Hi Mr. Mo,
Here we are discuss the safety of exterior glazing system. It is consent of public safety. Each product approval should comply with Florida Building code. No matter he is comfortable or not, the product approval he signed has to be complied with Florida Building Code. If he cannot provide the calculations which comply with Florida Building Code, he has to revise the product approval to make them comply with Florida Building Code. Otherwise the product approval should be suspended for further investigating.

The calculations we provided are 1" solid glass which is much stronger than triple or double laminated glass. The capacity for this 1" solid glass is only 48.4 psf. It means the ¾" triple laminated glass capacity will be less than 48.4 psf. However in Florida approval FL#15709 the center glass capacity is 90 psf, which is too much off from the glass capacity. It is dangerous for this size glass if the hurricane comes. I insist that the Florida Building Code Commission to review this Florida Approval FL#15709 and make it corrected.

Regards,

Yiping Wang, P.E. (FL, NY, TX, DC, NJ, MD, VA, MS, NA)
President
MCY Engineering Inc.

***Please note that we have moved offices. Our new address is listed here.**
12781 Miramar Parkway #301
Miramar, FL. 33027
Tel.: (786) 360-2786
Cell: (305) 588-5224
http://www.mcyengineering.com

From: yiping@mcyengineering.com <yiping@mcyengineering.com>
Sent: Monday, May 15, 2023 8:49 AM
To: Madani, Mo <Mo.Madani@myfloridalicense.com>
Cc: 'ives' <ives@mcyengineering.com>; 'Samir Sabagh' <ssabagh@energiasolarsa.com>
Subject: Comments to FL#15709

Hi Mo, Good morning!

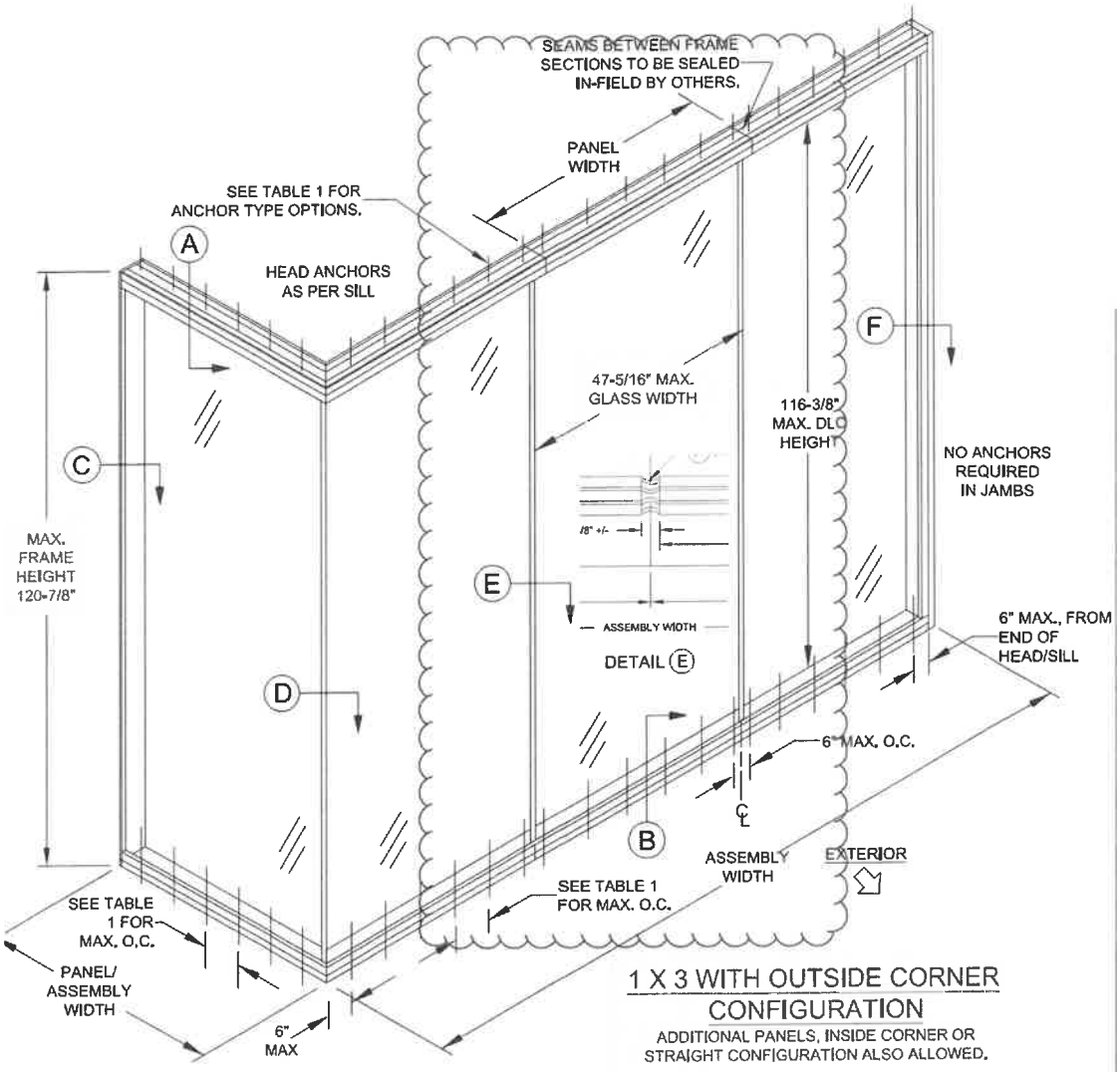
I have following comments regarding Florida Approval FL#15709.

