



**CEILING&WALL** | SYSTEMS

Between us, ideas become reality™

**SOUND DIFFUSERS**

Accessories for  
Ceilings and Walls

# SOUND DIFFUSERS

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Wall Mount Barrel Sound Diffusers in Soundsoak® FR-701 Quartz fabric with Custom Soundsoak Wall System in FR-701 Quartz fabric

Below: 15/16" Tegular Ceiling Pyramid Sound Diffusers in White gelcoat

## Key Selection Attributes

- Available in white gelcoat and 22 fabric finishes
- Variety of panel shapes and sizes
- Easy to install
- Diffusers blend sound for improved acoustics

## Typical Applications

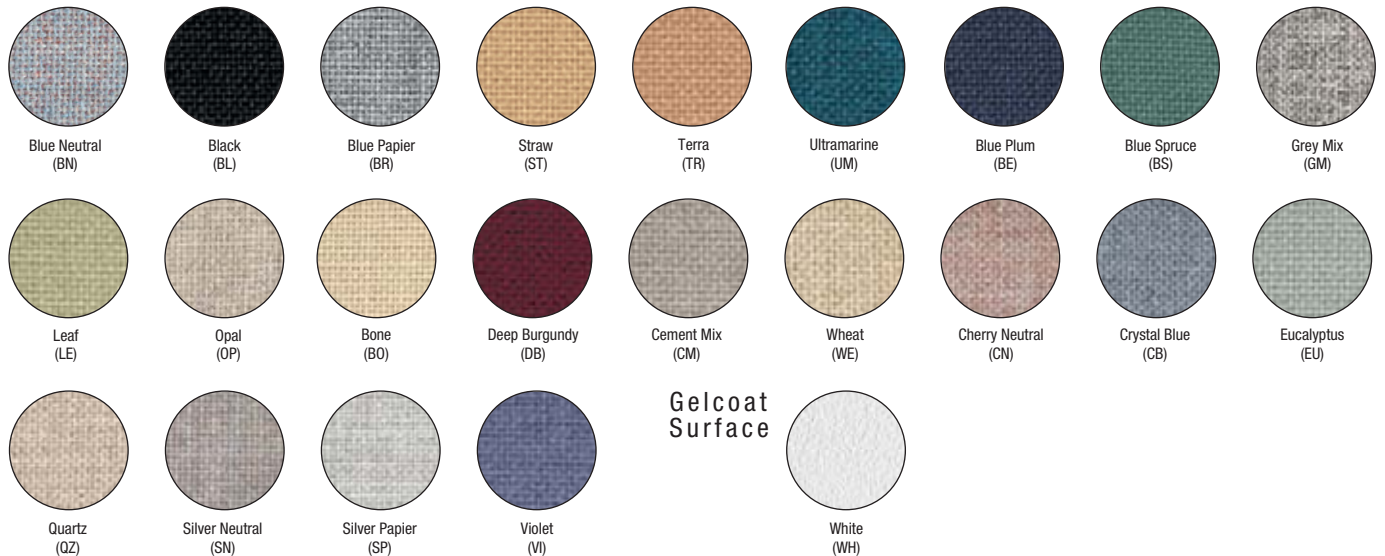
- Auditoriums
- Music rooms
- Cafeteriums
- Presentation areas



**Standard Finishes** Due to printing limitations, shade may vary from actual product.

## Woven Fabric Surface

### FR-701 (FR)



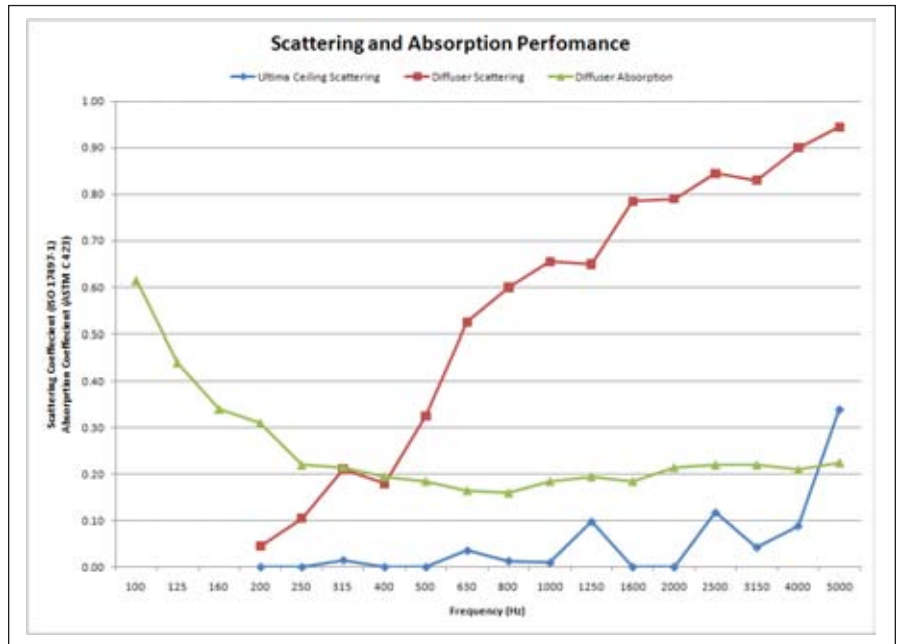
On the cover: Wall Mount Pyramid and Barrel Sound Diffusers in Soundsoak FR-701 Straw fabric

