufactured by us. Through our Floore® Take-Back Program, we will bring back anyone's vinyl backed textile floor products for recycling into new and useful flooring material regardless of original manufacturer.\*

\* A sample of the flooring must be submitted to Tandus Flooring to verify composition and that the flooring has not been contaminated by hazardous material.



## Turn abundance into abundance

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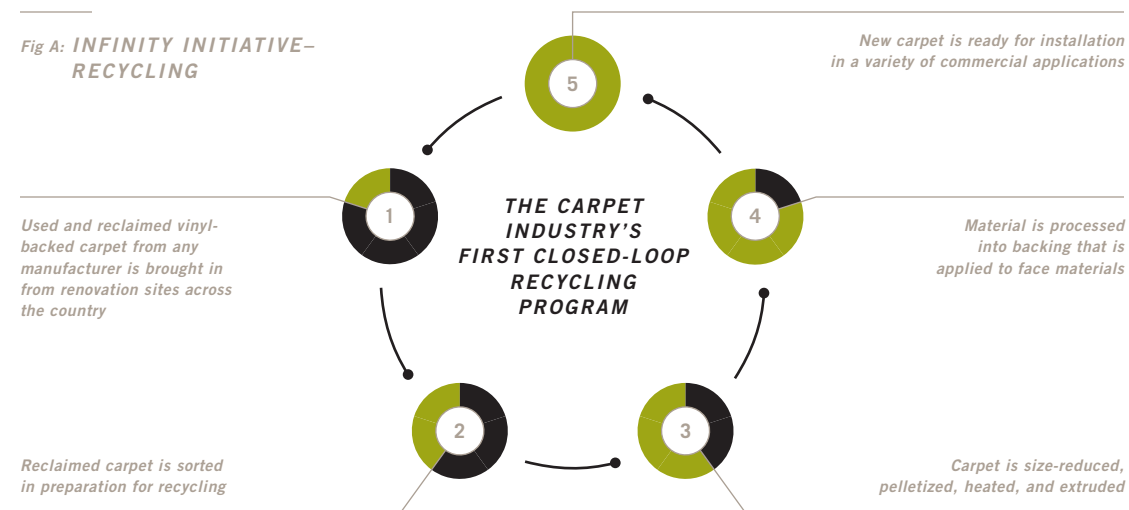
Tandus Flooring is continuously developing innovative uses for alternative abundant waste streams. Initiatives toward product solutions include a clear responsibility towards landfill avoidance. Powerbond (VCTT) is a hybrid resilient sheet flooring specifically designed to meet the demanding needs of a school environment.

The remarkable ability of Powerbond to perform without failure in corridors, gymnasiums, classrooms, libraries, administrative and multi-purpose rooms is unmatched in the resilient and carpet industry.

Our award winning ethos™ products are manufactured using the plastic film recovered from recycled automotive windshields and safety glass. Before ethos, there was no commercial use for the film waste with millions of pounds being sent to landfills annually.

Today, once ethos becomes part of our inventory of products, they become part of our Infinity Initiative for landfill avoidance and closed-loop recycling. ethos has the highest recycled content and the lowest embodied energy of any of our products. ethos Modular and ethos Powerbond comprises a significant amount of our product solutions for schools, hospitals and commercial office buildings.

Fig A: INFINITY INITIATIVE-RECYCLING



## Reduced Energy / Carbon Footprint

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While recycling can make a difference in reducing pressure on landfills, it also can make meaningful contributions to reducing energy usage. **The production of Powerbond styles constructed with ethos Cushion or ER3 Cushion requires a fraction of the energy than products made from virgin materials.**

Reducing the consumption of fossil-fuel derived energy and carbon emissions go hand in hand. Every phase of the life of floorcovering products contributes to the release of greenhouse gas (GHG) emissions.

The following all contribute to the total carbon footprint:

- Raw materials
- Manufacturing
- Installation
- Maintenance
- Reclamation
- Disposal

The actual manufacturing process at Tandus Flooring contributes less than 15% of the life cycle carbon footprint of its products. The majority of the carbon emissions occur during the extraction and processing of the raw materials, and long-term use and regular maintenance of the product.

