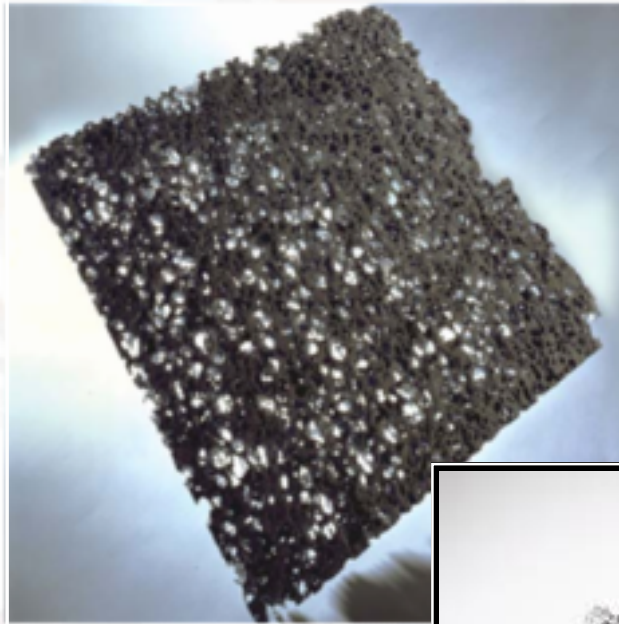


ALUSION

TM



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Product Information

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PRODUCT DESCRIPTION

Alusion Sheet Products

Alusion is a cellular aluminum foam material produced as a continuously cast sheet using patented technology developed by Cymat Technologies Ltd.

Lengths

The standard sheet length is 8' (2.44m). Alusion can be cut to other lengths, as required. The maximum length is 12' (3.0m)

Widths

Standard and maximum width is 4' (1.22m). Alusion can be cut to other widths, as required.

Thickness

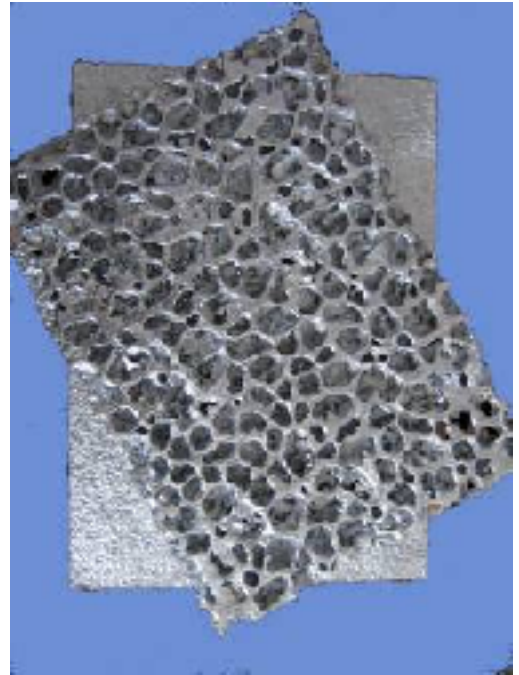
Standard thicknesses are 0.5" (12.7mm), 1" (25.4mm) and 1.7" (43 mm.).

Cellular Structure

Alusion is available in two cellular structures or cell sizes, simply defined as small and large. Small and large cell Alusion foam offer differing visual effects and acoustic properties. Both are available in 0.5" and 1.0" thickness (12.7mm and 25.4mm). while only the large cell structure is available in 1.7" (43 mm.)

Product Versions

Alusion sheets are produced with a continuous skin on both sides of the sheet. This is referred to as Natural. The skin is removed to produce Open Cell versions. The skin can be removed from one or both sides dependent upon the use of the product and desired effect. These versions are known as 1S and 2S respectively. Large cell versions with the skin removed from both sides are also known as Alusion translucent.



Product Designations

	Natural	Open One Side	Open Two Sides
0.5" (12.7mm) Large Cell Small Cell	AL-FG-O.5-LG AL-FG-O.5-SM	AL-FG-O.5-LG-1S AL-FG-O.5-SM-1S	AL-FG-O.5-LG-2S AL-FG-O.5-SM-2S
1.0" (25.4mm) Large Cell Small Cell	AL-FG-1.0-LG AL-FG-1.0-SM	AL-FG-1.0-LG-1S AL-FG-1.0-SM-1S	AL-FG-1.0-LG-2S AL-FG-1.0-SM-2S
1.7" (43 mm) Large Cell	AL-FG-1.7-LG	AL-FG-1.7-LG-1S	AL-FG-1.7-LG-2S

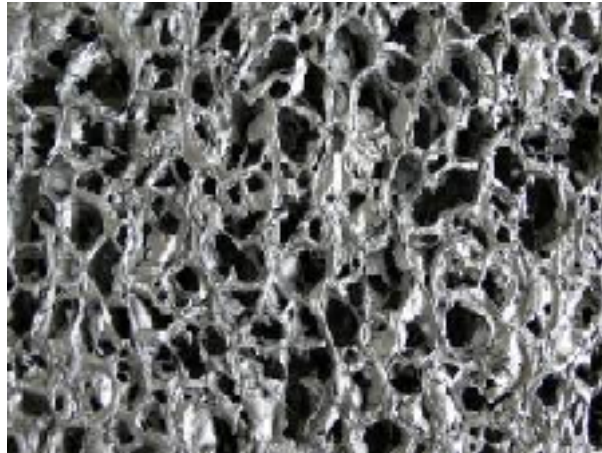
Product Identifier



Alusion Large Cell Natural



Alusion Large Cell Open Two Sides
(Translucent)



Alusion Large Cell Open One Side



Alusion Small Cell Natural



Alusion Small Cell Open One Side

PHYSICAL PROPERTIES

Panel Standard Specifications

The process used to make Alusion panels is a natural one which results in some variations in cell size and panel appearance. This natural variation adds to the attractiveness of the product as a premium surfacing material.

Standard Alusion panels are produced with the following specifications and tolerances. Engineered panels are available on request.

Specifications and Tolerances

	AL-0.5-LG	AL-0.5-SM	AL-1.0-LG	AL-1.0-SM	AL-1.7-LG
Density (+/-0.028 g/cc)	0.27	0.52	0.27	0.41	0.14
Thickness (mm)	12.7 +/-1.2	12.7 +/-1.0	25.4 +/-1.5	25.4 +/-1.0	43.2 +/-1.5
Length/Width(mm)	+/-3.0	+/-1.5	+/-3.0	+/-1.5	+/-3.0

Panel Squareness: 0.1 degrees

Panel Flatness

Alusion panels have a slight natural curvature however they are flexible. Panels vary in flexibility depending on product type and thickness. In most cases appropriate attachment methods remove any panel curvature.

For further information contact Alusion directly.

PERFORMANCE TESTS

Alusion has been extensively tested both in-house and in third party facilities for a number of performance criteria for both interior and exterior applications. Full details of these test results are available from Cymat Technologies Ltd.*

Fire Rating

Alusion is non-combustible, as set out in ASTM E136-92. As it is composed of aluminum foam, Alusion is suitable for use at extremely high, sustained temperatures.