# Acoustical Performance

The primary purpose of a Sound Diffuser panel is to scatter the reflected sound into many directions, thus enhancing the sound diffusion within the room. Good diffusion leads to high-quality sound throughout the room.

Both Pyramid and Barrel Diffuser panels were tested in reverberation chambers using random incidence sound, for sound scattering per ISO 17497-1, and for sound absorption per ASTM C423. A sound scattering coefficient of 1.0 indicates that 100% of the reflected sound is scattered in all directions, whereas a value of 0.0 indicates that the sound is reflected in one specular direction (typical for a flat panel). Likewise, a sound absorption coefficient of 1.0 indicates that the sound is totally absorbed, whereas 0.0 means that it is entirely reflected.

The graph at right shows the average measured scattering and sound absorption for both Pyramid and Barrel Diffuser panels; a typical flat ceiling tile is included for scattering comparison. Diffusers scatter approximately 10 times the amount of sound as flat ceiling tiles.



## Case Study

**Project:** Pennsylvania Academy of Music

**Location:** Lancaster, PA

**Product:** Soundsoak® Walls and Sound Diffusers

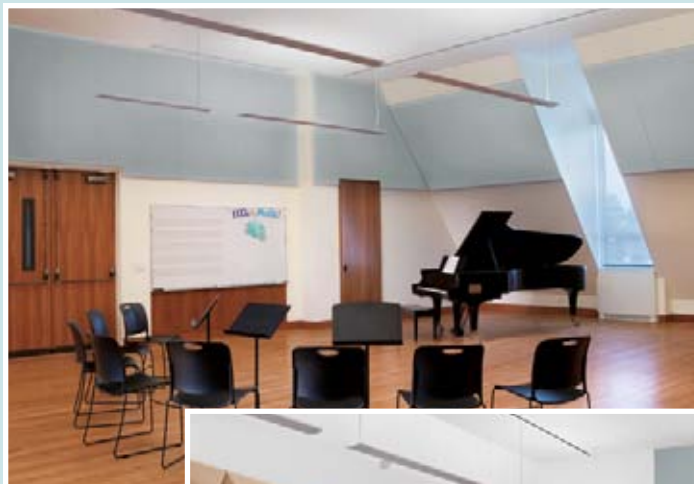
**Problem:** Space suffered acoustically from both high reverberation time and high levels of background noise.

**Situation:** Drywall ceilings and walls, high ceiling, hardwood floors.

**Solution:** Installation of fabric-covered Soundsoak Wall System reduced reverberation time by 55% and installation of wall-mounted Sound Diffusers resulted in high-quality sound.

- 432 square feet of Soundsoak 85 wall panels were installed 6 feet from the ceiling on the front walls to reduce the reverberation time
- 36 Sound Diffusers were installed on the rear and lateral walls to improve the sound quality for the performers and the audience

For more information and other acoustical information, visit [armstrong.com/walls](http://armstrong.com/walls).



**After:**

Left: Soundsoak Wall System 2' x 6' panels in Soundsoak FR-701 Eucalyptus fabric

Below: Wall Mount Pyramid and Barrel Sound Diffusers in Soundsoak FR-701 Straw fabric with Soundsoak Wall System 2' x 6' panels in Soundsoak FR-701 Eucalyptus fabric



### Pennsylvania Academy of Music Acoustical Case Study – Soundsoak Wall System

	Before	After
Reverberation Time (RT)	3.1 seconds	1.4 seconds
RT Reduction	–	55%

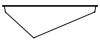
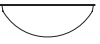




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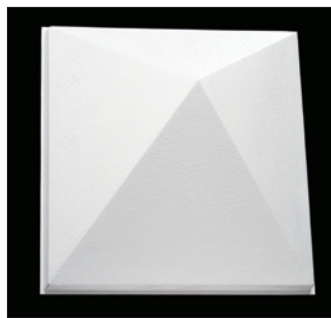
## Accessories for Ceilings & Walls

