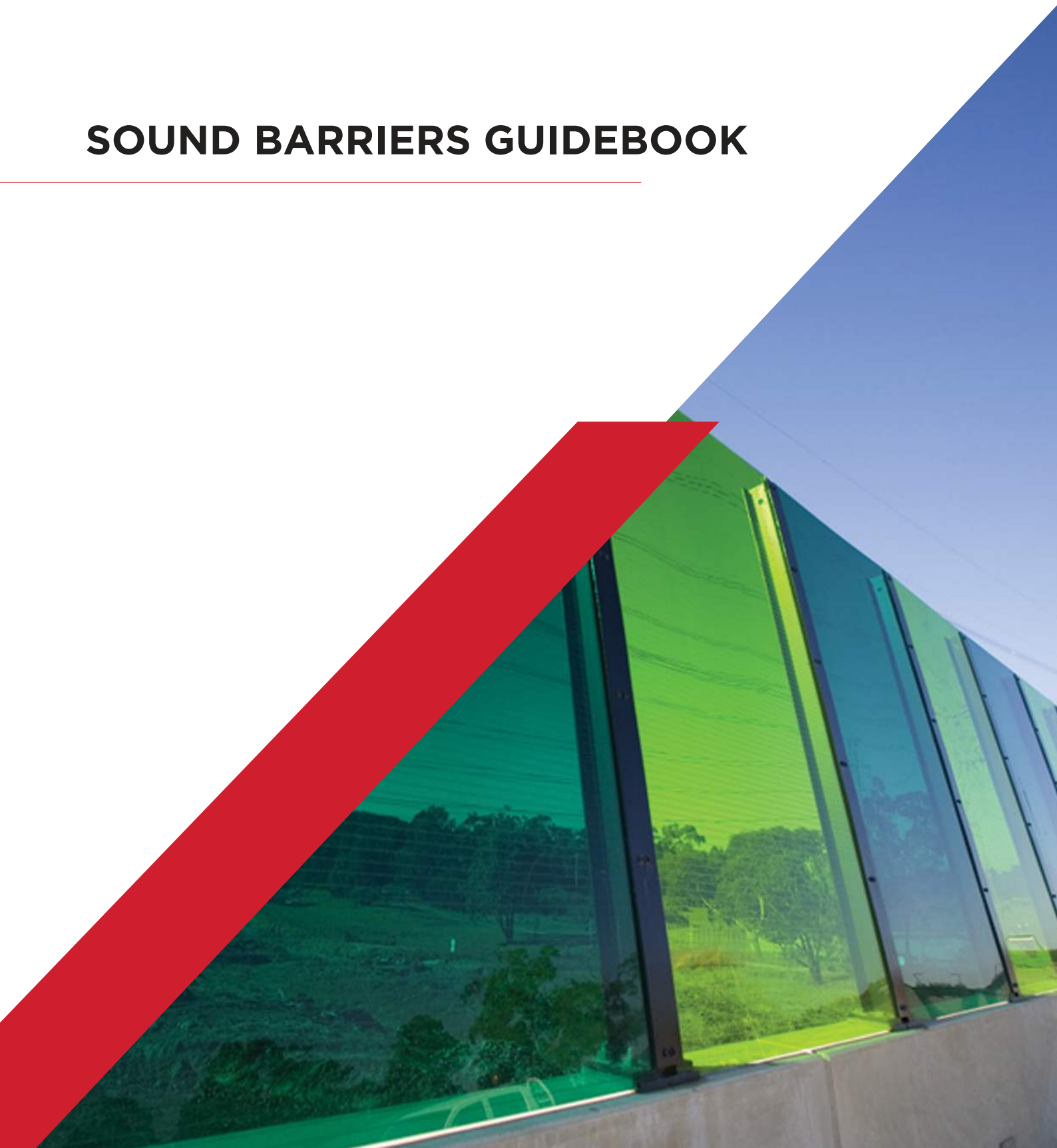


PLASKOLITE

SOUND BARRIERS GUIDEBOOK



PLASKOLITE

PERFORMANCE PLASTIC
MANUFACTURING:
SHEET, POLYMER, PROFILES

1950
FOUNDED

OUR MISSION

TO PRODUCE INNOVATIVE ENGINEERING THERMOPLASTICS THE RIGHT WAY; THROUGH LONG-LASTING CUSTOMER RELATIONSHIPS, HANDS-ON CUSTOMER SERVICE AND RESPONSIBLE MANUFACTURING

MANUFACTURING LOCATIONS



GLOBAL
HEADQUARTERS
COLUMBUS, OH

PRIVATELY HELD
120+ PRODUCTION
LINES

2000+
EMPLOYEES

OUR PILLARS OF SUSTAINABILITY

CONTRIBUTING TO MAKE THE WORLD A BETTER PLACE

From our founding, we strive to treat our employees, our customers, our community and the world with kindness, dignity and respect. This drives our continuing effort to perform sustainable manufacturing and create products in an environmentally-friendly manner, for generations to come.

This on-going commitment is expressed in our Three Pillars of Sustainability:

WHAT WE MAKE

Versatile, high-quality, durable thermoplastic sheets instead of single-use plastics.



HOW IT'S MADE

We create products to reflect our sustainable philosophy of improving our environment.



HOW IT'S USED

Our thermoplastics play an important role in advancing the well-beings of others, energy conservation, and quality of life.



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INTRODUCTION



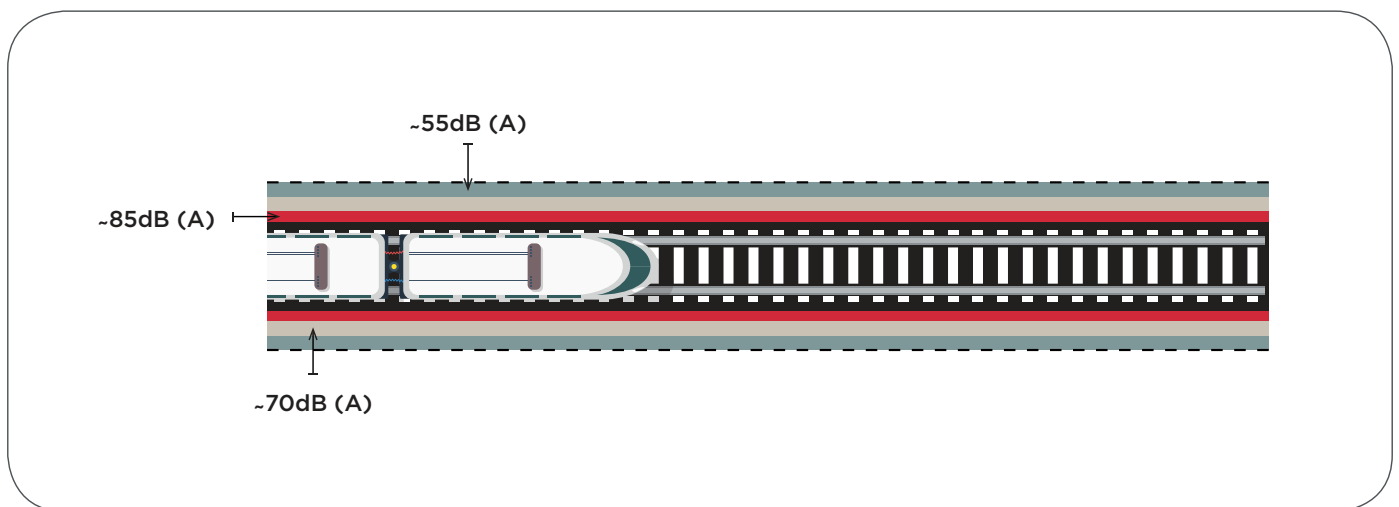
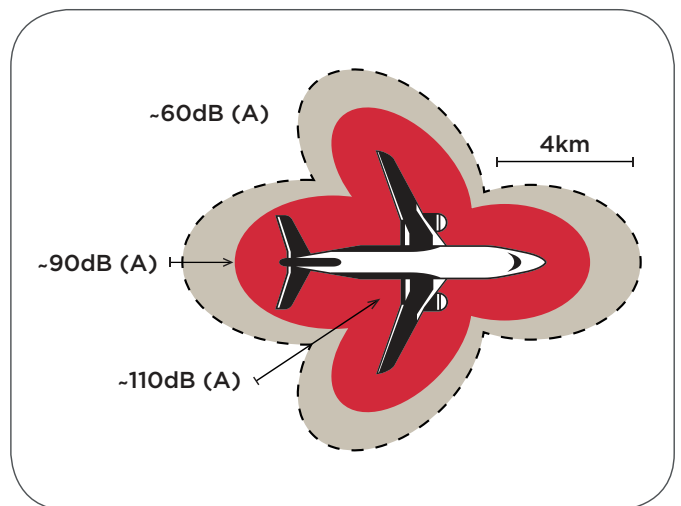
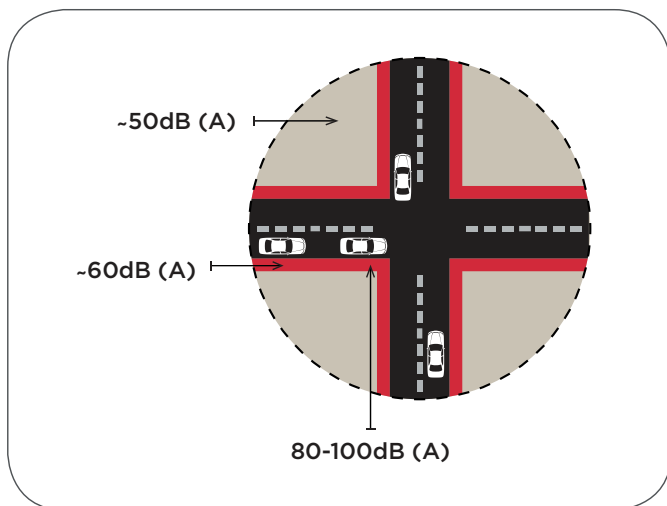
1. INTRODUCTION

Acoustic barriers, or walls, are cladding structures designed for acoustic protection of defined areas, usually residential. They are the most efficient protection method against noise and pollution from highways, railroads, airports and industrial areas. Transparent acoustic barriers have an advantage over non-transparent barriers, since apart from providing a substantial reduction of both acoustic load and environment pollution they transmit sunlight and allow viewing the landscape, thus preventing from closeness or estrangement feeling.

