



Silent Screen Standard Submittal Package



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WORLDWIDE ACOUSTICAL PRODUCTS & SERVICES



Standard Silent Screen Noise Abatement System

The EAS Standard Silent Screen Panel System is engineered for acoustical enclosures and noise barriers where structural integrity, sound absorption, and transmission loss are of major concern. Silent Screen panels are designed for both indoor and outdoor applications.

Silent Screen Panel Specifications

- Silent Screen panels are fabricated using 16 and 22 gauge cold-formed ASTM 653 Galvanized G-90 sheet steel or Galvanneal A-60, with options for Stainless 304 or Aluminum.
- Standard Silent Screen panels are 12 inches wide by 2 ¾ inches thick.
- Silent Screen panel face trays are typically fabricated using 22 gauge steel with 3/16 inch diameter perforations in a 3/8 inch staggered pattern.
- Silent Screen panel back trays are fabricated using 16 gauge non-perforated steel.
- Silent Screen panel back trays are filled with six pound density mineral rock wool with option for fiberglass.
- The maximum silent screen panel length is 14'-0" (depending on windload) before intermediate bracing is required.

Mineral Rock Wool conforms to Federal Specifications HH-1-558B and ASTM Standard E-136 and has the following characteristics:

- Has a minimum density of 6 pounds per cubic foot.
- Is non-hygroscopic and absorbs less than 1% water.
- Melts above 2,000 Degrees Fahrenheit, has a **flame spread of 15** or less and a **smoke development of 0** when tested in accordance with ASTM Standard E-84, is rated incombustible by ASTM Standard E-136.

Acoustical Performance Standards

- Silent Screen Panels have a noise reduction coefficient (NRC) of 1.05 when measured in accordance with the requirements of ASTM C423. Results are attached. Full report available upon request.
- Silent Screen Panels have STC=35 when tested in accordance with the requirements of ASTM E90.

Quality Assurance

- EAS products will conform to the required quality and performance standards.
- EAS panels, trims, accessories shall be installed in accordance with the approved shop drawings to ensure the required quality standards.

Powder Coating Process

EAS uses ASTM 653 galvanized G-90 steel sheet or Galvalume A-60 cut from coil to form the panels. (Options are available upon request for Stainless 304 or Aluminum). Once formed, the panels can be powder or liquid spray coated.

The coating process involves:

- Surface preparation, including washing the panels using an automated process involving several wash stations, per manufacturer's specifications.
- Drying stage prior to powder or liquid spray coated.
- Panels are coated individually per manufacturer's specifications.
- The coated panel parts are then heat cured in an oven per manufacturer's specifications.

Material & Finishes

- Finish: The panels will be galvanized and may be painted with a baked on paint system. EAS Standard Color Guide attached. Custom colors available at additional cost

- ☐ Powder
- ☐ Liquid
- ☐ Coil – Minimum order applies

Some of the ASTM test procedures are as follows:

- | | |
|--|---------------------------------------|
| • <u>Adhesion per ASTM D3359</u> | • <u>Humidity per ASTM D 2247</u> |
| • <u>Flexibility per ASTM D 1737</u> | • <u>Salt Spray per ASTM D117</u> |
| • <u>Hardness per ASTM D3363</u> | • <u>Specular Gloss per ASTM D523</u> |
| • <u>Reverse Impact per ASTM D2794</u> | |

Durability

- EAS wall systems are designed to be a cost effective, light weight, easy to install, aesthetically pleasing solution to absorptive sound energy and they are virtually maintenance free over the expected lifetime of a typical installation.
- The panels are typically fabricated from Galvanized G-90 or Galvanneal A-60 steel and may be coated depending on the application. Coating of the panels not only serves to be aesthetically pleasing, but also extends their life by reducing the susceptibility to chemical deterioration and abrasion, as well as minimizing the effects of weathering. As the panels are used for outdoor application over the lifetime of the installation one will see some weathering effects but these will not be significant.
- The panels are designed to have a mechanical interlock which eliminates the use of fasteners.
- Structural posts used for installing the panels are galvanized and may be painted or capped with coated flashing, depending on the customer requirement. This reduces the susceptibility of the structural posts to any chemical deterioration and abrasion.

