EXPOSED STRUCTURE

Acoustical Design:

Inspiring Great Spaces®
Preserve an industrial visual with acoustical solutions attached or applied directly to structure, or create a design statement that puts acoustical materials front and center. We’ve got the broadest portfolio of ceiling and wall options to get the look you want and control noise, so you can achieve the best of both worlds. Optimize performance in the workplace, in educational facilities, and hospitality with the right aesthetics and acoustics for the space.
Take design to a new level that’s uniquely yours by combining horizontal and vertical formats.

Discreetly add peace and quiet to exposed structure spaces, or add a pop of color with your treatments.

OPEN UP THE POSSIBILITIES

Multi-format

Take design to a new level that’s uniquely yours by combining horizontal and vertical formats.

NOW YOU SEE IT
NOW YOU DON’T

Discreetly add peace and quiet to exposed structure spaces, or add a pop of color with your treatments.
Blades & Baffles
ALL ABOUT THE LINES

Straight or wavy, parallel or intersecting, monochromatic or multi-colored – these vertical elements control noise with panache.
Quiet spaces and redefine the visual plane, changing the topography of the ceiling while adding warmth to spaces.

**FELTWORKS® Blades**

QUIET IN A KIT

Quiet spaces and redefine the visual plane, changing the topography of the ceiling while adding warmth to spaces.

- Installs with Aluminum Suspension Bar and aircraft cables
- Up to 0.70 Sabin/sf
- 3/8” thick blades provide a sleek linear visual – 3 standard profiles and a variety of blade heights offer dramatic visuals
- Part of the Sustain® portfolio, meeting the most stringent industry sustainability standards today

FeltWorks™ Blades Noise Reduction

<table>
<thead>
<tr>
<th>Reverberation Time (RT)</th>
<th># of 10 x 96 x 3/8” Blades</th>
<th>% of Deck Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 ft</td>
<td>50</td>
<td>1%</td>
</tr>
<tr>
<td>0.70 ft</td>
<td>98</td>
<td>2%</td>
</tr>
<tr>
<td>0.60 ft</td>
<td>207</td>
<td>5%</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)
SOUNDSCAPES® Blades
ALL ABOUT THE SPACE

Reduce noise with new layout designs, coupled with size, shape, and color to allow for a unique look for any space.

- Flexible installation from the deck, ceiling, drywall, suspension system, or on a wall
- Excellent sound absorption — 1.38 Sabins/SF
- Over 20 standard sizes with custom shape and color options available
- Seismic-tested

SOUNDSCAPES® BLADES NOISE REDUCTION

<table>
<thead>
<tr>
<th>Reverberation Time (s)</th>
<th># of 22 x 46 x 2&quot; Blades</th>
<th>% of Deck Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD*</td>
<td>20</td>
<td>1%</td>
</tr>
<tr>
<td>BETTER**</td>
<td>40</td>
<td>3%</td>
</tr>
<tr>
<td>BEST**</td>
<td>86</td>
<td>6%</td>
</tr>
</tbody>
</table>

* Long RTs (≥ 1.4 sec) = for lively acoustic environments (auditoriums, hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms, open plan spaces)

SoundScapes® Blades: click to see more
SoundScapes® Blades Walls: click to see more
Love the look and control the noise with easy-to-install acoustical baffles.

- Available in a variety of sizes and standard, custom, and sailcloth fabrics
- Sleek, adjustable aircraft cable installation
- Coordinate Soundsoak® Baffles with Soundsoak fabric wall panels

Soundsoak® Baffles custom panel sizes in sailcloth fabric
Northern Rockies Regional Recreation Centre, Fort Nelson, BC, Canada

Hanging Kit

- Sleek, adjustable aircraft cable installation
- Coordinate Soundsoak® Baffles with Soundsoak fabric wall panels

Soundsoak® Baffles: click to see more
### TECTUM® Blades & Baffles

**MADE TO FIT**

Customize the edges, heights, and thickness of panels for the acoustics and aesthetics you need.