Alusion was tested as per ASTM E 84 to determine the Flame Spread and Smoke-developed indices. The method, designated as per ASTM E 84-01, “Standard Method of Test for Surface Burning Characteristics of Building Materials”, is designed to determine the relative surface burning characteristics of materials under specific test conditions. Results are expressed in terms of flame spread (FSI) and smoke developed (SD).

Alusion did not ignite and propagate flame at any time during the 10-minute test period. Only a very slight increase in smoke developed was recorded. See Appendix.

The material has been rated Class A with Flame Spread = 0 and Smoke Developed = 5 as per ASTM E84. For more details on the testing methodology, please refer to testing methods ASTM E 84.

These ratings apply to all thicknesses and densities of Alusion Natural, Alusion Open Cell and Alusion Translucent.

Strength

Alusion is lightweight, and used primarily as a decorative surfacing material. It should not be used in structural applications without consultation with Alusion.

Recycle

Alusion is 100% recyclable and is produced using post-industrial aluminum, which is composed of 20% post-consumer aluminum.

Acoustic Properties

Alusion Small Cell Open 1 Side (0.5” (12.7mm) and 1” (25.4mm) thickness), Alusion Large Cell Open 1 Side (0.5” (12.7mm) and 1” (25.4mm) thickness) have been tested for acoustic properties per ASTM C423 and have shown interesting results, which can be seen at the results included in the Appendices.

INSULATION PROPERTIES		
	R-Values	RSI-Values
0.5” (12.7mm)		
Large Cell	2.2	0.39
Small Cell	1.3	0.23
1.0” (25.4 mm)		
Large Cell	4.3	0.76
Small Cell	2.5	0.44

These values are representative only.

Exterior Applications Environmental Testing

Alusion 0.5 in. small cell, open one side was tested by a third party laboratory in the following series of tests for exterior application performance.

a) Impact Testing

“The material submitted by Cymat Technologies Ltd., labeled as Alusion Rain Screen has met the “Ultra-High Impact Resistance” classification according to ASTM E2486.”

b) Transverse Load

A full panel supported only at the perimeter with no intermediate support was tested under transverse load conditions as per ASTM E72-05. The panel failed under a uniform load across the surface of 513 kPa. This load is approximately equal to a wind load of 100 kph.

c) Freeze Thaw

The material was tested through 50 freeze thaw cycles as per ASTM C67 and ASTM D3043. The material showed no reduction in flexural strength.

d) Salt Spray

The material was subjected to 1000 hours of salt spray as per ASTM B117 and ASTM D3043. The material showed a decrease of flexural strength of 11%

* These results are typical only and are not to be interpreted as an indication of performance or as an indication of suitability for use in any specific application. Please contact Cymat Technologies Ltd. for technical assistance.



DELIVERY & INSTALLATION

Packing

Unless otherwise specified by purchaser Alusion panels are shipped in phytosanitary containers designed for the specific panel sizes and numbers in the order. All standard containers are Nefab containers constructed as per Nefab's specifications which can be found here:

http://www.nefab.us/Plywood_Boxes.aspx

Custom packaging is available on request

Handling and Storage

Alusion panels should be stored in a dry area and in the original packaging, until installed.

Flat storage is recommended. Do not store other materials on top of Alusion containers

Safety

Eye protection should be worn when cutting or drilling sheets. Use of a facemask is recommended in high volume cutting or drilling operations.

Cutting Sheets

For on-site cutting, a large-tooth, carbide-tipped circular saw is recommended. Diamond-tipped blades will provide longer life if a very large amount of cutting is planned. A band saw can be used for trim work and short cuts. Water or other liquid cooling and lubricating must be avoided as the product may become discolored.

Use of a ventilation system is recommended while working with Alusion panels. Eye protection must be worn at all times when cutting, drilling or working with the material in general.

Alusion can be water-jet cut. Care should be taken to dry the cut pieces to avoid any discoloration.

Drilling Panels

A drill press is recommended, however, a hand-held drill will work. Diamond or Carbide tip tools are recommended.

The product should be secured during drilling and a minimum clearance of 1" from the edge of the sheet is recommended.

For through bolted or screwed attachments the use of a washer is recommended.

Alusion recommends that test holes be drilled to confirm that holes can be produced as desired.

For bolted or screwed attachments through the panel, use of a washer is recommended.

Do not over-tighten when screwing or bolting through panels.

Curving Panels

Alusion panels can be curved using the same process as curving glass.

Closed Cell Surface Maintenance

Alusion closed cell material can be cleaned as required using a vacuum with a soft brush and commercially available cleaners which would be use for an aluminum surface.

Open Cell Surface Maintenance

Alusion open cell material is less robust and should be vacuum cleaned as required using a soft brush.

INSTALLATION SYSTEMS†

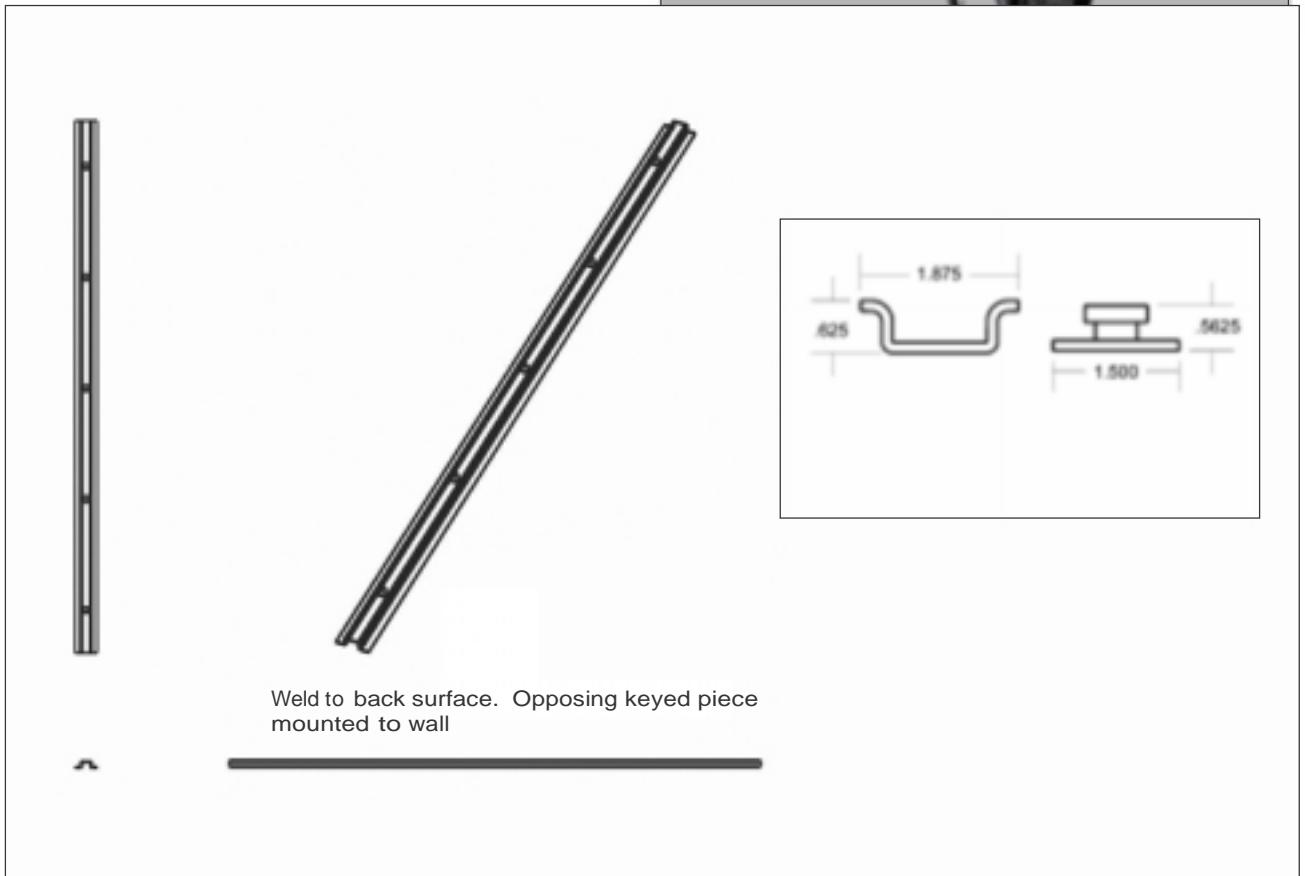
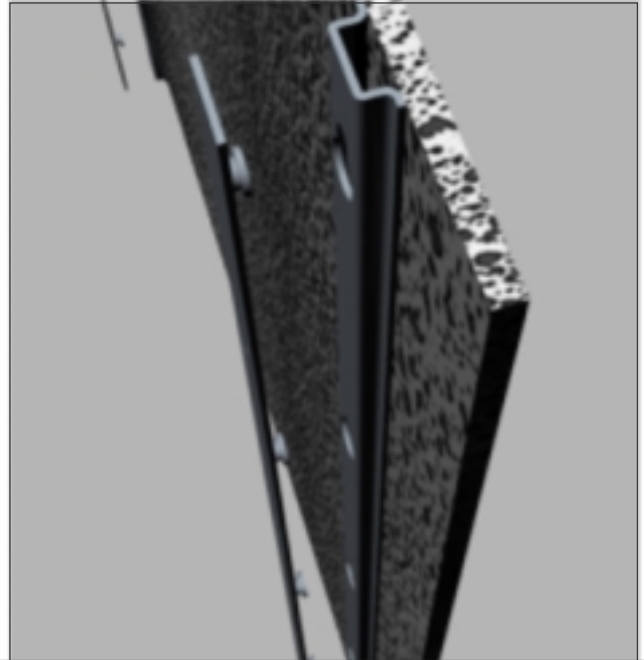
Each Alusion application must be treated individually. The following are generally suggested systems only.