- The noise walls are designed based on current AASHTO standards. These panels are designed to withstand wind speeds more than 140 mph depending upon the region and specified parameters.

Warranty

- EAS shall warranty for a period of one year that the panels, trims and accessories furnished by the manufacturer shall be free from defects in materials and factory workmanship.
- Paint finish warranties shall be the paint manufacturers standard for wall panels and trims.

Cleaning & Maintenance

Under normal working environments, EAS panels have shown remarkable resistance to exterior chalking, fading, cracking and the effects of chemicals and ultraviolet rays.

Removal of undesirable materials from the surface of the panels should always be limited to mild, soapy water and mild cleaners followed by a clean water rinse. However problems occur, such as overspray from air-dry painting, graffiti or other incidental problems. Since these baked on coatings are composed of resins and pigments that can be adversely affected by strong chemicals, extreme care should be exercised in any removal activities. It is important that all cleaners and solvents listed in the steps below are first tested on a less visible area to determine any potentially negative affects to the finish.

Cleaning should not be attempted if there is any damage, such as abrasion, scuffing, dulling, etc., to the coating in the test area.

The following sequential procedures are recommended:

1) Unless the condition is clearly undesirable, it is typically best to do nothing at all. This is often the case with light, unintentional overspray as it will likely be removed by the elements in a relatively short period of time.

2) If removal is required, the first step recommended by EAS is washing with mild soapy water or a mild household cleaner. Occasionally the use of a minimally abrasive Teflon-type pad is required.

Note: Repeated rubbing with abrasive cleaners and/or pads is likely to result in a scuffed surface, which will not only be unsightly, but will also decrease the service life of the factory finish and void warranty coverage.

3) If previous step's results are unsatisfactory, a slightly more aggressive approach would be to wipe the surface with mineral spirits *or* VM&P Naphtha. These solvents are often used in air-dry paints. Mineral spirits evaporate slowly and will work best in warm weather on warm metal. VM&P Naphtha evaporates rapidly, and will work best in cool weather on cool metal.

4) If steps 1 through 3 have not produced satisfactory results, more aggressive aromatic solvents such as xylene ("xylol" or "m-xylene") or toluene ("toluol") may be used. It is important to proceed ***very carefully***, using only the amount of solvent required to dampen a cloth, and limit the time of exposure to 10-15 seconds or less on any given area. Xylene has a moderate evaporation rate and is best suited for warm metal in warm weather. Toluene evaporates faster, and is better suited for cool weather on cool metal.

Note: Stronger solvents, such as any type of ketone, should never be used to clean factory finishes – damage to the coating is extremely likely to occur and will void any warranty coverage.

5) The longer the factory applied coated surface has been in service the more susceptible it will be to damage caused by any procedure intended to remove undesirable deposits from its surface. Therefore, it is important that all cleaners and solvents be first tested on a less visible area to determine the potential side-effects of cleaning. Cleaning should not be undertaken if there is any damage, such as abrasion, scuffing, dulling, etc., to the film. Also, the older the original surface, the greater will be the likelihood that the “cleaned” area will result in a somewhat different appearance due to the removal of dirt and natural degradation of materials from the cleaned area.

Packaging, Receiving, Storage, & Handling

Packaging

- EAS Silent Screen Panels are packaged and shipped flat on a wooden pallet. The maximum panel length is 14'-0" and approximately 60 panels are packed on each pallet (depending on panel lengths). The panels are placed on the pallet in 4 rows and horizontally stacked. Care is taken while stacking the panels to prevent scratches. Additionally, foam strips are placed between the panels at multiple locations for further protection. Once stacked, the panels are shrink-wrapped and bound using steel bands on all sides to prevent the panels from shifting.
- A computerized Packing Slip is attached to each pallet and is easily visible for inspection. After packaging, the panels are moved to the loading dock where they are loaded onto trucks using a fork lift. The pallets are loaded on a flat bed truck side by side (in some cases a box truck may be used). The pallets are not stacked to prevent damaging the lower panels while in transport. After the pallets have been loaded, a water-resistant tarp is placed over the load to ensure that the panels reach the destination safe and dry.