#### TECTUM® BLADES & BAFFFLES NOISE REDUCTION

<table>
<thead>
<tr>
<th>Material Configuration</th>
<th>Reverberation Time (s/ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ft Exposed Structure (50%) with 20% window coverage, commercial ceiling</td>
<td>1.4</td>
</tr>
<tr>
<td>1,000 ft Exposed Structure (50%) with 20% window coverage, commercial ceiling</td>
<td>1.0</td>
</tr>
<tr>
<td>1,000 ft Exposed Structure (50%) with 20% window coverage, commercial ceiling</td>
<td>0.6</td>
</tr>
</tbody>
</table>

- **Long RTs** (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
- **Short RTs** (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

#### Living Product Challenge Imperative

- Certified by International Living Future Institute® — 1” thick panels in White and Natural only
- Upscale linear visual adds acoustics and aesthetics to any space
- Custom shapes and sizes available to meet your project demands
- Suspend with aircraft cable or hanger wire

#### New Tectum® Products:

- **Aircraft Cable**
- **Shelf Channel**
- **1-1/2” Tectum® Blade**

#### Tectum® Blades custom vertical panels, Fly Indoor Skydiving Family Fun Center, King of Prussia, PA; Stantec, Philadelphia, PA

- **Tectum® Baffles:** Capital One Labs, San Francisco, CA; Studio O+A, San Francisco, CA

#### Tectum® Blades & Baffles: click to see more
METALWORKS™ Blades

ANYTHING BUT ORDINARY

Create a look that visually tells your story. Durable and flexible.

- Join or cut panels for creative design layouts and easy installation
- Six standard Effects™ Wood Looks finishes
- Panel spacing is variable for a variety of design and acoustical needs
- Custom blade heights and widths to meet your design needs

METALWORKS™ BLADES NOISE REDUCTION

Reverberation Time (RT)

<table>
<thead>
<tr>
<th># of 4 x 96 x 1” Blades</th>
<th>% of Deck Coverage</th>
<th>RT=1.4s</th>
<th>RT=1.0s</th>
<th>RT=0.6s</th>
</tr>
</thead>
<tbody>
<tr>
<td>90</td>
<td>6%</td>
<td>0.6s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>12%</td>
<td>0.6s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>377</td>
<td>25%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)
Canopies & Clouds

TWO-FACED ACOUSTICS

Both sides of the panels soak up the sound. Select from a wide range of standard and custom shapes, colors, perforations, and materials.

* Serpentina® Waves™: University of Florida Chemical Biology Building, Gainesville, FL; Stantec, Phoenix, AZ
Deliver acoustics in playful installations with angles, layers, shapes, sizes, and colors.

- Aesthetically define spaces with excellent acoustical performance
- Quick to install from the deck, ceiling, drywall, suspension system, or on a wall in adjustable heights and angles
- Available in standard and custom shapes, sizes, and colors

**SOUNDSCAPES® SHAPES NOISE REDUCTION**

<table>
<thead>
<tr>
<th># of 48&quot; x 48&quot; Shapes</th>
<th>% of Deck Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>19%</td>
</tr>
<tr>
<td>23</td>
<td>37%</td>
</tr>
<tr>
<td>49</td>
<td>76%</td>
</tr>
</tbody>
</table>

- Long RTs (≤1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
- Short RTs (<1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

**SOUNDSCAPES® Shapes Visual Motion**

SOUNDSCAPES® Shapes

[Image of interior space with SoundScapes® Shapes installed]

[Image of SoundScapes® Shapes in Lancaster Science Factory, Lancaster, PA]

[Image of SoundScapes® Shapes in Watchguard Corporate Office, Allen, TX; GFF, Inc., Dallas, TX]

[Image of SoundScapes® Shapes in Twitter, San Francisco, CA]

[Image of SoundScapes® Shapes in Interior Architects, San Francisco, CA]

[Image of SoundScapes® Shapes in Lancaster Science Factory, Lancaster, PA]

[Image of SoundScapes® Shapes in Watchguard Corporate Office, Allen, TX; GFF, Inc., Dallas, TX]

[Image of SoundScapes® Shapes in Twitter, San Francisco, CA]
**SOUNDSCAPES® Canopies**

**HANGIN’ AROUND**

Floating acoustics, placed exactly where you need them most.

