ARMOR SCREEN PROBOND SERIES

GENERAL NOTES:

- This Flexible Wind Abatement / Impact Protection System is for use within and outside the high velocity hurricane zone (HVHZ - Miami-Dade & Broward Counties). Separation from glass is required only when system is installed within wind zone 4, high velocity hurricane zone and on essential facilities.
- Design loads shall be calculated in accordance with the Forida Building Code 8th Edition (2023) and ASCE 7-22 using ASD load combinations.
- Testing meets Florida Building Code 8th Edition; TAS 201; TAS 202; TAS 203; ASTM 1886; ASTM 1996; ASTM 330 per Sections 1620 and 1626 and fulfills its requirement for opening protection.
- The unbreached envelope criterion is met when this approved wall component encloses the protected opening all around.
- The open areas in the Armor Screen Fabric are small enough that the surface tension of water causes the barrier screen to become solid in the presence of rain, and in actual hurricane conditions has been shown to prevent damaging voluminous water intrusion, even from torrential rains.
- Has satisfied checklist #0445 for resistance to burning, smoke, ignition, temperature, and weathering and qualifies as a permanently installed building component; ASTM G155, ASTM D638, ASTM C158, ASTM D635 - C1, ASTM D1929.

- ASTM G155
- ASTM D638
- ASTM C158
- ASTM D635 - C1
- ASTM D1929

- Product Marking: A permanent label shall be affixed to the screen barrier with the following statement: "Armor Screen Corporation, Current Address, Patented and Patents Pending, US Patent No. 6176050".

PRODUCT DATA:

- Geosynthetic hurricane screen: The hurricane screen shall be produced from a polypropylene, woven geotextile fabric with filaments woven such that the filaments retain dimensional stability relative to each other.

The woven geotextile fabric shall have the following minimum average roll values:

Grab Textile Strength	(ASTM D4632)	425 x 325 LBS
Puncture Strength	(ASTM D4833)	130 LBS
Mullen Burst	(ASTM D3786)	675 PSI
Trapezoidal Tear	(ASTM D4533)	150 x 125 LBS
Wide Width Tensile Strength	(ASTM D4595)	225 x 205 LBS/IN
Thickness	(ASTM D5199)	20 MIL.
Wide Width Elongation	(ASTM D4595)	22 x 21%
Apparent Opening Size		30 US STD Sieve
Percentage of Open Area		5%

All geosynthetic Hurricane Screen assembly details depicted within these drawings are typical for the installation of this wind/rain abatement and impact system only. All other building components shown herein are depicted as existing or samples and not constructed by the screen company.

LIMITATIONS OF USE:

Maximum Span	113"
Maximum Non-Span	Unlimited, Utilizing side overlapping details, page 3
Maximum Design Pressure	+60 / -60 PSF

- Span (anchor span) equals the distance between the primary rows of anchors on opposing sides of the screen and when calculated with negative wind pressure, determines fastener size and spacing.

INSTALLATION NOTES:

- Deflection is the minimum glass separation measured at mid span of the screen and subject to interpolation between listed spans (see tables on page 8). Separation offset may be achieved alone or by any combination thereof, Natural Deflection, Angled Style Screens, Storm Bars and Pneumatic Devices
- Screen may be mounted with opposing primary anchored perimeters (span) in vertical, horizontal, or any alignment appropriate to the structure being protected.
- If the screen does not return to the structure it should extend past protected opening by distance equal to or greater than 1.5 times the offset. For trapped openings the screen should extend complete to fill the opening.
- The screens may be installed at any height on the structure as long as the design pressure rating for the screens is not exceeded.
- Anchors on the non-primary perimeter side (span side) of the screen are optional (e.g. to limit potential sag in the screen or reduce movement on the free side or other site specific reasons).
- The thickness of typical facing materials i.e. stucco, siding, stone, brick, pavers, etc. are not to be considered part of the anchor embedment. Longer fasteners should be used to allow for facing materials.
- Anchor embedment into masonry shall be into the face shell, not mortar joints.
- All fully embedded anchors may be flush with the finished facing provided they have the correct embedment into the structure behind the finish material.
- Anchor installations should follow the manufacturer's recommended methods.
- For attachment into female anchors, sidewalk bolts, washered head bolts or bolts with a standard washer are required.
- A caulk or sealant should be used with all wood penetrating anchors.
- All fasteners shall be corrosion resistant as specified in the IRC and IBC or stainless steel.
- Refer to pages 6 and 7 for approved anchors and anchor spacing.
- Refer to page 8 for deflection and storm bar tables.
- F- track is acceptable