Receiving

- Upon arrival of the panels at the jobsite, the contractor is responsible for inspecting the shipment for damage, shortages etc. If damage or shortage is observed, a claim must be filed with EAS immediately and the delivery documents noted. In the event damage or shortage is concealed, EAS must be notified immediately upon discovery. Photographs and pallet number of the damaged components in their original packages attached to a claim must be submitted within 72 hours of delivery. Additional NCR information may be required.

Unloading

- We recommend using a fork lift for unloading the pallets from the truck. The maximum pallet weight is approx. 6,000 pounds.

Storage

- As the panels will usually be installed within a few weeks of receipt, care should be taken to store them at convenient locations to minimize handling during erection. The shrink wrapping should be removed only at the time of installation of the panels and the pallets should be stored on a slight slope to allow for water run-off.
- To prevent damage, the pallets should not be stacked.

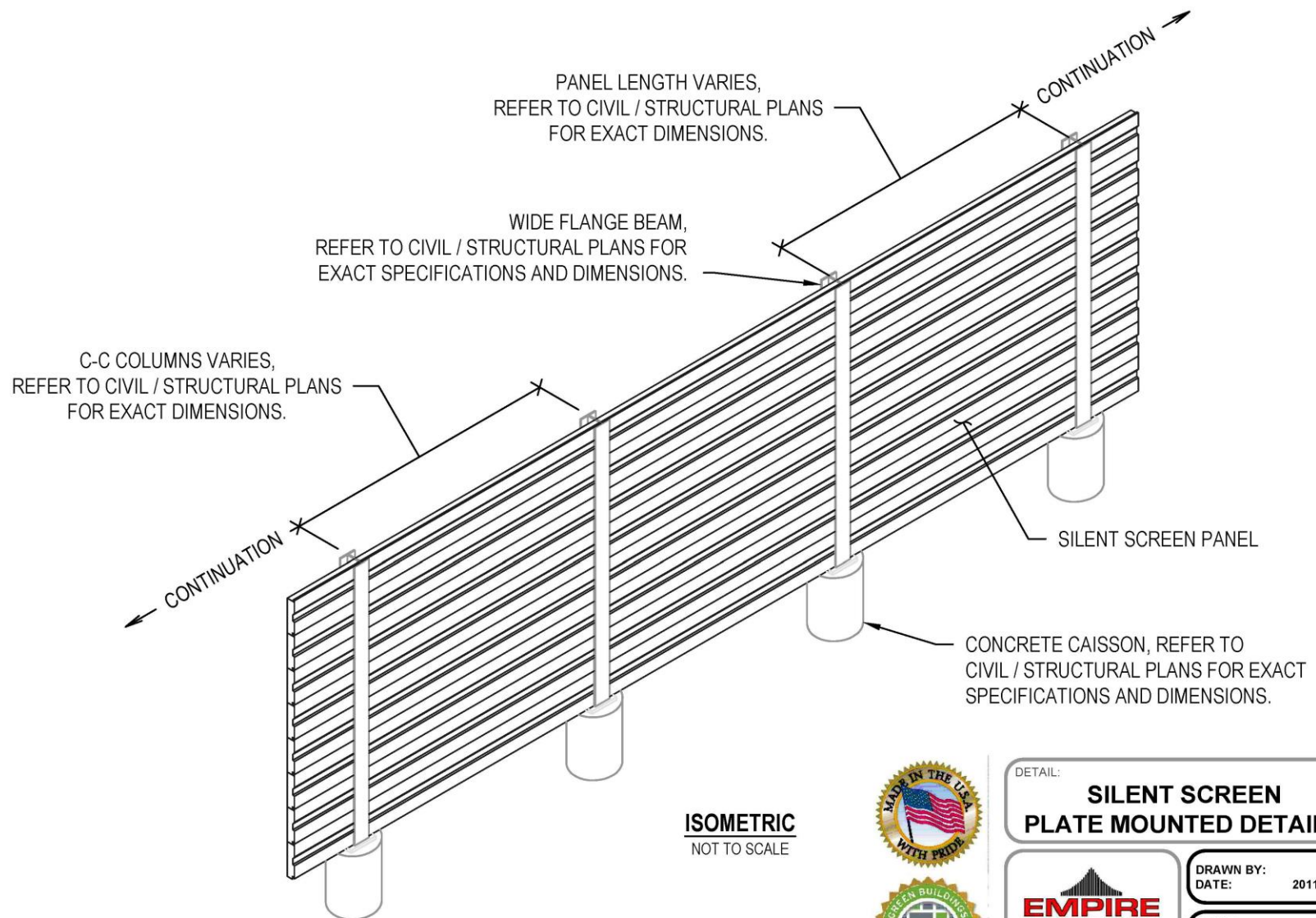
- Should the panels require storage for a long duration they should be stored and protected in a covered, dry location with good air circulation, shielded from direct sun light and free from the effects of corrosive environments.