- Hill and Valley shape canopies
- Aesthetically define spaces and enhance acoustics
- Ideal in spaces where viewed from above and below, such as mezzanines, since clouds are fully finished on all sides
- Quick to install from the deck, ceiling, drywall, suspension system
- Canopy kits include easy-to-install cable and hardware

---

<table>
<thead>
<tr>
<th>SoundScapes® Canopies Noise Reduction</th>
<th>Reverberation Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ft² enclosed structure, 15' h., drywall with 20% window coverage, commercial space</td>
<td>0.8, 0.65, 0.5</td>
</tr>
<tr>
<td>4' x 4' x 6' Clouds</td>
<td>9, 17, 37</td>
</tr>
<tr>
<td>% Coverage (horz. face vs. floor)</td>
<td>32%, 41%, 62%</td>
</tr>
</tbody>
</table>

- Long RTs (≤1.4 sec) = for lively acoustic environments (auditoriums/hospitalities)
- Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

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![SoundScapes® acoustical canopies and Optima Capz™ 4’ x 4’ with White caps](Morningstar Enterprises Inc., Kelowna, British Columbia, Canada)

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![SoundScapes® acoustical canopies; United Health Administrative Office Building, Fresno, CA; Neenan Archistruction, Fort Collins, CO](SoundScapes Canopies: click to see more)
- Living Product Challenge Imperative
  - Certified by International Living Future Institute® – 1” thick panels in White and Natural only
- Wide variety of color options available or field paint on site without impacting acoustics
- Custom shapes, colors, and sizes for any project need
- Durable and flexible, installs on walls or ceilings

**TECTUM® SHAPES NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Description</th>
<th>Noise Reduction (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ft² Exposed Structure</td>
<td>1.4s&lt;br&gt;(15’ to metal deck), drywall with 20% window coverage, commercial carpet</td>
</tr>
<tr>
<td># of 48 x 48 x 1-1/2” Shapes</td>
<td>23&lt;br&gt;44&lt;br&gt;N/A</td>
</tr>
<tr>
<td>% of Deck Coverage</td>
<td>37%&lt;br&gt;70%&lt;br&gt;N/A</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

- Floating cloud system in multiple square and rectangle sizes; custom sizes available
- Panel sizes in 1-1/2” or 2” panel thickness; widths: 23-3/4” to 47-3/4”; lengths: up to 96”
- Available in White, Natural, and custom colors or field paint on site without impacting acoustics.
- Easy to install with sleek, adjustable aircraft cable hanging kit

**TECTUM® CLOUDS NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Description</th>
<th>Noise Reduction (NR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ft² Exposed Structure</td>
<td>1.4s&lt;br&gt;(15’ to metal deck), drywall with 20% window coverage, commercial carpet</td>
</tr>
<tr>
<td># of 48 x 48 x 1-1/2” Clouds</td>
<td>23&lt;br&gt;44&lt;br&gt;N/A</td>
</tr>
<tr>
<td>% of Deck Coverage</td>
<td>37%&lt;br&gt;70%&lt;br&gt;N/A</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)
**FORMATIONS™ Clouds**

OUT OF THE BOX

Floating circular or rectangular clouds with crisp Axiom® trim pre-cut and ready to install.

- Easy-to-specify and install cloud system with pre-cut components and a wide range of specialty options like wood and metal
- Reduce noise levels in open spaces

**FORMATIONS™ CLOUDS NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Reverberation Time (s)</th>
<th>1,000 ft Exposed Structure (10% opening, 30% window coverage, commercial setup)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6</td>
<td>N/A</td>
</tr>
<tr>
<td>1.0</td>
<td>N/A</td>
</tr>
<tr>
<td>1.4</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- DesignFlex™ for Formations™
- Acoustical Clouds options include shapes, sizes, and colors in 9 standard cloud kits
- Shapes and Square/Rectangle panel options available in popular Calla®, Lyra®, Ultima®, and Optima®
- Easy to specify and install with pre-cut suspension and trim components in a kit
- Shaped lighting options available from our DesignFlex™ partners

![DesignFlex™ for Formations™ acoustical cloud with Shapes Pattern SH-FC-5](image)

A. DesignFlex™ for Formations™ acoustical cloud with Shapes Pattern SH-FC-5

- Formations™ acoustical accent clouds, Collierville High School, Collierville, TN
- Renaissance Group, Lakeland, TN

**Formations Clouds: click to see more**

**DESIGNFLEX™ for FORMATIONS™**

MIX & MATCH

Floating shaped clouds with geometric panels ready to install.
It’s easy to improve acoustics, brighten, and add movement to any space.