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www.armorscreen.com

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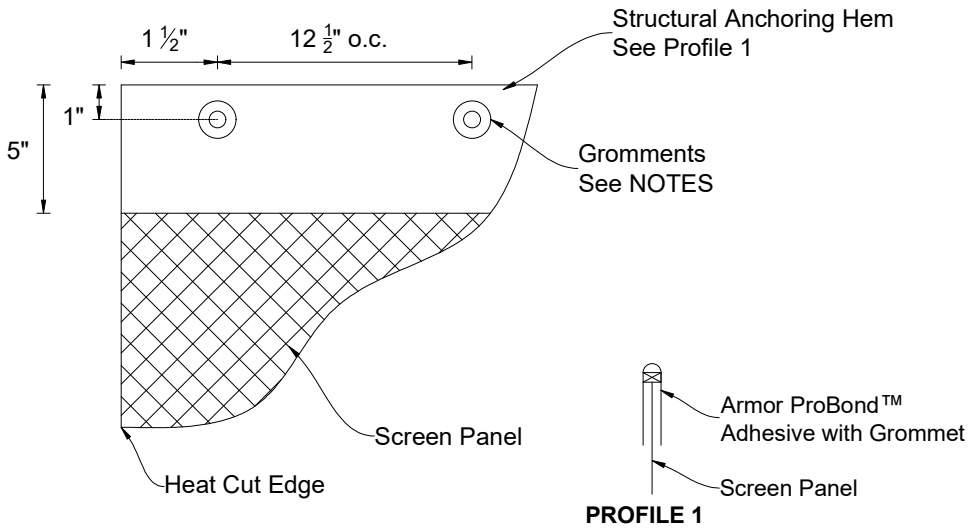
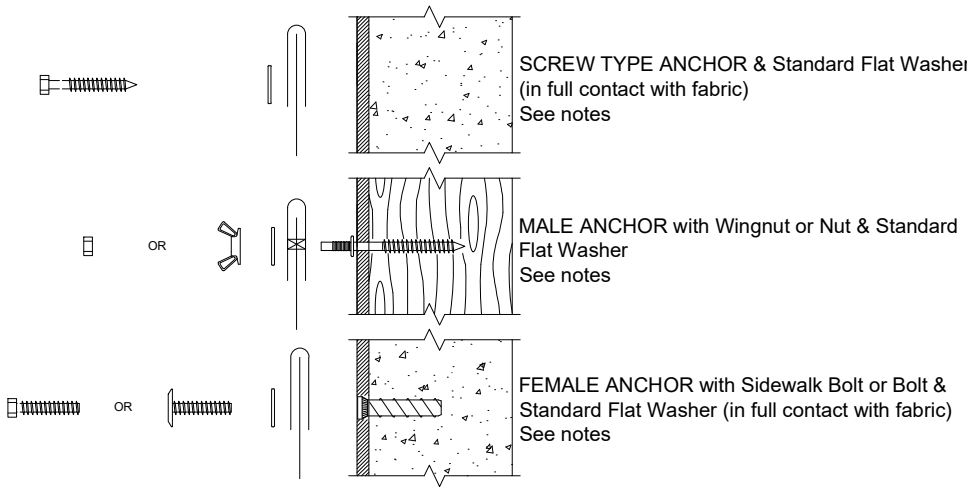
Revision Date(s): 10/23/2023

