



# SoundSorb® Specifications

## *Sound solutions for the transportation industry*

**S**oundSorb provides a cost-effective solution to noise abatement because it absorbs sound energy rather than reflecting it. While this durable, acoustical material is commonly used outdoors, it also can be utilized for indoor applications. SoundSorb's unique structure reflects virtually no noise.

Both engineers and property owners require that the acoustical material used in highway and railway sound barriers not only performs to high standards, but also is aesthetically pleasing. While most sound walls are seen along road, rail, commercial or industrial areas, more and more are being erected along residential areas to protect communities from the health effects of high noise levels and to retain property values. SoundSorb cement-based material is available in a variety of colors to complement the surrounding infrastructure. Because SoundSorb is flowable, it can replicate virtually any texture using liner molds or by stamping impressions on one or both sides of the material.

Concrete Solutions, Inc. (CSI) maintains the cost efficiencies of SoundSorb around the world by appointing locally qualified precasters to manufacture the product. International acceptance of SoundSorb provides local companies with the opportunity to expand their product line with the most innovative, cost-effective, sound absorptive product on the market. In-depth training and technical support provided by CSI, combined with quality control guidelines, allows a select group of manufacturers worldwide to produce the same high quality of SoundSorb material, the premier solution to noise abatement.

### **Product Summary**

Pre-approved precast concrete noise barrier system consisting of composite panels with sound-absorptive, cementitious material using lightweight aggregate, cement and proprietary ingredients. NO PRODUCT SUBSTITUTIONS PERMITTED.

### **Absorptive Material Physical Characteristics**

- 1. Material Composition:** Porous, cementitious material manufactured as a wet precast product according to CSI's manufacturing specifications.
- 2. Weight of acoustical material:** 38-45 pcf for weight for sound absorptive material according to CSI's specification and project requirements.
- 3. Texture:** Sound-absorptive material must provide a variety of textured surfaces.
- 4. Weatherability:** Material must be durable under all weather conditions and resist rotting, mold and mildew build-up, rusting, warping, and bird or rodent nesting. Sound-absorptive material must be exposed to the sound source with proper drainage provided at the base of the panel.
- 5. Licensed Manufacturer:** Only an approved manufacturer shall produce SoundSorb.

Member of:  
American  
Concrete Institute  
National Precast  
Concrete Institute  
Transportation  
Research Board

**SOUNDSORB®**  
**Durable Acoustical Material**

## Submittals

- Submit requirements in accordance with the conditions of the project contract
- Submit product data to include all shop drawings
- Provide all samples of sound absorptive material showing texture and color
- Provide independent certified test reports for all ASTM testing
- Submit details of any water repellent requirements
- Provide installation instructions

## Acoustical Test Requirements for Absorptive Material

- **Noise Reduction Coefficient:** Tested in accordance with ASTM C 423-99a using mounting type A under ASTM E 795-00 practices  
Specification should require a NRC of .85 or greater
- **Sound Transmission Class:** Tested in accordance with ASTM E 90-99  
(Mass Law dictates that 3" of structural concrete backing provides a STC of 43)  
Specification should require a STC of 26 or greater

## Quality Assurance

- Only trained batching operators will manufacture SoundSorb material.
- Quality assurance program will be followed during manufacture and monitored by CSI according to the SoundSorb technical manual instructions provided to the licensee and any additional on-site quality control procedures set in place for a specific project.

## Acoustical Material Fire Rating Requirement

- Fire Rating: ASTM E 84-94a.
- Specifications should require Class A (best rating)
- ASTM 136-99 Standard Test Method for Behavior of Materials in a Vertical Tube (Combustibility Test)
- Specifications should require - Non-Combustible

## Acoustical Manufacturing Specifications

- Material will be manufactured in strict accordance with CSI's manufacturing instructions. Density ranges for production of the material to be both stamped for texture and poured into a form liner will be determined during the manufacturer's training and shall be monitored with each batch with testing required during production for any project. Batch reports shall be recorded for each panel produced and sent to CSI for review.
- Panels shall be designed so the sound absorptive material is protected from possible damage during transportation and installation, i.e. framing acoustical material on at least two sides with structural concrete, or where the material meets the edges, material shall be beveled away from edges, etc. as long as 85 percent of the face of the panel is covered with a thickness of sound absorptive material corresponding to a NRC of .85 or greater.

## Acoustical Material/Panel Transportation

1. Manufacturer and trucking company shall insure that all panels are protected during all aspects of truck loading/unloading and transportation to the project installation location.
2. Panels should be transported on rubber-lined "A" frames; panels are never to be positioned horizontally on a truck bed or stacked in that manner.
3. Straps or other devices used to hold the panels in place on the truck shall not make contact with the sound absorptive material at any time. Never use chains in lieu of straps. Care must be taken to ensure the material's surface is not rubbed or damaged by any device in any way, including by loose strap ends.
4. Installation shall include written procedures to protect the panel and sound absorptive material from damage during all phases of installation. Installer shall consult with manufacturer and licensee to determine the proper procedures to accomplish this.
5. Installer is to inspect materials before off loading and note any damage on shipping bill of lading. Supplier is to be notified of any damage resulting from shipment, prior to the departure of the delivery truck.
6. Trucking company must comply with all manufacturer's instructions/requirements.

