Skyline®

The First Two Dimensional Primitive Root Diffusor From The Acoustical Industry's Leading Innovator

Interfering reflections can be controlled by absorption or diffusion. In small rooms, it is often desirable to control interfering reflections and provide an ambient sound field using diffusion instead of absorption. When the room's surfaces are relatively close to the listener, a very efficient diffusing surface is needed. To solve this problem, RPG® patented the Skyline®. It is the industry's first — and most efficient — omnidirectional primitive root number theory two dimensional diffusor. The Skyline® scatters incident sound uniformly so that the acoustic glare in all directions is minimized.

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651-C Commerce Drive, Upper Marlboro, MD, 20774, Phone: 301.249.0044, Fax: 301.249.3912, Email: info@rpginc.com, Internet: www.rpginc.com

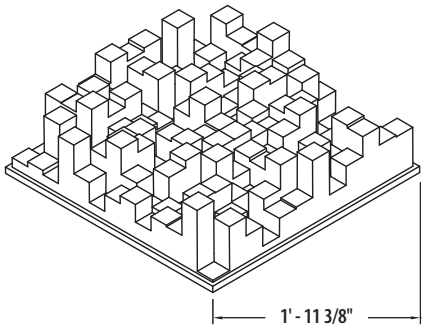
Problem and Solution

Problem

Small rooms like Project Studios need a very efficient surface to diffuse interfering rear wall reflections and provide a diffuse sound field.

Solution

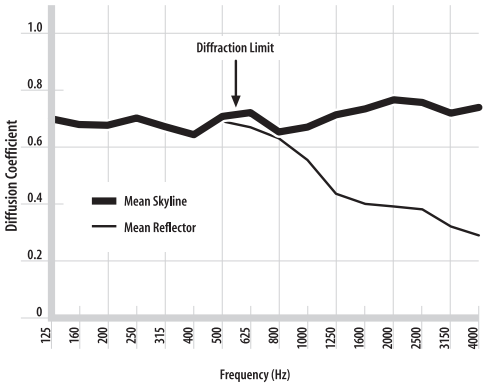
To solve this problem, RPG® utilized advanced primitive root number theory to design the most powerful two dimensional omnidirectional diffusing surface in the acoustical industry.

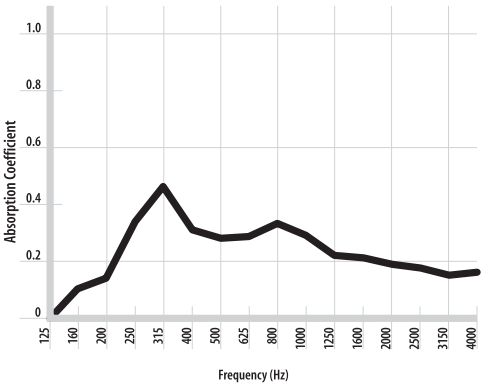


Performance Specifications

Diffusion

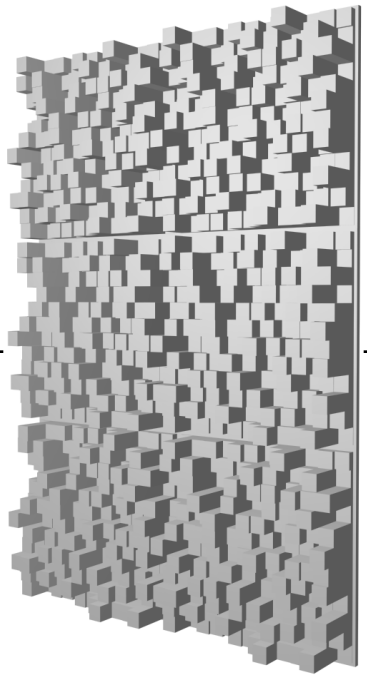
The uniformity of diffusion is characterized by the standard deviation of the 1/3 octave polar response for a given angle of incidence. For each of the 37 angles of incidence, 37 backscattering impulse response measurements are made at 5° increments between 0° and 180°. The Diffusion Coefficient is the mean standard deviation for all angles of incidence, normalized to the standard deviation of a delta function (1 equals ideal diffusion). The data illustrate the exceptional uniformity of diffusion above the diffraction limit (565 Hz = 1130 ft/sec/2'), which is related to the 2' dimension of the panel. The Diffusion Coefficient of a flat reflective panel is shown for comparison.