Scale: Not to scale

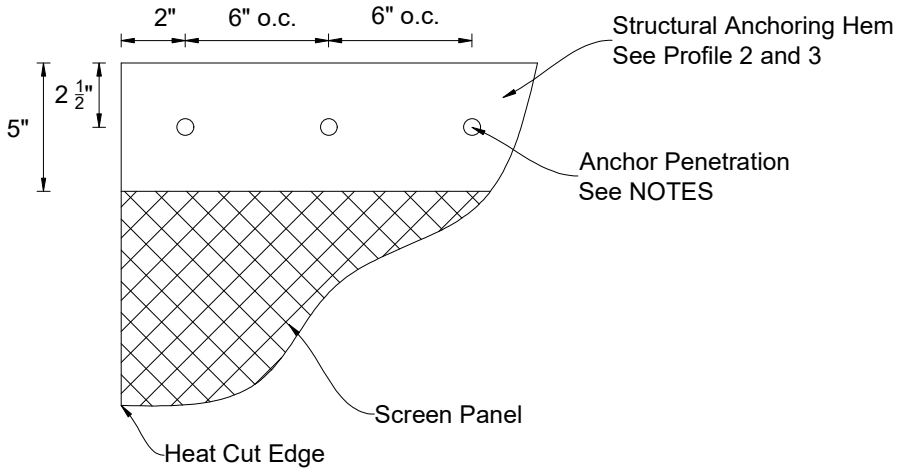


PROFILE 1



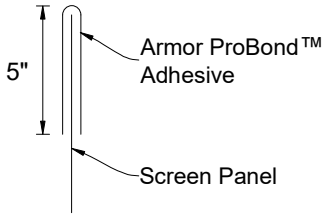
SAMPLE ANCHORING FOR PROFILES 1 - 3

APPLIES TO VERTICAL WALL OR HORIZONTAL MOUNTING APPLICATIONS

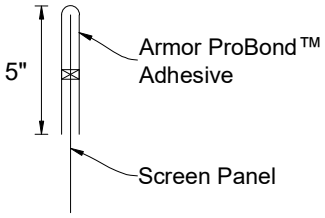


NOTES:

1. Fastener must utilize a 1 ½" O.D. x $\frac{5}{16}$" (or ¼") I.D. flat washer
2. Structural anchoring hem may utilize woven or non-woven polypropylene
3. Refer to pages 6 and 7 for anchor selection.
4. The screen panel should be fully inserted into the Armor ProBond.



PROFILE 2



PROFILE 3

SCREEN PANEL & HEM DETAILS

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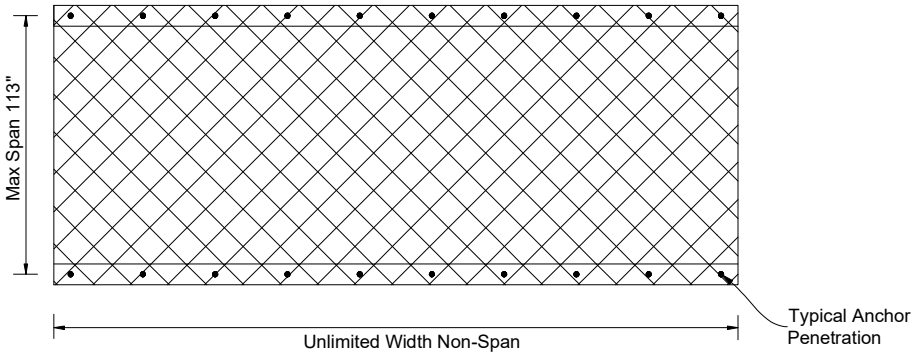
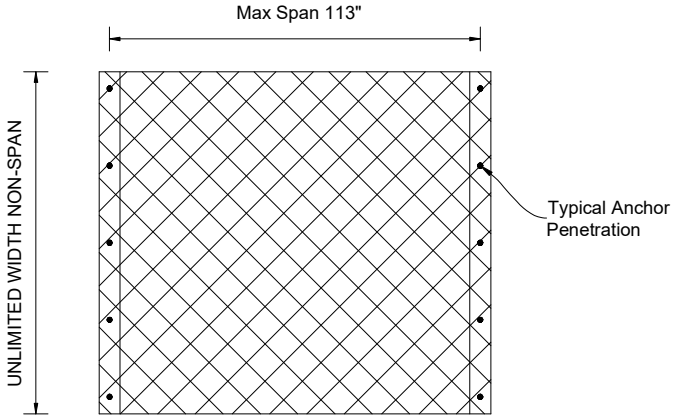
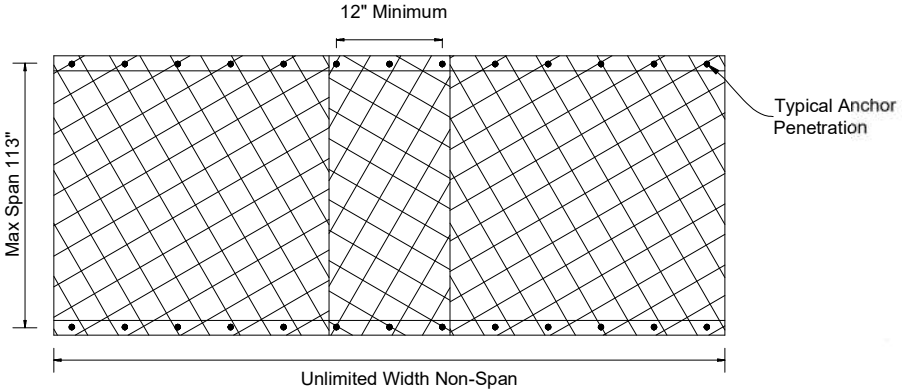