Wall Cladding Application System

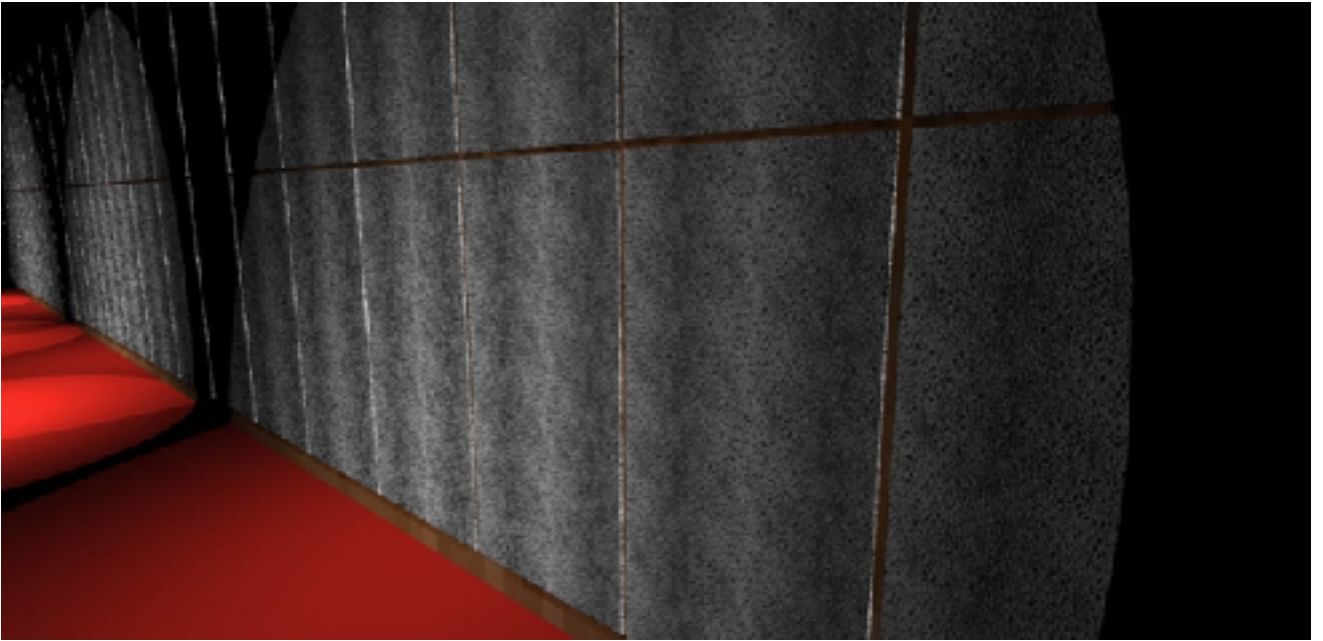
Smooth - Option A

This system consists of a formed and keyed lock channel welded to the back of Alusion panels. The opposing keyed piece is attached to the wall and the Alusion panels slide into place.