**METALWORKS™ Canopies**

**RIPPLE EFFECT**

- Easy to clean and maintain
- Great aesthetic above and below
- Easy installation
- Available in a variety of microperf options

**METALWORKS™ CANOPIES NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Reverberation Time (RT)</th>
<th># of 72” x 48” Canopies</th>
<th>% of Deck Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD*</td>
<td>7</td>
<td>17%</td>
</tr>
<tr>
<td>BETTER**</td>
<td>14</td>
<td>34%</td>
</tr>
<tr>
<td>BEST**</td>
<td>30</td>
<td>72%</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

- Choose from Hill, Valley, or S-curve dual radius canopies
- Real wood and bamboo veneers
- Perforated option available for sound absorption on Hill and Valley canopies
- Concealed mounting hardware for a clean look above and below

**WoodWorks® Canopies**

**ACOUSTICAL WARMTH**

Now with more options than ever with WoodWorks custom capabilities.
- Maximum design flexibility – in both Classic and Waves
- Standard panel colors plus four metallic paints; custom colors available
- Install perforated clouds with acoustical infill panels for maximum sound absorption

SERPENTINA® CLOUDS NOISE REDUCTION

<table>
<thead>
<tr>
<th># of 96” x 96” Clouds</th>
<th>Reverberation Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0.6</td>
</tr>
<tr>
<td>6</td>
<td>0.7</td>
</tr>
<tr>
<td>12</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SERPENTINA® Clouds & Canopies: GREAT CURVES

Curved metal clouds combine easy installation with striking visual power and acoustical performance.

Serpentina® Classic: Iron Forge Education Center, Boiling Springs, PA; Crabtree, Rohrbaugh & Associates, Philadelphia, PA
DIRECT-TO-STRUCTURE
Flat Panels for Ceilings & Walls

SOUND DOWN

Add aesthetics and durability for your designs — in just about as many configurations as you can imagine. And there’s an installation option for your project.
**TECTUM® Direct-Attach Panels**

**INTELLIGIBLE INSTRUCTION**

Durable, sustainable noise control to withstand the crowds.

- Quick, easy install to wall, deck, or I-Beam using furring strips or truss fastening kit for truss installations
- Meet ANSI S12.60 requirements for physical education spaces
- Unlimited design flexibility — cut or paint panels in the field or factory to meet your design needs
- Durable for heavy-use interiors
- Living Product Challenge Imperative Certified by International Living Future Institute® — 1" panels in White and Natural only

**TECTUM® PANELS NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Covered Area</th>
<th>Reverberation Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>214 ft²</td>
<td>RT=1.4s</td>
</tr>
<tr>
<td>420 ft²</td>
<td>RT=1.0s</td>
</tr>
<tr>
<td>900 ft²</td>
<td>RT=0.6s</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)
- Composite panel design combines Tectum® panel, acoustical infill, and furring strips in one for maximum sound control and fast, efficient installation.
- Excellent sound absorption up to 1.0 NRC.
- Durable for heavy-use interiors.

**TECTUM® Finalé Panels**

- Easy installation on ceilings and walls with recommended adhesive to concrete, plaster, drywall and metal decking.
- Made with a plant-based binder and part of the Sustain® portfolio of products.
- High sound absorption up to NRC 0.95.
- Made-to-order sizes and colors available.
- For areas that need direct attachment rather than adhesive, consider Optima® Capz™.

**TECTUM® Finalé Direct-Attach Panels**

- Easy installation on ceilings and walls with recommended adhesive to concrete, plaster, drywall and metal decking.
- Made with a plant-based binder and part of the Sustain® portfolio of products.
- High sound absorption up to NRC 0.95.
- Made-to-order sizes and colors available.
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**LYRA® PB Direct-Apply Panels**

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- Made-to-order sizes and colors available.
- For areas that need direct attachment rather than adhesive, consider Optima® Capz™.
FELTWORKS®
Acoustical Panels
INSTANT SOFTNESS
Absorb up to 70% of the sound that strikes them.