Material Handling

- The panels should be carried on edge in a horizontal orientation for stiffness. Care should be taken to avoid carrying them flat as bending or warping may occur.

Installing Panels

- For warranty purposes, the installation should be performed per an approved plan set. EAS installation technicians are available for installation training.



ISOMETRIC
NOT TO SCALE



DETAIL:

SILENT SCREEN PLATE MOUNTED DETAILS

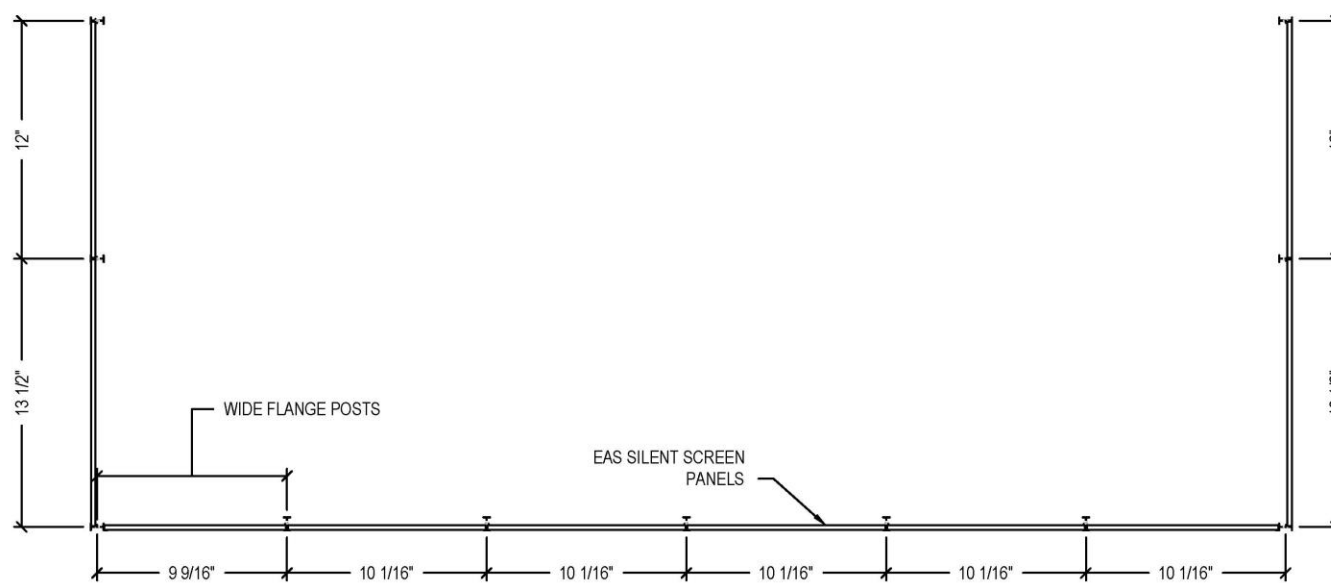


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DRAWN BY: CJB
DATE: 2011-03-04

SCALE:
NO SCALE

SHEET:
1 OF 1



DETAIL:

SILENT SCREEN WIDE FLANGE MOUNTING



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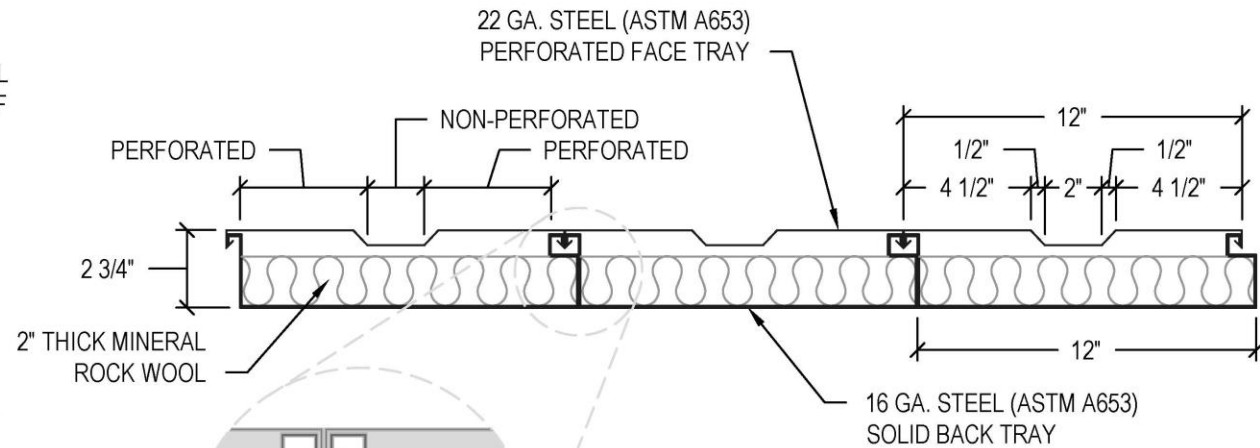
DRAWN BY: CJB
DATE: 2013-03-27

SCALE:
NO SCALE

SHEET:
1 OF 1

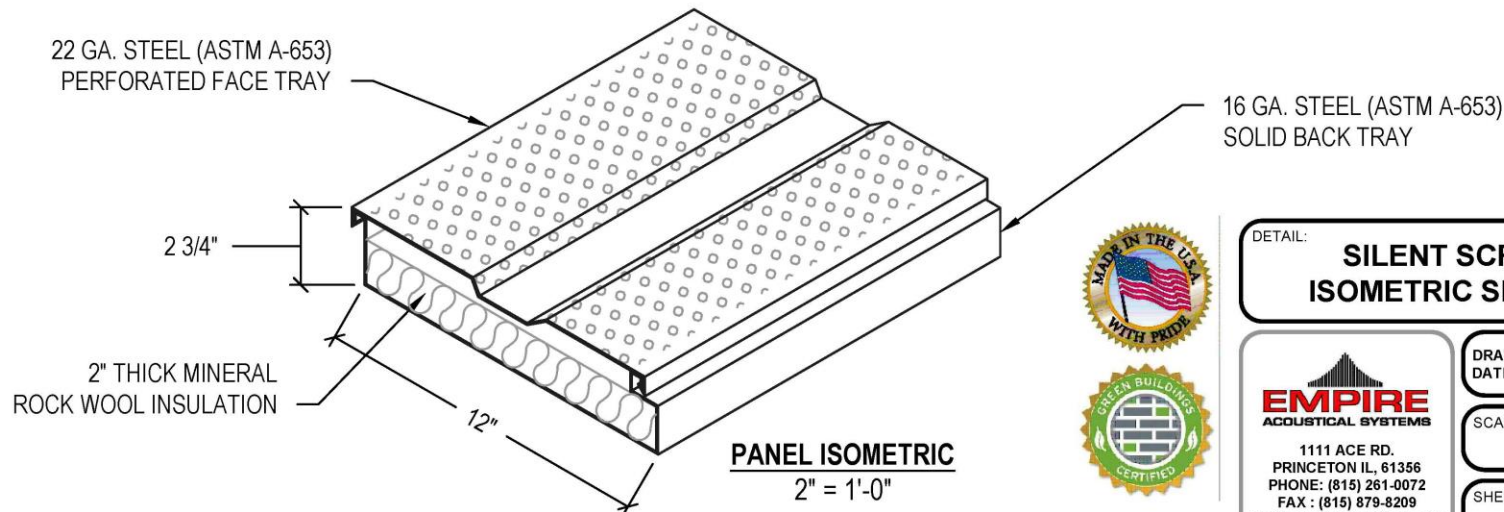
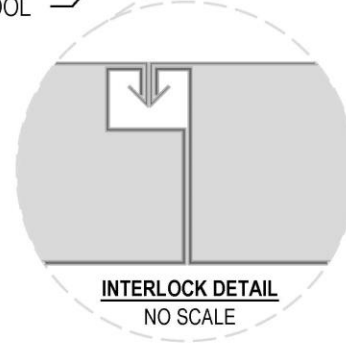
NOTES:

1. MATERIAL USED: 16 AND 22 GAUGE GALVANIZED (G-90) STEEL MEETING THE REQUIREMENTS OF ASTM A-653 STEEL.
2. FINISH: THE PRODUCTS WILL HAVE A GALVANIZED FINISH AND MAY BE PAINTED WITH AN EXTERIOR GRADE BAKED ON POWDER COAT PAINT SYSTEM PER THE OWNERS REQUIREMENT. COLOR SELECTION SHALL BE FROM THE EMPIRE ACOUSTICAL SYSTEMS IFS COATINGS COLOR GUIDE. IN CASE OF SPECIAL COLOR AND COATING REQUIREMENTS, ADDITIONAL CHARGES WILL APPLY.



SILENT SCREEN PANEL SECTION

2" = 1'-0"



PANEL ISOMETRIC

2" = 1'-0"

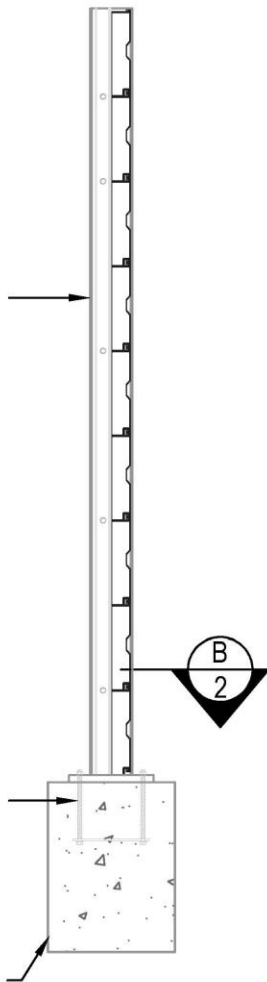


DETAIL: SILENT SCREEN ISOMETRIC SECTION	
 EMPIRE ACOUSTICAL SYSTEMS 1111 ACE RD. PRINCETON IL, 61356 PHONE: (815) 261-0072 FAX: (815) 879-8209 www.empireacoustical.com	DRAWN BY: CJB DATE: 2013-03-27
	SCALE: NO SCALE
	SHEET: 1 OF 1

WIDE FLANGE POST, REFER TO
ARCH'L / CIVIL / STRUCTURAL
PLANS FOR EXACT SPECIFICATIONS
AND DIMENSIONS.

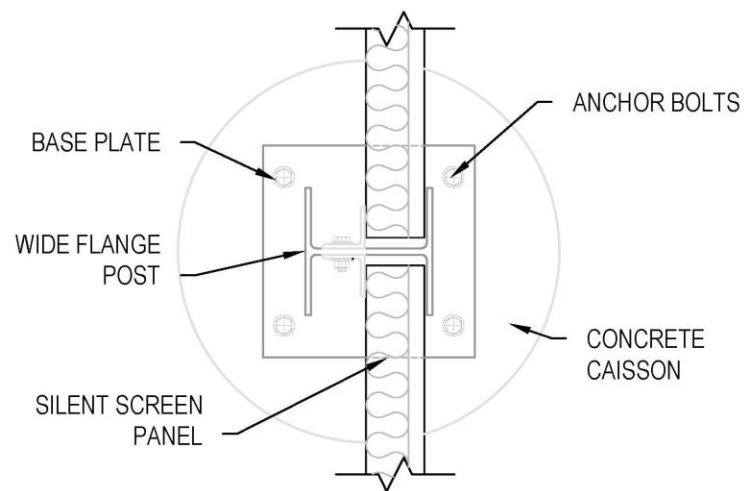
BASE PLATE W/ ANCHOR BOLTS,
REFER TO ARCH'L / CIVIL / STRUCTURAL
PLANS FOR EXACT SPECIFICATIONS
AND DIMENSIONS.