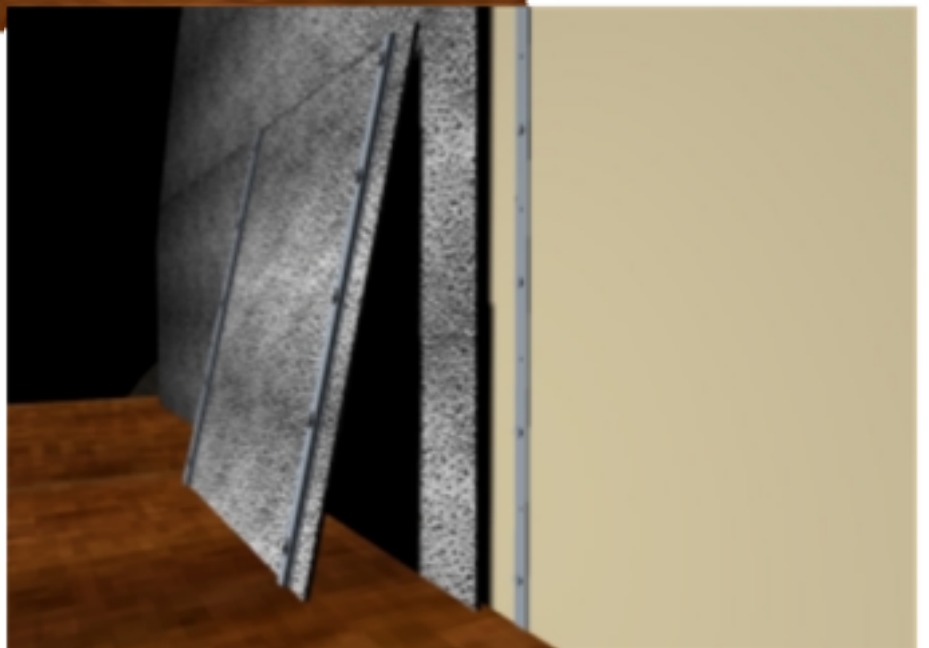
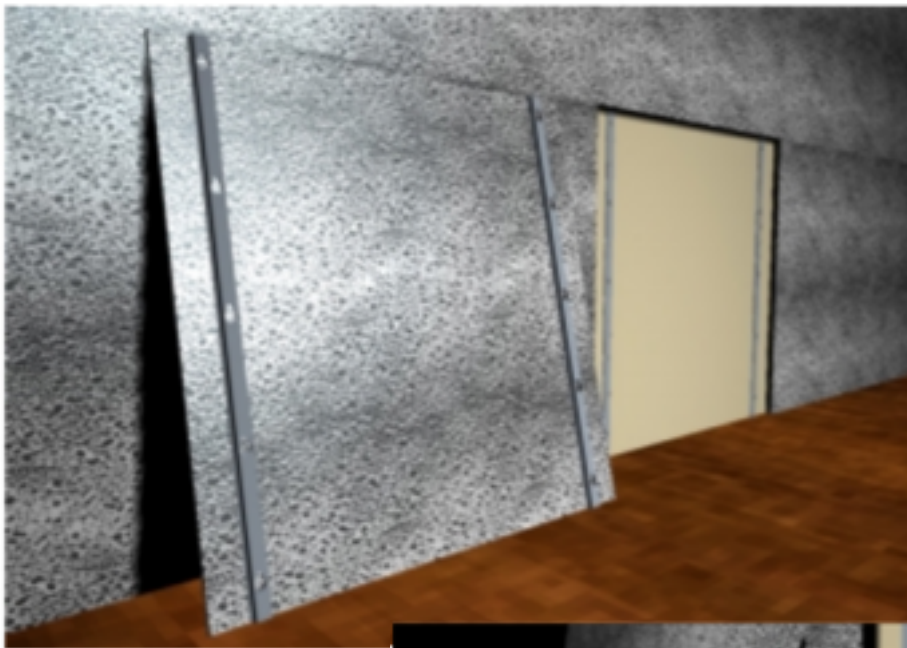
Formed & keyed lock welded to back of Alusion panel. Opposing key is attached to wall. Alusion panel slides into place



†Cymat Technologies Ltd., does not recommend a specific installation system for any individual application nor does Cymat assume any liability for the installation of Alusion panels. Please contact Cymat technologies Ltd. for assistance

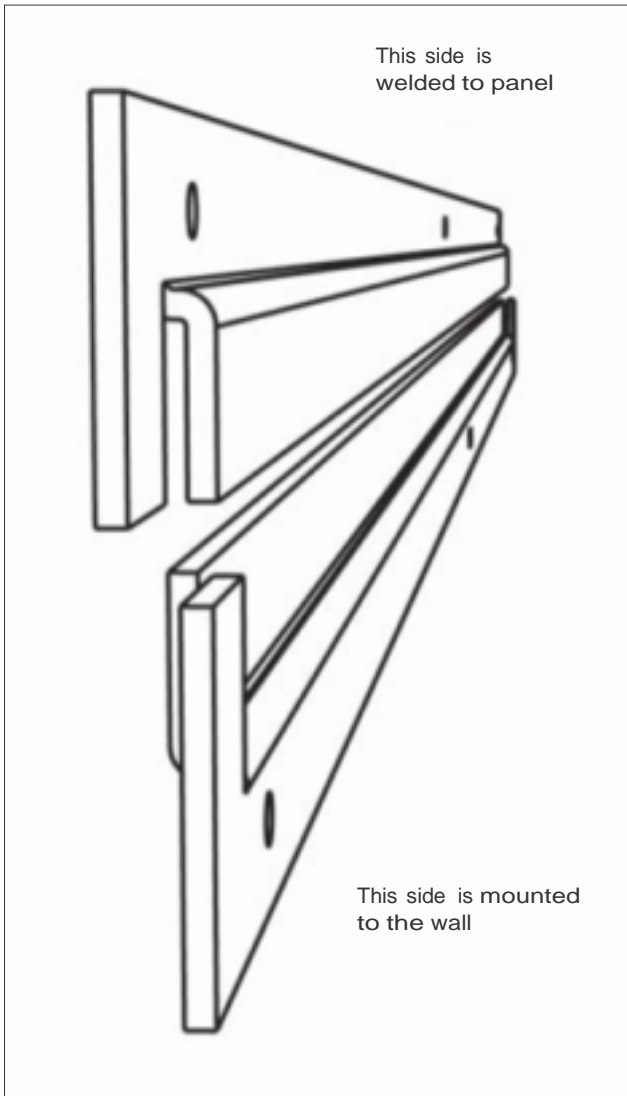


Wall Cladding –Smooth
Option A



Option B - Wall Cladding smooth- Z clip

This application system is also for the smooth look but uses Horizontal Z clips instead of vertical keys that are used in Option A.

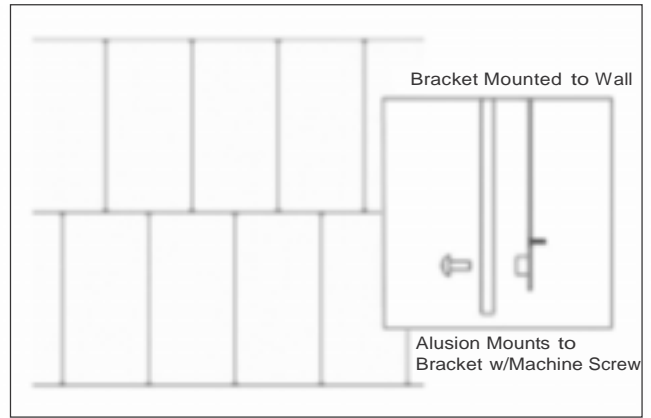


Wall Cladding System — Industrial Look

Unlike the Smooth look, which has no visible hardware, this wall cladding system clearly shows the hardware, to give an industrial look.

With this system, the bracket is mounted to the wall and Alusion panels are then mounted to the bracket with machine screws.

The system is recommended for use with Alusion Natural, Alusion Open Cell and Alusion Color.