Tandus Flooring has employed a multi-faceted approach to reduce the carbon footprint of our operations and products including:

- Energy reduction
- Water reduction
- Solid waste reduction
- Increased renewable energy
- Increased bio-fuels
- Increased closed-loop recycling
- Increased post-consumer reclamation

For customers that wish to purchase certified climate-neutral products, we provide a carbon-free product offering that is conducted responsibly, is third-party certified, and ultimately produces meaningful results in decreasing the overall level of GHG emissions.

**All Powerbond products are available with third-party Climate Neutral certification by the Carbonfund.org upon request.**



## Embodied Energy

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At Tandus Flooring, we believe focusing on one single attribute provides an incomplete picture of the true environmental impact of a product. That's why we utilize life-cycle assessment (LCA) methodologies that provide a more holistic view of a product's total environmental footprint.

Tandus Flooring voluntarily participates in the Building for Environmental and Economic Sustainability (BEES) LCA.

Developed by the National Institute of Standards and Technology, a Federal agency, BEES is becoming widely used by architects, interior designers and other professionals in the design and construction industries to evaluate the environmental impact of their

product and material selections.

**Tandus Flooring's Powerbond ethos Cushion and Powerbond ER3 Cushion calculate to a five and six times lower energy footprint as compared to virgin carpet tile and two times lower than recycled content tile.**

A LCA quantifies the total environmental impact of a material or product by assessing all stages

in the life of a material.

- Raw materials
- Manufacturing
- Use
- Disposal

For more information about LCA's and BEES, including access to a free download of the LCA database, visit [www.bfrl.nist.gov/oe/software/bees/](http://www.bfrl.nist.gov/oe/software/bees/).

Fig B: BEES CHART\*

EMBODIED ENERGY FOOTPRINT	FEEDSTOCK* ENERGY (MJ/sq.ft.)	FUEL** ENERGY (MJ/sq.ft.)	TOTAL PRIMARY ENERGY (MJ/sq.ft.)
Powerbond® ethos™ Cushion	4.9	11.9	<b>16.8</b>
Powerbond® ER3® Cushion	6.9	15.1	<b>22.0</b>
ethos™ Modular	9.6	23.4	<b>33.0</b>
ER3 RS® Modular	17.4	27.8	<b>45.3</b>
Virgin Modular Carpet	44.2	65.9	<b>110.1</b>

\* Feedstock energy: the calorific value of the polymers in the carpet

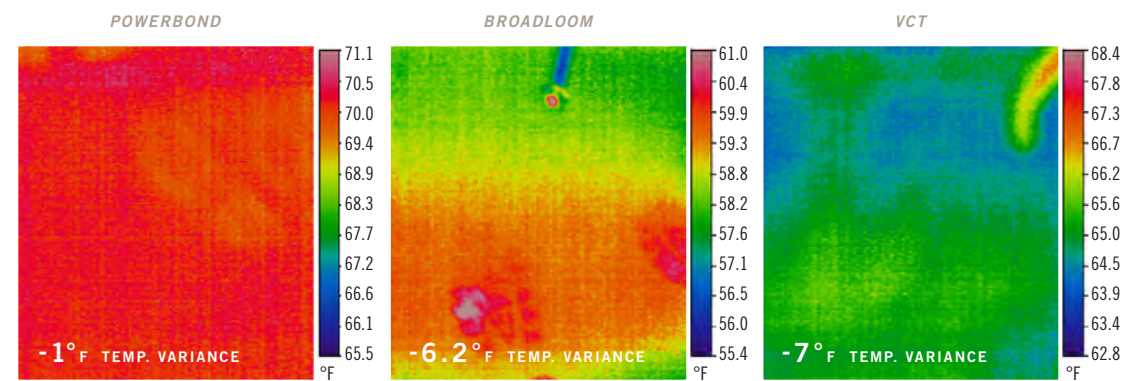
\*\* Fuel energy: energy to manufacture and transport the raw material and product, and energy for installation