1.1 DEFINITION OF SOUND

Sound is a physical phenomenon representing the propagation of mechanical oscillation in the form of elastic waves in solid, liquid, or gaseous media. In a narrow sense, by sound is meant this oscillation considered from the viewpoint of its perception by sensory organs of humans and animals. As any other wave, the sound is characterized by its amplitude and frequency spectrum. Normally, humans hear sound oscillation in a frequency range from 16 - 20 Hz to 15 - 20 kHz. The pitch of sound depends on the frequency and on the sound pressure. The loudness of sound is a subjective perception of sound intensity and depends mainly on the sound pressure, amplitude and frequency. The loudness of sound depends also on its spectral composition, spatial localization, sound timbre, duration of exposure, man's individual sensitivity and other factors.

The loudness of sound is measured in decibels (dB). The hearing limit (0 dB) is the lowest sound level perceived by the human ear. The pain threshold (120 dB) is the upper sound level perceived before painful reaction.



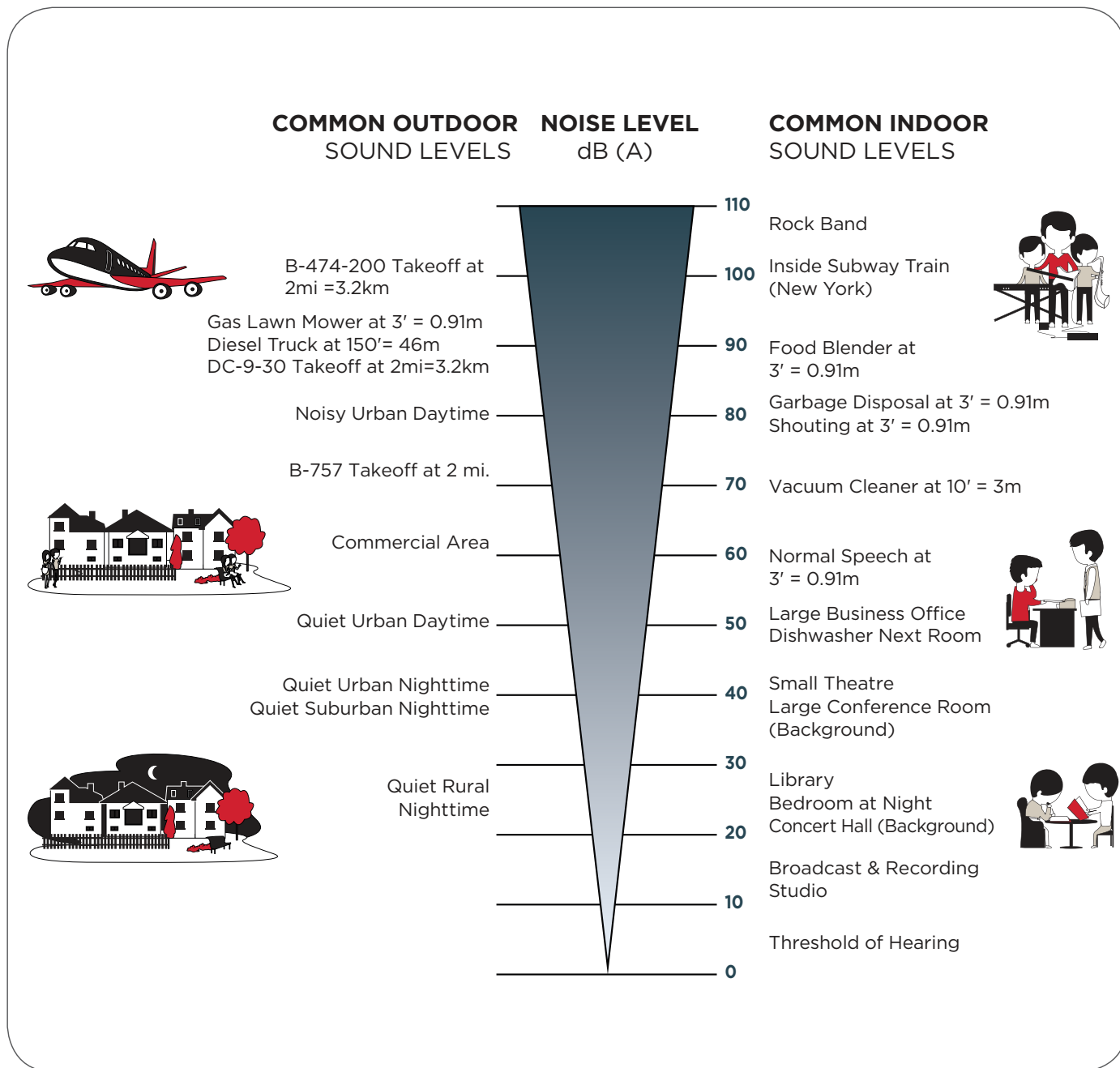
1.2 SOUNDPROOFING

Soundproofing is the reduction of the noise level by creating restrictive structures made of various materials. Quantitatively, the soundproofing measure of restrictive structures is expressed in decibels.

Sound may be classified according to the predominant frequencies:

- » Low frequencies: 20 - 400 Hz
- » Medium frequencies: 400 - 1,600 Hz
- » High frequencies: 1,600 - 16,000 Hz

Human hearing is less sensitive to very low and very high frequencies and much more sensitive in the “medium range”. Constant volume curves show the change of our hearing perception in different frequency ranges and the effect of strength of different sound irritants. A sound increase by 10 dB is perceived by the human as doubling the noise level. The maximum discomfort is associated with noise produced by aircrafts, street traffic, railroad and industrial facilities.

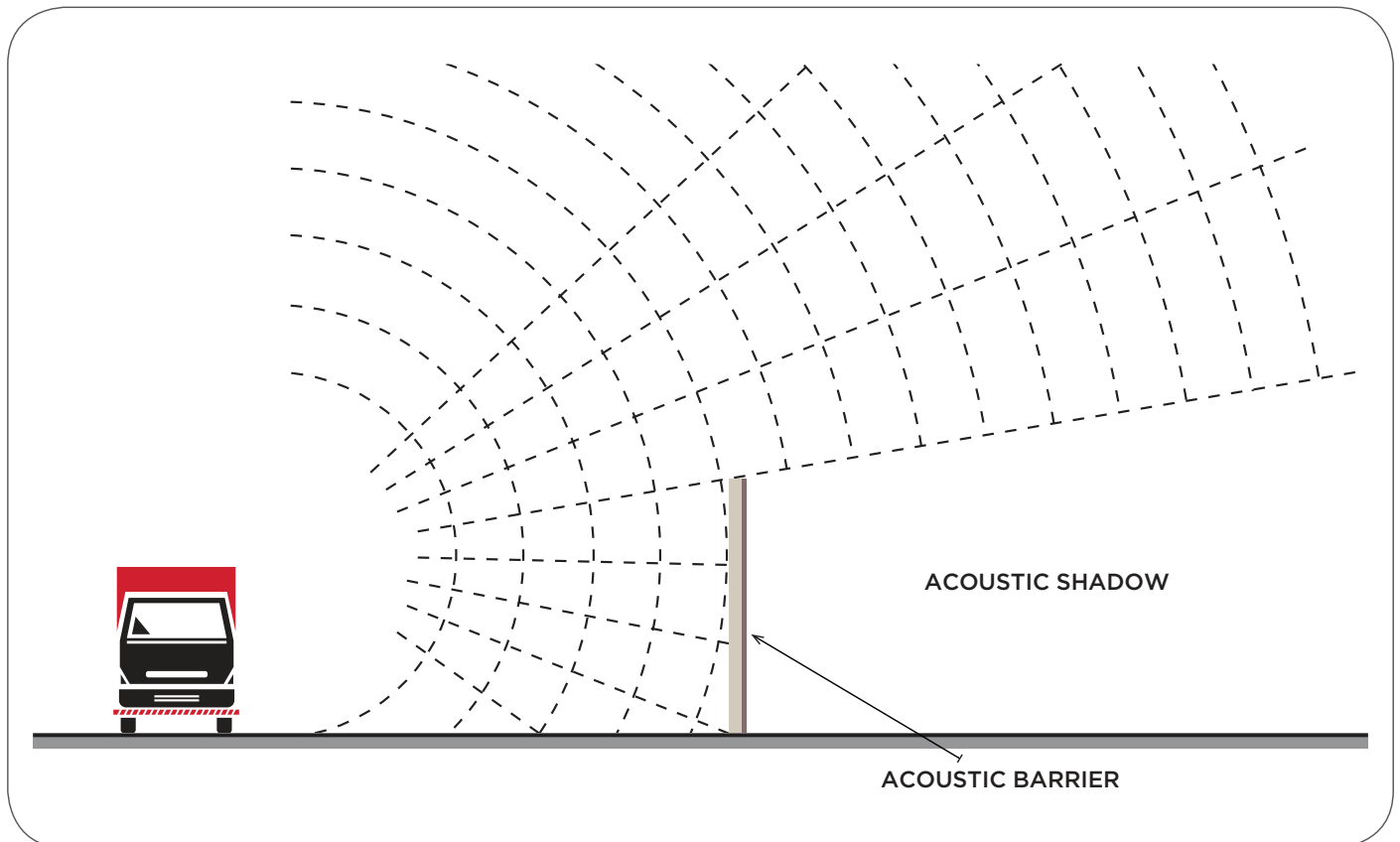


1.3 NOISE SOURCES, RECEIVERS AND INSULATORS

Noise sources include roads and highways, railroads, industrial facilities, construction sites, etc. Noise receivers include homes or apartments, schools, hospitals, office buildings or public parks. When the noise becomes a problem between the source and receiver, the use of acoustic barrier may become an ideal solution for noise level reduction.