- Quick and easy retrofit with three installation methods
- No need to field-finish cut edges with color throughout panels
- Part of the Sustain® ceiling portfolio

FELTWORKS® PANELS NOISE REDUCTION

<table>
<thead>
<tr>
<th>Description</th>
<th>TIME RED</th>
<th>R T</th>
<th>1.000 sq ft Exposed Structure (10’ x wall height), smooth with 20% window coverage, commercial use</th>
</tr>
</thead>
<tbody>
<tr>
<td># of 1” Black FeltWorks® Panels</td>
<td>8</td>
<td>15</td>
<td>31</td>
</tr>
<tr>
<td># of 48 x 96 x 1” Panels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Deck Coverage</td>
<td>26%</td>
<td>48%</td>
<td>99%</td>
</tr>
</tbody>
</table>

* | Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality) |
** | Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces) |

FeltWorks® acoustical panels; Gensler Charlotte Office, Charlotte NC

FeltWorks® acoustical panels; Nirmal’s Restaurant, Seattle, WA

# FeltWorks® acoustic panels; Gensler Charlotte Office, Charlotte NC

FeltWorks® acoustical panels; Nirmal’s Restaurant, Seattle, WA
Empower your exposed structure design while bringing quiet to your space.

**INVISACOUSTICS™ Panels**

**ABRACADABRA**

Direct-apply to concrete, plaster, and drywall ceilings and walls with recommended adhesive
- Foofproof, all-in-one screw allows fast installation without danger of overdriving and damaging the panel
- Quick, easy to wall, deck, or I-Beam using hat channel or furring strips – truss fastening kit for truss installations
- Field paintable option – can be sprayed same color as the deck

**INVISACOUSTICS™ PANELS NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Area of 3/4&quot; InvisAcoustics™ Panels</th>
<th>280 ft²</th>
<th>550 ft²</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Deck Coverage</td>
<td>28%</td>
<td>55%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Long RTs (≥ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

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InvisAcoustics™ Direct-Attach application; Lancaster Science Factory, Lancaster, PA

InvisAcoustics™ Direct-Attach application; Bert’s Bottle Shop, Millersville, PA
44" x 96" panels for sleek, monolithic look
- Easy alignment suspension system
- Panels can be designed in long runs or grouped based on the acoustical needs
- Absorbs up to 90% of the sound that strikes it

**OPTIMA® CAPZ™ NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Area of Optima® Capz™ Panels (ft²)</th>
<th>Reverberation Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>48</td>
</tr>
<tr>
<td>200</td>
<td>48</td>
</tr>
<tr>
<td>400</td>
<td>48</td>
</tr>
</tbody>
</table>

*Long RTs (≤ 1.4 s) are for lively acoustic environments (auditoriums/hospitality)
**Short RTs (< 1 s) are for high-quality speech intelligibility (classrooms/open plan spaces)

- **Capz™ accent hardware pairs with Optima® Capz™ panels.**

**METALWORKS™ CAPZ™ NOISE REDUCTION**

<table>
<thead>
<tr>
<th>Area of MetalWorks™ Capz™ Panels (ft²)</th>
<th>Reverberation Time (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>48</td>
</tr>
<tr>
<td>400</td>
<td>48</td>
</tr>
<tr>
<td>850</td>
<td>48</td>
</tr>
</tbody>
</table>

*Long RTs (≤ 1.4 s) are for lively acoustic environments (auditoriums/hospitality)
**Short RTs (< 1 s) are for high-quality speech intelligibility (classrooms/open plan spaces)

- Easy installation and durability plus acoustics
- Panels can be designed in long runs or grouped based on the acoustical needs
- Custom colors available

**MetalWorks™ Capz™ SLEEK**

Capz™ accent hardware pairs with MetalWorks™ panels and standard grid.
SOUNDSOAK® Acoustical Wall Panels

DOUBLE-DUTY ACOUSTICS

Make your mark, and control sound.

- Installs on walls or ceilings
- Quick to install from the deck, ceiling, drywall, suspension system, or on a wall in adjustable heights and angles
- Available in multiple standard and custom sizes

SOUNDSCAPES® Panels Noise Reduction

<table>
<thead>
<tr>
<th>Reverberation Time (RT)</th>
<th># of 24 x 96 x 1” Panels</th>
<th>% of Wall Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOOD*</td>
<td>16</td>
<td>13%</td>
</tr>
<tr>
<td>BETTER**</td>
<td>32</td>
<td>26%</td>
</tr>
<tr>
<td>BEST**</td>
<td>68</td>
<td>56%</td>
</tr>
</tbody>
</table>

* Long RTs (≤ 1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (< 1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

- Easy-to-install wall system available in a variety of standard and custom fabrics
- Create your own design
- Variety of impact resistant acoustical wall panels available for high-traffic and high-abuse areas
- Available in multiple standard and custom sizes and shapes
WOODWORKS® Wall Panels

ADD ANOTHER DIMENSION

Accentuate one or more walls while improving sound quality.