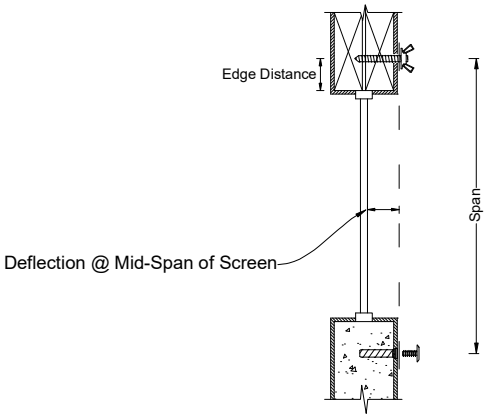
VERTICAL INSTALLATION



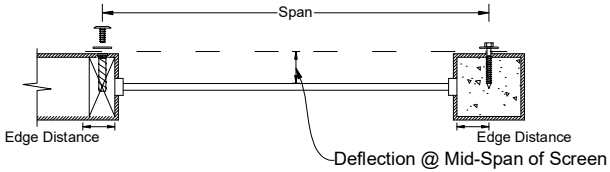
HORIZONTAL INSTALLATION



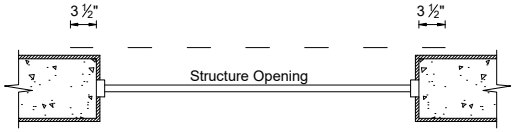
SCREEN OVERLAP



TYPICAL VERTICAL SCREEN SECTIONAL VIEW



TYPICAL HORIZONTAL SCREEN PLAN VIEW



RECOMMENDED NON-SPAN SECTION MINIMUM EDGE OVERLAP (Vertical and Horizontal)

NOTES:

1. Screens may incorporate any combination of Structural Hem PROFILES (page 2) with the appropriate anchors listed on pages 6 and 7.

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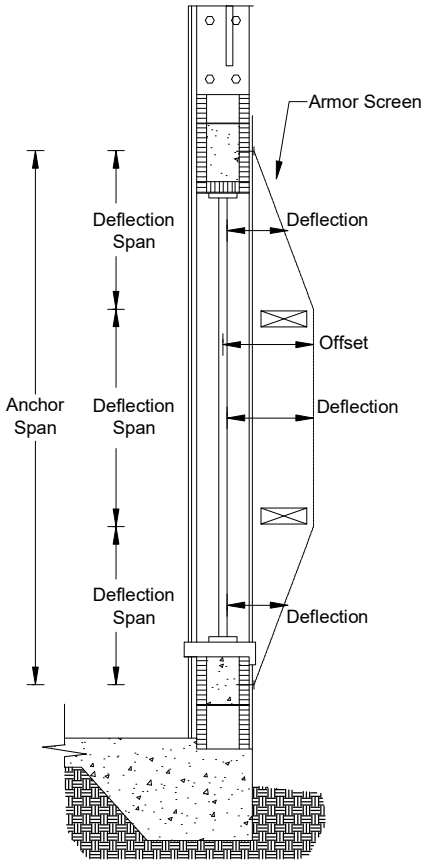
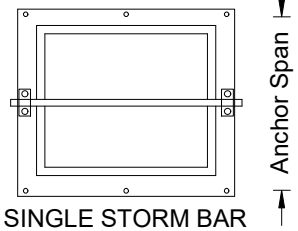
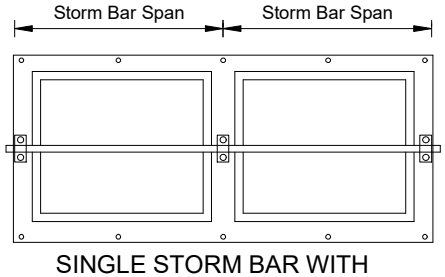