Absorption

The solid expanded polystyrene core of the Skyline® provides useful low frequency absorption.



Installation

The Skyline® is very easy to install on walls or ceilings using either construction adhesive or the supplied hook and loop fasteners. Apply both sides of the hook and loop fastener to the rear of the Skyline® in each corner on a flat area. Remove the protective paper from the exposed side and apply to the wall. For permanent mounting you may wish to also apply construction adhesive along with the hook and loop. Skylines® can also be inserted into a T-bar ceiling grid. Be sure to apply all Skylines® in the same orientation.

FEATURES

- *Patented optimized primitive root reflection phase grating*
- *156 distinct phase blocks*
- *Suppressed specular scattering*
- *Universal mounting design*
- *Portable, lightweight construction*
- *Unique acoustic sculpture*

BENEFITS

- *The large prime number design offers the acoustical industry's highest reflection density. This design provides a natural sounding ambiance and the most effective diffusive control of interfering reflections*
- *The specular suppression afforded by the primitive root number theory design means the "mirror" reflection component of the scattering is reduced creating a more diffuse sound field*
- *The lightweight and universal Skyline® design with perimeter flange permits mounting on a wall, ceiling, or free standing portable gobo partition with hook and loop fasteners or in a T-bar suspended ceiling grid*
- *The complex number theory topology allows one to work closer to a wall surface than would normally be the case. Thus, small edit and recording control rooms can be optimized*
- *The Skyline®'s unique sculptured topology makes it a welcome aesthetic addition to the decor of the room*

APPLICATIONS

All critical listening rooms, including recording studios, broadcast studios, vocal booths, home theaters, quality control rooms, CD mastering, film mix and dubbing stages, and music practice rooms

SPECIFICATIONS

- *Size: 23-3/8" (H) x 23-3/8" (W) x 7" (D)*
- *Standard finish: Painted white*
- *Custom colors available*
- *Unit weight: 4 lbs.*
- *Shipped 2 per box*
- *Shipping dimensional weight: 30 lbs.*

Skyline®

Standard Unit Construction

Extruded polystyrene
Painted white
2' height x 2' width nominal (1' 11-3/8" x 1' 11-3/8") x 7" deep
Tegular dimensions (1' 11" x 1' 11") x 6" deep

Product Options*, **

Finish Selection
White
Custom selection

Option Sheet

Note:

All dimensions are allowed a tolerance of ± 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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Skyline®

Expanded Polystyrene Optimized Two Dimensional Primitive Root Diffusor *CSI Specifications*

A The Expanded Polystyrene Optimized Two Dimensional Primitive Root Diffusor shall be the model Skyline® as manufactured by RPG® Diffusor Systems, Inc., Upper Marlboro, MD 20774. Tel: 301-249-0044, Fax: 301-249-3912.

B The Expanded Polystyrene Optimized Two Dimensional Primitive Root Diffusor shall be molded from high density Caril-F flame-retardant grade expanded polystyrene.

C The Expanded Polystyrene Optimized Two Dimensional Primitive Root Diffusor shall work on the two dimensional optimized primitive-root reflection phase grating principle, using an array of rectangular phase blocks. The heights of the phase blocks shall be based on the optimized primitive-root number theory sequence based on prime 157. The diffusing panels shall all be installed in the same orientation to preserve the two dimensional orientation of the surface.

D 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 an E-400 mounting shall be as follows:

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	NRC
0.00	0.34	0.28	0.29	0.19	0.16	0.30

E Diffusion Coefficients for the product shall be measured in accordance with the recommendations of the Audio Engineering Society Working Group SC-04-02 boundary measurement technique. The directional diffusion coefficient is given by the standard deviation of the 1/3-octave polar response, for a given angle of incidence, and normalized by the response of a flat panel of similar size. The average incidence diffusion coefficients determined at 5° intervals between ± 85° are listed below at octave-band centers. The mean and standard deviation (SD) of the 1/3 octave-band coefficients are also tabulated.