**Colors** (see page 2)  
 22 FR-701 Woven Fabric Surfaces    1 White Gelcoat Surface

### Visual Selection

Ceiling Diffusers				Dimensions	
	Item Number*	Description		Nominal W x L x H	Finish
 15/16" Square Tegular	5378T5WH	Pyramid Diffuser		2' x 2' x 8"	White gelcoat
	5378T5FR_	Pyramid Diffuser		2' x 2' x 8"	Fabric FR-701
	5584T5WH	Pyramid Diffuser		2' x 4' x 8"	White gelcoat
	5584T5FR_	Pyramid Diffuser		2' x 4' x 8"	Fabric FR-701
	5586T5WH	Pyramid Diffuser		4' x 4' x 8"	White gelcoat
	5586T5FR_	Pyramid Diffuser		4' x 4' x 8"	Fabric FR-701
 15/16" Square Tegular	5379T5WH	Barrel Diffuser		2' x 2' x 8"	White gelcoat
	5379T5FR_	Barrel Diffuser		2' x 2' x 8"	Fabric FR-701
	5585T5WH	Barrel Diffuser		2' x 4' x 8"	White gelcoat
	5585T5FR_	Barrel Diffuser		2' x 4' x 8"	Fabric FR-701
	5587T5WH	Barrel Diffuser		4' x 4' x 8"	White gelcoat
	5587T5FR_	Barrel Diffuser		4' x 4' x 8"	Fabric FR-701
Wall Diffusers				Dimensions	
	Item Number*	Description		Nominal W x L x H	Finish
 Wall Mount	5378WMWH	Pyramid Diffuser		2' x 2' x 8"	White gelcoat
	5378WMFR_	Pyramid Diffuser		2' x 2' x 8"	Fabric FR-701
	5584WMWH	Pyramid Diffuser		2' x 4' x 8"	White gelcoat
	5584WMFR_	Pyramid Diffuser		2' x 4' x 8"	Fabric FR-701
	5586WMWH	Pyramid Diffuser		4' x 4' x 8"	White gelcoat
	5586WMFR_	Pyramid Diffuser		4' x 4' x 8"	Fabric FR-701
 Wall Mount	5379WMWH	Barrel Diffuser		2' x 2' x 8"	White gelcoat
	5379WMFR_	Barrel Diffuser		2' x 2' x 8"	Fabric FR-701
	5585WMWH	Barrel Diffuser		2' x 4' x 8"	White gelcoat
	5585WMFR_	Barrel Diffuser		2' x 4' x 8"	Fabric FR-701
	5587WMWH	Barrel Diffuser		4' x 4' x 8"	White gelcoat
	5587WMFR_	Barrel Diffuser		4' x 4' x 8"	Fabric FR-701

\* Insert two-letter color suffix FR-701 fabric option on page 2. EXAMPLE: 5378T5FR BL for Black fabric  
 Note: Fabric-covered Sound Diffusers tested according to ASTM C423 E400 Mounting. Pyramids achieved NRC 0.15 and Barrels achieved NRC 0.20.

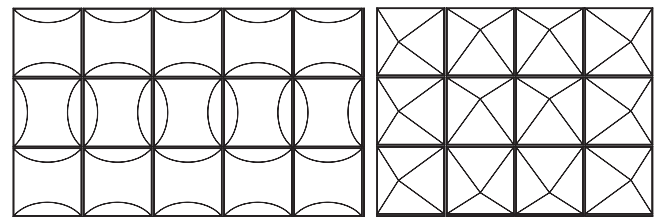


15/16" Tegular Ceiling Pyramid Diffuser in White gelcoat



Wall Mount Barrel Diffuser in Soundsoak® FR-701 Quartz fabric

### Sound Diffuser Grouping Ideas



Barrel Diffusers

Pyramid Diffusers

### Physical Data

**Material**  
 Fiber reinforced plastic (FRP)

**Surface Finish**  
 Gelcoat or fabric

**Seismic Installation**  
 These systems have been engineered, tested, and meet the requirements for ceiling applications in Seismic Design Categories D, E and F

**Design Consideration**  
 White gelcoat gloss finish visual varies depending on lighting.

**Installation Considerations**  
 Cutting panels is not recommended. Wall mounting clips are included with Wall Mount Diffuser shipment only.

**Warranty**  
 One (1) year limited warranty  
 Details: [armstrong.com/warranty](http://armstrong.com/warranty)

**Weight/Square Feet**  
 Gelcoat – 1.25 lbs per SF  
 Fabric – 1.25 lbs per SF