

Tandus | Centiva

01

Education Series
Powerbond® for Ease of Ownership

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TANDUS CENTIVA
EDUCATION RESOURCE

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THE READER IS RESPONSIBLE FOR ANY INSPIRATIONAL USE OF THIS BOOK,
AND AGREES TO COMPLY WITH ALL RULES AND REGULATIONS, SPECIFYING
THE BEST DESIGN AND PERFORMANCE FLOORCOVERING FOR LEARNING ENVIRONMENTS.
CONTACT YOUR TANDUS CENTIVA ACCOUNT EXECUTIVE FOR FURTHER INFORMATION.

TANDUS-CENTIVA.COM

Tandus Centiva: Schools are our business

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Educators, facilities and design professionals are charged with an important responsibility – to create safe and comfortable environments that foster the intellectual curiosity, learning and personal development of our children.

We at Tandus Centiva believe we too have a responsibility. Our pledge is immutable. Our mission is to help educators, facilities managers, and design professionals provide the best environments possible for engaging children and inspiring them to learn.

We also understand our responsibility to provide flooring that is easy to own and reduces the overall cost of ownership. Our commitment to these standards has required innovative solutions in design, product development, business practices and environmental responsibility.

Tandus Centiva collaborates with national leading maintenance manufacturers for equipment expertise, and provides on-site training extended to our clients and service providers.

To further help reduce costs, Tandus Centiva makes available government issued contracts and co-op contracts to schools for procurement. These contracts satisfy local, state and national bid requirements. The use of these contracts for procurement allows schools the following significant benefits:

- Avoid the expense of bid management
- Eliminate the risk of product substitution
- Avoid budget over runs
- Use local dealers and labor
- Access to lowest negotiated price
- Quick installations regardless of project size

The Tandus Centiva EXPRESS program makes material available in a wide range of styles and colors available for shipment within ten business days. During summer months we can put material on a truck within two business days – just ask us for details. We'll be there.



Fit-for-Purpose

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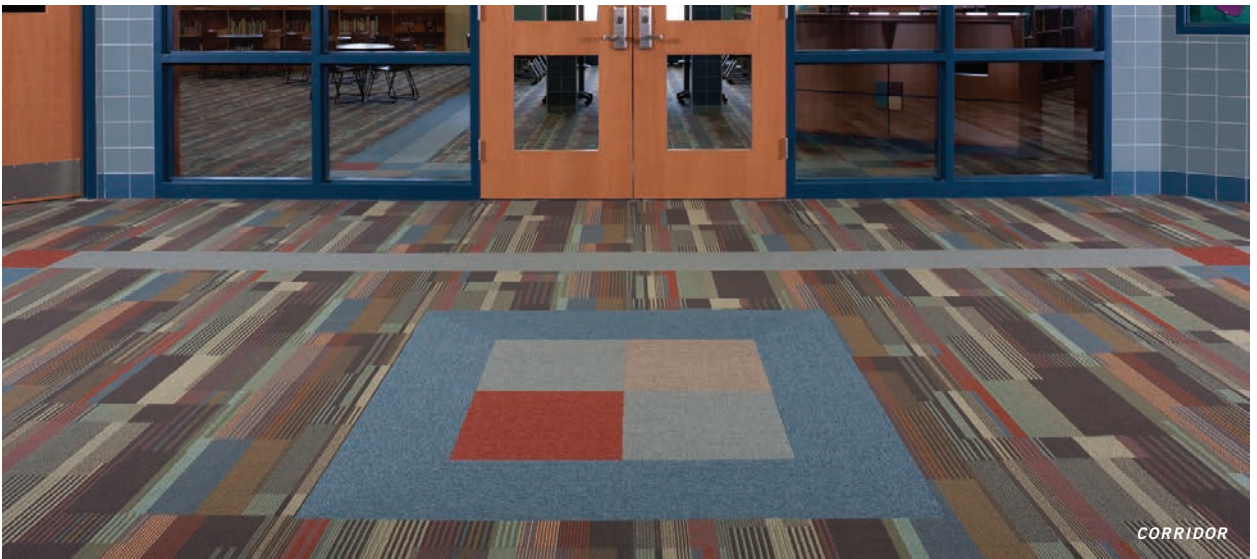
Tandus Centiva manufactures floor products that all work in tandem to provide educational facilities a true “fit-for-purpose” flooring solution. We are the only manufacturer to do this. Because only one type of flooring is not suitable for all applications, we are uniquely positioned to confer with our customers and make the best floorcovering recommendation based upon need. We call this “fit-for-purpose”