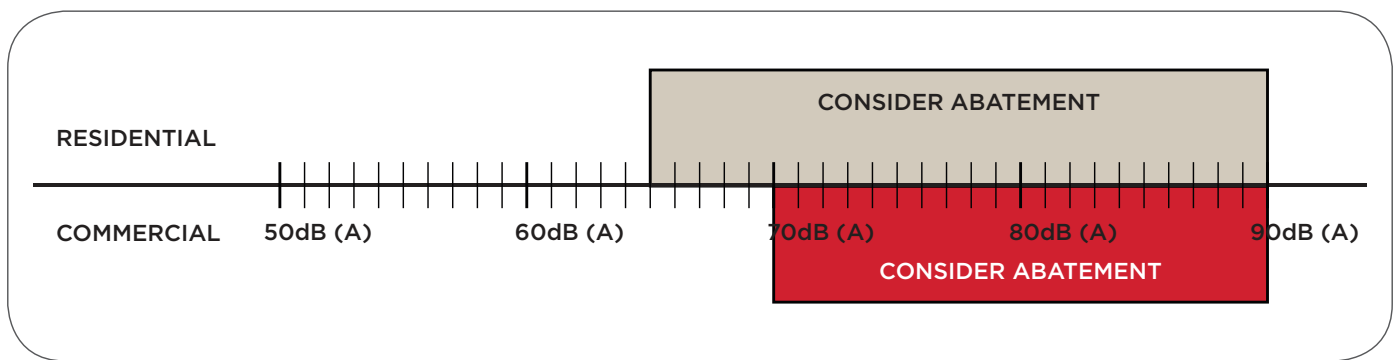
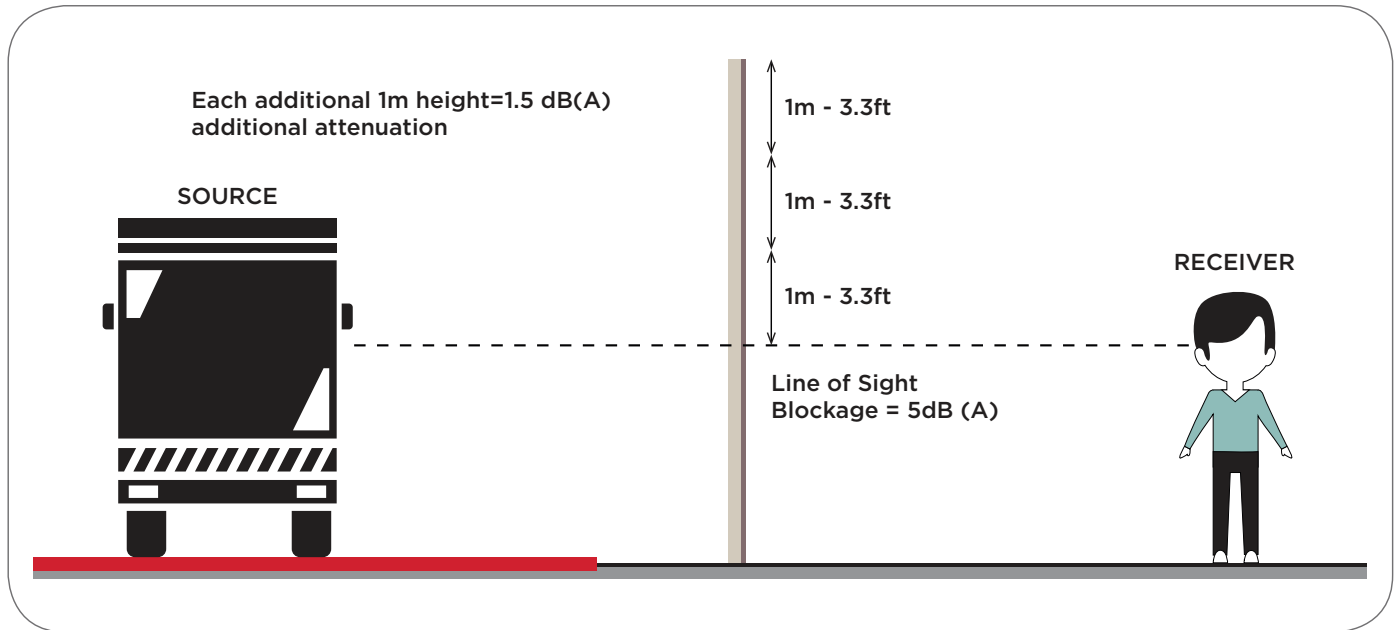
Sound absorbers transform part of the sound waves into heat energy and transmits the rest. Therefore, sound absorbers are not necessary sound insulators. On the other hand, sound insulators prevent the propagation of sound energy from one place to another, mostly by sound reflection. Sound insulation is correlated to the mass of the insulating barrier. Doubling the mass per unit area improves the insulation by about 6 dB. An air gap or a gap filled with a sound absorber between two walls can insulate sound more efficiently, thus reducing the quantity of material needed for the barrier. Acoustic barriers create an acoustic shadow.

The acoustic barrier is more effective when located in the immediate closeness of the noise source or near the noise receiver. In these cases, the acoustic shadow is higher. By the same reasons, the higher barrier is more efficient than the lower one, even if both of them conceal the source of noise.



1.4 NOISE POLLUTION REDUCTION

A noise level exceeding 80 dB results in a high stress level, attention disorder, physiological changes and other negative effects. Whereas the normal noise level is 30 dB and the normal environmental noise level is about 40 - 60 dB, that of an expressway may be as high as 115 dB, which is unbearable in case of long-term exposure. Transparent acoustic barriers can reduce the noise level by 30 dB and more thus transforming unbearable situation into tolerable conditions. The efficiency of acoustic barrier depends on the thickness of sheet used for creating the barrier. The required reduction of noise level varies in different areas.





ACOUSTIC SOLUTIONS



2. ACOUSTIC SOLUTIONS

2.1 THE PURPOSE OF TRANSPARENT ACOUSTIC BARRIERS

- » The separation between noise sources (e.g. traffic) and noise receivers (e.g. residential area)
- » Providing for necessary field of vision and facilitating orientation
- » Reducing the closed space sensation for inhabitants close to the barrier
- » Reducing the closed space sensation for drivers
- » Small-weight and efficient solution compared to concrete structures

2.2 MAIN ADVANTAGES

- » Low weight, about half of the weight of glass sheet having the same thickness
- » High transparency
- » High shock resistance and vandal resistance
- » Excellent resistance to UV radiation and weather conditions
- » High flexibility allowing bending of the sheets without special equipment
- » Easy to machine (cut, drill, etc.) on construction site
- » Compliance with international standards

2.3 STANDARDIZATION OF ACOUSTIC BARRIERS

EN-1793 and EN-1794 standards are related to all mandatory characteristics of acoustic barriers. EN-1793 standard covers acoustic properties, EN-1794 regulates other requirements like wind loading resistance, flammability, shock strength and light transmittance. PLASKOLITE acoustic sheets were tested and certified according to the above standards.

2.4 WARRANTY

PLASKOLITE acoustic sheets are warranted against decrease of mechanical properties and transparency for a period of up to 10 years. Please refer to PLASKOLITE's warranty for details.

2.5 SERVICE LIFE

Highways are harsh environments. The main chemicals appearing in the proximity of highways are sulfur compounds, as well as NO_x, CO, H₂O and O₃ traces produced by ignition systems. Also present are clouds of various particles as dust, carbon black and salts from powder antifreeze for concrete. The main damage to acoustic sheets is caused by a surface layer of solid particles and by exposure to acids. These factors reduce the sheet transparency. It is important to maintain the cleanliness of the barrier for protection against these elements.

2.6 PLASKOLITE ACOUSTIC SOLUTIONS

The PLASKOLITE group offers several solutions for acoustic walls:

- » OPTIX SB Extruded Sheets - extruded acrylic sheets for sound barrier applications. Offers excellent transparency and weatherability.
- » OPTIX SB-BF Extruded Bird Friendly Sheets - with designated patterns for protection against bird collisions.
- » OPTIX SB Cell Cast Sheets - cast acrylic sheets for sound barrier applications.
- » OPTIX SBR Polyamide Thread Reinforced OPTIX SB Cell Cast Sheet - designated for sound barrier safety applications, especially on bridges.
- » TUFFAK(R) PC Extruded Sheets* - extruded PC 2UV sheets for sound barrier applications. Offers high Impact resistance, transparency, and weatherability.*

* Note: Please contact to PLASKOLITE Technical Support for details.

To reduce the barrier light transmission, colored sheets may be used. Sheets of wide spectrum of custom colors are manufactured by special order.

TECHNICAL PROPERTIES



3. TECHNICAL PROPERTIES

Please note that the technical values given in this guidebook are typical values for guidance. They are not to be taken as specifications and are subjected to certain variability.

