

Abffusor®



*The First Absorption Phase
Grating From The Acoustical
Industry's Leading Innovator*

The Abffusor® is the industry's first absorption phase grating. It is an extension of RPG®'s research on the reflection phase grating (RPG) which provides sound diffusion from a series of divided reflective wells of equal width and different depths. The depths of both the reflective wells of the RPG and the absorptive wells of the Abffusor® are based on mathematical number theory sequences. The Abffusor®'s absorption efficiency extends below that of a traditional flat porous absorber because it utilizes two absorption mechanisms. The first is the traditional dissipation of sound energy into heat by frictional losses in the pores of a porous absorber. The second is the viscous losses due to high particle velocity flows across the well dividers induced by the pressure differences in adjacent wells. This pressure gradient mechanism results in additional low frequency absorption. The absorption phase grating topology also offers efficient glancing angle reflection control and near field diffusion to create a natural sounding, attractive room treatment.



The Sound of Innovation

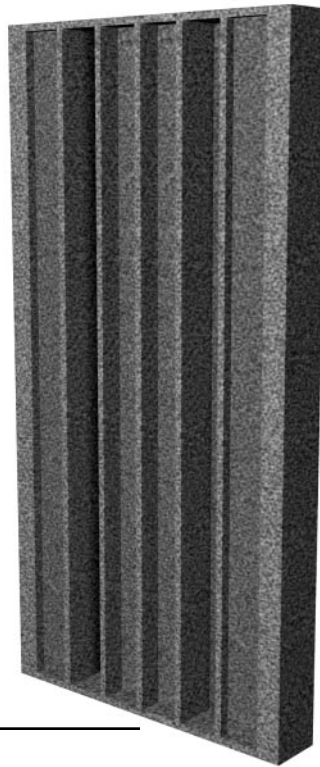
Problem and Solution

Problems

There is a need for a surface treatment that controls strong first order reflections over a wide range of frequencies and angles of incidence which also offers near field scattering to provide a natural ambiance.

Solution

The Abffusor® accomplishes solves these problems by using two absorption mechanisms in addition to diffusion. Absorption extends to lower frequencies than flat porous absorbers due to the QRD® pressure gradient mechanism. Near field QRD® diffusion provides additional sound control.