1) As per Florida Building Code 2020 Section 2402.1 the window wall/Curtain wall system the load resistance of glass under uniform load shall be determined in accordance with ASTM E1300.

> **2404.1 Vertical glass.** Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads due to ultimate design wind speed, V_{ult}, in Section 1609 for components and cladding. Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9. The load resistance of glass under uniform load shall be determined in accordance with ASTM E1300.

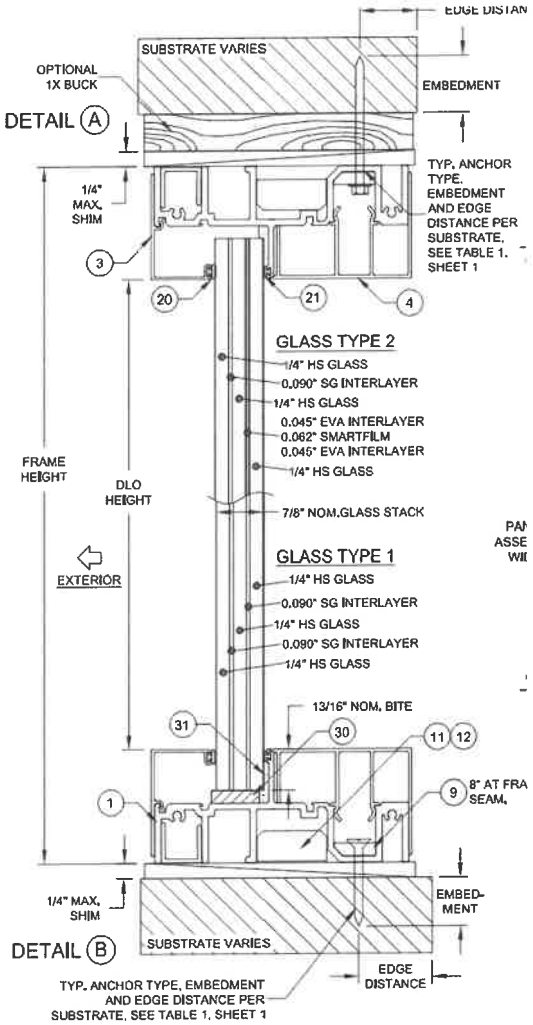
2) The window wall system in HVHZ not only should pass TAS 201, 202 & 203 but also the glass should also be in compliance with ASTM E1300.

