SonaGuard® (US Patent Pending)

Perforated Fiberglass Sound-Absorptive Noise Barrier System

Superior Acoustics — Wide Spans — High Strength

Tallest Sound-Absorptive Noise Barrier in North America — 45 ft

- **Exceptional Acoustical Performance: NRC 1.05 and STC 35**
- **Extreme Strength = Wider Spans = Fewer Foundations = Lower Turnkey Cost**
- **Lightweight: Less than 5 lbs per square foot**
- **Easy to Install and Easy Field Modification**
- **Aesthetic Shiplap Design Towards Receivers and Residents**
- **Non-Glare finish**
- **Non-Conductive**
- **Non-Corrosive**
- **Non-Flammable**
- **DOT and FERC Approved**
- **Phenolic and Ballistic Options Available**

The SonaGuard® Absorptive Noise Barrier is the highest quality reinforced fiberglass noise barrier on the market. Manufactured using the most advanced materials and processes, it has been designed with strength, noise reduction, and aesthetics in mind. SonaGuard® panels feature a tongue-and-groove design which provides superior deflection strength, and also eliminates any spaces or gaps that would allow unwanted noise to escape.

Sound Fighter© Systems L.L.C. and its Noise Barrier Systems are proudly 100% located, sourced and manufactured in the USA.

ACCREDITED BUSINESS BBB

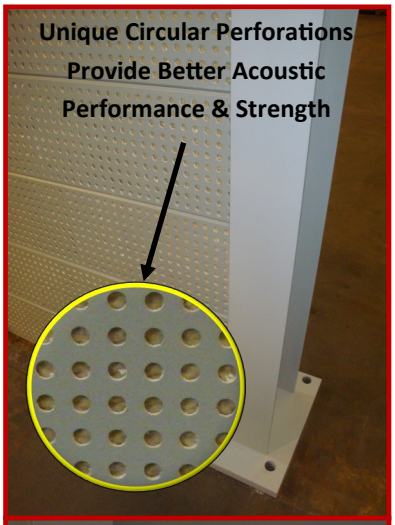
Business Of the Year

SOUND FIGHTER® SYSTEMS

America's Oldest Manufacturer of High-Performance Outdoor Noise Barrier Systems

SonaGuard® Noise Barrier Features:

- Noise Reduction Coefficient (NRC) of **1.05**
- Sound Transmission Class (STC) of **35**
- Wide Spans = fewer foundations = easier install = less $$
- Can meet any current North American wind load
- Lightweight and Modular – means quick installation in confined areas without the use of heavy equipment, minimizing traffic control issues and damage to surrounding landscaping
- Available in many colors
- UV resistant, continuous glass reinforced composite material that is resistant to corrosion, chemical abrasion and weathering
- Will not corrode, rust or rot
- Graffiti, moisture and freeze/thaw resistant
- Class A Flame Rating



Effective Noise Reduction for:

> DOT and Highway	> Rail
> Oil & Gas	> Electrical Substations
> Recycling	> Commercial HVAC
> Military	> Bridges and Rooftops
> Water and Wastewater	> Big Box Development
> Industrial and Manufacturing	> LNG

SonaGuard® Specifications:

Length: up to 18 ft
Width: 2.75 inches
Height: 12 inches
Weight: 4.4 lb/sq ft
Tensile strength: 69,812 psi
Compressive strength: 28,000 psi
Tensile modulus: 3,343,000 psi
Flex strength: 67,000 psi
Flex modulus: 1,880,000 psi
Specific Gravity: 1.8
NRC Rating: 1.05
STC rating: 35

For more information on Sound Fighter® Systems:

Call: 1-866-348-0833 **E-mail: info@soundfighter.com** **Visit: www.soundfighter.com**

SOUND FIGHTER® SYSTEMS

Specifications for the **SonaGuard®** Absorptive Noise Barrier System

1. GENERAL

1.1 SUMMARY

This specification covers the minimum material, mechanical and noise reduction performance requirements of Sound Fighter˚ Systems' SonaGuard® Absorptive Noise Barrier System. This Specification should be used only by qualified professionals who are competent in evaluating the significance and limitations of the following specifications and who will accept responsibility for the application of its requirements to the products being considered.