\* Building for Environmental and Economic Sustainability

## Reducing energy usage / Thermal Insulation

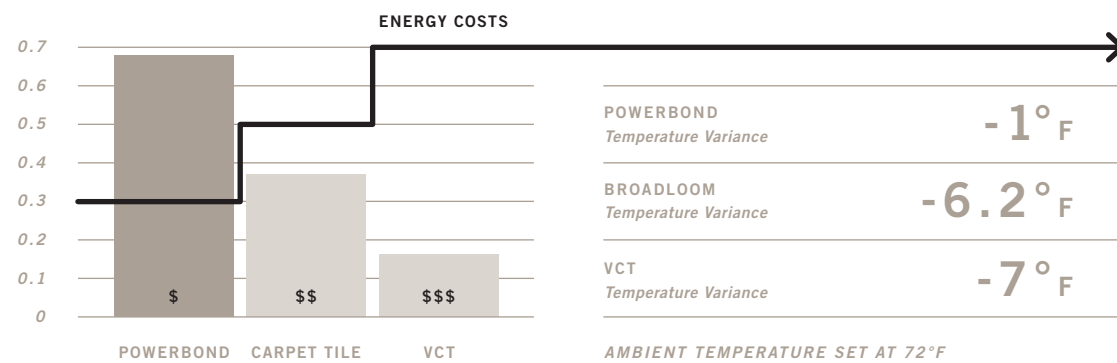
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Research has shown that the closed-cell cushion construction of Powerbond VCTT offers significantly greater insulation properties and energy savings compared to most other floorcoverings, including broadloom carpet and VCT. This means more comfort, as well as energy and cost savings for school administrators. Reducing energy usage also reduces CO2 emissions.