OPTIX SB Acrylic OPTIX Pmma Extruded Sheets	OPTIX SB-BF Acrylic OPTIX PMMA Laminated Extruded Bird-Friendly Sheet**	OPTIX SB Cell Cast Acrylic OPTIX PMMA Cast Sheets	OPTIX SBR Acrylic Cast Reinforced Sheet With 2mm Diameter Polyamide Threads, At a Distance Of 30 mm
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3.1 GENERAL PROPERTIES

PROPERTY	UNIT	METHOD	VALUE		
			OPTIX	OPTIX CELL CAST	OPTIX SBR
Density	g/cm ³	ISO 1183	1.19	1.2	1.2
Water Absorption	%	ISO 62 (1)	0.3	0.3	0.3

3.2 OPTICAL PROPERTIES

PROPERTY	UNIT	METHOD	VALUE		
			OPTIX	OPTIX CELL CAST	OPTIX SBR
Light Transmission (clear sheet)	%	ASTM D1003	>91	>91	>91
Haze (clear sheet)	%	ASTM D1003	<1	<1	<1
Refractive Index (clear sheet)		ISO 489	1.49	1.49	1.49

3.3 MECHANICAL PROPERTIES

PROPERTY	UNIT	METHOD	VALUE		
			OPTIX	OPTIX CELL CAST	OPTIX SBR
Tensile Strength	MPa, psi	ISO 527-2	72,10400	74, 54200	74, 54200
Elongation at Break	%	ISO 527-2	4	5	5
Tensile Modulus	MPa, psi	ISO 527-2	3220, 467000	3280, 475700	3280, 475700
Flexural Strength	MPa, psi	ISO 178	103, 14940	114, 16530	114, 16530
Flexural Modulus	MPa, psi	ISO 179	3334, 483600	3610, 524000	3610, 524000
Rockwell Hardness	M-scale		95	98	98
Impact Resistant (Izod Notched)	kJ/m ² , ft-lb/in ²	ISO 180/1A	1.5, 0.714	1.7, 0.81	1.7, 0.81
Impact Resistant (Charpy Unnotched)	kJ/m ² , ft-lb/in ²	ISO 179/1fu	15, 7.14	15, 7.14	15, 7.14

Resistance to Stone Impact (EN 1794-1):

- » 15mm, 0.59" sheet tested at impact energy of 29.4 Nm, 22 ft-lb – complies with standard
- » 20mm, 0.79" sheet tested at impact energy of 29.4 Nm, 22 ft-lb – complies with standard

Stability under Wind Load (EN 1794-1):

- » 15mm, 0.59" sheet tested at 210 kg/m², 43 lb/ft², complies with standard
- » 20mm, 0.79" sheet tested at 250 kg/m², 51 lb/ft², complies with standard

** OPTIX SB-BF with a bird friendly pattern was tested by ABC in a bird tunnel test to be rated as bird friendly.

3.4 THERMAL PROPERTIES

PROPERTY	UNIT	METHOD	VALUE		
			OPTIX	OPTIX CELL CAST	OPTIX SBR
Vicat Softening Point	°C, °F	ISO 306	103, 217	115, 239	115, 239
Temp. of Deflection Under Load (1.8MPa, 261psi)	°C, °F	ISO 75-1	95, 203	105, 221	105, 221
Recommended Continued Service	°C, °F	EN 2155-12	70, 3.9 x 10 ⁻⁵	70, 3.9 x 10 ⁻⁵	70, 3.9 x 10 ⁻⁵
Coefficient of Linear Thermal Expansion	µm/m°C, in/in-°F		75, 167	82, 180	82, 180

3.5 SOUND REDUCTION

(EN 1793-2, EN ISO 140 - 3 and EN 717 - 1)

NOISE REDUCTION	DLR	RW
Noise reduction 15mm, 0.590" thickness	32 dB Category B3	33 dB
Noise reduction 20mm, 0.790" thickness	32 dB Category B3	34 dB

3.6 FLAME PROPERTIES

PROPERTY	UNIT	METHOD	VALUE		
			OPTIX	OPTIX CELL CAST	OPTIX SBR
Flammability	class	UL-94	HB	HB	HB

Resistance to Brush Fire (EN 1794-2):

- » 15mm, 0.590" sheet- Class 3
- » 20mm, 0.790" sheet - Class 3

3.7 FALLING OBJECTS

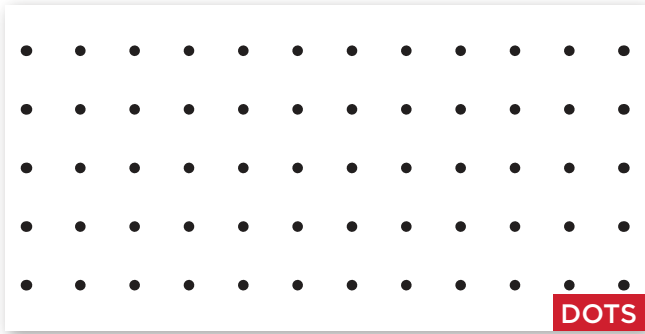
(EN 1794-2, **SBR sheets**)

- » 15mm, 0.590" SBR sheet - Class 4
- » 20mm, 0.790" SBR sheet - Class 4
- » 25mm, 0.980" SBR sheet - Class 4

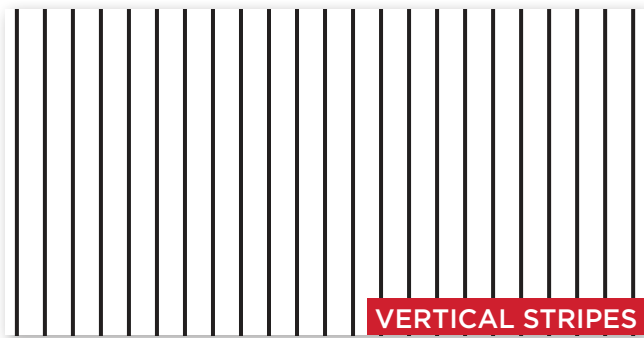
** OPTIX SB-BF with a bird friendly pattern was tested by ABC in a bird tunnel test to be rated as bird friendly.

3.8 SHEET PATTERN

OPTIX SB-BF - Lamination pattern



OPTIX SBR - Polyamide threads pattern



INSTALLATION



4. OPTIX PMMA ACOUSTIC WALLS INSTALLATION

4.1 GENERAL RECOMMENDATIONS

- » The following recommendations are valid for all OPTIX SB sheets
- » The maximum recommended width of one sheet of the barrier is 2m, 6.6ft.
This limitation is due to the following factors:
 - Metalwork strength requirements. Sheets wider than 2m, 6.6ft require substantial strengthening of the bearing structure
 - To prevent sheet from falling out under hard wind loading, the fixing-in depth should be increased substantially
- » Install the sheets as far as possible from pollution sources. High concentration of smog at the crossroads and bridges with the heaviest traffic and in highly polluted industrial zones may result in deterioration of sheet transparency
- » The barrier should be installed at a distance of at least 5 to 10m, 16.4 to 32.8ft away from the traffic area
- » Establish physical separation using a green fence, fenders, or trenches between the transparent acoustic barrier and traffic area

4.2 DESIGN STAGES

The exact dimensions of sheet and the frame are determined according to the following stages:

1. Determining the maximum wind load (Figure 1).
2. Determining thickness of the sheet (Figure 2).
3. Determining the expansion clearance (Figure 3).
4. Determining the glazing frame dimensions and the exact dimensions of the sheet (Figure 4)

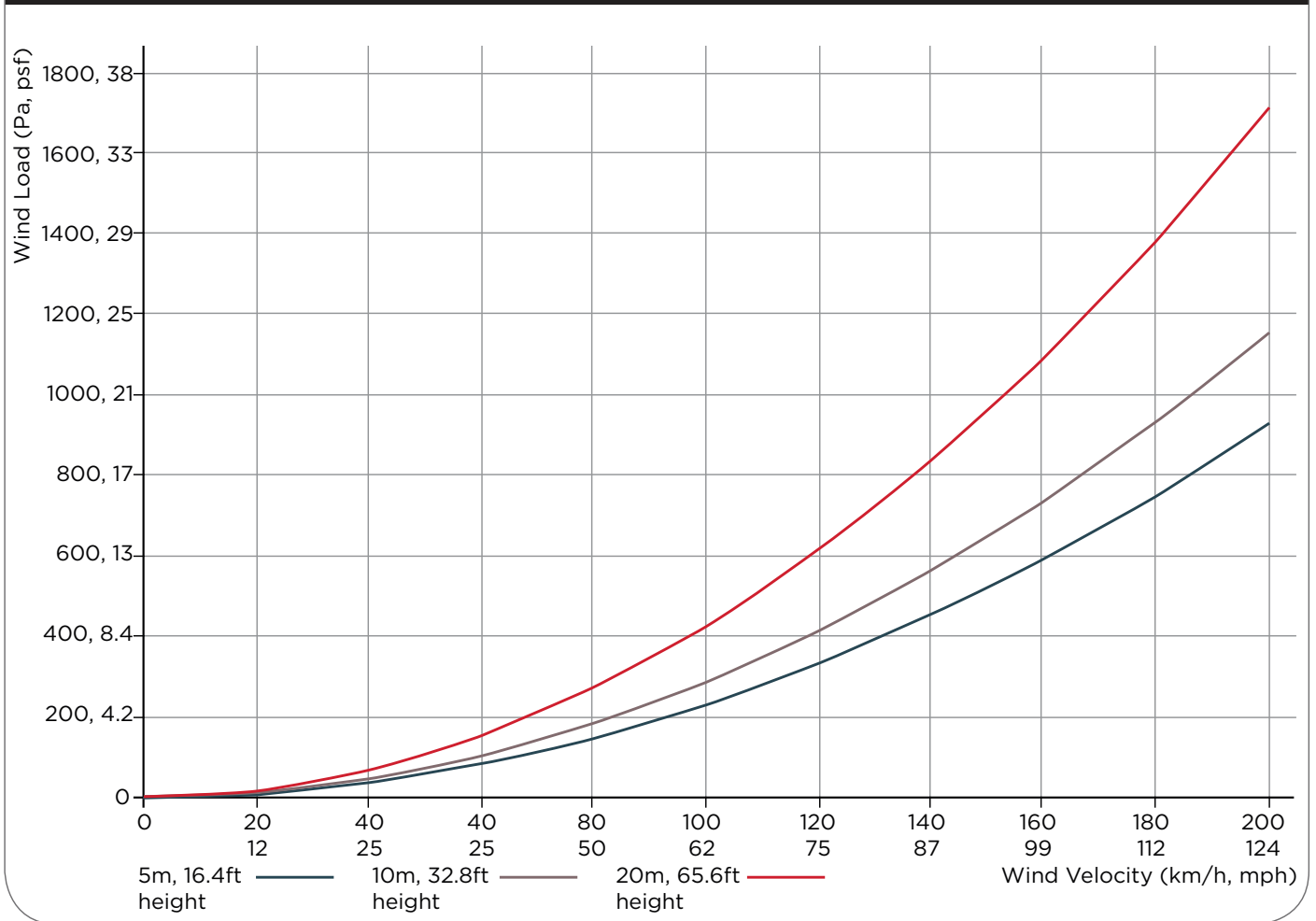
Note: The following data is intended as a basic guideline for simple applications. When PLASKOLITE sheets are to be mounted in construction projects under complicated load fields, curved designs, complicated supporting systems and/or variable temperature and environmental conditions, accurate engineering analysis is required. Seek advice from a construction engineer.