3) In current Florida approval FL 15709 the center glass panel, in RED Cloud shown in elevation below, are supported by top and bottom only. On each side the glass, the glass edges are not supported since there is no mullion at each side. See detail E:



1 X 3 WITH OUTSIDE CORNER CONFIGURATION

ADDITIONAL PANELS, INSIDE CORNER OR STRAIGHT CONFIGURATION ALSO ALLOWED.



4) The glass used in FL #15709 is triple laminated glass - 1/4"HS + 0.090"SG + 1/4"HS + 0.090"SG + 1/4"HS, the total glass thickness is 0.837", the glass capacity as per FL#15709 is 90 psf

TABLE 2:

Glass Type	Description (Listed from Exterior to Interior)
1	1/4" HS - 0.090" SG - 1/4" HS - 0.090" SG - 1/4" HS
2	1/4" HS - 0.090" SG - 1/4" HS - 0.045" EVA - 0.062" SmartFilm - 0.045" EVA - 1/4" HS

HS = HEAT STRENGTHENED
SG = SENTRYGLAS INTERLAYER BY KURARAY AMERICA, INC.
EVA = EVA INTERLAYER

DESIGN PRESSURE RATING	IMPACT RATING
+90.0 / -90.0 PSF	RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

5) As per ASTM E1300 the 1" HS, the total glass thickness is 0.969", the glass capacity is 48.4 psf (see attached). Even though the ASTM E1300 did not have detailed instruction for triple laminated glass calculations, the 1" solid HS glass is much stronger than ¾" triple laminated glass. The glass capacity for 1" HS glass is only 48.4 psf which is much

less than 90 psf which specified in FL#15709 for ¾" laminated glass. The calculations for 1" solid HS glass is attached.

From all above we can see that the center glass capacity in Florida approval FL#15709 are not meet the ASTM E1300 and Florida Building Code requirements. I strongly recommend that Florida Building Code Commission review this Florida Approval FL#15709 and have it corrected.

Thank you.

Regards,

Yiping Wang, P.E. (FL, NY, TX, DC, NJ, MD, VA, MS, NA)
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MCY Engineering Inc.
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http://www.mcyengineering.com

From: Madani, Mo
Sent: Thursday, May 11, 2023 8:15 AM
To: ives <ives@mcyengineering.com>
Subject: RE: RE: A question to FL#15709

Ives, the following is the response from PGT:

I am very familiar with the E1300 standard as I sit on the ASTM E06.52 committee and have been directly involved with the development of that standard since 2010.

The E1300 standard contains multiple methods to achieve compliance and we have ensured that the glass for the product referenced below is in full compliance with this standard.

These products have also been tested in full compliance with the TAS 201, 202, and 203 standards to 1.5 times the design load with structural loads held for 30 seconds so I am confident that this product is fully compliant with the HVHZ requirements of the Florida Building Code.

ANTHONY LYNN MILLER, P.E.
CODE COMPLIANCE MANAGER

PGT INNOVATIONS
3440 Technology Drive, N. Venice, FL 34275

Office 941.486.0100 x21142
Cell 941.504.6851
Fax 941.480.2743

Thanks

Mo Madani, Technical Director
Building Codes & Standards office
2601 Blair Stone Road
Tallahassee, Florida 32399
850-717-1825

From: ives <ives@mcyengineering.com>
Sent: Wednesday, May 10, 2023 8:49 PM
To: Madani, Mo <Mo.Madani@myfloridalicense.com>
Cc: Yiping Wang <yiping@mcyengineering.com>
Subject: Re: RE: A question to FL#15709

Hi Mo,

Sorry to miss the call, it is a little late for you now, Yiping will call you back tomorrow morning. Thanks.

Regards,

2023-05-10

Ives
Vice President
MCY Engineering Inc.
12781 Miramar Parkway #301
Miramar, FL 33027
Tel: (305) 271-0117
Cell: (305) 588-5224
http://www.mcyengineering.com

From : "Madani, Mo" <Mo.Madani@myfloridalicense.com>
Sent : 2023-05-11 04:37
Subject : RE: A question to FL#15709
To : "ives"<ives@mcyengineering.com>
Cc :

I have just called and I was unable to leave a message. Please call me when available.