Tandus Centiva has a 43-year heritage of serving the education market. After nearly half a century of listening to professionals who select flooring for schools, we have summarized their selection criteria to the following:

- Safe and comfortable
- Contributes to good acoustics
- Design flexibility, colors, patterns and overall aesthetics
- Easy and cost-effective to maintain and repair
- Long-term performance and durability
- Meets budget constraints
- Satisfies environmental criteria

Tandus Centiva manufactures five of the eight flooring types most recommended for schools:

Powerbond/Hybrid Resilient
Modular carpet
Tufted Broadloom
Woven Broadloom
Hard floors
Resilient
Wood planks
Entryway System



What is Powerbond?

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Architects, designers and school staff are starting to realize that comprehensive data when combined with anecdotal evidence results in a positive outcome to a schools core mission—educating students. Decisions based upon factual information is called Evidence-Based Design and has been used in healthcare environments for years and is now beginning to be recognized for school construction and remodels. While many flooring types are naturally intuitive as to their application in a school, all too often, these decisions have been by trial and error. Sometimes resulting in a default decision based solely on initial price. Properly designed and renovated schools where care has been taken to make appropriate decisions about construction materials and finishes has demonstrated higher retention rates among teachers, lower operating costs and higher test scores among students.

Some floorcoverings have been labeled as a “poor” floorcovering choice for schools – we believe they were simply poor applications. Carpet may be appropriate for administrative offices and modular carpet would be suited for a library. But neither would be appropriate for corridors or even classrooms. When even the “best” carpets have been used in high traffic or learning applications they have not demonstrated an ease of ownership or appropriate performance attributes.

Educators agree that learning environments require the following attributes:

- Acoustic enhancements
- Low or no glare
- Waterproof to spills and maintenance
- Extremely low VOCs
- Easy to maintain and repair
- 25+ year life-cycle
- Thermal attributes and comfort
- Low cost of ownership

To satisfy all of these attributes schools do not use carpet nor do

they use a hard surface floor. All of these attributes are only found in hybrid resilient floor-coverings. Uniquely designed for schools and an innovative solution. Tandus Centiva’s hybrid resilient sheet flooring is Powerbond® Cushion.

Powerbond has proven performance in schools for over 40 years. The resilient closed-cell cushion is the DNA of Powerbond Cushion. Powerbond Cushion is a heterogeneous construction consisting of a

closed-cell cushion and a lifetime wear layer of nylon. Powerbond provides schools and teachers the following benefits:

- Enhanced acoustical control
- Sound dampening from sound intrusion
- Inviting floor comfort for academic planning
- Wall-to-wall moisture barrier
- No glare for reduced eye fatigue
- Comfort under foot for long standing durations
- Little or no odors associated with installation or repairs

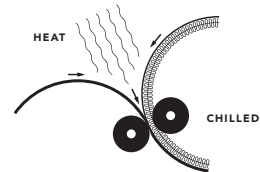
School staff and administrators prefer Powerbond for these and additional reasons:

- Low cost of ownership
- Flood resistant without need of replacement

- 100% recyclable
- Available with high recycled content
- Meets and exceeds LEED requirements
- Durable for over 40 years without need of replacement
- Proven life-cycle cost performance compared to other flooring options
- 30% savings over other resilient floor options
- Less costly to own than VCT and with more attributes

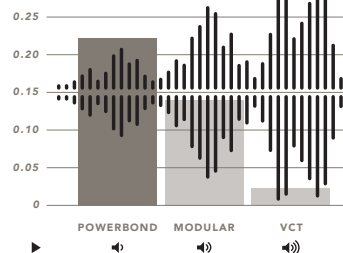
Only hybrid resilient floors combine the ease of ownership with the requirements for a school environment. Only Tandus Centiva can provide Powerbond as an evidence-based solution to schools.

FIG A: HYBRID RESILIENT SHEET FLOORCOVERING



Heat and pressure "Powerbond" the wear layer to the closed-cell cushion, producing a floorcovering that is integral and inseparable

FIG B: NOISE REDUCTION COEFFICIENT (NRC)



Powerbond comes with a factory-applied releasable adhesive that makes installation ultra fast and efficient and allows for immediate occupancy. Our "RS" adhesive system eliminates the need for wet glues and allows for a clean installation without adhesive residue or odors, and without downtime while waiting for wet glues to dry.