MAXIMUM WIND LOAD

Determine the maximum wind load, which will be applied on the mounted sheet according to Figure 1. The maximum wind velocity in the area and the height of the mounted sheet determines the wind load.

Note: the graph refers to vertically placed straight sheets (not curved). The load does not take into consideration the self-weight of the sheet and snow-weight load.

FIGURE 1 - WIND VELOCITY - LOAD CONVERSION



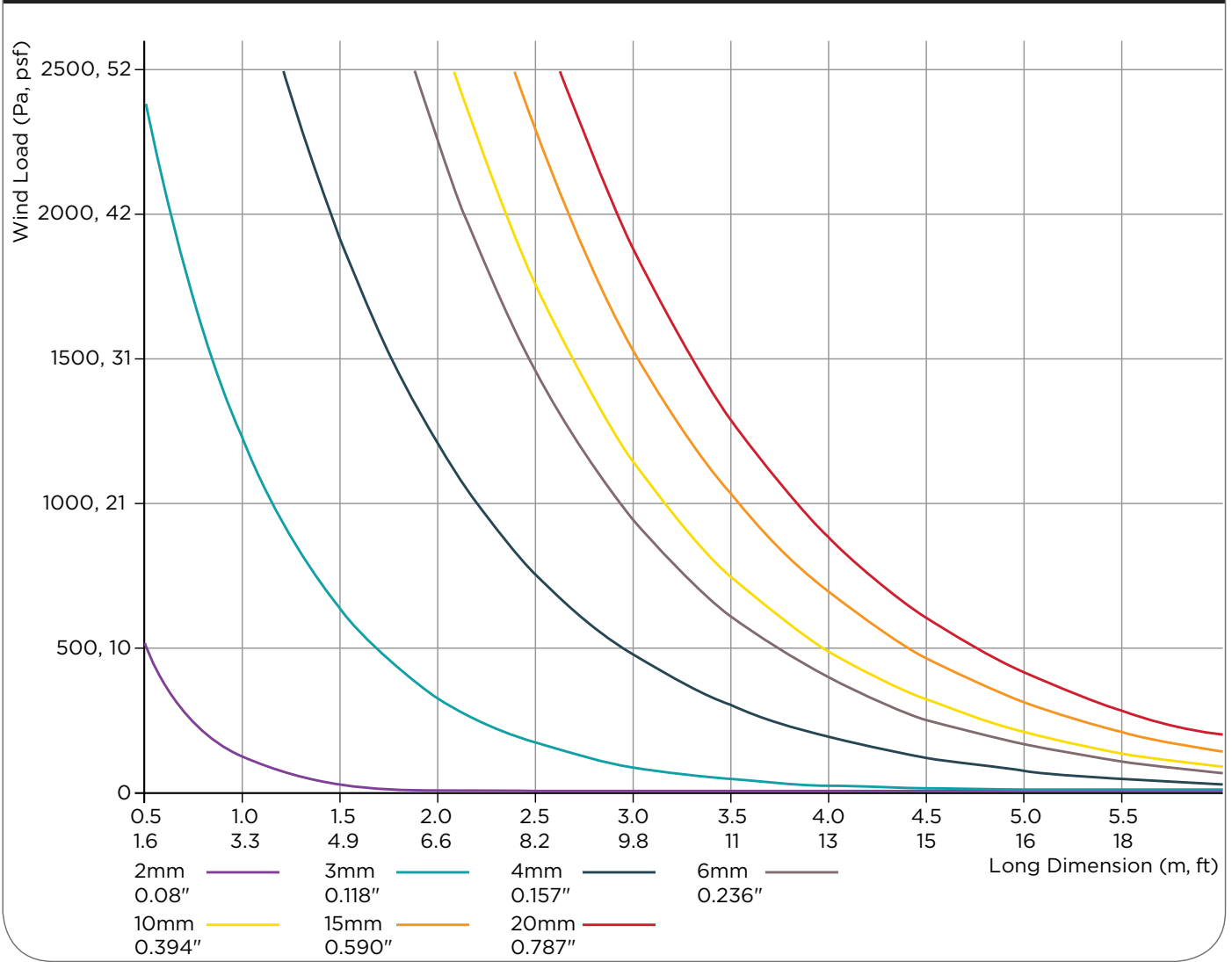
SHEET THICKNESS

Once the load is established, determine the recommended thickness for the mounted sheet according to Figure 2.

The data in Figure 2 is subject to the following remarks:

1. The sheet is simple supported on all four edges (worst case scenario).
2. The width is maximum 0.75 of the length - For larger widths choose the next largest thickness.
3. The width is minimum 0.25 of the length - For smaller widths choose the next smallest thickness.

FIGURE 2 - OPTIX PMMA SHEET THICKNESS RECOMMENDATION



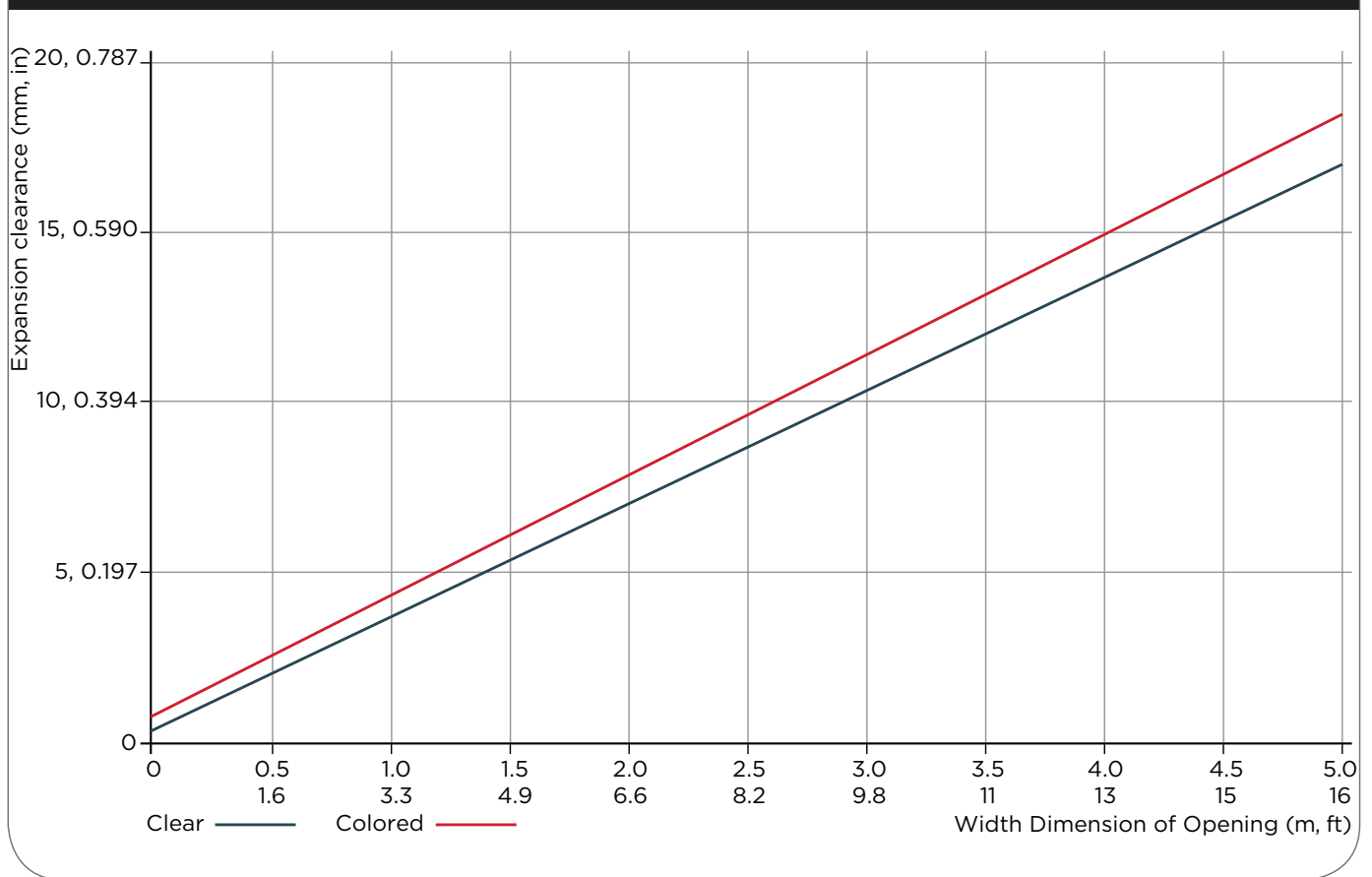
EXPANSION CLEARANCE

Acrylic, like most plastics, have a coefficient of thermal expansion higher than other nonplastics materials used for framing. A sufficient clearance gauge must be given allowing the sheet to expand freely. Acrylic sheets have a linear thermal expansion of 0.07 mm/m°C (3.9 x 10⁻⁵ in/in-°F). Humidity is also an expansion parameter. Acrylic sheets expand when humidity rises. The maximum expected value of linear expansion depends on the final sheets application temperature and humidity. Insufficient expansion clearance will cause stress on the sheets, causing distortions and eventually cracking and breakage of the sheets.

The sheet dimension determines the size of the expansion clearance needed.

1. Cut the sheet shorter than the sash opening by the amount taken from the graph in Figure 3.
2. If the sheet is dark tinted, use the graph line named "colored".
3. When a sealant is used, cut the sheet shorter than described in point 1, by twice the thickness of the sealant. Use only sealing agents compatible to extruded acrylics, non-rigid PVC and PUR foam are incompatible, due to the migration of plasticizers.
4. Cut the sheet into the correct size at room temperature (23°C, 73°F).
5. A sufficient clearance gauge must be given also when holes are drilled for attachment screws, even though we don't recommend hole drilling. The holes must allow the sheet to move freely both while expanding and contracting. The diameter of the hole drilled, should be three times greater than the screw.
6. The space between the bore hole and the sheets edge should be 1.5 - 2 times hole diameter.
7. Use round-head screws, with rubber washers against the sheet and stainless steel washers against the screw head. Use mated nut with plastic lock. Use only rubber washer's compatibles to extruded acrylics (EPDM, 100% silicone, Santoprene, Neoprene) .
8. Do not over tighten nuts with power tools. After tightening back off 1/2 turn.