Thanks

Mo Madani, Technical Director
Building Codes & Standards office
2601 Blair Stone Road
Tallahassee, Florida 32399
850-717-1825

From: ives <ives@mcyengineering.com>
Sent: Tuesday, May 9, 2023 2:31 AM
To: Madani, Mo <Mo.Madani@myfloridalicense.com>
Cc: Yiping Wang <yiping@mcyengineering.com>; Samir Sabagh <ssabagh@energiasolarsa.com>
Subject: A question to FL#15709

Hello Mo,

This is Ives from MCY, hope you and your family goes very well.
We have a question to FL#15709, please see attached installation drawing and evaluation report from website.
Our client now has a similar product to develop, they wanted to have the same or near glass size and design pressure than FL#15709.
Based on Florida Building Code Chapter 24, this type of glass shall be pass the calculation as per ASTM E1300, and we did a calculation on the glass size and design pressure shown in this Florida Approval. But we found that the glass (1/4"HS + 0.090"SG + 1/4"HS + 0.090"SG + 1/4"HS) with a size of 48" wide X 120" high can not pass +/-90psf wind load.
Please see attached glass calculation based on ASTM E1300, we took a 3/4" overall thickness glass as an example, this single piece of glass shall be almost same as the glass configuration in FL#15709. Additional panels can be added which is mentioned in this Florida Approval, so the glass shall be considered to be supported by top and bottom. The glass strength result is overstressed by 255%, although the glass is not completely the same, but there should not be a so big difference between them, this is very confused.
Could you please help do some research on this? Did we misunderstand anything for the glass code?
Thanks and have a nice day.

2404.1 Vertical glass. Glass sloped 15 degrees (0.26 rad) or less from vertical in windows, curtain and window walls, doors and other exterior applications shall be designed to resist the wind loads due to ultimate design wind speed, V_{ult} in Section 1609 for components and cladding. Glass in glazed curtain walls, glazed storefronts and glazed partitions shall meet the seismic requirements of ASCE 7, Section 13.5.9. The load resistance of glass under uniform load shall be determined in accordance with ASTM E1300.

Regards,

2023-05-09

Ives
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Title

Disclaimer

These calculations are based on the ASTM E1300-09, ASTM E1300-12 and ASTM E1300-16 Standard Practices for determining the load resistance of glass in buildings and provided to the customer as a guide only. WGD does NOT take responsibility for providing structural load calculations and providing load resistances for the customer's application.

The software used to generate this report has been developed by Standards Design Group (SDG), and can be used to determine the load resistance of specified glass types exposed to uniform lateral loads of short or long duration subject to the following condition(s):

- The glass is free of edge and surface damage and has been properly glazed in the opening in conformance with the manufacturer's recommendations.

The user has the responsibility for selecting the correct procedures for the required application from the software. The stiffness of members supporting any glass edge shall be sufficient that under design load, edge deflections shall not exceed L/175, where L denotes the length of the supported edge. The non-factored load values for laminated glass are representative of test data and calculations performed for an interlayer at a temperature of 50° C (122° F). For other limiting conditions that may apply, refer to Section 5 of ASTM E1300 and local building codes.

SDG disclaims any responsibility for any particular results relating to the use of the WGD Program. SDG disclaims any liability for any personal injury or any loss or damage of any kind, including all indirect, special, or consequential damages and lost profits, arising out of or relating to the use of the WGD Program.

Signature / Stamp

Glazing Construction (Single Glazed Lite)

Single Lite Properties (1 in. Monolithic)

Construction: 1 in. (HS)

Load Resistance

Short Duration (3 Sec)

Description	NFL	GTF	LR
Single Lite	24.2 psf	2.00	48.4 psf

Long Duration (30 Days)

Description	NFL	GTF	LR
Single Lite	24.2 psf	1.30	31.4 psf

Comparisons

Short Duration	
90.0 psf 3.00 sec > 48.4 psf	Load exceeds LR
Approximate edge of glass deflection	
Single Lite	3.21 in. *

Notes

Load resistance values are computed in accordance with ASTM E1300-16 Section 6.2 and are based on non-factored load values calculated in a manner consistent with those presented in ASTM E1300-16.