CONCRETE CAISSON SHOWN FOR
EXAMPLE ONLY, REFER TO
ARCH'L / CIVIL / STRUCTURAL FOR ACTUAL
MOUNTING SURFACE / MEMBER.



SECTION A - PLATE MOUNTED

NOT TO SCALE



SECTION B-2

NOT TO SCALE



DETAIL:

SILENT SCREEN WIDE FLANGE POST MOUNTING DETAILS



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DRAWN BY: CJB
DATE: 2011-05-25

SCALE:
AS NOTED

SHEET:
1 OF 1

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WALLACE CLEMENT SABINE

REPORT

Empire Acoustical Systems

RAL™-TL92-204

4 June 1992

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TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data are within the limits set by the ASTM Standard E90-90.

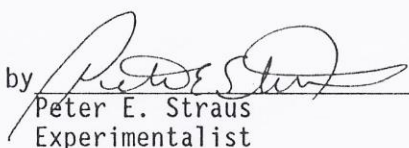
<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	20	0.31	0	800	33	0.31	4
125	21	0.43	0	1000	35	0.31	3
160	21	0.37	1	1250	38	0.24	1
200	21	0.37	4	1600	44	0.23	0
250	25	0.38	3	2000	45	0.21	0
315	28	0.31	3	2500	42	0.20	0
400	31	0.46	3	3150	41	0.14	0
500	33	0.32	2	4000	41	0.11	0
630	34	0.28	2	5000	43	0.10	0

STC = 35

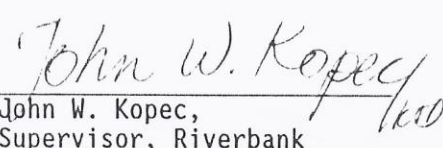
ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB<STC CONTOUR
STC = SOUND TRANSMISSION CLASS

Submitted by


Peter E. Straus
Experimentalist

Reviewed by


John W. Kopec,
Supervisor, Riverbank
Acoustical Laboratories

Revised 7 September 1994

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



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REPORT

Empire Acoustical Systems

RAL™-A95-63

16 March 1995

Page 2 of 4

TEST RESULTS

1/3 Octave Center Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins	% Of Uncertainty With 95% Confidence Limit With Specimen
100	0.25	13.51	3.99
** 125	0.33	17.65	2.70
160	0.41	22.25	2.22
200	0.61	33.02	2.08
** 250	0.79	42.67	1.64
315	1.03	55.55	1.27
400	1.14	61.35	1.57
** 500	1.20	64.66	1.14
630	1.12	60.47	0.96
800	1.12	60.74	0.78
** 1000	1.09	58.70	0.71
1250	1.09	58.99	0.73
1600	1.07	57.91	0.64
** 2000	1.02	55.24	0.52
2500	0.97	52.44	0.52
3150	0.89	48.03	0.48
** 4000	0.82	44.51	0.36
5000	0.76	40.78	0.39