- Install on the wall, the ceiling, or create 90° angled ceiling-to-wall transitions
- Perforated panel with acoustical backing improves sound quality and reduces noise within a space
- Shorter lead times and lower cost than custom millwork

WOODWORKS® WALL PANELS NOISE REDUCTION

<table>
<thead>
<tr>
<th>Application</th>
<th>Reverberation Time (RT)</th>
<th>Area of WoodWorks® Walls w/Bl</th>
<th>% of Wall Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000 ft Exposed Structure (15’ to metal deck, drywall w/20% window coverage, commercial carpet)</td>
<td>RT=1.4s</td>
<td>214’x8’x210”</td>
<td>11%</td>
</tr>
<tr>
<td>200 ft Exposed Structure (15’ to metal deck, drywall w/20% window coverage, commercial carpet)</td>
<td>RT=1.4s</td>
<td>214’x8’x210”</td>
<td>22%</td>
</tr>
<tr>
<td>40 ft Exposed Structure (15’ to metal deck, drywall w/20% window coverage, commercial carpet)</td>
<td>RT=1.4s</td>
<td>214’x8’x210”</td>
<td>47%</td>
</tr>
</tbody>
</table>

* Long RTs (≥1.4 sec) = for lively acoustic environments (auditoriums/hospitality)
** Short RTs (<1 sec) = high-quality speech intelligibility (classrooms/open plan spaces)

WOODWORKS® Custom Panels

WARM WOOD WITH ACOUSTICS

Perforated wood backed with hidden acoustics.
EXPOSED STRUCTURE ACOUSTICAL DESIGN

Acoustical absorption is important to:
- Reduce noise levels and reverberation time
- Enhance speech intelligibility

Reverberation Time (RT)
Reverberation Time (RT) is the persistence of sound in an enclosed space after the source of the sound has stopped. The level of the reverberant sound within a room is dependent upon both the volume of the room and the amount of sound absorption installed within the room, such that small hard-surfaced rooms are “louder” than large well-treated rooms.

With our TechLine Reverberations Reports you can calculate approximate reverb times for your space as you design. Compare the times of your product choices to find out which ones will work best with your space and design.

Rules of thumb:
Short RTs (< 1 sec) are preferred for high-quality speech intelligibility in classrooms and open plan office spaces.
Long RTs (≤ 1.4 sec) are preferred for lively acoustic environments such as auditoriums and hospitality.

Acoustical solutions, like Canopies, Clouds, Baffles, or Blades vertical elements installed in a way that covers 20% to 50% of the ceiling, will provide significant reverberation time improvement to an exposed structure installation, since sound is absorbed from both the front and back of the panels. Blades are especially effective as the required coverage is much smaller to get the RT reduction because most of the surface area is vertical.

Direct-to-structure solutions on decks or walls absorb sound from one side.

Our Acoustical Experts have done the math for you on the product recommendation charts on pages 52 and 53. You’ll be able to compare products to see the recommended coverage for GOOD, BETTER, or BEST performance levels to reduce reverberation times.

Comparison: Exposed Structure Options Versus Continuous Ceiling

Example:

<table>
<thead>
<tr>
<th>Deck</th>
<th>Exposed Structure</th>
<th>SoundScapes® Blades (4% ceiling coverage, 196 ft² of material)</th>
<th>InviraAcoustics™ (50% coverage)</th>
<th>SoundScapes® Shapes (50% coverage)</th>
<th>SoundScapes® Wall Panels (50% coverage)</th>
<th>Continuous Optima® Ceiling (100% coverage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>0</td>
<td>1.38 Sabins/SF</td>
<td>0.75 NRC</td>
<td>1.49 Sabins/SF</td>
<td>0.70 NRC</td>
<td>0.90 NRC</td>
</tr>
<tr>
<td>Reverberation Time (RT)</td>
<td>2.4 sec</td>
<td>1.2 sec</td>
<td>1.1 sec</td>
<td>0.8 sec</td>
<td>0.3 sec</td>
<td>0.5 sec</td>
</tr>
<tr>
<td>Reverberation Time Improvement</td>
<td>–</td>
<td>50%</td>
<td>54%</td>
<td>67%</td>
<td>87%</td>
<td>79%</td>
</tr>
<tr>
<td>Noise Reduction</td>
<td>–</td>
<td>-2.0 dB</td>
<td>-2.6 dB</td>
<td>-3.6 dB</td>
<td>-7.5 dB</td>
<td>-4.5 dB</td>
</tr>
</tbody>
</table>