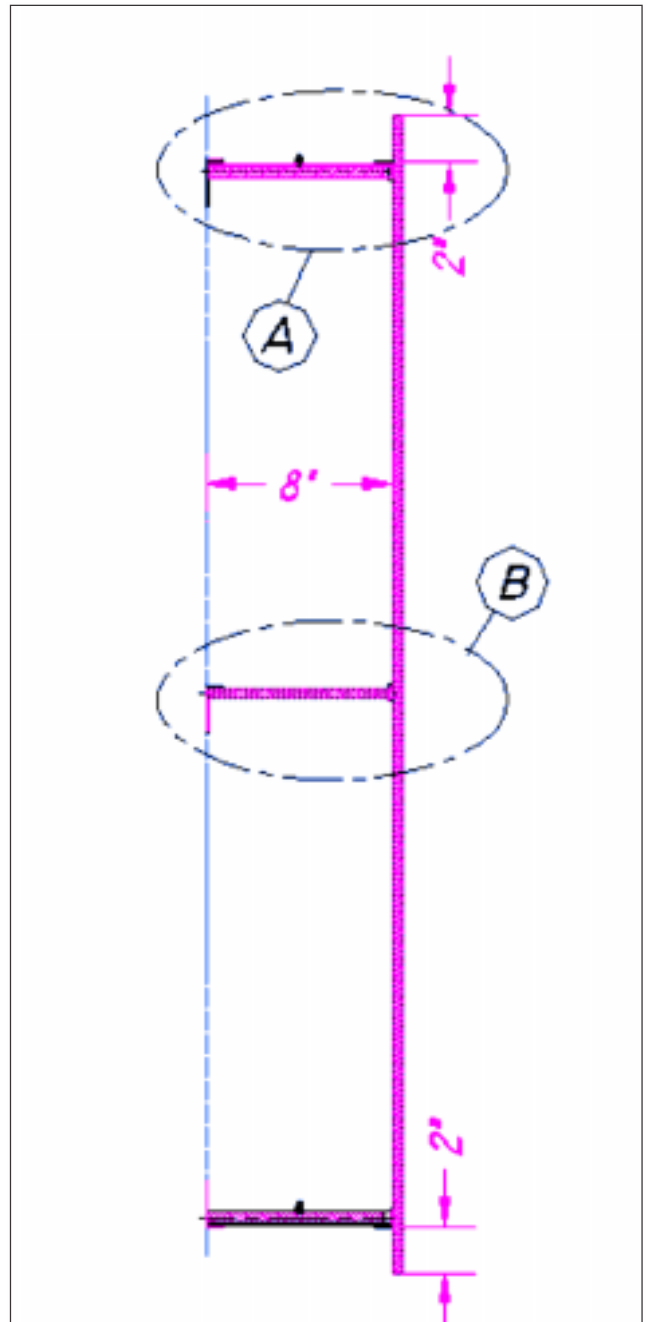


Wall Cladding – Industrial

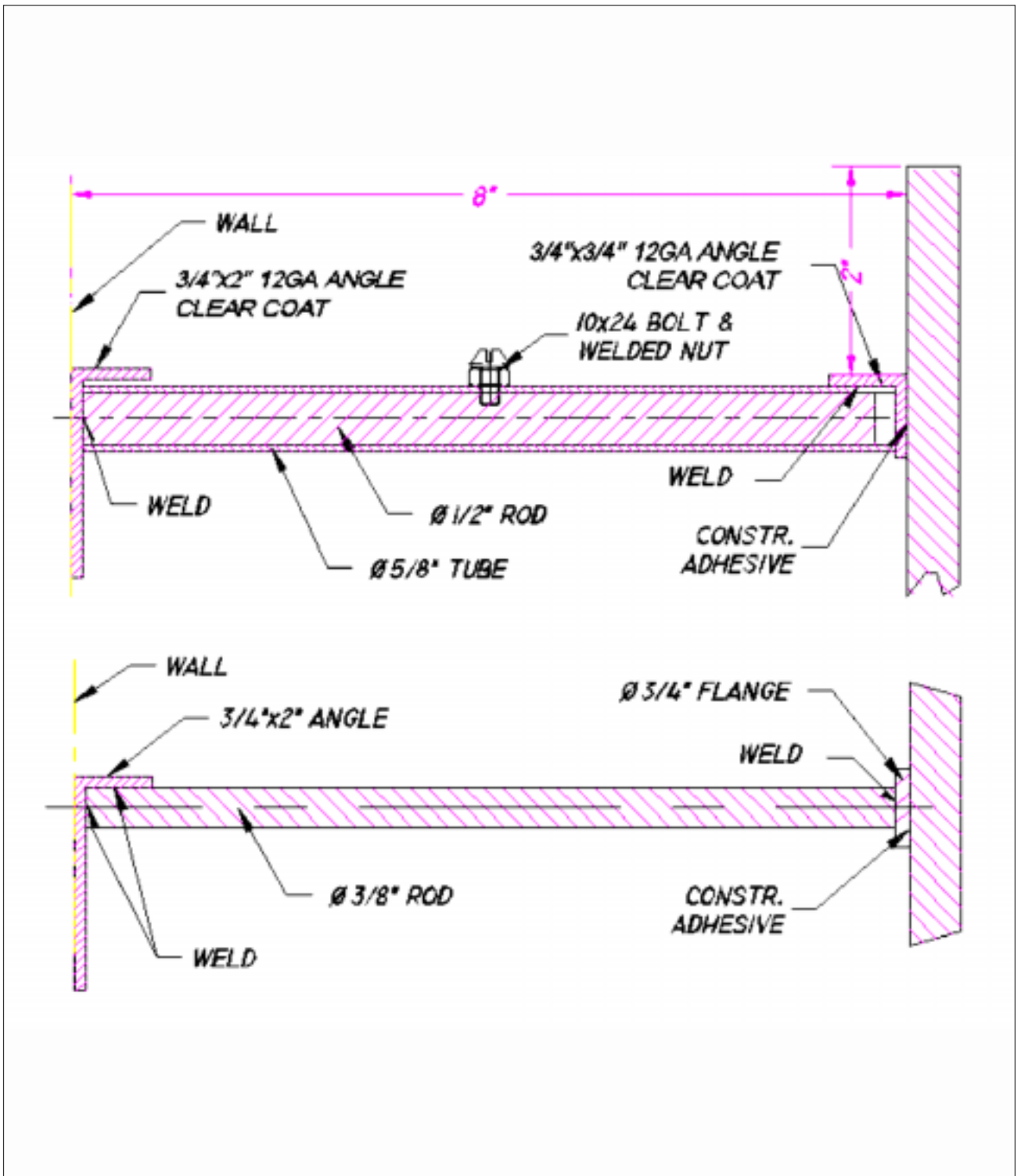
Backlit Translucent

The system is designed to create an 8” space between the panels and the wall, thus allowing light to be transmitted from behind the panels. Brackets are attached to the wall with screws. Sliding brackets are glued to the back of the panels. These brackets slide on to the brackets attached to the walls and are joined together in the middle with screws.

There are several other possible application areas. For any application, we provide the expertise for developing application systems.



Backlit Translucent



Backlit Translucent



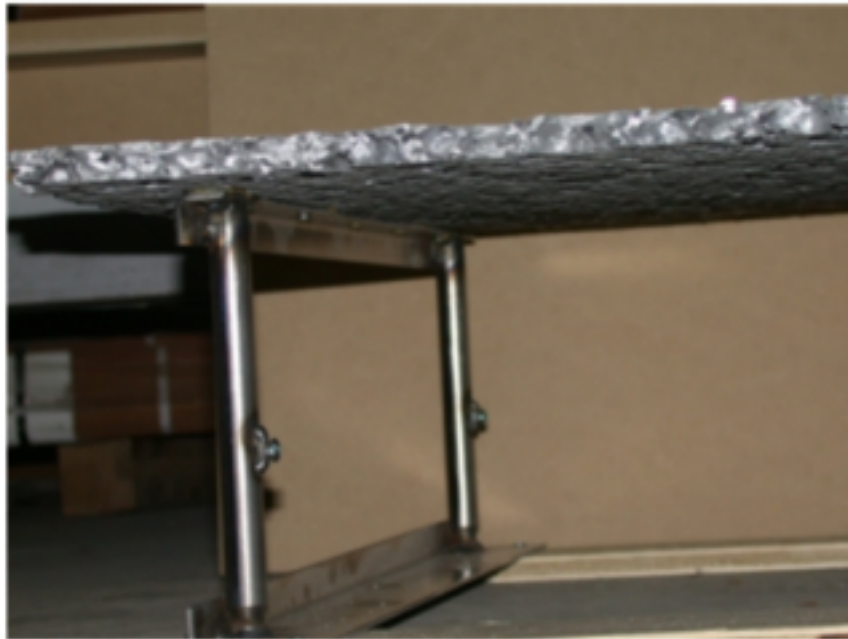
Backlit Translucent Frame — Side



Backlit Translucent Frame — Middle



Backlit Translucent Frame — Side



Alusion Translucent is glued to the frame, creating an 8" space between the walls and allowing the panels to be backlit

