

SOUND BARRIER WALLS



Specializing in Acoustics, Noise & Vibration Control

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Barrier Wall Systems

Industrial, commercial, and environmental noise control is important and is often overlooked. Noise control efforts are essential to comply with municipal ordinances, conform to OSHA standards, or to ensure comfort of employees and neighbors. Knowledge and experience is required to design an acoustical system to achieve desired sound levels. eNoise Control Barrier Wall Systems are modular, cost effective, and custom solutions suitable for rooftop equipment, electrical sub-stations, compressor stations, loading docks, railways, and many other applications.

eNoise Control Barrier Walls are constructed with double walled acoustical panels that feature quick and easy assembly. These panels deliver high levels of sound absorption and transmission loss. Purchase includes project management assistance, design, engineering, and manufacturing.

Advantages of eNoise Control Barrier Wall Systems

- Suitable for outdoor mechanical equipment barriers allowing easy field cutting and sealing for electrical, ducts, and piping.
- Panels are shipped in modular form for freight cost savings.
- Self-draining, wicking moisture, durable, easy to install, remove, and reuse.
- Acoustic performance backed by independent tests in NVLAP accredited facility. Panel performance is StC 40-43 and NRC 1.0.
- System includes AutoCAD submittals and piece-marketd installing drawings.
- Structural steel designed from baseplate upwards. Column and base plates supplied as factory welded assemblies. Column and angle attachments are factory punched and supplied with bolts, washers, and nuts. No field welding is required.
- Panels available in galvanized G90, aluminum, and stainless 304 or 316. Structural steel components available in various finishes from prime painted, hot dipped galvanized, or painted.
- Detailed structural engineering calculations including column baseplate reaction forces.



Utilities and Compressor Stations

eNoise Control Barrier Wall Systems are cost effective solutions to noise from oil and gas compressors. Unwanted noise at electrical sub-stations, transformers, and generators is easily blocked with sound barrier walls. They also provide an aesthetically pleasing barrier from the unsightly view of utility and compressor stations while adding additional security.



Transportation and Loading Docks

eNoise Control reflective or absorptive barrier wall systems effectively reduce noise from loading docks, highways, airport areas, and railways.



Rooftop Equipment

Chillers, condensers, cooling towers, and other mechanical equipment generate unwanted noise that negatively affects surounding residential and business communities. eNoise Control Barrier Wall Systems reduce the noise to acceptable levels.

Community Noise

Many municipalities have noise ordinances for hearing protection and comfort levels. eNoise Control barrier wall panels are used to control noise at schools, shopping malls, recreational facilities, and other outdoor applications.





Wall Panel Construction

eNoise Control Sound Barrier Wall panels are fabricated with an outer solid shell of 16/18 guage and inner perforated shell of 22 guage. Panels are stiffened with 18 guage internal channels and edge rails. The acoustic grade fill is 2.5 to 6 pcf long strand fiberglass or mineral wool depending on the application. Both fills are inert, mildew resistant, vermin proof, and incobustible and are suitable for wet/dry and freeze/thaw cycling. Mating panels are attached by inherent tongue and groove panel joints. Typical panel joints are horizontal, however vertical panel joints are used depending on the project requirements and asethetics desired.



Sound Absorption Coefficients

The acoustic performance of eNoise Control barrier wall panels is backed by independent testing in a NVLAP accredited laboratory. When tested in accordance with *ASTM C423, Standard Method of Test for Sound Absorption of Acoustic Materials in Reverberant Rooms*, the panel assembly shall have the following minimum airborne sound absorption:

		Sound Absorption						
Model	Construction ²	125	250	500	1000	2000	4000	NRC ³
STL-4 ¹	16 ga. solid / 22 ga. perforated	0.60	1.13	1.12	1.09	1.03	0.91	1.00
STL-4 ¹	18 ga. solid / 22 ga. perforated	0.60	1.13	1.12	1.09	1.03	0.91	1.00

 $^{1}(4) = 4$ inch thickness

² solid inner skin available

³ Noise Reduction Coefficient (NRC) is the average of coefficients at 250, 500, 1K and 2K Hz, expressed in the nearest integral multiple of 0.05.