* Deflection value extends beyond deflection chart

FLORIDA PRODUCT APPROVAL #15709

DESIGN PRESSURE RATING	IMPACT RATING
+90.0 / -90.0 PSF	RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

SERIES GW9994G IMPACT RESISTANT, STRAIGHT, OUTSIDE & INSIDE CORNER SEAMLESS GLAZED WINDOW SYSTEM, 7/8" TRIPLE GLAZED

1) THIS PRODUCT HAS BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF CURRENT FLORIDA BUILDING CODE, INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVH

2) SHUTTERS ARE NOT REQUIRED WHEN USED IN WIND-BORNE DEBRIS REGIONS.

3) ALL WOOD BUCKS LESS THAN 1-1/2" THICK ARE TO BE CONSIDERED 1X INSTALLATIONS. 1X BUCKS ARE OPTIONAL IF UNIT IS INSTALLED DIRECTLY TO SUBSTRATE. WOOD BUCKS DEPICTED 2X ARE 1-1/2" THICK OR GREATER. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED TO PROPERLY TRANSFER LOADS TO THE STRUCTURE. WOOD BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD.

4) ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO. USE ANCHORS OF SUFFICIENT LENGTH. OVERALL SEALING/FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

5) SHIMS ARE REQUIRED AT EACH ANCHOR LOCATION WHERE THE PRODUCT IS NOT FLUSH TO THE SUBSTRATE. USE SHIMS CAPABLE OF TRANSFERRING APPLIED LOADS. WOOD BUCKS, BY OTHERS, MUST BE SUFFICIENTLY ANCHORED TO RESIST LOADS IMPOSED ON THEM BY WINDOW.

6) THE ANCHORAGE METHODS SHOWN HAVE BEEN DESIGNED TO RESIST THE WIND LOADS CORRESPONDING TO THE REQUIRED DESIGN PRESSURE. THE 33-1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. THE 1.6 LOAD DURATION FACTOR WAS USED FOR THE EVALUATION OF ANCHORS INTO WOOD. ANCHORS THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE FOR CORROSION RESISTANCE.

Top and bottom channels are the supporting for the yellow highlight piece of glass, this piece of glass is single supported condition.