APPLICATION EXAMPLES



Alusion large Cell
Open Two Sides (Translucent)
with back lighting



**Alusion Small Cell
Open One Side**

was used in this memorial erected for 24 Service Employees of the International Union members of local 32BJ who were lost in the events of September 11, 2001. Alusion is particularly proud to be part of this memorial, at 101 Avenue of the Americas in New York City.

**Alusion Small Cell
Open One Side**

is being used by Audi as a showroom platform for their R8 and other featured vehicles





Alusion Large Cell Open Two Sides Vancouver Convention Centre



Alusion Large Cell Open Two Sides Maydenbauer Centre



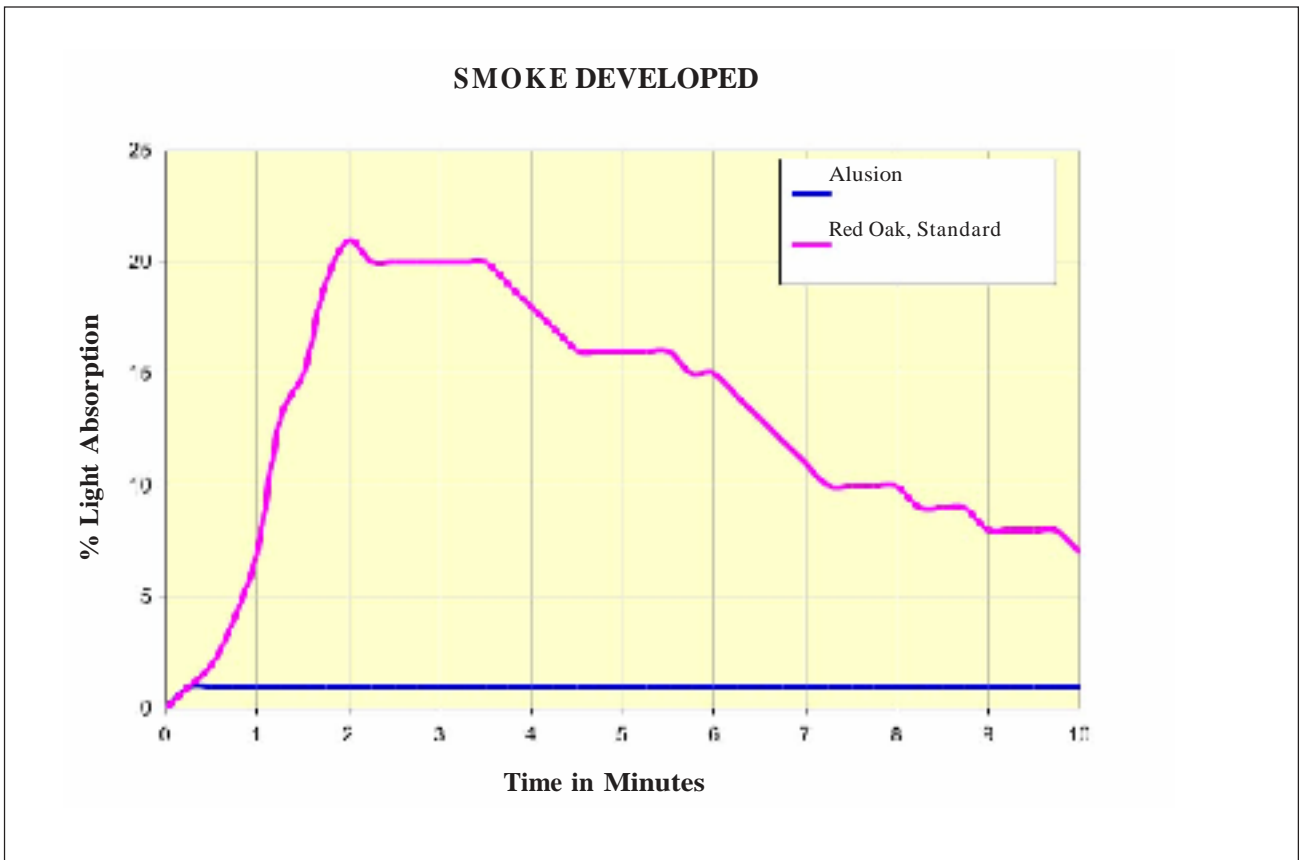
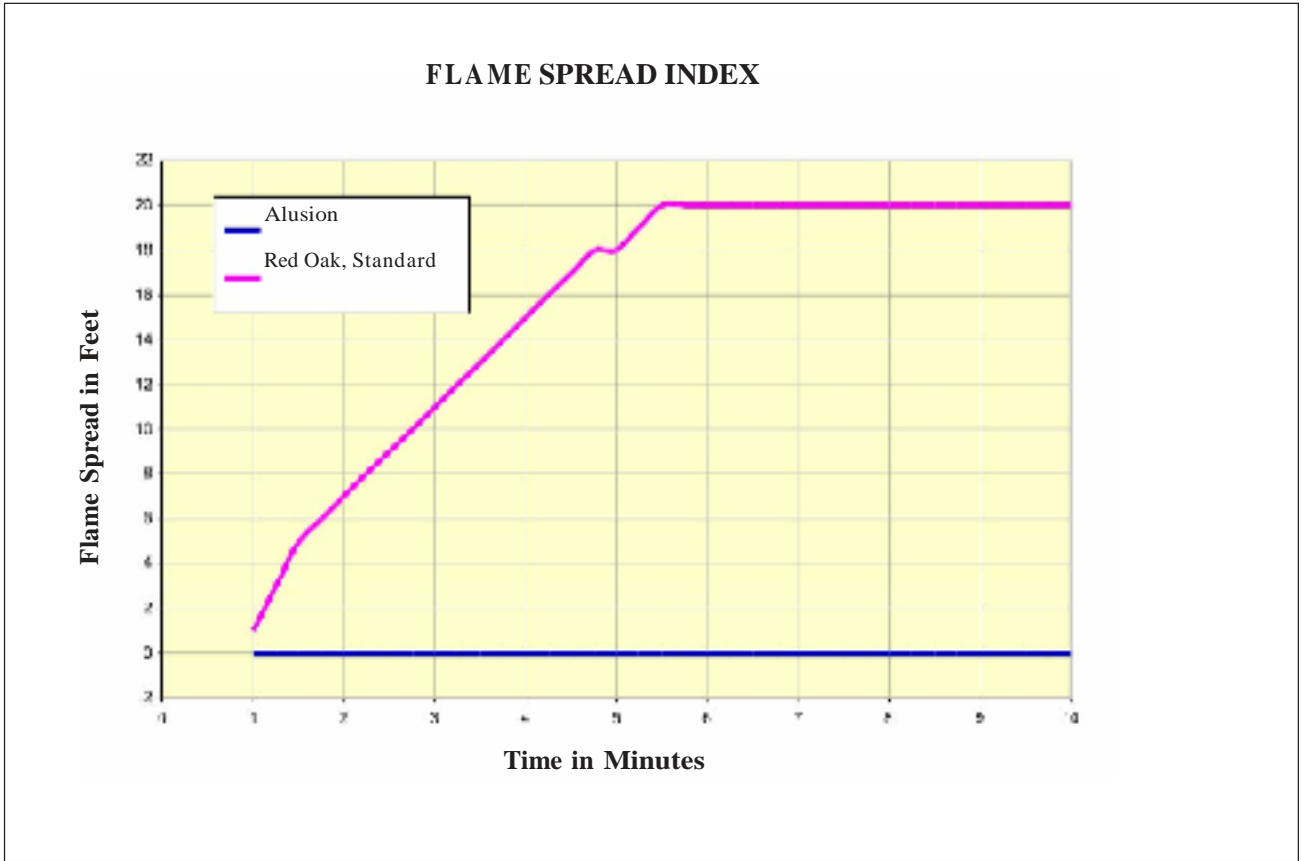
**Alusion Large Cell
Open One Side**
used for a bar face.