NRC = 1.05

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White



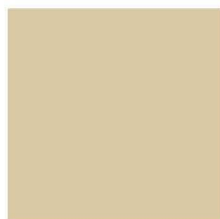
Sky White



Yoke White



Almond



Designer Beige



Camel



Derby



Dark Brown



Architectural Silver



ANSI 60 Gray



ANSI 49 Gray



Medium Gray

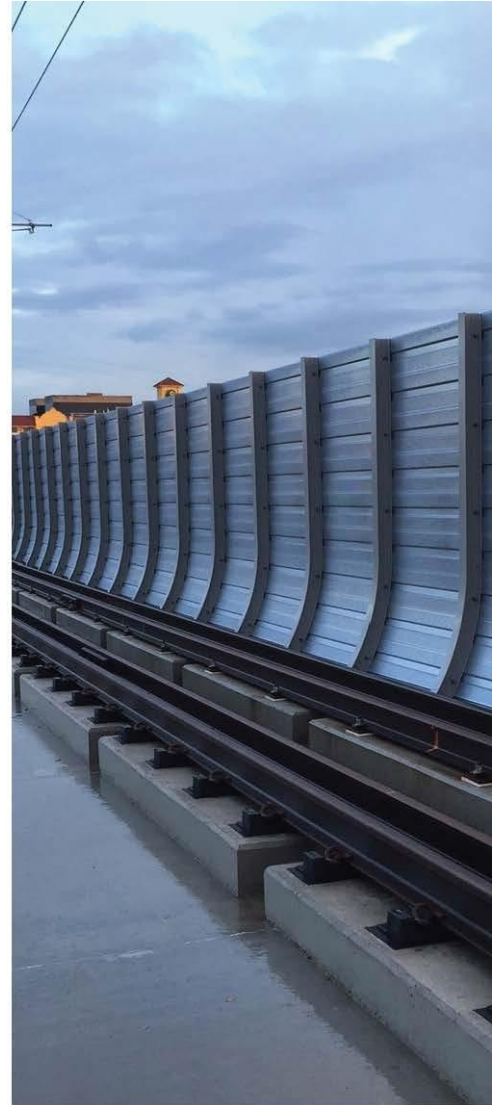
*Additional colors and color matching available upon request



Color Selector

Empire Acoustical Systems is committed to providing our customers with the best possible noise mitigation solution. We offer a variety of cost-effective, light weight, galvanized metal panels that are both reflective and absorptive in order to meet your specific noise control issue. Maintaining the highest acoustical properties available, our systems are engineered for ease of installation, to withstand the harshest environments, and are virtually maintenance free. With more than 30 years in the business, here at EAS we are pleased to supply you with a custom product designed to fit your particular noise mitigation project.

Empire Acoustical Systems partners with PPG to supply our customers with a variety of color options that are aesthetically pleasing and durable. Each panel can be coated with a powder from PPG that has undergone extensive research, development, and testing. Each powder has been field-proven to ensure the color will present an attractive appearance for years to come while providing additional protection from various environmental conditions.



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We protect and beautify the world™



PPG Powder Coatings

ENVIROCRON® Ultradurable Powder Coatings

ENVIROCRON ULTRADURABLE SPECIFICATIONS	
Colors Available²	White, black, and a full range of solid and pearlescent colors
Dry Film Thickness ASTM D1400	2.5 mils ± 0.5 - Apply 2 mils minimum ³
Gloss ASTM D523 @ 60°	High, medium, & low gloss
Pencil Hardness ASTM D3363	H – 2H
Cross Hatch Adhesion 1/16" grid	No removal
Direct Impact 1/10" distortion	No removal
Acid Resistance ASTM D1308 10% muriatic acid spot test	15 minutes – No attack
Alkali Resistance Mortar pat test 100% relative humidity @ 100° F	24 hours – No attack
Detergent Resistance 3% immersion @ 100° F	72 hours – No attack
Salt Spray Resistance ASTM B117, 3000 hours 5% NaCl @ 100° F	Meets or exceeds 1/16" maximum undercutting
Humidity Resistance ASTM D714 ASTM D2247, 3000 hours 100% relative humidity @ 100° F	Meets or exceeds specification of few # 8 blisters maximum
Exterior Exposure⁴ 5 year @ 45°, South Florida ASTM D3344 ASTM D4214 Film Integrity Gloss Retention	Maximum 5 fade Maximum 8 chalk Very Good Greater than 30%

¹ American Architectural Manufacturers Association, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels. Publication No. AAMA 2604-02

² The range of color availability will vary depending upon exposure requirements and architects' specifications.

³ For more critical applications, a primer/topcoat system and greater film thicknesses may be recommended. Consult a PPG Powder Coating Specialist for recommendations when developing specifications.

⁴ While this coating has been formulated with the intent to meet the specifications in AAMA 2603-02, completed testing regarding South Florida Weathering requirements does not exist for all colors.

ENVIROCRON ULTRADURABLE WARRANTY INFORMATION

PPG offers a comprehensive warranty on ENVIROCRON ULTRA DURABLE extrusion powder coatings. For complete warranty information and a copy of the ENVIROCRON ULTRADURABLE extrusion powder coatings warranty, please call PPG at 1-866-PPG-TRUE.



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