Sound Transmission Loss

When tested in accordance with *ASTM E90*, *Standard Recommended Practice for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*, the panel assembly shall have the following minimum airborne sound transmission loss.

		Transmission Loss, dB						
Model	Construction ²	125	250	500	1000	2000	4000	STC ³
STL-4 ¹	16 ga. solid / 22 ga. perforated	24	32	41	51	60	66	43
STL-4 ¹	18 ga. solid / 22 ga. perforated	21	28	39	48	56	58	40

 $^{1}(4) = 4$ inch thickness

² solid inner skin available

³ Sound Transmission Class (STC) is determined by comparing test data with a set of standard STC contours as described in *ASTM E413*, *Standard Classification for Determination of Sound Transmission Class*.

The acoustic performance of eNoise Control Sound Barrier Wall panel systems is not degraded through prolonged exposure to noise, vibration, pressure differential, rain, wind, or snow.

Barrier Wall Specifications

1.0 General

Sound Barrier wall material shall be insulated double wall construction and shall be provided as indicated on drawings by a recognized manufacturer with published standards of construction and technical performance. The manufacturer shall have produced a standard factory fabricated panel system and components for at least 10 years. Performance of the fabricated and installed system shall conform to all specifications listed herein.

2.0 Materials

2.1 Acoustical Metal Panels

A. All panels and their components shall be pre-fabricated, sectional, all metal-clad, modular, and designed for easy and accurate field assembly. The panels and components shall not be susceptible to damage due to extended exposure to vibration, air temperature, or humidity with the passage of time.

B. Panel Construction

- 1. All panels shall be (4) inches thick, as noted on drawings, with a solid galvanized steel exterior shell and a perforated/solid galvanized steel inner shell. The panels shall be connected together by means of a tongue and groove connection and held together rigidly by the use of self-drilling sheet metal screws.
- 2. The panel shells framing members and internal reinforcements shall be welded, screwed and/or riveted together to form a metal-sheathed panel of sufficient strength for maximum operating loads specified in the structural performance section of these specifications.
- 3. The outer galvanized steel shell thickness shall be 18 ga. minimum and the inner galvanized steel shell shall be 22 ga. minimum thick.
- 4. Where perforated materials are indicated, all perforations shall be 3/32" diameter holes on 3/16" staggered centers and shall result in an open area of no less than 23 percent.
- 5. All panel internal and external reinforcing members shall be minimum 18 ga. galvanized steel.
- 6. Each panel shall be filled with sound absorbing materials that are inert, mildew-resistant, verminproof, and incombustible.

C. Panel Components

- 1. All accessory trim items shall be of 18 ga. minimum galvanized steel and shall be furnished in factory standard lengths to be field cut to specified dimensions. Location and quantity of sheet metal screws and trim requirements shall be in accordane with the manufacturer's installation details.
- 2. Base channel shall be installed on a level and true surface.
- 3. All external panel connectors, trim items, accessories, base channel/panel interfaces/base channel/floor interfaces, and other sections noted on the drawings shall be sealed with an acoustical sealant that shall not harden and prevent disassembly in the future.

D. Structural Performance

- 1. Any special external panel loading conditions including wind, snow, and equipment shall be provided for as per specifications.
- 2. Under the indicated loading conditions, the entire enclosure system shall be self-supporting and/or will be supported as per the specifications. The installer shall furnish and assemble all structural members in strict accordance with drawings and manufacturers installation details.
- 3. Under the above loading conditions, the assembled acoustical structure shall not exhibit any panel join deflection in excess of L/240, where L is the unsupported span length of any panel section in the erected structure.

E. Acoustical Performance

1. The manufacturer shall provide certified testing data indicating sound absorption and transmission loss characteristics of the panel assembly.

F. Accessory Items

Doors, windows, electrical systems, ventilating systems, accessory components, etc., shall be provided in accordance with drawings.

G. Manufacturer

All materials shall be provided by eNoise Control, Inc.