125Hz	250Hz	500Hz	1000Hz	2000Hz	4000Hz	Mean	SD
0.71	0.70	0.71	0.67	0.76	0.74	0.70	0.04

F Caril flame retardant grades meet the requirements of FMVSS-302 standards.

G The Expanded Polystyrene Optimized Two Dimensional Primitive Root Diffusor shall be supplied in a flat white painted finish.

H The overall dimensions shall be 23-3/8"(H) x 23-3/8"(W) x 7"(D) and weigh no more than 4 pounds.

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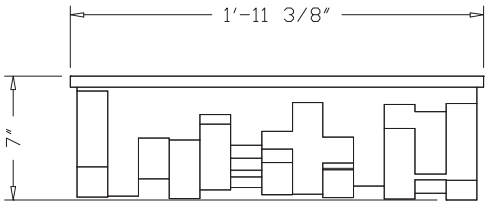
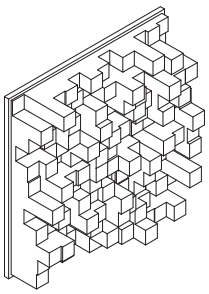
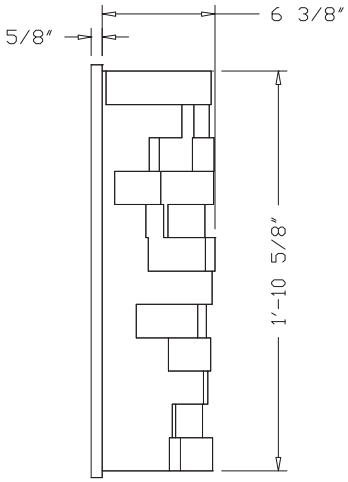


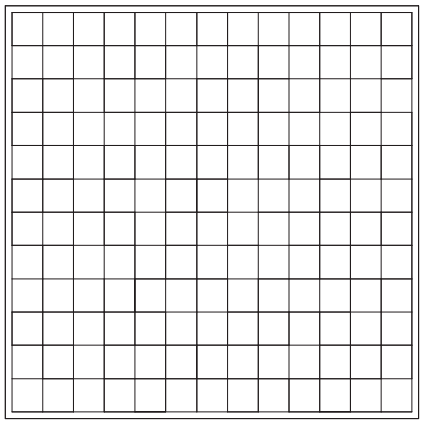
TOP VIEW

2' x 2' Cutsheet





LEFT VIEW



FRONT VIEW

Project:

Specifier:

Drawing Number:

Date:

Tolerance: ± 1/16"