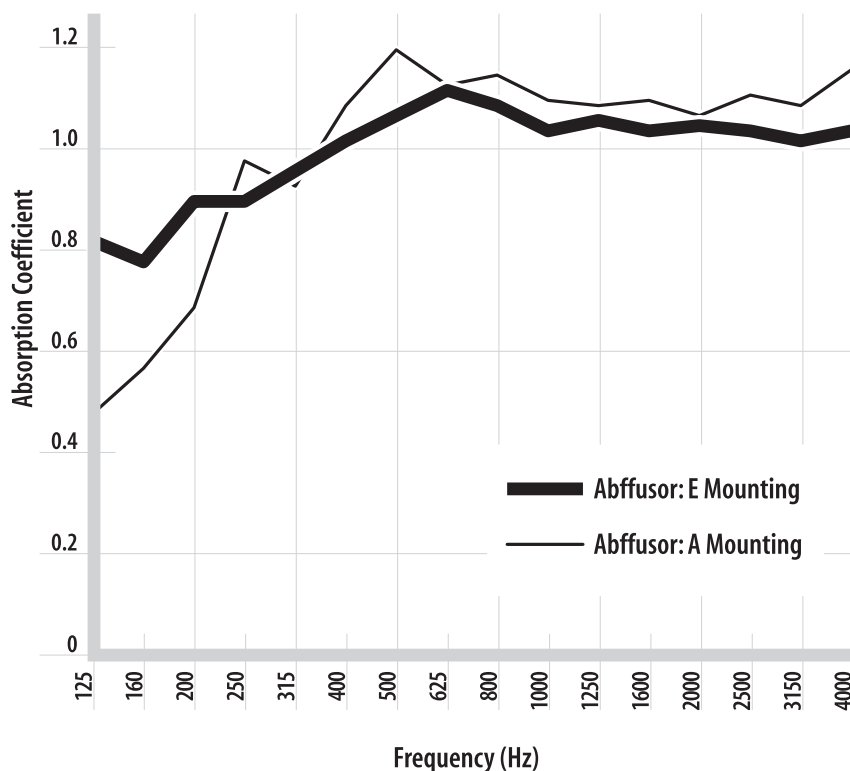
FEATURES

- Similar appearance to a QRD® 734 Diffusor
- Complimentary performance to a QRD® 734
- Frictional dissipation and pressure gradient absorption mechanisms
- Number theory surface topology
- Modular and versatile
- Attractive design element

BENEFITS

- Can be used in conjunction with the QRD® 734 to provide an integrated visual design
- Broad bandwidth abffusive performance compliments the broad bandwidth diffusive performance of the QRD® 734
- Frictional dissipation and pressure gradient absorption mechanisms offer extended broad bandwidth random incidence absorption for uniform attenuation
- Irregular number theory surface topology effectively absorbs and diffuses glancing incidence reflections more effectively than a flat porous absorber providing natural sounding reflection control
- Modular construction makes wall, drop ceiling, or floor mounting simple and attractive
- Wide variety of custom fabric finishes makes the Abffusor® a decorative design element as well as a powerful acoustic tool

Performance Specifications



Absorption

The graph illustrates the absorption efficiency of the Abffusor® for an A mounting directly on a wall and an E mounting with a rear cavity depth of 16 inches. Note the excellent low frequency absorption the Abffusor® offers when attached directly to a wall and the improvement that is possible when a rear air cavity can be employed.

Installation

The Abffusor® can be mounted on a wall, in a T-bar ceiling grid, or left free standing. Type E Flush Mounting provides improved absorption. Hardwood feet are available for free standing installation.

APPLICATIONS

Music education facilities, Band rooms,
Recording studios, Post production studios,
Home theaters, Worship spaces, Auditoriums,
Performing arts centers

SPECIFICATIONS

- Sizes:
 - 47-1/4" (H) x 23-5/8" (W) x 4" (D)
 - 23-5/8" (H) x 23-5/8" (W) x 4" (D)
- Custom sizes available
- Weight:
 - 4' x 2': 18 lbs.
 - 2' x 2': 10 lbs.
- Standard fabric: Guilford of Maine FR701 #298
- Custom fabrics available

Standard Unit Construction

4' height x 2' width nominal (3' 11-1/4" x 1' 11-5/8") x 4" deep
Guilford of Maine FR701 #298 fabric
6lb. Density fiberglass

Product Options*, **

Fabric Selection

Any acoustically transparent fabric approved by RPG® Diffusor Systems, Inc.

Unit Size

Units can be made with any height up to 8'

Option Sheet

Note:

All dimensions are allowed a tolerance of $\pm 1/16"$ due to material shrinkage and variations.

** Most options merit an increase or, in some cases, a decrease in pricing compared to the standard unit.*

*** Due to material availability, RPG® reserves the right to change options at any time. Therefore, any special options—whether listed or not—must be confirmed prior to submittal of P.O. and acceptance verified by RPG® Diffusor Systems, Inc.*



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Fabric Wrapped Absorbing/Diffusing Panel

2' x 2' CSI Specifications

- A** The Fabric Wrapped Absorbing/Diffusing Panel shall be the Abffusor® as manufactured by RPG® Diffusor Systems, Inc., Upper Marlboro, MD 20774. Tel: 301-249-0044, Fax: 301-249-3912.
- B** The Fabric Wrapped Absorbing/Diffusing Panel shall be fabricated from fiberglass cores for the well surfaces and rear of the panel and K-FAC-19 for the dividers and edge frame. Edges shall be square and plum to within a tolerance of 1/16".
- C** The fiberglass cores shall have a varied density of 6lbs/ft³ and 3lbs/ft³.
- D** Provide mechanical clip mounting system as per manufacturer's recommendations. Units may also be flush mounted.
- E** Absorption Coefficients and Noise Reduction Coefficient for the product shall be measured by an independent, accredited NVLAP facility according to the test methods as defined by ASTM C 423 and ASTM E 795. Random incidence Absorption Coefficients for the product in a Type E mounting shall be as follows:

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	NRC
0.82	0.90	1.07	1.04	1.05	1.04	1.00

- F** Absorption Coefficients and Noise Reduction Coefficient for the product shall be measured by an independent, accredited NVLAP facility according to the test methods as defined by ASTM C 423 and ASTM E 795. Random incidence Absorption Coefficients for the product in a Type A mounting shall be as follows:

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	NRC
0.45	0.69	1.20	1.10	1.07	1.16	1.00

- G** Flame Spread and Smoke Developed shall be tested by an independent, accredited NVLAP facility according to the test methods as defined by ASTM E 84 and NFPA 255. The Fabric Wrapped Absorbing/Diffusing Panel shall have a composite Flame Spread Rating of less than 25 and a Smoke Development of less than 450.
- H** The Fabric Wrapped Absorbing/Diffusing Panel shall be supplied in a Guilford of Maine FR701 fabric, color to be as specified.
- I** The overall dimensions shall be 23-5/8"(H) x 23-5/8"(W) x 4"(D) and weigh no more than 22 pounds.



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Fabric Wrapped Absorbing/Diffusing Panel

4' x 2' CSI Specifications

- A** The Fabric Wrapped Absorbing/Diffusing Panel shall be the Abffusor® as manufactured by RPG Diffusor Systems, Inc., Upper Marlboro, MD 20774. Tel: 301-249-0044, Fax: 301-249-3912.
- B** The Fabric Wrapped Absorbing/Diffusing Panel shall be fabricated from fiberglass cores for the well surfaces and rear of the panel and K-FAC-19 for the dividers and edge frame. Edges shall be square and plum to within a tolerance of 1/16".
- C** The fiberglass cores shall have a varied density of 6lbs/ft³ and 3lbs/ft³.
- D** Provide mechanical clip mounting system as per manufacturer's recommendations. Units may also be flush mounted.
- E** Absorption Coefficients and Noise Reduction Coefficient for the product shall be measured by an independent, accredited NVLAP facility according to the test methods as defined by ASTM C 423 and ASTM E 795. Random incidence Absorption Coefficients for the product in a Type A mounting shall be as follows:

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	NRC
0.82	0.90	1.07	1.04	1.05	1.04	1.00

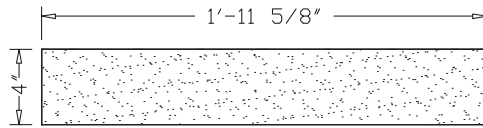
- F** Absorption Coefficients and Noise Reduction Coefficient for the product shall be measured by an independent, accredited NVLAP facility according to the test methods as defined by ASTM C 423 and ASTM E 795. Random incidence Absorption Coefficients for the product in a Type A mounting shall be as follows:

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	NRC
0.45	0.69	1.20	1.10	1.07	1.16	1.00

- G** Flame Spread and Smoke Developed shall be tested by an independent, accredited NVLAP facility according to the test methods as defined by ASTM E 84 and NFPA 255. The Fabric Wrapped Absorbing/Diffusing Panel shall have a composite Flame Spread Rating of less than 25 and a Smoke Development of less than 450.
- H** The Fabric Wrapped Absorbing/Diffusing Panel shall be supplied in a Guilford of Maine FR701 fabric, color to be as specified.
- I** The overall dimensions shall be 47-1/4"(H) x 23-5/8"(W) x 4"(D) and weigh no more than 22 pounds.