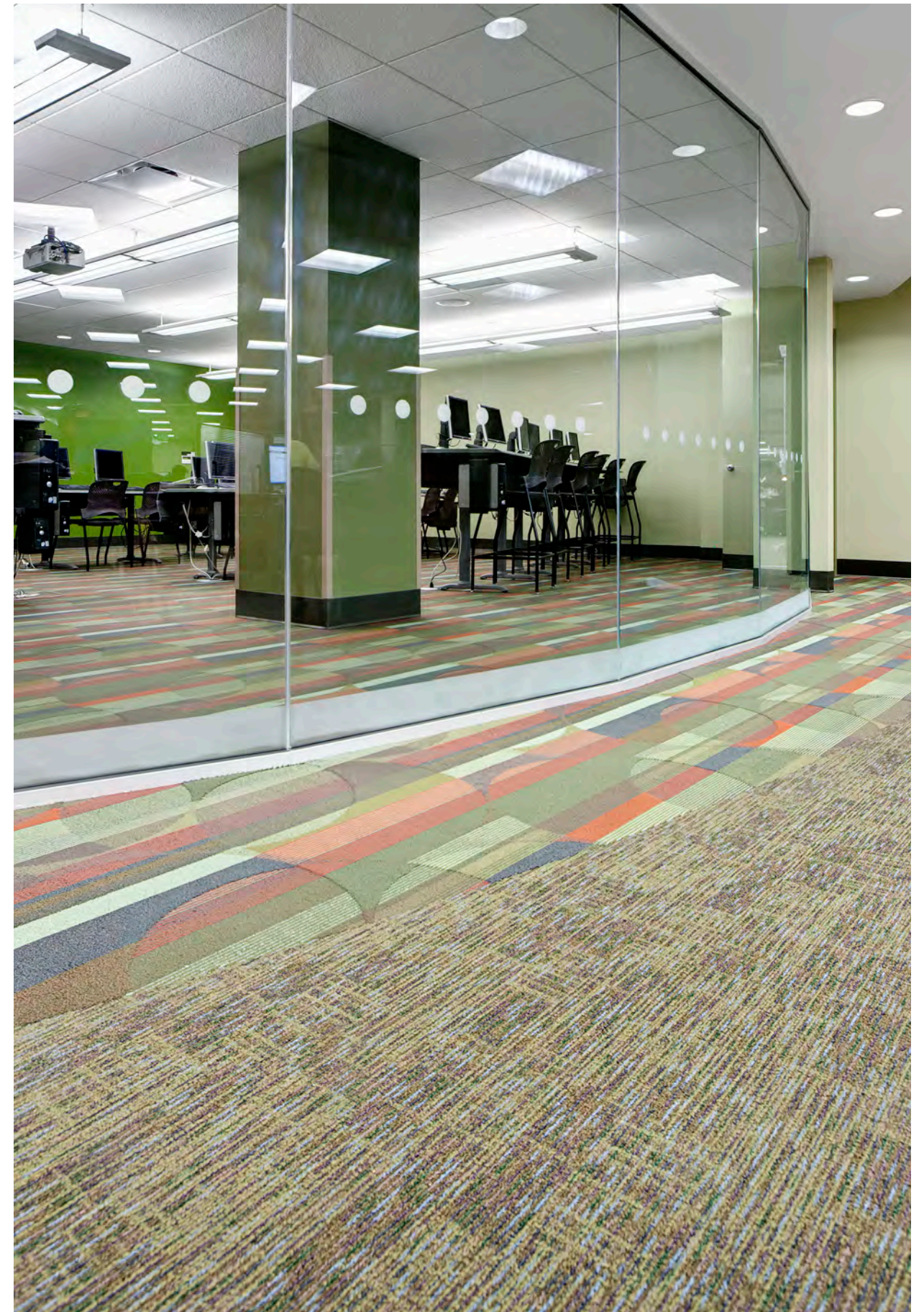


Thermal imaging shows floors covered with Powerbond maintain a temperature slightly less than the room's ambient temperature

Fig C: R-VALUES (h2-F/Btu)



POWERBOND PROVIDES SUPERIOR THERMAL PROPERTIES TO REDUCE ENERGY COSTS



## LEED & CHPS for Schools

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While the Collaborative for High Performance Schools (CHPS) and LEED for Schools ratings systems do not actually certify building and commercial interiors products, products can contribute to earning credits if they possess the environmental attributes identified by the CHPS or LEED strategies.

**Tandus Flooring provides a wide selection of Powerbond, modular and broadloom styles that are CHPS and LEED "compatible."**

CHPS is a national non-profit collaborative created in 2000 to support states, school districts, and design professionals in the design, construction and operation of more environmentally responsible and

healthier school facilities. The CHPS best practices/guidelines provide a wide range of strategies and advice for design practitioners and administrators and a ratings and recognition system to measure performance.

### CHPS Flooring's Relevance

- Recycled Content (up to 2 points)
- Rapidly Renewable Materials (1 point)
- Low-Emitting Materials (1 point)
- Pollutant Source Control/Entry Walk-Off Mats (1 point)
- Acoustic Performance (Prerequisite, up to 3 points)

### LEED for Schools

#### Flooring's Relevance

- Reclamation/Recycling of Materials (1-2 points)
- Recycled Content (1-2 points)
- Rapidly Renewable Materials (1 point)
- Local/Regional Materials (1-2 points)
- Low-Emitting Materials (1-2 points)
- Pollutant Source Control/Entry Walk-Off Mats (1 point)
- Acoustical Performance (Prerequisite, 1 point)
- Climate-Neutral Certification (Innovation/Design, 1 point)

## Visit <http://tandus.ecoscorecard.com>

The Tandus Flooring ecoScorecard is an online tool that provides immediate environmental data and analysis on any Tandus Flooring product, including detailed information on what contributions the products can

make to your LEED for Schools or CHPS project. Users can create project folders and incorporate and compare other building materials and save and produce documentation for credit submissions.



## Sustainable Transparency

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**Tandus Flooring was the first flooring manufacturer to initiate 3rd-Party Certification of environmental claims.** Since we were the first to pioneer the reclamation process and provide reliable, durable and closed-loop recyclable products with post-consumer and post-industrial recycled content, Tandus Flooring was accused of "green washing." Consistent with our heritage of innovation, we invested in 3rd-Party Certification as a proclamation that all environmental claims not only meet FTC Federal Guidelines, but that all claims be transparent to consumers and specifiers. Tandus Flooring continues to provide sustainable product solutions through our Infinity Initiative beyond the discussion of recyclability and recycled content.



### HERITAGE OF INNOVATION

**1988:** Introduced RS "peel & stick" installation system, virtually eliminating VOCs and improving IAQ

**1994:** Launched industry's first closed-loop recycling program for flooring

**1997:** Introduced ER3® 100% recycled content backing becomes standard on modular carpet

**2000:** First to acquire third-party certification for environmental claims

**2002:** Powerbond's non-prorated warranty extended to 25 years (based on actual performance—not speculation)

**2003:** Oldest recognized installation of Powerbond (36 years without failure)

First floorcovering manufacturer to earn EPP certification for the entire product line

**2004:** Introduced ethos™ for all Powerbond® Cushion styles. ethos is a high-performance hybrid flooring, recycled from the polymer in windshields. Recognized by Environmental Building News as one of the Top 10 Green products of the year