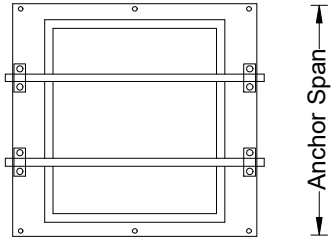
MULTIPLE STORM BAR
WITH SINGLE OPENING



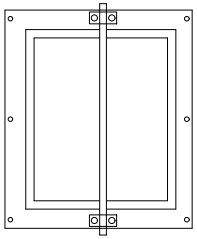
SINGLE STORM BAR
ELEVATION



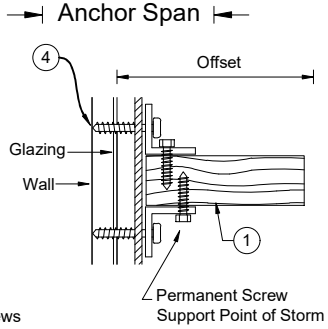
SINGLE STORM BAR WITH
MULTIPLE OPENINGS
ELEVATION



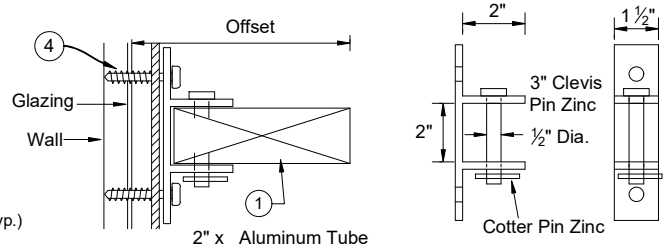
MULTIPLE STORM BAR
ELEVATION



VERTICAL STORM BAR
ELEVATION

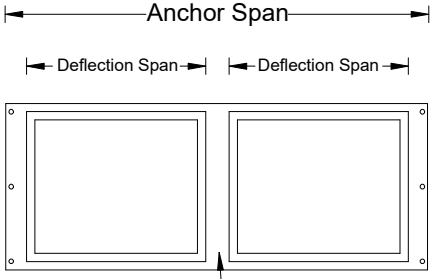


ALTERNATE BRACKETS
2" x 2" x 1½" x ⅛"
ALUMINUM ANGLE
Refer to Storm Bar #1 & #2, page 8

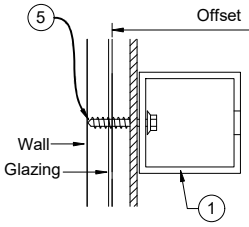


BRACKET
Type 6063-T6

STORM BAR WITH "H" BRACKET



Building Structure between adjacent window / door frames may act as a Storm Bar if proper offset to the glazing is present. This applies to both vertical and horizontal applications.



2" x 2" x ⅛"
ALUMINUM TUBE
Type 6063-T6
Support Point of Storm Bar (typ.)
(refer to storm bar #4, page 8)

STORM BAR NOTES:

1. Refer to page 8 for deflection tables, storm bar tables, and storm bar alloy.
2. The storm bar system is designed to achieve required deflection and may utilize one or more storm bars. The offset may be increased with blocking at the support.
3. Storm bars may be positioned horizontal, vertical, angled or as required.
4. The storm bar bracket may be permanent or removable and attached to the structure using a minimum of two (2) approved ¼" anchors. Refer to pages 6 and 7.
5. The storm bar bracket may be permanent or removable and attached to the structure using a minimum of one approved ¼" anchor. Refer to pages 6 and 7.
6. The storm bar bracket may be wall, floor or ceiling mounted.
7. The storm bar and screen should extend past the protected opening by the distance equal to or greater than 1.5" times the offset
8. The storm bar splits the anchor / screen span into multiple spans, each of which is used to determine the minimum deflection.
9. Screen anchors should be sized and spaced using full anchor / screen span.
10. Use "deflection" span and positive wind pressure to determine minimum separation between screen and glazing.
11. Use "anchor" span and negative wind pressure to determine fastener size and spacing.