1.2 REFERENCES

A. ASTM International:

i. **Noise Absorption**: The panels shall have a noise reduction coefficient of 1.00 or greater according to ASTM Test Method C423-90a.

ii. **Sound Transmission**: The panels shall have a sound transmission class of 30 or greater according to ASTM Test Method E90-90 and E413-87.

iii. **Steel** for wide flange shapes and built-up column members shall conform to ASTM A572 Grade 50 or ASTM A992. All other structural steel base plates and braces shall conform to ASTM A36.

iv. All **anchor bolts** shall conform to ASTM A36 galvanized unless noted. The anchor bolt length will depend on the type of anchor used.

v. All **fabricated steel members** are to be hot dip galvanized after fabrication per ASTM A123 unless otherwise noted.

B. AISC:

i. All structural steel design, fabrication and erection shall conform to the latest edition of the AISC manual of steel construction, "Allowable Stress Design".

C. AWS:

i. All welding shall conform to American Welding Society D1.1 and Electrodes shall be E70XX.

1.3 SYSTEM DESCRIPTION

SonaGuard® Absorptive Sound Panels: The panels shall consist of a durable tongue-and-groove glass reinforced thermoset composite structural shell with a UV resistant coating. The panels are also resistant to effects of ozone and freeze-thaw cycles. The front face of the panel is perforated with round holes to create an open area of approximately 25%, and filled with sound absorbing material to increase NRC absorption performance.

1.4 SUBMITTALS

A. Product Data -- Submit product data sheet, for specified products.

B. Shop Drawings -- Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.

C. Samples -- Submit verification sample showing of finish, color and texture.

D. Colors -- If required, manufacturer will supply color chips for review and color selection.

E. Test Reports -- Certified test reports showing compliance with specified performance requirements.

1.5 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Section. Generally, strudtu4al steel components shall be hipped, unloaded, handled, and stored in such a manner as to minimize the dangers of chipping, scratching, and excessive bending stresses.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

2. SOUND PANELS

2.1 GENERAL

In order to establish the level of design and quality required, the SonaGuard® Absorptive Noise Barrier System has been designed around the following manufacturer with the following performance specifications:

"SonaGuard® Absorptive Noise Barrier System" manufactured by Sound Fighter Systems, L.L.C., P.O. Box 7216, Shreveport, LA 71137. 318-861-6640

2.2 ACOUSTICAL PANELS

SonaGuard® Absorptive Sound Panels: The panels shall consist of a durable tongue-and-groove glass reinforced thermoset composite structural shell with a UV resistant coating. The panels are also resistant to effects of ozone and freeze-thaw cycles. The front face of the panel is perforated with round holes to create an open area of approximately 25%, and filled with sound absorbing material to increase NRC absorption performance.

A. Longitudinally arranged channel sections on the bottom of the panel form a tongue and groove interlock joint when stacked.

B. End connections shall be a tongue and groove design to fit into a 2-7/8 slot created on an appropriately-sized beam. No screws or bolts are needed to install the panels to structural steel columns.

C. Internal absorptive fill material shall be 6.0 pounds per cubic foot density mineral acoustic fiber packed under not less than 5% compression to eliminate voids. It shall be moisture and corrosive resistant, vermin proof, non-combustible, smokeless, and odorless. The mineral fiber fits into the panel cavity against the perforated face. Panels shall also be corrosion resistant and shall not rust or due to moisture, de-icing solvents, salt or air borne roadway spray.

D. Physical Properties:
   i. Width: The maximum nominal width of panels shall be specified on each order.
   ii. Height: The tongue and groove panels are a nominal height of 12 inches each.
   iii. Thickness: The panels shall have an overall thickness, measured on the panel ends, of 2.75" maximum.
   iv. Weight: The finished panels shall not weigh more than 5 lbs per sq/ft

E. Mechanical Properties:

The panels shall have minimum mechanical properties as follows:

Mechanical Properties		
ASTM D790	**Flexural Stength**	67,000
ASTM D638	**Tensile Strength**	69,812
ASTM D695	**Compressive Strength**	28,000
ASTM D638	**Tensile Modulus**	3,343,000
ASTM D790	**Flexural Modulus**	1,880,000
ASTM D792	**Specific Gravity**	1.8

F. Color:

The Customer shall specify the color. The panels shall be coated with a UV resistant polymer.

G. Temperature Resistance:

When assembled per manufacturer's instructions, the panels shall not exhibit any cracking, deformation or separation when cycled from a temperature of -40° F to +140° F and back again.

H. Flame Resistance:

The panels shall have a Class A flame rating.

I. Acoustic Performance:

i. **Noise Absorption**: The panels shall have a noise reduction coefficient of **1.05** or greater according to ASTM Test Method C423-90a.

ii. **Sound Transmission**: The panels shall have a sound transmission class of **35** or greater according to ASTM Test Method E90-90 and E413-87.