**Alusion Small Cell
Open One Side**
used as ceiling tiles



**Alusion Large Cell
Open One Side**
used for corporate entrance lobby

APPENDIX – TEST RESULTS

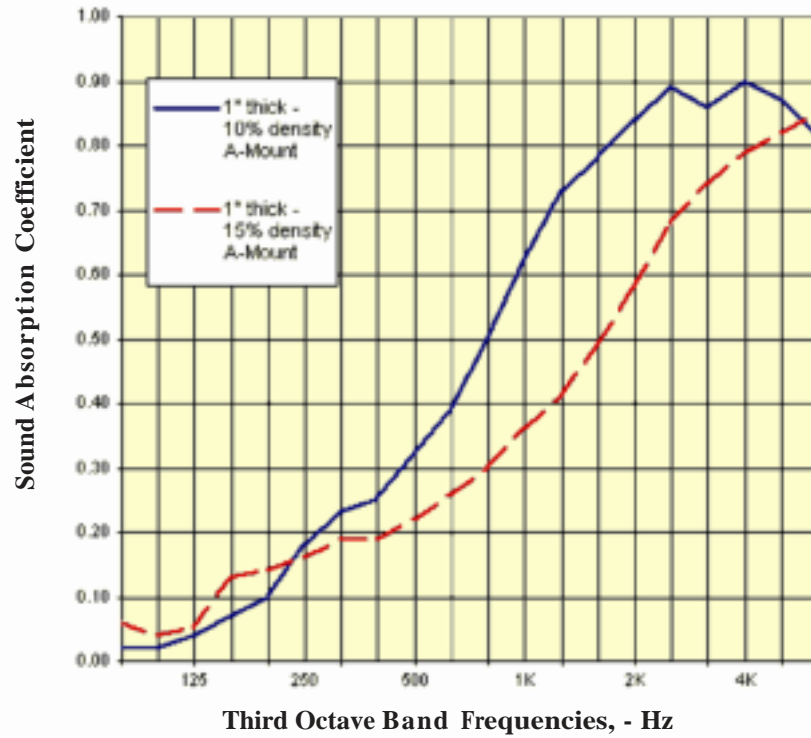


ABSORPTION COEFFICIENTS OF ALUSION PANELS

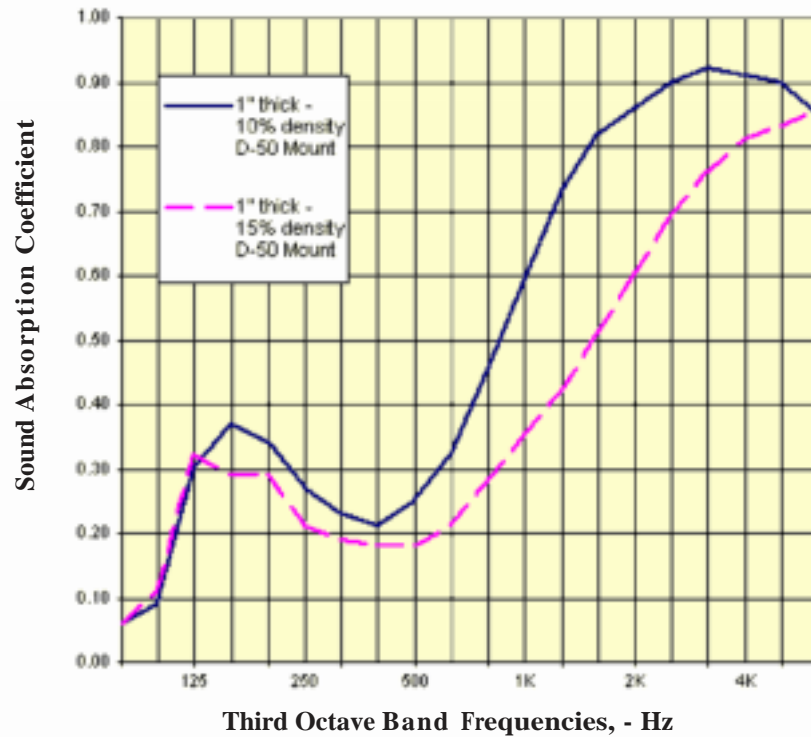
Thickness in. (mm)	Panel density	Test mounting	Octave Band Centre Frequencies, Hz						NRC
			125	250	500	1000	2000	4000	
0.50 (13)	8%	A	-0.02	0.02	0.04	0.12	0.39	0.55	0.15
		D-50	0.00	0.04	0.14	0.32	0.37	0.53	0.20
		E-400	0.18	0.22	0.16	0.21	0.32	0.51	0.25
0.50 (13)	10%	A	0.04	0.03	0.09	0.38	0.72	0.85	0.30
		D-50	0.06	0.36	0.51	0.39	0.66	0.83	0.50
		E-400	0.61	0.41	0.27	0.37	0.71	0.88	0.45
0.50 (13)	15%	A	0.02	0.14	0.16	0.21	0.43	0.68	0.25
		D-50	0.26	0.25	0.11	0.19	0.46	0.71	0.25
		E-400	0.23	0.14	0.14	0.23	0.50	0.75	0.25
1.00 (25)	10%	A	0.04	0.17	0.32	0.62	0.84	0.88	0.50
		D-50	0.25	0.28	0.26	0.59	0.86	0.91	0.50
		E-400	0.20	0.16	0.27	0.63	0.90	0.92	0.50
1.00 (25)	15%	A	0.07	0.16	0.22	0.36	0.58	0.78	0.35
		D-50	0.24	0.23	0.19	0.35	0.60	0.80	0.35
		E-400	0.21	0.16	0.22	0.38	0.67	0.85	0.35

NOTES: All tests were performed to ASTM C423 by National Research Council Canada.
 'A mount' tests were performed with the panels on a solid backing.
 'D-50 mount' tests were performed with the panels mounted on 2" thick furring strips.
 'E-400 mount' tests were performed with the panels spaced at 16" (400 mm) from a solid backing.