STORM BAR DEFLECTION SYSTEM

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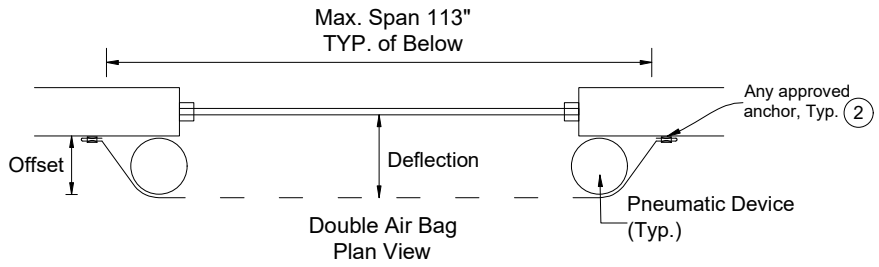
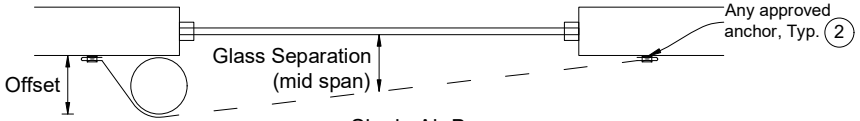
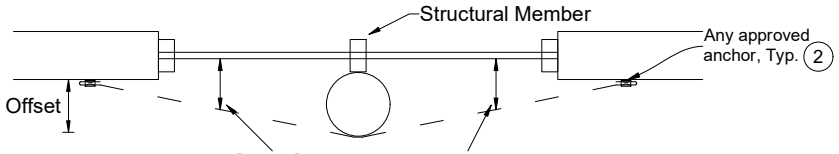


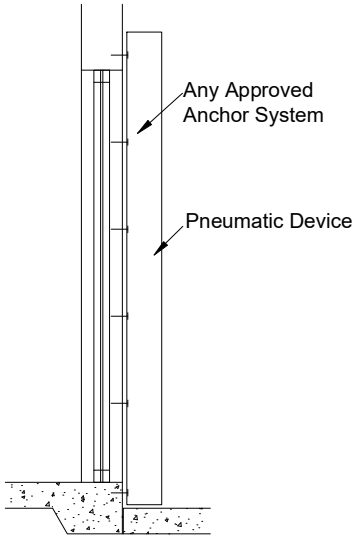
Double Air Bag
Plan View



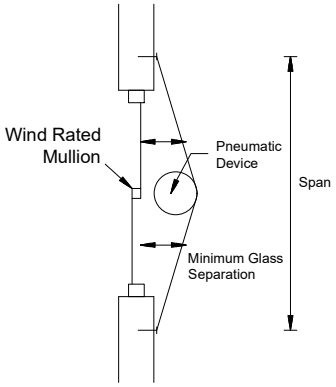
Single Air Bag
Plan View



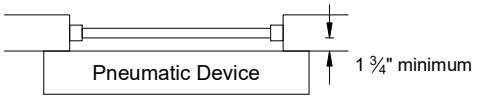
STORE FRONT OR CURTAIN WALL APPLICATION
Plan View



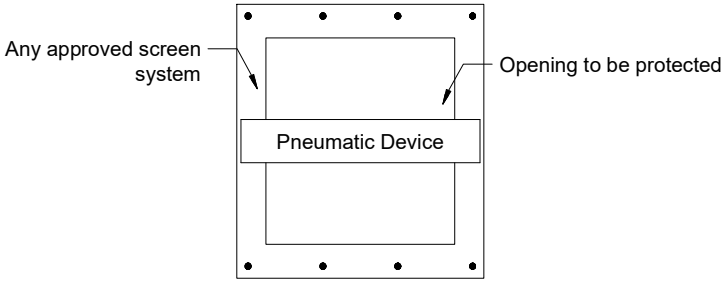
Side Sectional
End Supported PD



Side Sectional
End Supported PD



Top Sectional
End Supported PD



Elevation
End Supported PD

PNEUMATIC DEVICE (PD) SPECIFICATIONS:

1. Pneumatic Device consists of two parts, a refillable polymer air bladder, diameter as appropriate to achieve glass separation, capable of holding air without perceptible leakage, and should be attached to the Armor Screen.
2. May be inflated by any residential or commercial vacuum cleaner, or air pump intended for air mattresses or equivalent devices.
3. Upon removal, the Pneumatic Device should be deflated and stored with screen barrier.