**2006:** Powerbond® and ER3® modular products certified to the Platinum EPP/California Gold standard (revised to NSF 140-2007 Platinum)

**2008:** Introduced Green Samples, first environmental solution to product sampling

**2009:** Developed first sheath core bio-based fiber, Genesis

**2010:** First 3rd-Party Certified reclamation center in the world

Surpassed 175 million pounds of carpet waste that is reclaimed and recycled into new floorcoverings

Introduced ethos™ for modular styles

## ISO 14001 Certification

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Tandus Flooring's U.S. operations are ISO 14001 certified. Through our Environmental Management System (EMS), we are able to measure reductions in the environmental impacts of our operations and increase operating efficiency with a goal of continuous improvement. The EMS has company-wide involvement and participation. All Tandus Flooring employees are involved in following environmental initiatives:

- Recycling
- Reduce material usage
- Reduce waste
- Reduce water
- Reduce energy/emissions

*ISO 14001 is a third-party certification that requires an organization to establish, document and continuously improve an Environmental Management System (EMS). An Environmental Management System is a set of processes and practices that involves maintaining environmental compliance with regulations and measuring and reporting environmental metrics. It enables an organization to reduce its environmental impacts and increase its operating efficiency with a goal of continuous improvement.*



*Tandus Flooring's Center for Environmental Innovation is one of the largest (almost 500,000 square feet) reclamation and recycling plants in the world. The Center became the world's first recycling plant to earn third-party certification in 2010.*

## NSF 140-2007

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### The Sustainable Carpet Assessment Standard

Nearly five years in development by a multi-stakeholder, consensus-based group, NSF 140 was designed to establish a system with varying levels of certification to define sustainable carpet. This establishes performance requirements for public health and environment, and addresses the triple bottom line—economic-environmental-social, throughout the supply chain. NFS 140 is the first multi-attribute American National Standards Institute (ANSI) standard for environmentally preferable building materials in the construction industry. The three-tier rating system (Silver, Gold, Platinum) evaluates products for public health and environment, renewable energy and efficiency, bio-based or recycled materials, manufacturing, end-of-life management, and innovation attributes using Life-Cycle Assessment methodologies.

Every Tandus Flooring style with Powerbond ethos Cushion and Powerbond ER3 Cushion, ethos modular and ER3 modular is third-party certified to the NSF 140 Platinum standard. All ethos and ER3 product constructions provide a minimum of 10% post-consumer content.



## Additive Avoidance

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Source reduction is an on-going process to eliminate or find alternatives to product ingredients while continuing to enhance the performance of a product without causing harm to the environment or future generations. In many cases a commitment to additive avoidance requires risk and unpopular decisions. Most of all it requires a change in thinking.

The trend in many of the largest and leading education and health-care organizations is to eliminate the use of antimicrobial additives in their finishes and furnishings. Their change in thinking is both