Design capabilities with Inlays

With Powerbond, the floor becomes another design medium allowing for the creation of truly unique design schemes without any compromise to performance. Flooring contractors will affirm that the closed-cell cushion, dense nylon wear layer and odorless "peel and stick" adhesive of Powerbond makes it

the easiest resilient flooring to install.

Combined with the ease and permanence of its welded seams, designers can create intricate inlays to expansive way-finding programs. Powerbond can help achieve any creative vision through the fusion of shapes, patterns, textures, and color.

Powerbond inlays can be achieved upon initial installation or even decades afterwards. The costs savings of changing or adding designs to Powerbond at any time is what makes this product unique and attractive to schools.



Imaginations™

From logos and mascots to graphics that support learning, our Imaginations program lets designers, architects and staff make bold statements on the floor. Creativity is unleashed when the unique characteristics of Powerbond are married with the dozens of vibrant colors in

our Plexus Accents and Plexus Colour collections.

Tandus Centiva's Imaginations program allow for finely detailed designs that would be virtually impossible to create at the job site. Using the precision of water-jet cutting technology,

our Imaginations team at our corporate headquarters works with designers worldwide to create and construct the design that will then be shipped as a nearly finished piece. This gives us the ability to create complex graphics often needed for school mascots and logos.

Fiscally Responsible

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Impermeable to moisture – even at the seams.

Because Powerbond is constructed with a closed-cell cushion, it creates an impermeable barrier to the subfloor. For those environments that are subject to spills (or even flooding) or require wet-extraction cleaning, Powerbond is the most widely recommended type of flooring.

With Powerbond's unique construction, seams are not an issue. In fact, all it takes is a commonly used seam-weld compound to permanently weld seams at the molecular level. This ability to create a truly monolithic surface also applies to repairs. Broadloom carpets that claim to have impermeable seams, struggle to meet these requirements in real world applications. Further, Powerbond is installed with the least waste of any school flooring. Very little material is also required for attic stock. Some facilities have never used their attic stock, even after 20 years of use.

An epidemic of moisture in concrete floors

Powerbond may be the only flooring that can withstand high levels of moisture and serve as a "vapor" barrier. Powerbond installations utilizing #54 Seam Weld or C-XL Water Based Seam Sealer will no longer require moisture vapor emission rate (MVER) testing or relative humidity (RH) testing, provided no free liquids are present and no moisture stained concrete is evident.

The Construction Specification Institute and most flooring trade groups recommend the moisture vapor evaporation rate (MVER) not to exceed 3 pounds per 1000 square feet. Excessive levels of moisture can create problems that include adhesive re-emulsification, strong odors, growth of micro-organisms like mold and mildew, and

ultimately, product failure. Speculation about a products performance under these conditions can be potentially disastrous.

Moisture management from above

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Liquid substances are a major culprit affecting the appearance, liability and performance of flooring. Carpet tile is not a solution. In a typical classroom there are over nine hundred linear feet of open seams creating a “flow through” installation and potentially a moisture liability. In traditional carpet constructions, flow-through backings made from synthetic latex, hot-melt or polyurethane are commonly used. These backings are not impermeable to water or other liquids. Liquids can be absorbed through the backing to the floor and can lead to the following issues:

Product Failure

Repeated exposure to moisture can breakdown synthetic latex-based backings and lead to delamination and product failure in as little as three years.

Flow Through

The permanent removal of a spill will be virtually impossible with carpet due to the flow-through nature that allows the liquid to penetrate into the backing. Powerbond’s moisture impermeable construction prevents liquids from penetrating to the floor. Contaminants removed from Powerbond do not reappear.