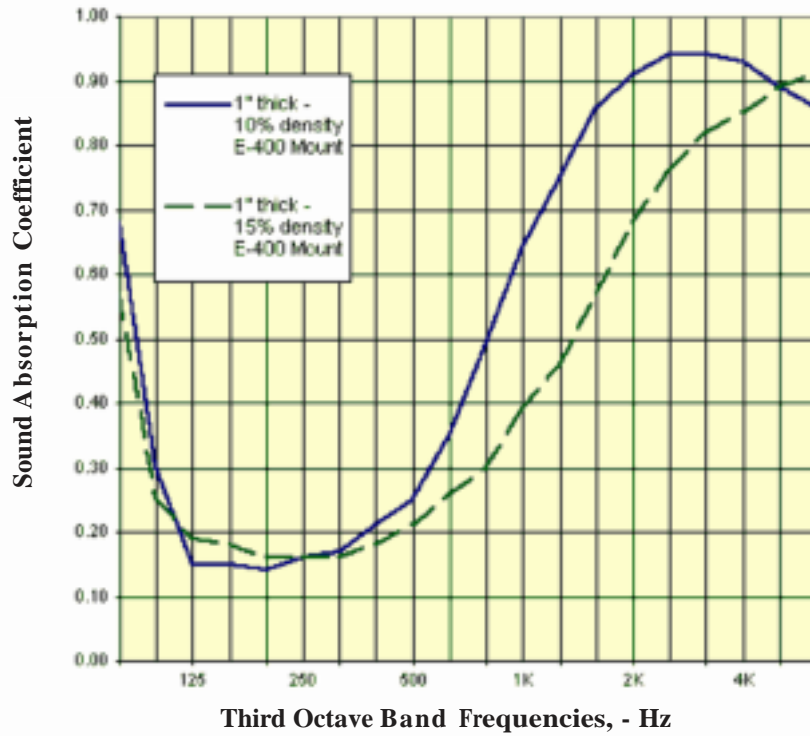
**SOUND ABSORPTION COEFFICIENTS OF
1" (25 mm) ALUSION PANELS ON "A" MOUNT (SOLID BACKING)**



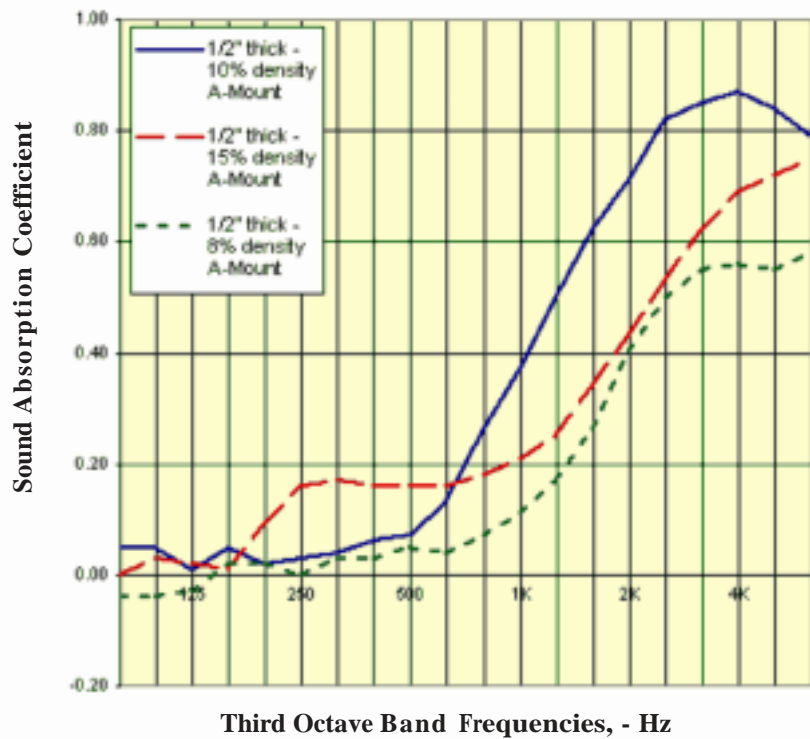
**SOUND ABSORPTION COEFFICIENTS OF
1" (25 mm) ALUSION PANELS ON "D-50 MOUNT" (OVER 2" FURRING STRIPS)**



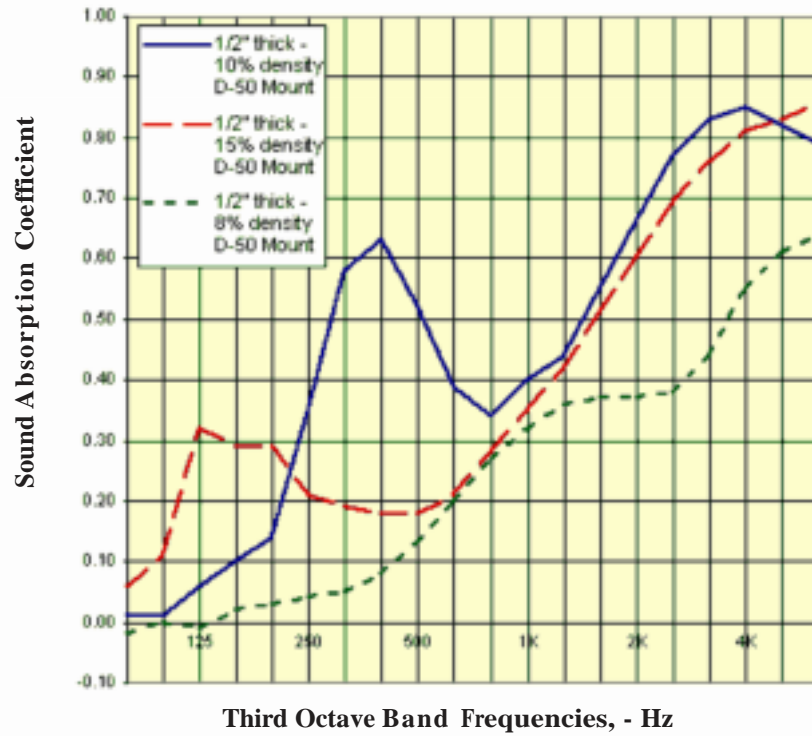
**SOUND ABSORPTION COEFFICIENTS OF
1" (25 mm) ALUSION PANELS ON "E-400 MOUNT" (OVER 16" SPACE)**



**SOUND ABSORPTION COEFFICIENTS OF
1/2" (13 mm) ALUSION PANELS ON "A" MOUNT (SOLID BACKING)**



**SOUND ABSORPTION COEFFICIENTS OF
1/2" (13 mm) ALUSION PANELSON "D-50 MOUNT" (OVER 2" FURRING STRIPS)**



**SOUND ABSORPTION COEFFICIENTS OF
1/2" (13 mm) ALUSION PANELS ON "E-400 MOUNT" (OVER 16" SPACE)**