3. STEEL FABRICATION

A. All structural steel design, fabrication and erection shall conform to the latest edition of the AISC manual of steel construction, "Allowable Stress Design".

B. Steel for wide flange shapes and built-up column members shall conform to ASTM A572 Grade 50 or ASTM A992. All other structural steel base plates and braces shall conform to ASTM A36.

C. All anchor bolts shall conform to ASTM A36 galvanized unless noted. The anchor bolt length will depend on the type of anchor used.

D. All welding shall conform to American Welding Society D1.1 and Electrodes shall be E70XX.

E. All fabricated steel members are to be hot dip galvanized after fabrication per ASTM A123 unless otherwise noted.

F. Steel columns shall be spaced to accommodate the panel length.

G. All support steel and foundations shall be designed to meet the wind load requirements, wall height and soil conditions for each specific wall project and location. Soil conditions and footing design will vary depending on location of wall system. Each wall project will be uniquely designed because of this.

4. INSTALLATION

A. The SonaGuard® Absorptive Noise Barrier System shall be installed per the manufacturer's recommendation to the lines and grades shown in the contract documents or otherwise specified.

B. Environmental Requirements:
   i. Do not install structural steel until concrete and anchors have been set and cured.
   ii. Do not install sound panels until structural steel has been anchored and plumbed.

C. Manufacturer's Installation Instructions:
   i. Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.
   ii. Extreme care shall be exercised to protect the wall components from damage during shipment or erection.
   iii. The installer shall, before ordering any wall component, inspect the job site and verify in writing to the manufacturer that site conditions permit the original plan of installation and erection of wall components.
      a. Verify that center distances for structural steel columns are per manufacturer's exact specifications.
      b. Do <u>not</u> install SonaGuard® sound panels until unsatisfactory conditions are corrected.
      c. Installer shall identify any underground utility or overhead obstruction that could affect job site safety. The installer is responsible to correct any site conditions that would compromise site safety and cause an accident.
   iv. Installer is responsible for accepting and inspecting delivered components prior to installation.
   v. The installer shall notify the manufacturer of any wall components received in damaged condition. Any damaged wall component installed without proper manufacturer notification and site inspection is the responsibility of the installer.
   vi. Installer acknowledges the importance of accurate footing and post spacing. A spacing to large or too small will require either an extra footing/post or customized panels from the manufacturer, which may result in the need to have the wall inspected by an engineer for approval for structural stability.

5. MAINTENANCE

No routine maintenance (painting / staining) is required with the SonaGuard® System. Most graffiti (paint) can be washed off with minimal effort via the use of a mild, citrus-based cleaning solvent.

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FOR IMMEDIATE RELEASE

Gulf Coast's Tallest Sound Wall Survives Harvey Unscathed

PORT NECHES, TX – Hurricane Harvey left a trail of destruction as it made not one, but two landfalls in southeast Texas. One notable structure withstood the storm unscathed -- a 45' tall sound wall recently erected at a chemical facility in Port Neches, Texas, just east of Houston. "*Skeptics warned that such a storm would destroy any sound wall, regardless of the design*." states Patrick Harrison, President of Sound Fighter Systems. "*But we are proud, and relieved, to confirm that our 4-story SonaGuard noise barrier survived the storm unblemished."*

Sound Fighter Systems spent years designing the SonaGuard sound wall panels to achieve three primary objectives:

1. Top-end acoustical performance
2. Aesthetically-pleasing design
3. Extreme strength & durability

"A*coustical performance can be confirmed in the lab, and physical appearance is self-evident beforehand. But strength to withstand Nature's fury is more difficult to pinpoint on paper."* Harrison adds. *"I would say that Harvey confirmed our hoped-for durability in the SonaGuard design*."

Contact Sound Fighter® Systems for more information and specifications on the SonaGuard˚ system: info@soundfighter.com

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About Sound Fighter® Systems, L.L.C.

Sound Fighter® Systems, LLC has been researching, designing and manufacturing highly efficient noise barrier walls since 1973, making it the oldest established manufacturer of such products in America. Sound Fighter® walls have been produced for unique noise mitigation applications around the world, including Electrical Substations, Natural Gas Compressor and Transmission Stations, Highways & Interstates, Recycling Facilities, Big Box Developments, Loading Docks, Shopping Centers, Industrial and Commercial Sites, Multi-Family Housing Developments, Race Tracks, Schools, Power Generation, HVAC Equipment, and Manufacturing Plants. The company is headquartered in Shreveport, LA.