Fig C:

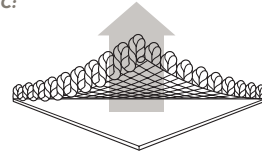


Fig D:

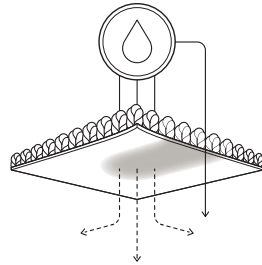
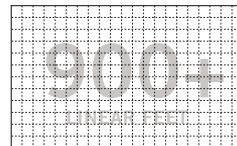


Fig E: CLASSROOM (OPEN SEAMS)

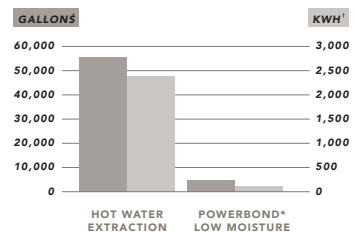


Easy to own

With a densely constructed nylon wear layer that resists soiling and a closed-cell cushion construction that is impermeable to contaminants, Powerbond is amazingly simple and cost-efficient to maintain.

For complete maintenance recommendations contact your local Tandus Centiva Account Executive or visit us at tandus-centiva.com

Fig F: WATER / ELECTRICAL USAGE



* NOTE: R. E. WHITTAKER – SMARTCARE
 NOTE: 202K SQUARE FEET (\$2.82/1,000 GLS, \$.088/KWH)

Powerbond and Entryway Systems

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Properly designed entryway systems can prevent 80% of outside soil from being tracked inside. Powerbond can be seamed to Tandus Centiva's Abrasive Action entryway system with no transition strip or concerns about seam integrity. This makes Powerbond uniquely suited for corridors. Your Tandus Centiva Account Executive can assist in analyzing and identifying traffic patterns and develop a plan to protect your flooring investment.

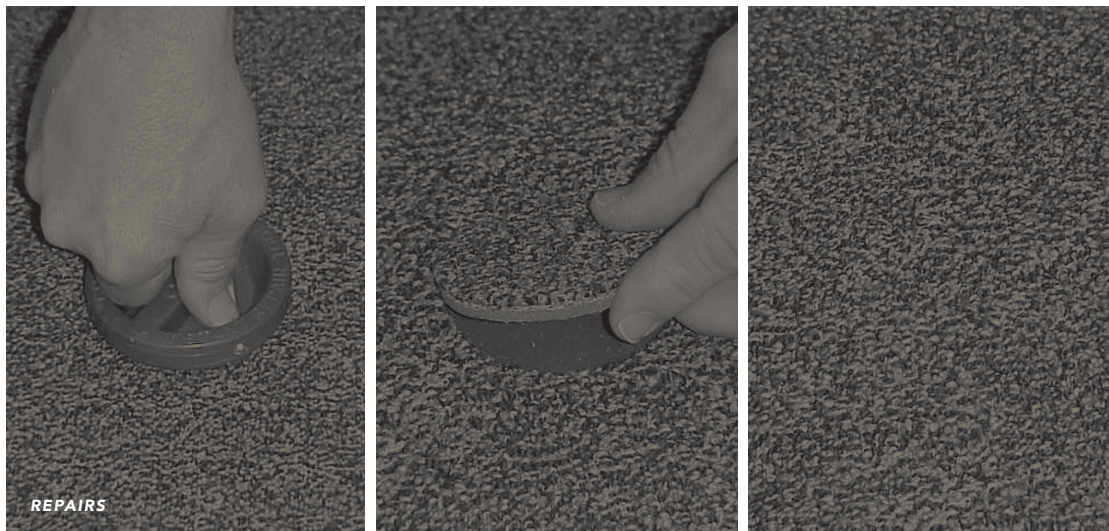
Repairs

It is amazingly easy and effective! Local staff is trained by Tandus Centiva to make repairs with little down time and even less material requirements than carpet tile. Imagine making repairs without the use of floor

adhesives. Imagine not having to repair a floor. Powerbond is warranted against zippering, delamination, edge ravel, or excessive surface wear. Contact your Account Executive for a demonstration.



ABRASIVE ACTION



REPAIRS

Flooring Ergonomics 101

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Powerbond's closed-cell cushion construction can contribute to better ergonomic conditions for faculty, staff and students. Research conducted by the University of Pittsburgh examined the effects of floorcovering on leg muscle activity, fatigue comfort while walking. Bioengineering testing was performed on a variety of flooring products with a diverse offering of cushion characteristics. Researchers concluded that the soft-surface floorcoverings that combined a low, dense pile with a very firm cushion construction provided the lowest muscle response (less muscle fatigue) of all samples tested.

Powerbond Cushion can also contribute to a more comfortable environment in the core learning areas for younger students and alleviate the need to use removable mats.

"Powerbond has transformed my school back to an education environment."