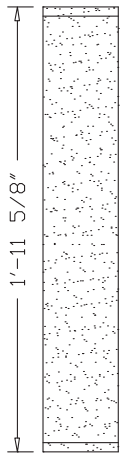
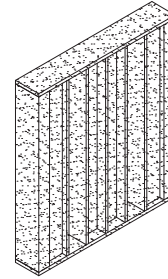


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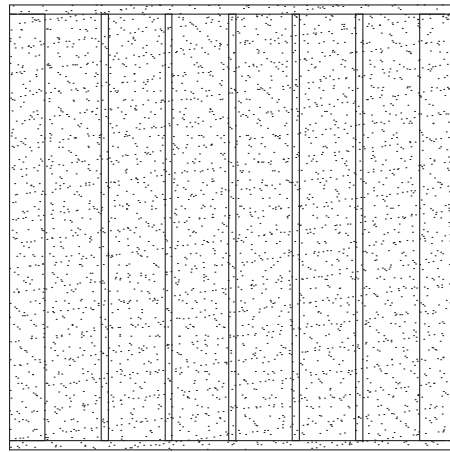


TOP VIEW

2' x 2' Cutsheet



LEFT SIDE



FRONT VIEW

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Specifier:

Drawing Number:

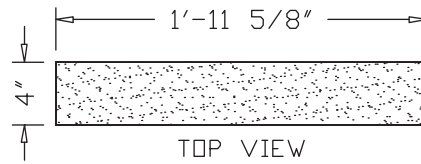
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Tolerance: $\pm 1/16''$

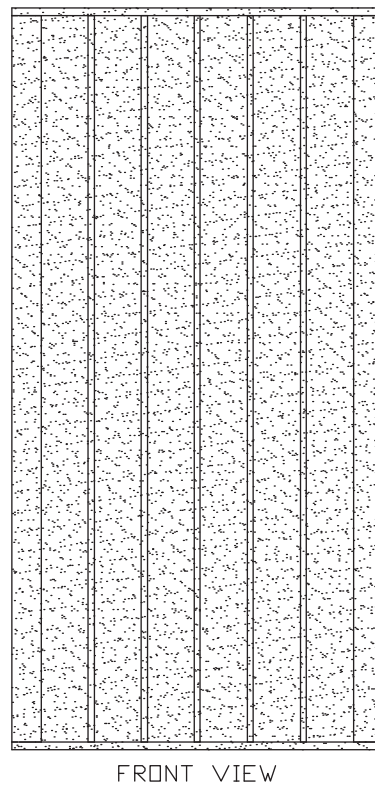
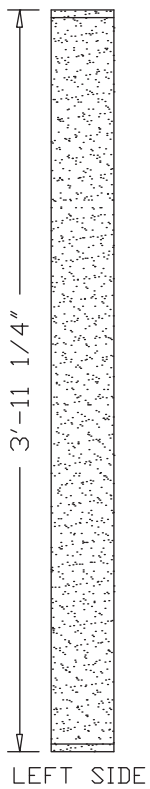
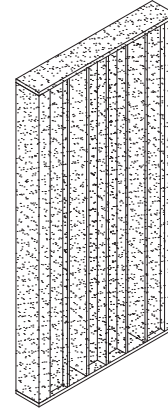


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4' x 2' Cutsheet



Project:

Specifier:

Drawing Number:

Date:

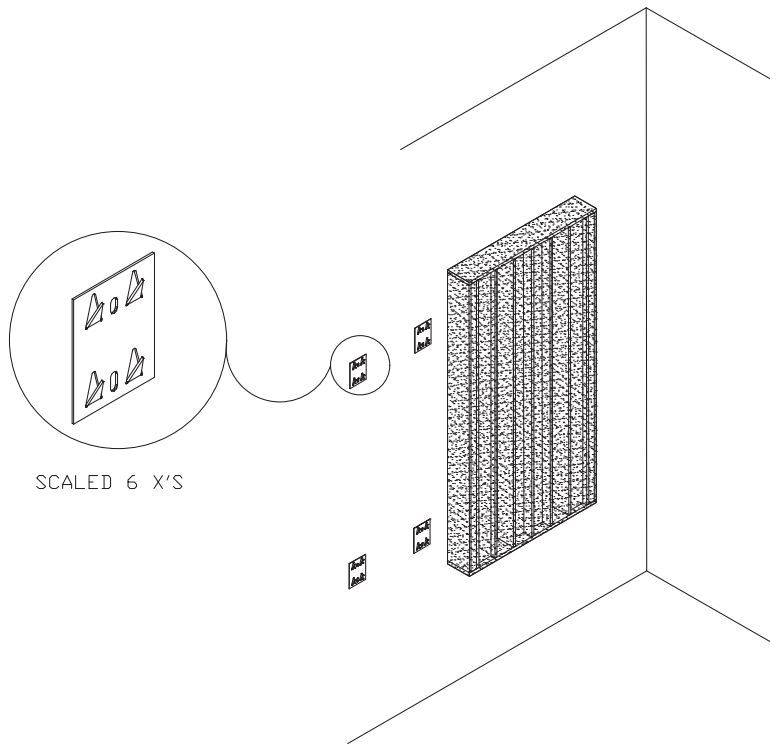
Tolerance: $\pm 1/16"$



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Surface Mount



DRAW A LINE
MARKING 1"
ABOVE DESIRED
HEIGHT.

ALIGN TOP
WITH MARKING

GENTLY REST
PANEL AGAINST
CLIPS MAINTAINING
LEVEL WITH LINE.

FIRMLY PUSHING
IN AND DOWN
ALLOWING CLIPS
TO PIERCE BACK
OF PANEL.

Project:

Specifier:

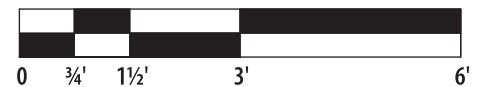
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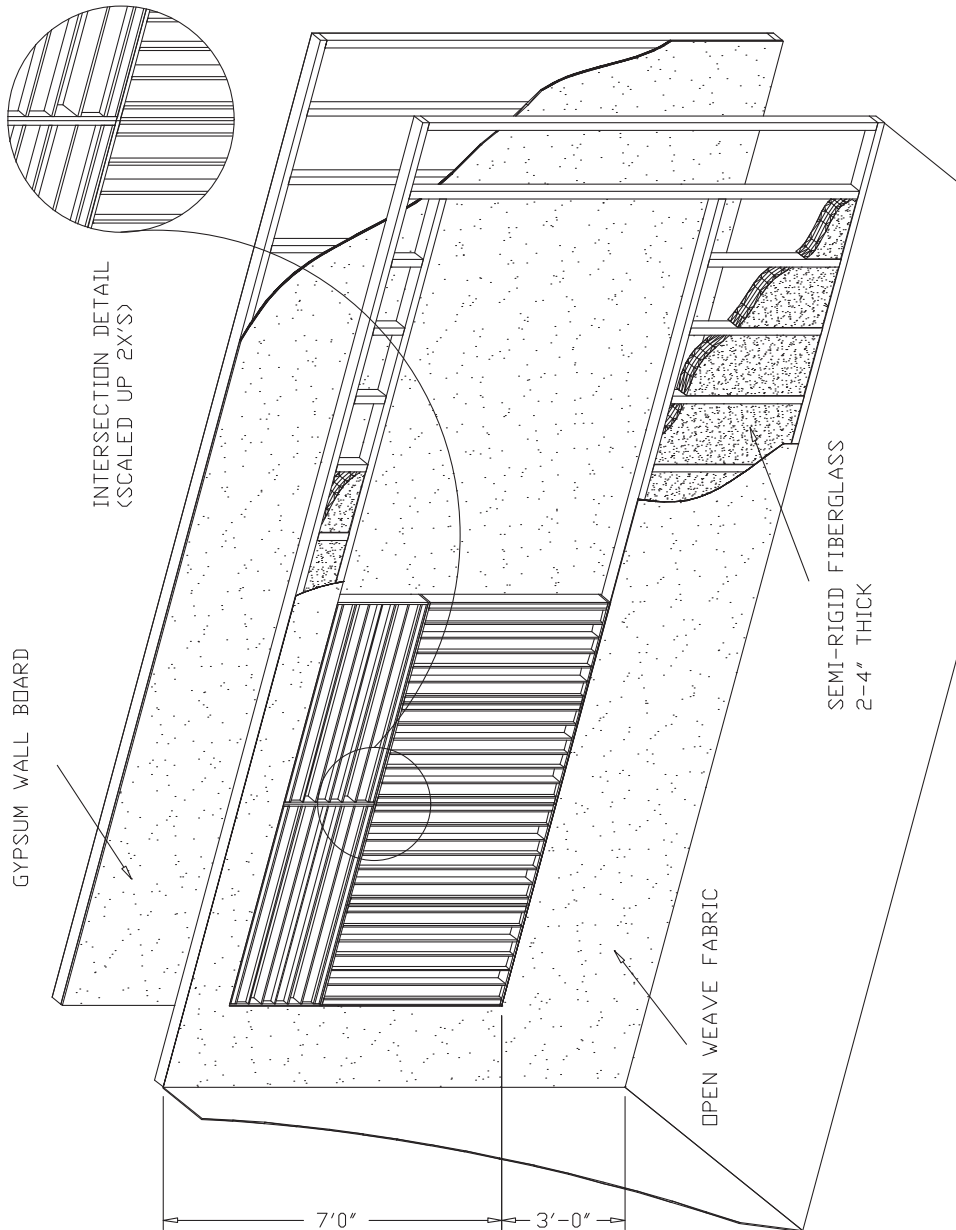
All dimensions should be field verified prior to installation.