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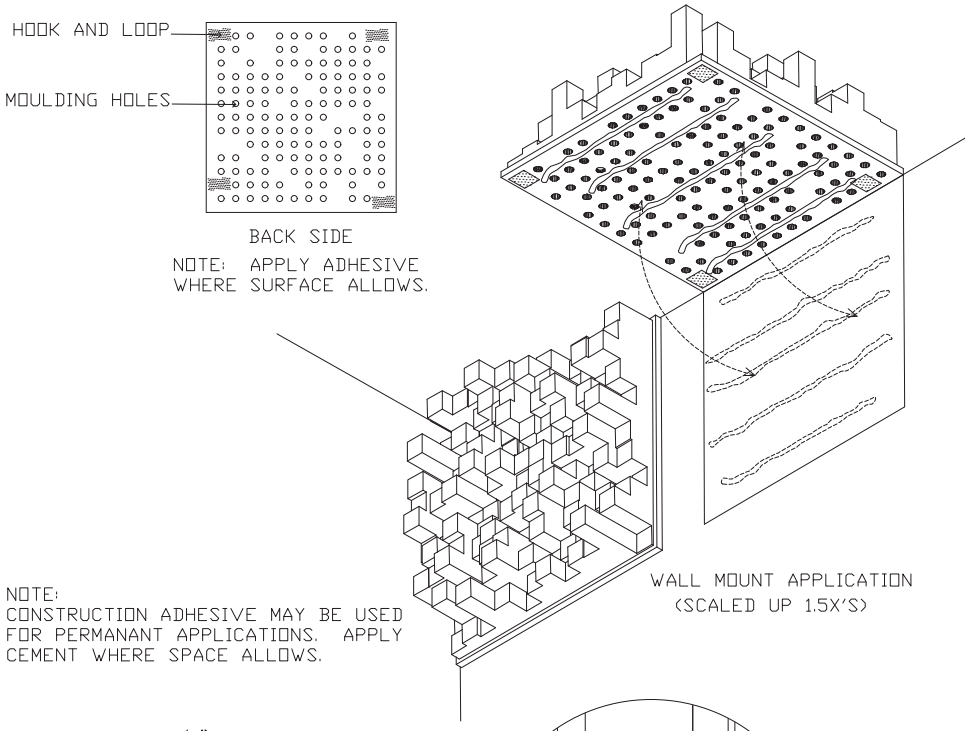
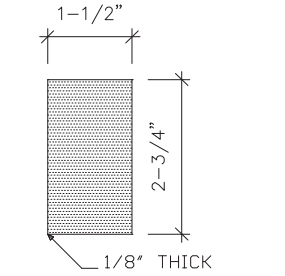
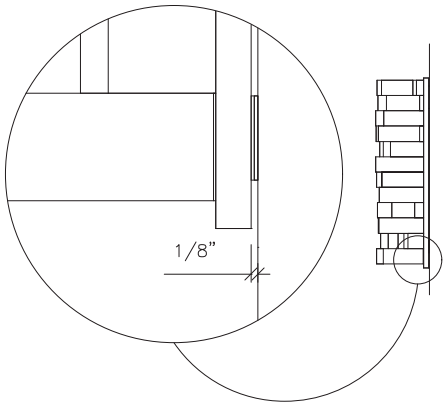
Surface Mount



NOTE:
CONSTRUCTION ADHESIVE MAY BE USED FOR PERMANANT APPLICATIONS. APPLY CEMENT WHERE SPACE ALLOWS.



HOOK AND LOOP(ENLARGED)



SCALED UP 7X'S

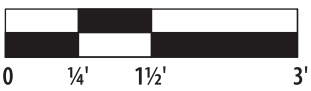
Project:

Specifier:

Drawing Number:

Date:

All dimensions should be field verified prior to installation.



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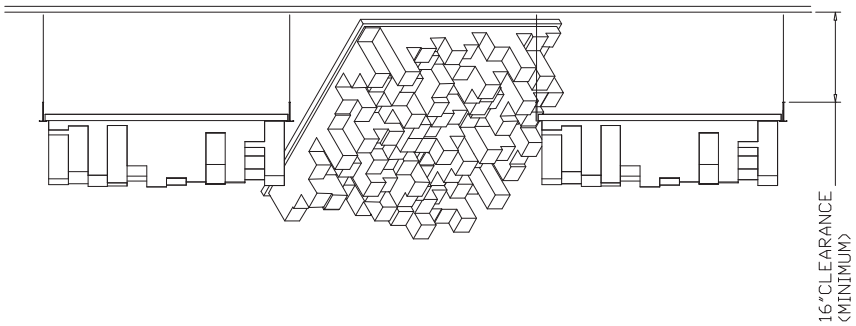

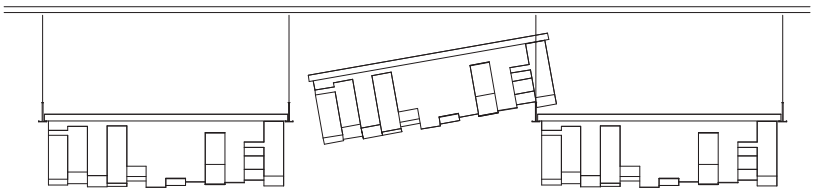

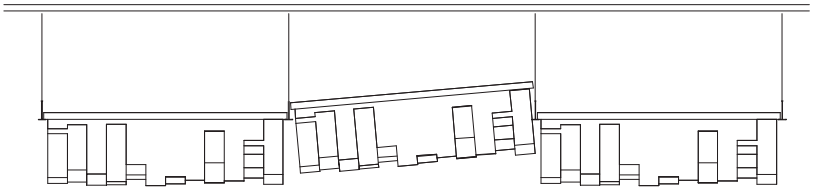

T-Bar Tilt and Drop

Project:

Specifier:

Drawing Number:

Date:

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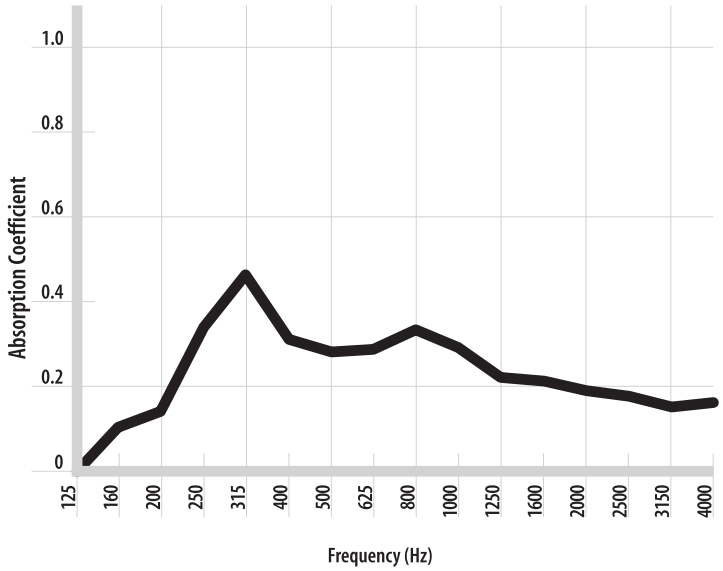
Skyline®

Absorption Coefficients



Hz	Absorption Coefficient
125	0.00
160	0.10
200	0.14
250	0.34
315	0.46
400	0.31
500	0.28
630	0.28
800	0.33
1000	0.29
1250	0.22
1600	0.21
2000	0.19
2500	0.18
3150	0.15
4000	0.16

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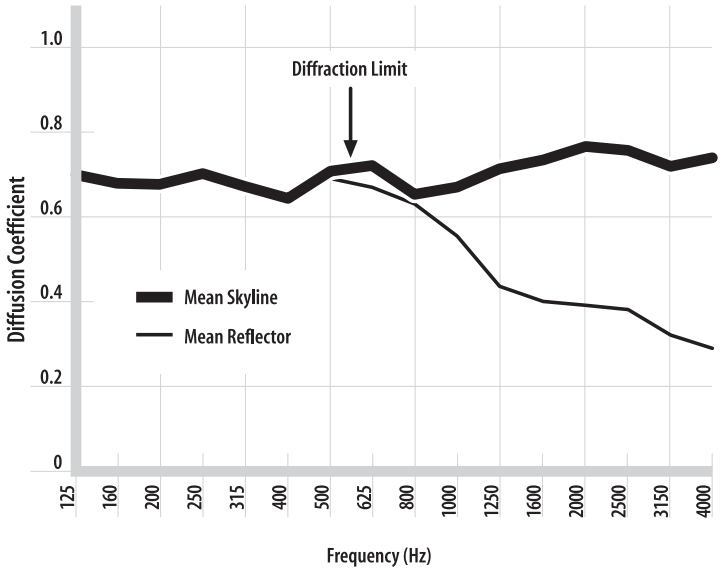
Diffusion Coefficients



Hz	Skyline®	Reflector
125	0.71	0.68
160	0.68	0.67
200	0.68	0.68
250	0.70	0.68
315	0.67	0.67
400	0.64	0.66
500	0.71	0.69
630	0.72	0.67
800	0.65	0.63
1000	0.67	0.55
1250	0.72	0.44
1600	0.73	0.40
2000	0.76	0.39
2500	0.76	0.38
3150	0.72	0.32
4000	0.74	0.29

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