FIGURE 3 - EXPANSION CLEARANCE FOR OPTIX PMMA SHEETS

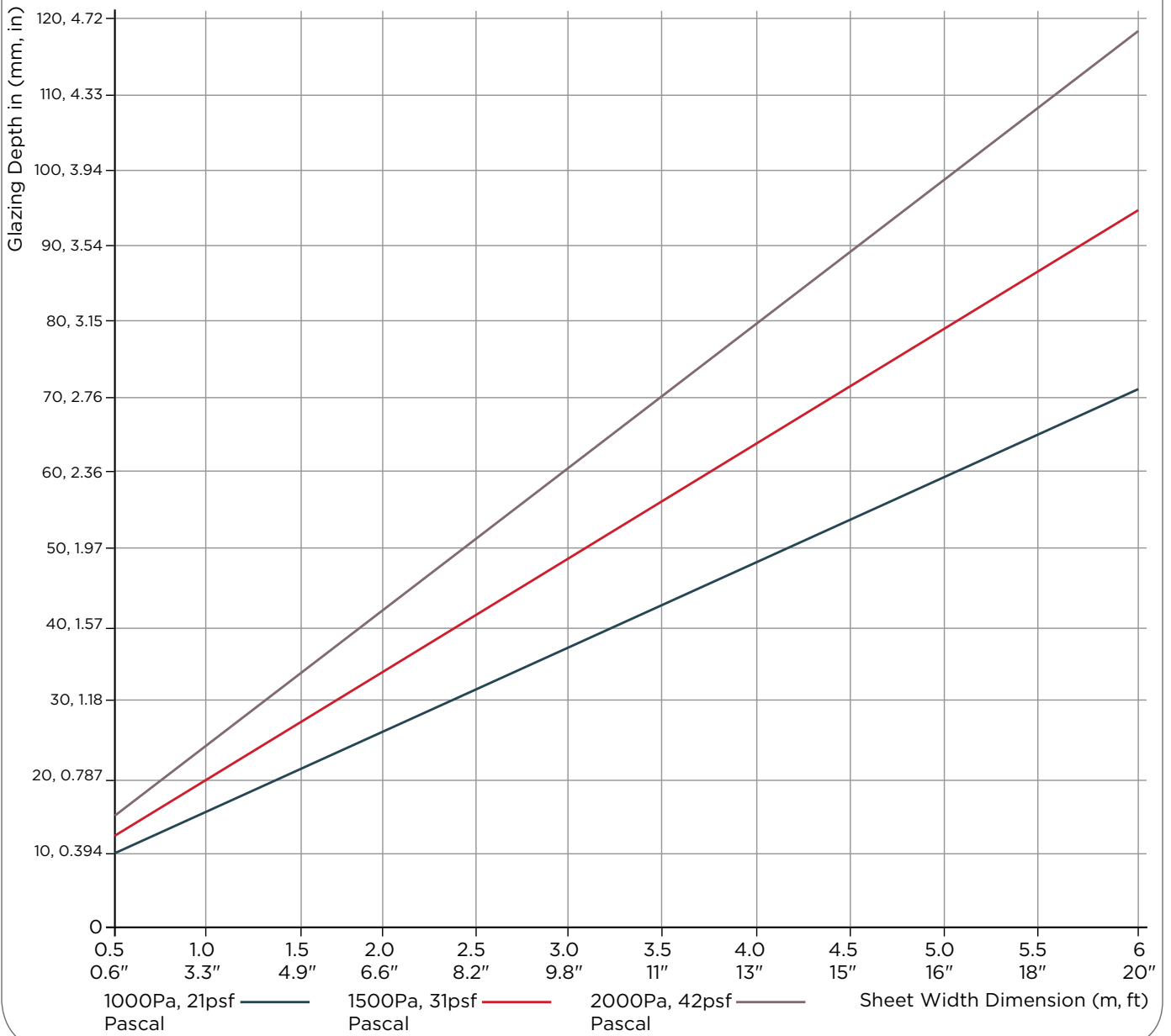


GLAZING DIMENSIONS

GLAZING DEPTH

Determine the recommended glazing depth for the mounted sheets according to Figure 4. The wind load and the long dimension of the mounted sheets determine the glazing depth.

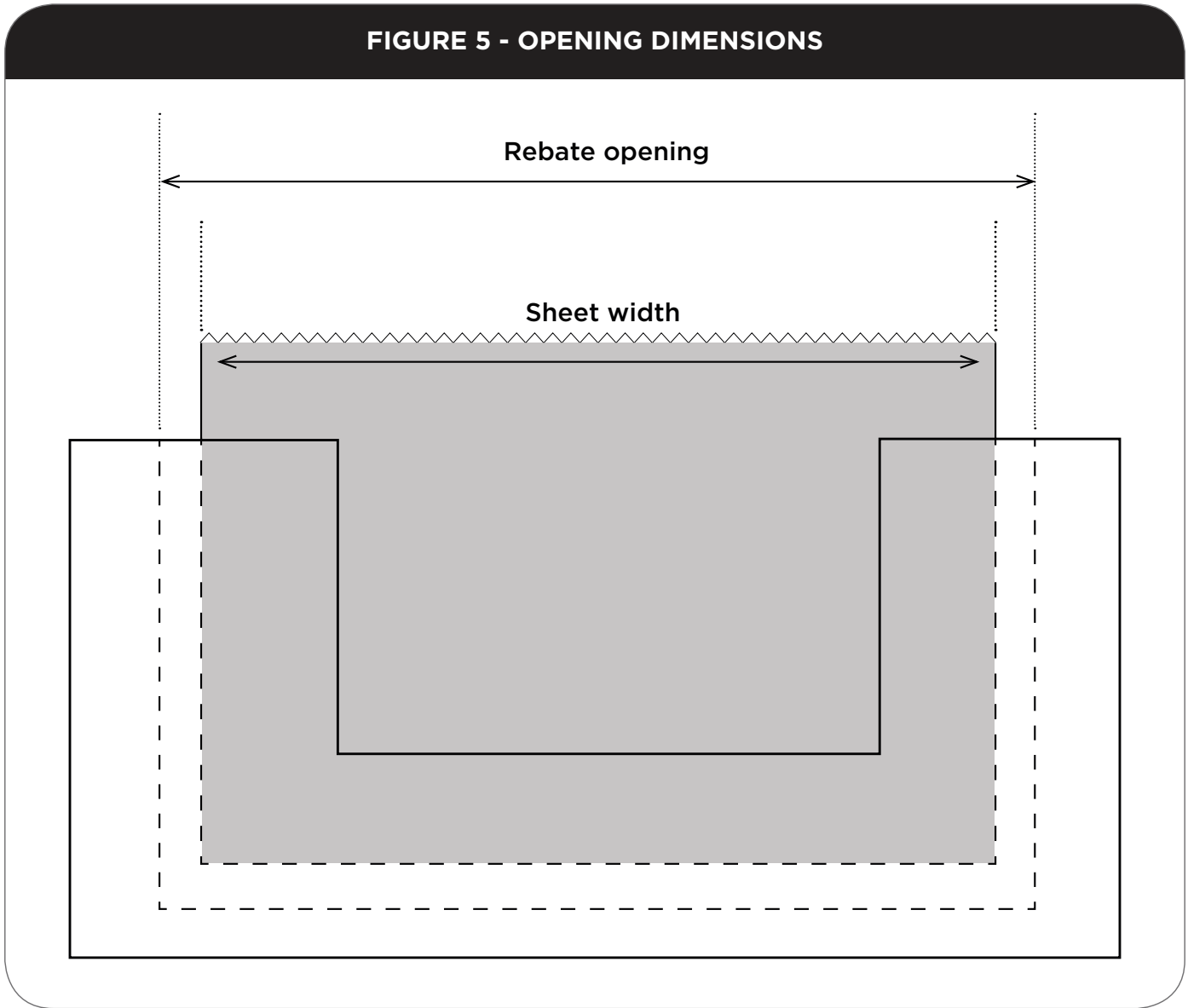
FIGURE 4 - GLAZING DEPTH



GLAZING WIDTH

The glazing width will vary according to the sheet's width, the sealant width, the sealant type and the way the sheet is mounted into the glazing.

The glazing must be wide enough to allow insertion of the sheet and the sealants beads, but not too wide to prevent any possibility for vibrations of the sheet.



Recommended rebate depth for OPTIX sheets:

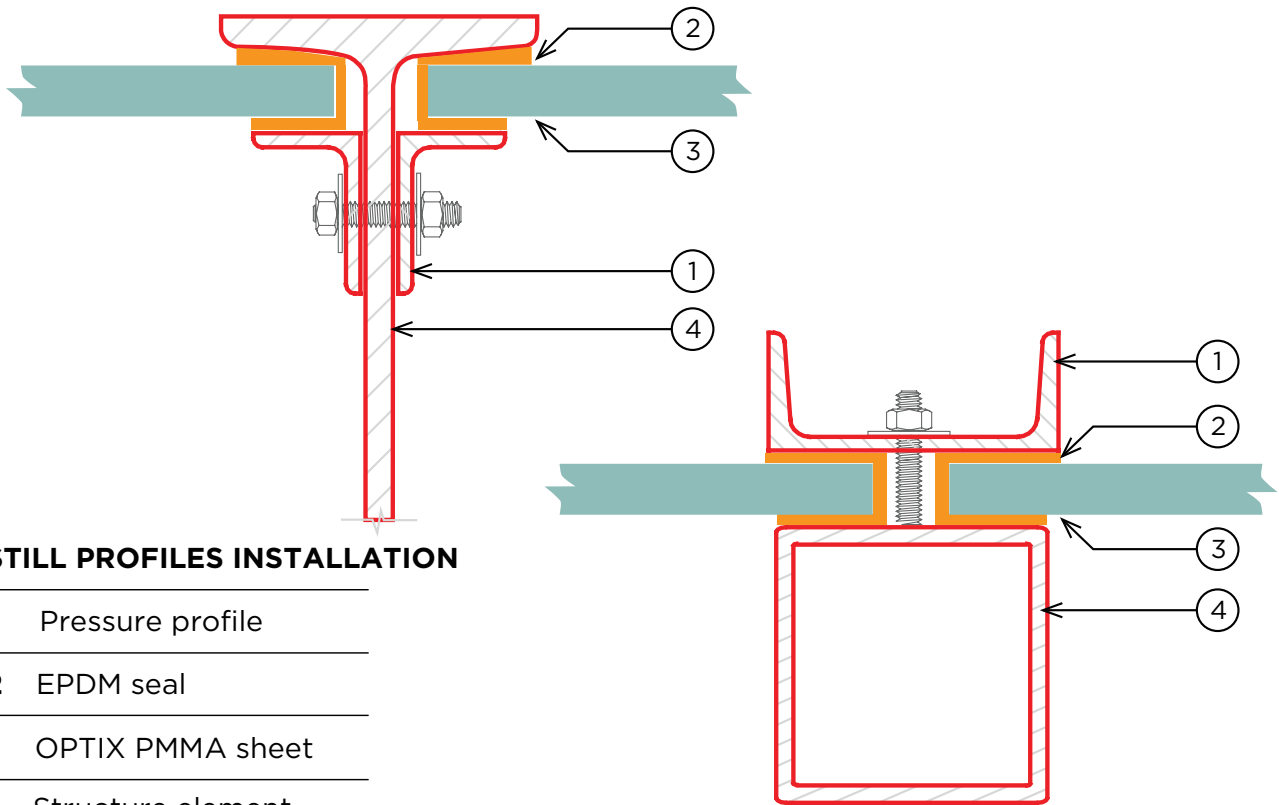
PANEL SIZE (MM,IN)	MINIMUM REBATE (MM,IN)	CONTRACTION-EXPANSION (MM,IN)	TOTAL REBATE (MM,IN)
1000, 39	30, 1.2	± 5, 0.20	40, 1.6
1500, 59	33, 1.3	± 8, 0.31	50, 2.0
2000, 79	35, 1.4	± 10, 0.39	55, 2.2
3000, 118	40, 1.6	± 15, 0.59	70, 2.8

4.3 GLAZING METHOD

OPTIX PMMA sheets should be installed using standard structural section based systems along with the corresponding EPDM seals or any compatible sealing material (Figure 6). Sheets should not be fixed using screws or rivets because this would produce excessive stresses resulting in sheet failure. For safety reasons, in case of extreme impact, every sheet may be attached with a single screw. The screw diameter shall be 10 to 12mm (0.39 to 0.47"), the corresponding hole shall be 3 to 5mm (0.12 to 0.20") larger. The safety screw should not fix the sheet or restrict the thermal expansion.

FIGURE 6 - INSTALLATION

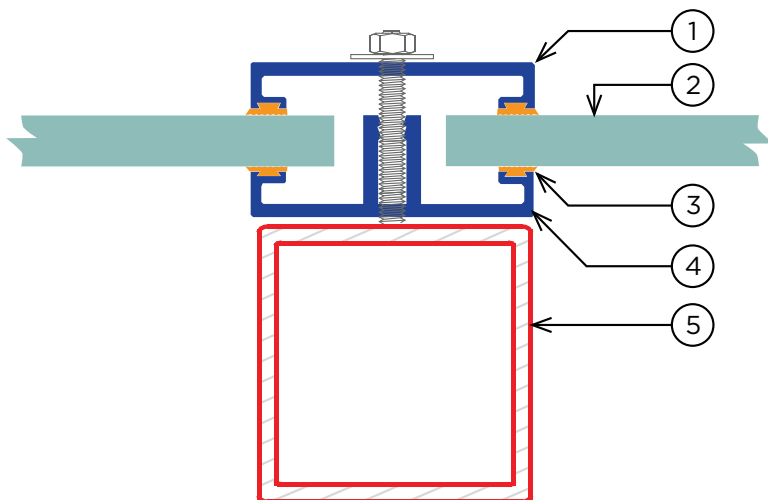
INSTALLATION WITH COMPATIBLE SEALING PRODUCT:



STILL PROFILES INSTALLATION

- 1 Pressure profile
- 2 EPDM seal
- 3 OPTIX PMMA sheet
- 4 Structure element

GLAZING WITH COMPATIBLE GASKET:

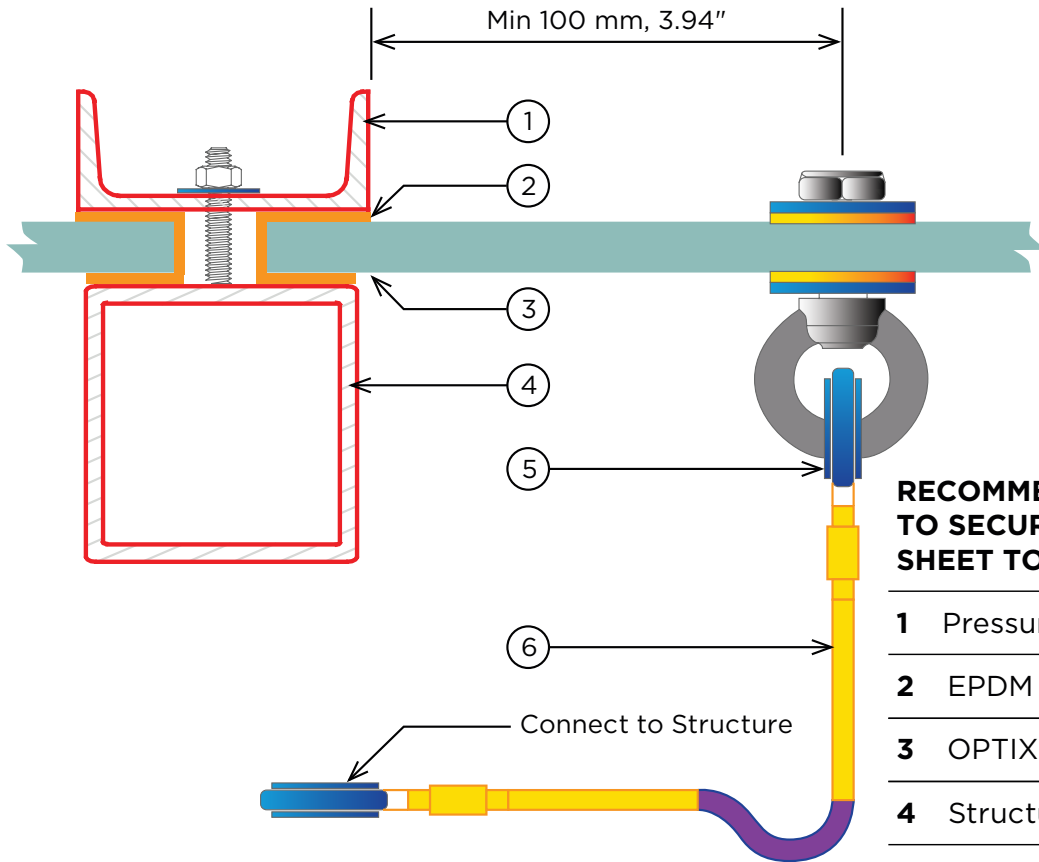


GLAZING SYSTEM INSTALLATION

- 1 Pressure profile
- 2 OPTIX PMMA sheet
- 3 EPDM gasket
- 4 Base profile
- 5 Structure element

FIGURE 7 - INSTALLATION

ASSEMBLY RECOMMENDATION TO SECURE PLASKOLITE SHEET TO COLUMNS:



RECOMMENDATION TO SECURE OPTIX PMMA SHEET TO COLUMNS

1 Pressure profile

2 EPDM gasket

3 OPTIX PMMA sheet

4 Structure element

5 Connecting ring

6 Retention cable

RECOMMENDATION TO SECURE OPTIX PMMA SHEET TO COLUMNS

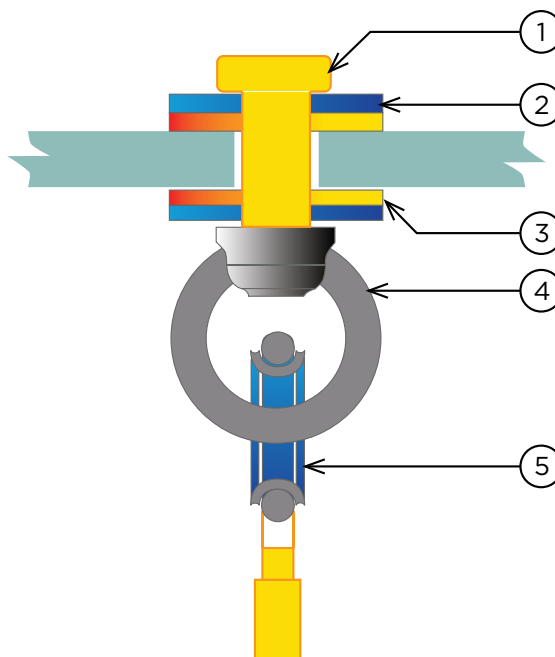
1 Screw

2 Washer

3 EPDM 85 shore washer

4 Eye bolt

5 Connecting ring



4.4 HANDLING INSTRUCTIONS

STORAGE

OPTIX PMMA sheets must be stored in a cool, dark, dry and well-ventilated room, at a reasonable temperature, away from direct sunlight, rain, solvent vapors or excessive humidity. Never leave sheets on uncovered pallets. OPTIX PMMA sheets are best stored horizontally on their delivery pallets. Plastic sheets are combustible. Store them according to fire hazard regulations.

WHEN TO REMOVE THE FILM

It is preferable to leave the protective film in position throughout machining to keep the sheet surface in perfect condition. Remove the protective film immediately after installation.

MACHINING

All methods of machining cause local overheating, generating internal stress, which can result in crazing (very fine cracks). Crazing later evolves into larger cracks, during forming or in the presence of solvents (for example during bonding or painting). Crazing can be significantly reduced if the following general instructions are applied.

1. Proper cooling
2. Scrap removal
3. Sharpened tools
4. Sheet support
5. Feed rate

We strongly recommend using tools designed for plastics.