How do non-traditional shapes and forms affect noise levels? These products absorb sound from all sides to reduce reverberation times. So placement in about 20-50% of the space gives you impactful acoustical performance to Bring Down the Noise.
REDUCE REVERBERATION TIME & IMPROVE ACOUSTICS RECOMMENDATIONS

For each of the products featured in this brochure, here are recommendations for the square-foot coverage suggested to reduce reverberation times at three different levels:

**BEST** levels are recommended to meet specific standards, such as ANSI S12.60 in classrooms, LEED®, and WELL Building Standard™.

**GOOD** levels are suitable for casual spaces such as music performance and hospitality.

**BETTER** levels are appropriate for collaborative spaces like cafeterias, corridors, and lobbies where speech privacy is not critical.

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### BLADES & BAFFFLES

<table>
<thead>
<tr>
<th>Model Room</th>
<th>Reverberation Time (RT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FeltWorks® Blinds Pages 16-11</td>
<td>Area of Blades 333 ft² 653 ft² 1380 ft²</td>
</tr>
<tr>
<td>% of Deck Coverage 1% 2% 5%</td>
<td></td>
</tr>
</tbody>
</table>

| SoundScapes® Blinds Pages 10-13 | Area of Blades 141 ft² 281 ft² 604 ft² |
| % of Deck Coverage 1% 2% 6% |

| SoundSoak® Baffles Pages 14-15 | Area of Baffles (Sawtooth) 112 ft² 216 ft² 464 ft² |
| % of Deck Coverage 1% 2% 4% |

| TecTiles® Blinds Page 16 | Area of Blades 600 ft² 1,184 ft² 2,496 ft² |
| % of Deck Coverage 3% 5% 10% |

| TecTiles® Baffles Page 17 | Area of Baffles 600 ft² 1,184 ft² 2,496 ft² |
| % of Deck Coverage 3% 5% 10% |

| MetalWorks® Blinds Pages 18-19 | Area of Blades 240 ft² 477 ft² 1005 ft² |
| % of Deck Coverage 6% 12% 25% |

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### CLOUDS & CANOPIES

<table>
<thead>
<tr>
<th>Model Room</th>
<th>Reverberation Time (RT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoundScapes® Shapes Pages 22-23</td>
<td>Area of Shapes 192 ft² 368 ft² 784 ft²</td>
</tr>
<tr>
<td>% of Deck Coverage 19% 37% 78%</td>
<td></td>
</tr>
</tbody>
</table>

| SoundScapes® Canopies Pages 24-25 | Area of Canopies 216 ft² 408 ft² 888 ft² |
| % of Coverage (horz. face vs. floor) 22% 41% 88% |

| TecTiles® Shapes & Clouds Pages 26-27 | Area of Clouds 368 ft² 704 ft² N/A |
| % of Coverage (horz. face vs. floor) 22% 41% 88% |

| Formations® Clouds Page 28 | Area of Clouds 256 ft² 512 ft² N/A |
| % of Deck Coverage 26% 51% N/A |

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### CLOUDS & CANOPIES (CONTINUED)

<table>
<thead>
<tr>
<th>Model Room</th>
<th>Reverberation Time (RT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoundScapes® Shapes Page 29</td>
<td>Area of Clouds N/A</td>
</tr>
<tr>
<td>% of Deck Coverage N/A</td>
<td></td>
</tr>
</tbody>
</table>

| SoundSoak® Acoustical Wall Panels Page 46 | Area of Wall Panels (Fabric) 256 ft² 512 ft² 1024 ft² |
| % of Wall Coverage 13% 26% 56% |

| WoodWorks® Wall Panels Page 48 | Area of Wall Panels N/A |
| % of Wall Coverage N/A |

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**NOTE:** Indicates that the option is not recommended to achieve a BEST level reverberation time.

**% of Deck Coverage** is defined as the visible deck area covered by a ceiling solution.
No matter what type of space you are designing, Armstrong has a broad range of solutions to meet your acoustic and aesthetic needs. Bring down the noise in exposed structure spaces with Clouds & Canopies, Blades & Baffles, and Direct-to-Structure solutions — or get Total Acoustics® performance with wall-to-wall ceilings where quiet concentration and privacy are needed.