Principal (North Georgia elementary school)

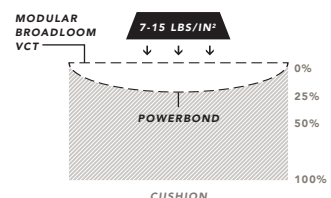
Comfort / Safety

Powerbond Cushion:

- Absorbs foot traffic impact, therefore reducing leg and foot fatigue
- Adds comfort under foot
- Provides soft landings for accidental slips and falls
US businesses pay more than \$12 billion annually in slip/fall claims*
- Warranted to maintain 90% of backing resiliency over 20 years
- Powerbond has 14 times better resiliency than hard plate vinyl
- 100% recovery after 96 hours

* "Minimize Slip & Fall", Facilities Design Management, April 2001

Fig G: COMPRESSION DEFLECTION
ASTM TEST #D-1667





Evaluating the true cost of ownership — Life Cycle Cost Analysis

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The ultimate cost of ownership is the cost over time. Powerbond can meet almost any first cost budget when compared to carpet and carpet tile.

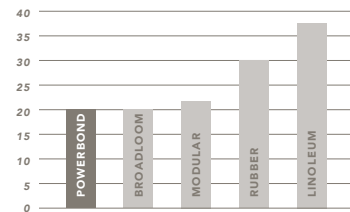
Powerbond can save over 30% in first cost when compared to other resilient floors like rubber, linoleum, sheet vinyl, bamboo, or cork. Only vinyl composition tile (VCT) has a lower first cost than Powerbond. However, within three (3) to five (5) years, even VCT has a higher ownership cost compared to Powerbond in almost any scenario. This makes Powerbond Cushion a fit-for-purpose product in

any school where academics, teacher satisfaction and ease of ownership are considered a priority.

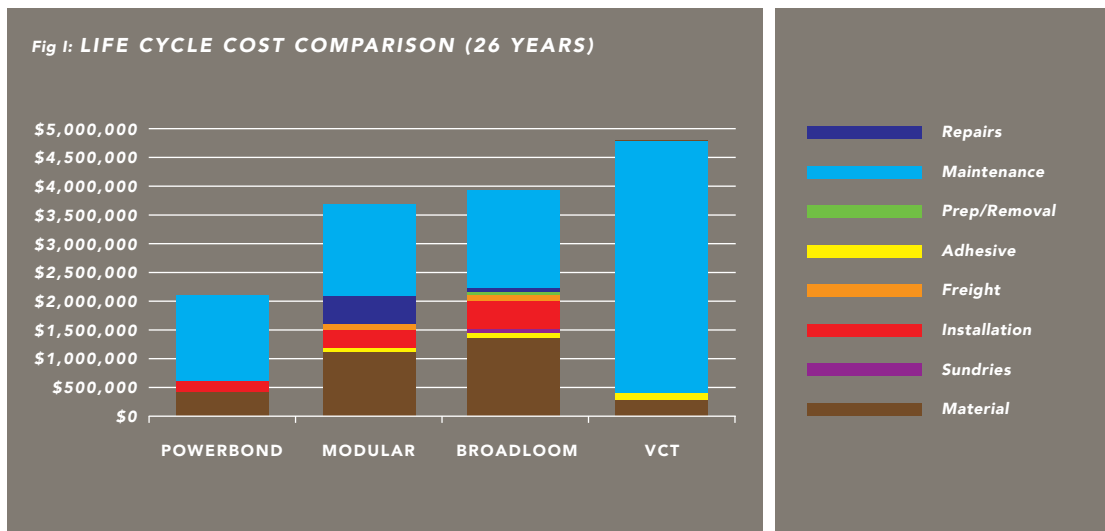
We encourage you to evaluate all of the requirements of a school flooring product before you make the ultimate decision. How we build and renovate our schools directly impacts the future of our students and the wellbeing of our staff and teachers. Schools also provide a reflection to our communities.

Tandus Centiva is proud to offer solutions that enhance places where we live, work, learn and

Fig H: INITIAL MATERIAL COST / SQ. FT COMPARISON



heal. For more information specific to our products, our industry partners or our experience, please contact us or visit tandus-centiva.com.





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Powerbond® Freeform® Modular Broadloom Woven LVT



Ease of Ownership

No. 1 in a series



THE ULTIMATE FLOORING EXPERIENCE