## **Panel Installation**

1. As with the transportation, the installation of completed panels requires care to ensure the surface is not damaged. Panels shall be installed to manufacturer's instructions.
2. Panels will be lifted from A-frame on truck into place using straps. Lifting eyes in top edge of panel allows the panel to be lowered between either metal H-section or precast concrete posts.
3. Installers shall be experienced in the installation of noise barriers and trained in the use of SoundSorb.
4. Dunnage used for panel transportation is to be removed from truck and returned to the supplier.

## **Precast Concrete Noise Barrier**

Pre-approved system manufactured in accordance with Conditions of Contract and drawings.

### ***Noise Barrier Posts and Panels***

#### ***Materials Standards***

1. Aggregates – ASTM C-33; Standard Specification for Concrete Aggregates
2. Portland Cement – ASTM C-150; Standard Specification for Portland Cement Reinforcement
3. SoundSorb acoustical material – manufactured to produce weather-resistant and durable sound-absorptive panels.

#### ***Manufactured Post and Panel Posts***

1. Posts can be precast concrete, 4000-5000 psi concrete or H-section steel column.
2. Base plates can be galvanized if required.
3. Size of post is dependent upon height and loading of wall panels.
4. Steel posts will have concrete covers and caps.
5. Finish is generally smooth on all faces.

#### ***Panels***

1. 4000-5000 psi concrete composite panel reinforced in accordance with drawings and details.
2. Sound absorption is not to be less than a NRC of .85 in accordance with ASTM C-423-99a.
3. Sizes to suit site conditions. Varying from 24-72 inches in height as stackable panels but can be poured monolithically to any size requirement and up to 20 feet in length.
4. Any finish can be obtained examples are; fractured fin, Ashlar stone, rough brick, various boarding patterns, cinder block, split face block and any custom designed pattern.
5. Walls can have a coping along the top edge of each panel.

Obtain posts and panels from a single source. Tolerances will be no more than ¼" difference from shop drawings with regard to width and thickness. The length of a panel may vary up to ½" from the shop drawing.

### ***Procedure for Installation***

1. Carry out in accordance with manufacturer's instructions and Conditions of Contract.
2. Site visit to establish all ground conditions, surrounding utilities and specific obstructions to ensure installation will be in accordance with shop drawings.
3. Install steel posts into excavation and surround with concrete. Concrete posts foundations installed and base plate template used to place anchor bolts. Both systems are to be accurately laid out to line and level in accordance with shop drawings. Posts will be set plumb and in line with rigging and lifting devices in a safe manner.
4. Installation tolerances: Post distances shall not be less than ½" greater than the panel length and no more than 1¼" greater than the panel length. The posts shall be no more than ¼" out of plumb for every 12 feet of height of wall and post locations no more than ½" off line.
5. Panels to be lifted with correct, safe rigging and lifting devices. Lift panel from A-frame on truck into position with sound absorptive material facing the noise source. Lower panels between posts taking great care not to damage panel faces. Always use tag lines to direct panels during installation. Panel to be set evenly between posts and to be level across the top. Set bottom panel, install gasket if required and then place top panel. Ensure all posts and panels sit correctly and that the joints and alignment are correct. Leave installation area clean and tidy.
6. Panel tolerances: Panels to be level within ¼" of the panel length.

### **Acoustical Material General Maintenance Requirements**

1. Steam cleaned or cleaned with medium-pressure hot water, if needed.
2. Curing performed in accordance with CSI's instruction to manufacturer.

### **Sound Absorptive Material Surface Treatment**

#### **Color Uniformity**

All panels will be stained, preferably after installation, so that all the panels appear uniform in color. Coloring material is accomplished by using a weather-resistant, water-based acrylic stain. The sound wall color coatings shall be from CSI's approved list of absorptive concrete sound wall color coatings. The following coatings are acceptable:

<i>Product</i>	<i>Manufacturer</i>
Cementrate WB	Master Builders, Inc., Preco Division
Canyon Tone Stain	United Coatings
Aqua Stain	Tamms Industries

Other product coatings may be used with authorization from the sound absorptive material manufacturer and a variety of colors may be used according to the design.

#### **Application**

Surface preparation, application rate and application procedure shall be as specified by the coating manufacture, using airless spray equipment having a minimum capacity of 1000 psi and a ½ gallon-per-minute using low volume airless equipment for surface coating. Coating shall not be applied when the air temperature is below 45 degrees Fahrenheit or to damp surfaces or during misty (rain) conditions. This application can be performed either at the production site or at the project site, but should be applied after the sound absorptive material is cured and dry.

The water repellent is applied under similiar conditions as above and according to CSI directions.

#### **Cleaning and Inspection**

Insure that any dirt or debris is removed from face of SoundSorb material at all times to avoid contamination. Remove any dirt from wall; vacuum during manufacture and with water after installation. Leave installation area clean and tidy, disposing of any debris. Inspect SoundSorb and wall system prior to, and after, installation for plumbness, alignment and panel appearance.

#### **Contact Information**

##### **Concrete Solutions, Inc. (CSI)**

Licenser of SoundSorb

3300 Bee Caves Rd., Ste. 650

Austin, Texas USA 78746

Phone: 512-327-8481

Fax: 512-327-5111

Email: [csi@soundsorb.com](mailto:csi@soundsorb.com)

Web: [www.soundsorb.com](http://www.soundsorb.com)