NOTES: PNEUMATIC DEVICE (PD) DEFLECTION SYSTEM

1. Refer to the Deflection Table on page 8 to determine PD diameter.
2. Refer to pages 6 and 7 for approved anchors.
3. The PD not supported directly on glaing may rest on a wind rated window mullion.
4. Inflation of the device requires a minimum pressure of 2.0 psi.
5. One or more devices may be used to achieve required HVHZ separation.
6. This system may be positioned horizontally, vertically, or as required.
7. Use "Deflection" span and positive wind pressure to determine minimum separation between screen and glazing.
8. Use "Anchor" span and negative wind pressure to determine fastener size and spacing.
9. The pneumatic device should be positioned to provide adequate deflection between the screen / barrier and surface being protected.

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PNEUMATIC DEFLECTION SYSTEM

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3000 PSI CONCRETE

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (inches)	Max. Anchor Spacing (inches)
¼"	Tapcon	2"	2 ½"	113"	12 ½
	Dewalt				
¼"	Panelmate (Male or Female)	1 ¾"	2 ½"	113"	12 ½
	Dewalt				
¼"	Panelmate Inserts	1 5/8"	3"	113"	12 ½
	Dewalt				
¼"	Calk-In Anchor	7/8"	3"	113"	12 ½
	Dewalt				

SOLID GROUTED CMU

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (inches)	Max. Anchor Spacing (inches)
¼"	Tapcon	2"	2 ½"	113"	12 ½
	Dewalt				
¼"	Panelmate (Male or Female)	1 ¼"	3"	113"	12 ½
	Dewalt				
¼"	Panelmate Inserts	1 ¼"	3 ½"	113"	12 ½
	Dewalt				
¼"	Calk-In Anchor	7/8"	3"	113"	12 ½
	Dewalt				

CONCRETE BLOCK (CMU)

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (inches)	Max. Anchor Spacing (inches)
¼"	Panelmate (Male or Female)	1 ¼"	3 ½"	113"	12 ½
	Dewalt				
¼"	Panelmate Inserts	1 ½"	3 ½"	113"	12 ½
	Dewalt				
¼"	Calk-In Anchor	7/8"	3"	113"	12 ½
	Dewalt				

NOTES:

1. Maximum spans designed to +60 psf / -60 psf.
2. Provide longer fasteners, if required, to allow for thickness of non-structural finishes.
3. All anchor holes to be clean and dust free before inserting intended anchor.
4. All anchors to be as specified.
5. Edge distances and embedments are minimums.

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ANCHOR TABLES

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Scale: Not to scale

WOOD SYP #2 (G = 0.55)

Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (inches)	Max. Anchor Spacing (inches)
¼"	Spax Self Drilling Screw Spax	2"	¾"	113"	12 ½
¼"	Panelmate (Male or Female) Dewalt	2"	¾"	113"	12 ½"
¼"	Panelmate Inserts Dewalt	1 ⅝"	1¼"	113"	12 ½"

NOTES:
1. Maximum spans designed to +60 psf / -60 psf.
2. Caulk or sealant is recommended for all penetrations into a wood substrate.
3. Provide longer fasteners, if required, to allow for thickness of non-structural finishes such as stucco, plaster, brick, stone, siding, etc.
4. All anchors to be as specified.
5. Design as per NDS 2018.
6. Douglas Fir - Larch and Red Oak are an acceptable alternate.
7. Edge distances and embedments are minimums.

STEEL AND ALUMINUM

	Dia.	Anchor Description / Manufacturer Part Number	Min. Embed.	Min. E.D.	Maximum Span (inches)	Max. Anchor Spacing (inches)
3/16" Steel	¼"	Self Drilling Screws ¼"-14 TEKS	note 3	½"	113"	12 ½
⅛" (12 GA) Steel	¼"	Self Drilling Screws ¼"-14 TEKS	note 3	½"	113"	12 ½
⅛" Aluminum 6063-T6	¼"	Self Drilling Screws ¼"-14 TEKS	note 3	½"	113"	12 ½

NOTES:
1. Maximum spans designed to +60 psf / -60 psf.
2. Provide longer fasteners, if required, to allow for thickness of non-structural finishes such as stucco, plaster, brick, stone, siding, etc.
3. Screws shall extend (3) pitches passing the thread plane.
4. All anchors to be as specified.
5. Edge distances and embedments are minimums.