COLD BENDING

The sheet must have perfect edges to avoid breakage during bending. Drilling OPTIX PMMA sheets before bending must be done with extra care. Cracks and melting must be avoided and annealing is highly recommended. Minimum bend radius of 300 times thickness sheet.

CLEANING

Be sure that the soap you are using is compatible with OPTIX PMMA. Test a hidden area before cleaning. Use a clean, soft cloth or sponge and rinse well. Do not scrub or use brushes. Dry with a soft cloth. Do not rub dry.

- » **Do not use window cleaning formulas.** These solutions contain incompatible alcohol and/or ammonia compounds both chemicals attack acrylics, causing slight crazing on the surface. Continuing to use these solvents will cause deterioration of the acrylic panel
- » Water vapor machines using low pressure steam can be used
- » Do not use jet machines with high pressure
- » Do not use machines with water jet and abrasives

Acrylics like all plastic materials are sensitive to abrasion. In case of scratches you can polish acrylic with rough sand paper and then reduce the sand paper grit to a smaller one. Final polishing should be done according to our instruction manual. Apply the recommended polisher using a clean, soft cloth and light pressure.

The chemical resistance table below gives an indication of the chemical resistance of OPTIX PMMA to a range of common chemicals, judged by visual examination of small unstressed samples immersed in various liquids at 20°C (68°F). This information should be used with some caution since the performance of articles is influenced by stresses applied to the material. In case of doubt, it is recommended that appropriate tests be carried out to simulate the actual service conditions of the intended application.

The chemical resistance table refers only to the effects on OPTIX PMMA resulting from contact with the substances listed.

5. CERTIFICATION

OPTIX ACOUSTIC SHEETS comply with the following standards:

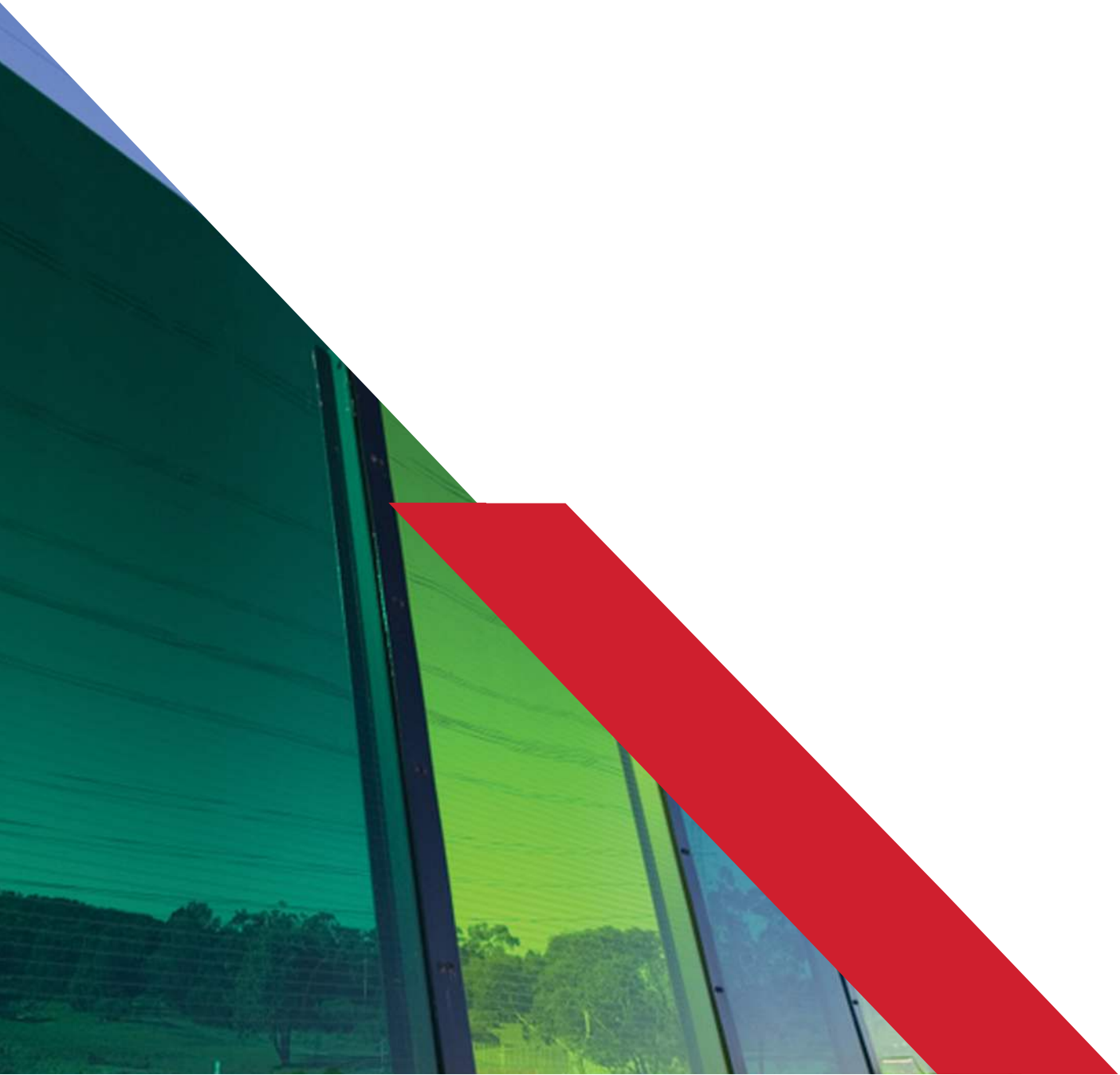
CHEMICAL	CONCENTRATION	COMPLIANCE	CHEMICAL	CONCENTRATION	COMPLIANCE
Acetaldehyde		Dissolved	Hexane		Not affected
Acetic acid		Dissolved	Hydrochloric acid		Not affected
Acetic acid	10% aqueous	Not affected	Hydrofluoric acid	90% aqueous	Dissolved
Acetic anhydride		Affected	Hydrogen peroxide	10% aqueous	Not affected
Acetone		Dissolved	Hydrogen peroxide		Dissolved
Acetonitrile	Aqueous	Dissolved	Isopropyl alcohol	10% aqueous	Affected
Ammonia		Dissolved	Isopropyl alcohol	50% aqueous	Affected
Ammonium chloride	Saturated	Affected	Lactic acid		Not affected
Amyl acetate		Dissolved	Lanoline		Not affected
Aniline		Dissolved	Methyl alcohol		Dissolved
Benzaldehyde		Dissolved	Methyl alcohol	50% aqueous	Not affected
Benzene		Dissolved	Methyl alcohol	10% aqueous	Affected
Benzyl alcohol		Dissolved	Methyl ethyl ketone		Dissolved
Butyl acetate		Dissolved	Methyl salicylate		Dissolved
Butyl alcohol		Dissolved	Methylen		Dissolved
Calcium chloride	Saturated	Not affected	Nitric acid	95% aqueous	Dissolved
Carbon dioxide		Not affected	Nitric acid	10% aqueous	Not affected
Carbon disulfide		Dissolved	Nitrobenzene	98% aqueous	Dissolved
Carbon tetrachloride		Dissolved	Nitrogen		Not affected
Chlorine	2% aqueous	Affected	n-octane		Affected
Chlorine	Gas	Not affected	Olive oil		Not affected
Chlorine	Conc.	Not affected	Oxygen		Not affected
Chlorobenzene		Dissolved	Paraffin		Not affected
Chloroform	Saturated	Dissolved	Phosphoric acid		Dissolved
Chromic acid	10% aqueous	Not affected	Phosphoric acid	10% aqueous	Not affected
Chromic acid		Dissolved	Potassium hydroxide	Saturated	Not affected
Citric acid		Not affected	Salt water		Not affected
Cyclohexane		Dissolved	Silicone F110		Affected
Cyclohexanonl		Dissolved	Silicone F130		Affected
Dibutyl phthalate		Affected	Silicone R220		Affected
Dichloride		Dissolved	Sodium carbonate	Saturated	Not affected
Diesel oil		Not affected	Sodium chlorate	Saturated	Not affected
Diethyl ether		Dissolved	Sodium hydroxide	Saturated	Not affected
Diethyl phthalate		Affected	Sodium thiosulfate	40% aqueous	Not affected
Epichlorohydrin		Dissolved	Sulfuric acid		Dissolved
Ethyl acetate		Dissolved	Sulfuric acid	30% aqueous	Not affected
Ethyl alcohol	10% aqueous	Not affected	Sulfuric acid	10% aqueous	Not affected
Ethyl alcohol	50% aqueous	Affected	Tetrahydrofuran		Dissolved
Ethyl alcohol		Dissolved	Tetraline		Dissolved
Ethyl dichloride	90% aqueous	Dissolved	Toluene		Dissolved
Ethylene glycol		Not affected	Trichloroethane		Dissolved
Formaldehyde	40% aqueous	Not affected	Trichloroethylene		Dissolved
Formic acid	10% aqueous	Not affected	Turpentine oil		Not affected
Formic acid		Dissolved	Water		Not affected
Glycerin		Not affected	Xylene		Dissolved

CERTIFICATION

- » ISO 7823-2 - Plastics Poly (Methyl Methacrylate) Sheets - Types, Dimensions and Characteristics - Extruded Sheets
- » EN-14388:2005 - Road Traffic Noise Reducing Device
- » EN-1793 - Road Traffic Noise Reducing Device - Acoustic Properties
- » EN-1794 - Road Traffic Noise Reducing Device - Non Acoustic Properties

SBR Acoustic Sheets comply with the following standards:

- » ISO 7823-1 - Plastics Poly(Methyl Methacrylate) Sheets - Types, Dimensions and Characteristics - Cast Sheets
- » EN-14388:2005 - Road Traffic Noise Reducing Device
- » EN-1793 - Road Traffic Noise Reducing Device - Acoustic Properties
- » EN-1794 - Road Traffic Noise Reducing Device - Non Acoustic Properties



These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use are beyond our control. We recommend that the prospective user determines the suitability of our materials and suggestions before adopting them on a commercial scale.

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