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Type E Flush Mount



Project:

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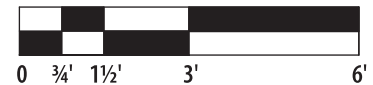
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Date:

All dimensions should be field verified prior to installation.

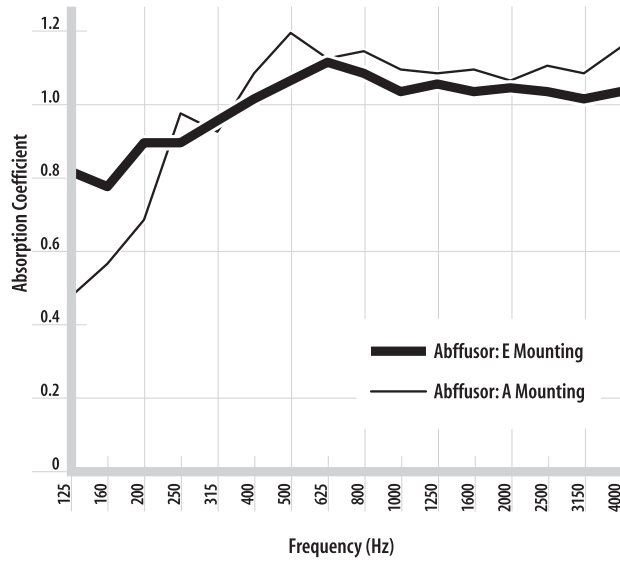


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Absorption Coefficients

Measured According to ASTM C423 at Riverbank
Acoustical Laboratories (RAL-A86-128).



Hz	Abffusor® E Mounting	Abffusor® A Mounting
125	0.82	0.45
160	0.82	0.48
200	0.78	0.57
250	0.90	0.69
315	0.90	0.98
400	0.96	0.93
500	1.07	1.20
625	1.12	1.13
800	1.09	1.15
1000	1.04	1.10
1250	1.06	1.09
1600	1.04	1.10
2000	1.05	1.07
2500	1.04	1.11
3150	1.02	1.09
4000	1.04	1.16



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