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10/19/23
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(561)-569-8707
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REGISTRY No. 34110

ANCHOR TABLES

ARMOR SCREEN
PROBOND SERIES

ARMOR SCREEN, CORP
2744 HILLSBORO ROAD
WEST PALM BEACH, FL 33405
TEL: 561.841.8890
FAX: 561.841.8892
www.armorscreen.com

Date: 05/05/2015
Revision Date(s): 10/23/2023

Scale: Not to scale

STORM BAR TABLE

	Storm Bar Span / Length	3'	4'	5'	6'	8'	10'	12'	14'
	Max. PSF	Per Deflection Table							
	Deflection	Per Deflection Table							
1	Wood 2" x 6"	x	x	x	x				
2	Wood 2" x 8"	x	x	x	x	x			
3	Alum. Tube 1" x 2" x ⅛" 6063-T6	x							
4	Alum. Tube 2" x 2" x ⅛" 6063-T6	x	x	x					
5	Alum. Tube 2" x 4" x ⅛" 6061-T6	x	x	x					
6	Alum. Tube 2" x 4" x ¼" 6061-T6	x	x	x	x				
7	Alum. Tube 2" x 6" x ⅛" 6063-T6	x	x	x	x	x			
8	Alum. Tube 2" x 6" x ¼" 6061-T6	x	x	x	x	x	x	x	
9	Alum. Tube 2" x 8" x ¼" 6061-T6	x	x	x	x	x	x	x	x

NOTES:
1. Wood Storm Bar #1 and #2 requires alternate storm bar bracket, see detail on page 7.
2. Wood Storm Bar #1 and #2 to be #2 SYP (Southern Yellow Pine) or Douglas Fir-Larch.
3. Storm Bars #3, #4, #5 and #6, screen width supported by storm bars shall be equal to span or 6' maximum. For screens wider than maximum width use multiple storm bars.

MINIMUM GLASS SEPARATION TABLE

Span in feet	Span in inches	Deflection in inches			
		30 psf	40 psf	50 psf	60 psf
2 ft.	24	3.0	3.1	3.3	3.5
3 ft.	36	4.0	4.2	4.4	4.8
4 ft.	48	4.9	5.3	5.5	6.0
5 ft.	60	5.9	6.3	6.7	7.3
6 ft.	72	7.2	7.8	8.1	9.0
7 ft.	84	8.2	8.8	9.3	10.2
8 ft.	96	9.2	9.9	10.4	11.5
9 ft.	108	10.2	11.0	11.5	12.8
10 ft.	120	11.2	12.0	12.7	14.0

NOTES:
1. Deflection is the minimum glass separation measured at MID SPAN of the screen and subject to rational analysis.
2. One inch (1") has been added to actual minimum separation for safety factor.

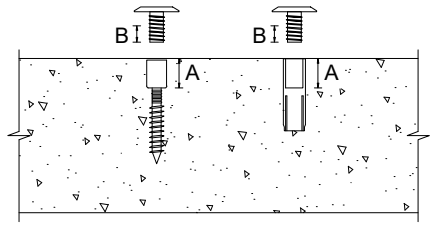
SCREEN REACTIONS FOR PRESSURE AND SPAN

Load (psf)		Span								
		2 ft.	3 ft.	4 ft.	5 ft.	6 ft.	7 ft.	8 ft.	9 ft.	10 ft.
		24"	36"	48"	60"	72"	84"	96"	108"	120"
30	Rh	30	45	60	75	90	105	120	135	150
	Rv	39	59	78	98	118	137	157	177	196
40	Rh	40	60	80	100	120	140	160	180	200
	Rv	50	76	101	126	151	176	201	227	252
50	Rh	50	75	100	125	150	175	200	225	250
	Rv	62	92	123	154	185	215	246	277	308
60	Rh	60	90	120	150	180	210	240	270	300
	Rv	73	109	145	182	218	254	291	327	363

NOTES:
1. Reaction Rh can be positive (towards structure) or negative (away from structure).
2. Rv is always tension as shown.

EMBEDDED ANCHOR DIAMETER	¼"	⅜"
A	½"	1 1/16"
B	5/16"	7/16"

A - Internal Thread Length (varies)
B - Minimum Thread Engagement



MINIMUM BOLT THREAD ENGAGEMENT

NOTES:
1. Table applies to any threaded connection.
2. Refer to anchor spacing tables, pages 6 and 7, for anchor embedment.
3. Edge distances and embedments are minimums.

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