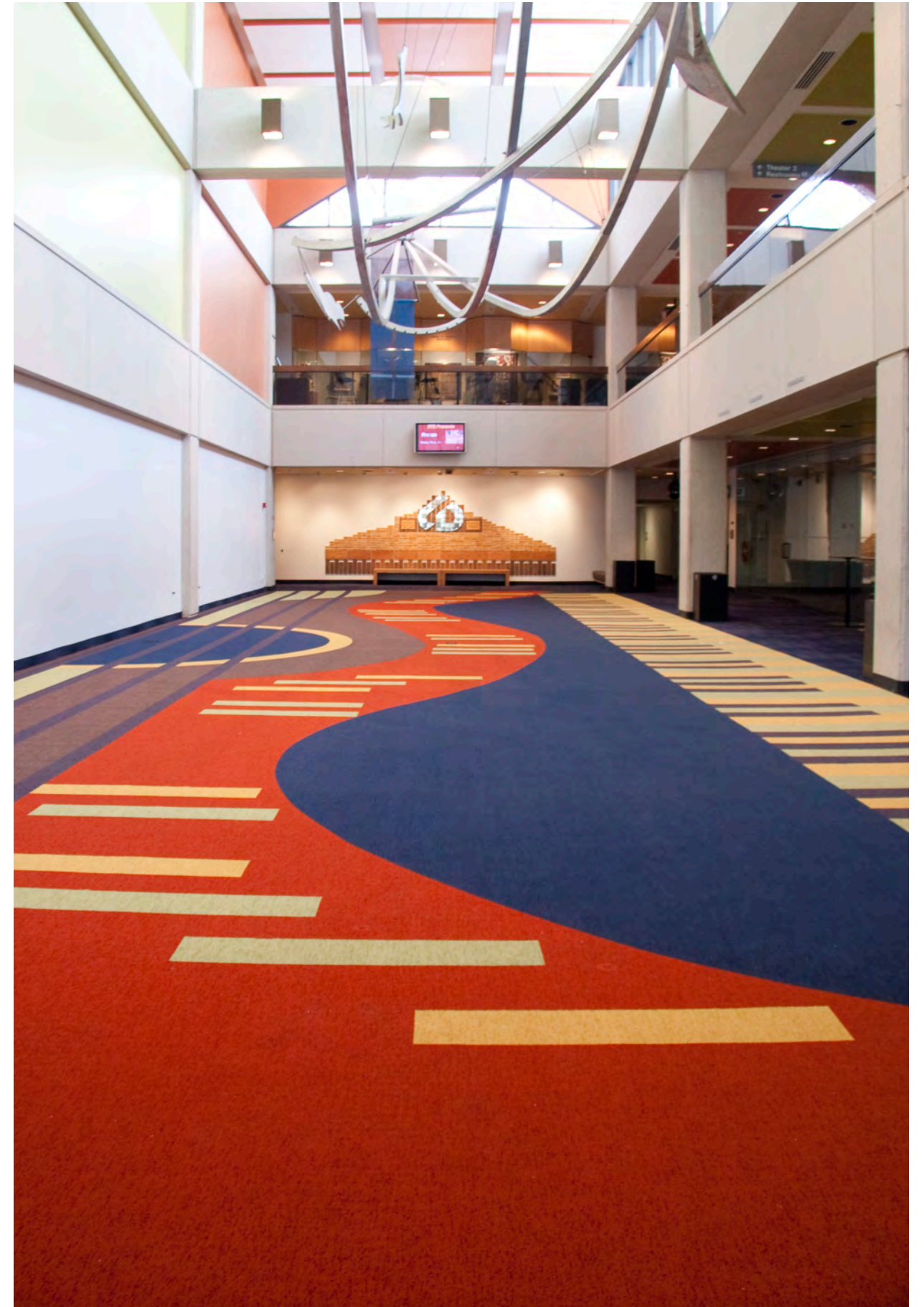
factually sound and a sustainable practice for our environment and future generations.

Antimicrobial additives are U.S. EPA registered pesticides. Many of them are considered corrosive, irritants and harmful to landfills and aquatic life. Even in small diluted amounts these additives can leach into the environment or create a zone of inhibition with potential exposure to occupants.

Tandus Flooring agrees with the U.S. Center for Disease Control, that these additives have demonstrated no epidemiological

evidence to substantiate health benefits. Equally important, there is no evidence to support adding pesticides to a product is good for our environment. They also raise the question; do these additives become accumulative to products made from recycling them into new products?

In order to lead us into a new sustainable world, we must change our thinking and sometimes our way of life. Eliminating small and avoidable additives to products, especially flooring, can make a BIG difference in our initiative towards a better planet.



## Sustainable Design

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The field of sustainable design is dynamic and constantly evolving. A concept, building technique or product that once was “state-of-the-art,” can quickly become outdated as methods and technology improve and the demand for more responsive solutions increases. There is an infinite capacity to improve everything exponentially through responsible leadership. Leadership does not begin and end with simply recycling more. It’s about investing in new ideas and implementing new practices that lead to change, helping improve the human condition. Tandus Flooring’s Infinity Initiative continues beyond the next innovation; the process is infinite.

As awareness has increased, so have the expectations placed upon educators and the architects, interior designers and manufacturers that share and are fully committed to their goal of creating the best learning environments possible for children.

More than anything, we at Tandus Flooring ask that you rely upon us to provide you timely and factual information about the environmental attributes of our products and their relevance to your overall environmental objectives. We have the privilege of working with hundreds of school districts across North America to solve their flooring needs and have developed a well of expertise that we’re happy to share.

Tandus Flooring is proud to offer solutions that enhance places where we live, work, learn and heal. For more information contact your local Tandus Flooring Account Executive or visit [tandus.com](http://tandus.com)



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# Sustainability

*No. 2 in a series*