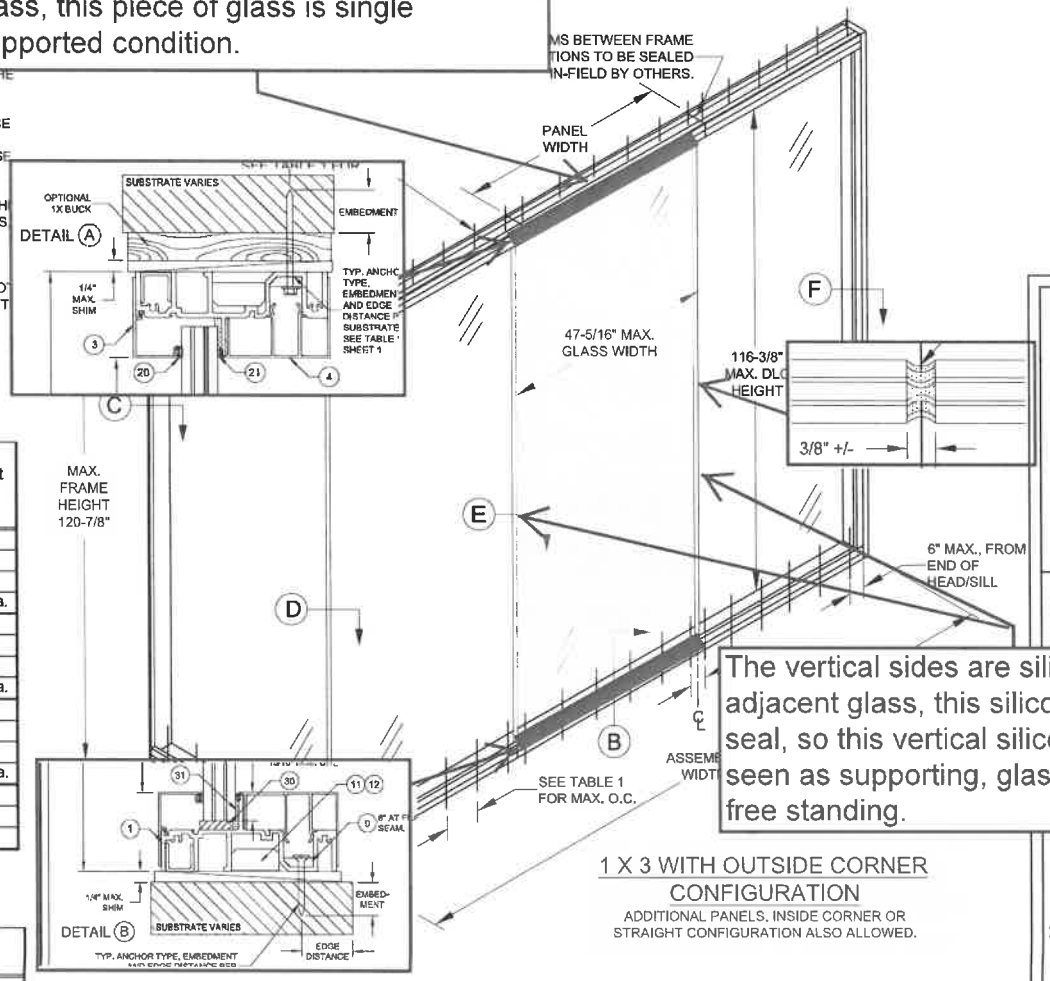

TABLE 1:

Anchor Type	Substrate	Min. Edge Distance	Max. O.C. Distance	Min. Embedment or Metal Thickness
#12 Steel SMS, G5	Southern Pine (SG = 0.55)	9/16"	9"	1-3/8"
	6063-T5 Aluminum	3/8"	9"	0.093"
	A36 Steel	3/8"	9"	0.050"
	Steel Stud, Gr. 33	3/8"	9"	0.057", 16 Ga.
#14 Steel SMS, G5	Southern Pine (SG = 0.55)	5/8"	9"	1-3/8"
	6063-T5 Aluminum	3/8"	9"	0.093"
	A36 Steel	3/8"	9"	0.050"
	Steel Stud, Gr. 33	3/8"	9"	0.057", 16 Ga.
#14 410 Stainless Steel SMS, G5	Southern Pine (SG = 0.55)	5/8"	9"	1-3/8"
	6063-T5 Aluminum	3/8"	9"	0.093"
	A36 Steel	3/8"	9"	0.050"
	Steel Stud, Gr. 33	3/8"	9"	0.057", 16 Ga.
1/4" Elco UltraCon	Concrete (min. 2.85 ksi)	2-1/2"	9"	1-3/8"
1/4" DeWalt UltraCon+	Concrete (min. 23.00 ksi)	2-1/2"	9"	1-3/8"
1/4" Elco Creteflex	Concrete (min. 2.85 ksi)	1-3/4"	9"	1-3/4"

1) ANCHOR MUST EXTEND A MIMIMUM OF 3 THREADS BEYOND ANY METAL SUBSTRATE.
2) ANY HEAD TYPE ALLOWABLE.

TABLE 2:

Glass Type	Description (Listed from Exterior to Interior)
1	1/4" HS - 0.090" SG - 1/4" HS - 0.090" SG - 1/4" HS
2	1/4" HS - 0.090" SG - 1/4" HS - 0.045" EVA - 0.062" SmartFilm - 0.045" EVA - 1/4" HS

HS = HEAT STRENGTHENED
SG = SENTRYGLAS INTERLAYER BY KURARAY AMERICA, INC.
EVA = EVA INTERLAYER

The vertical sides are silicone between adjacent glass, this silicone is used for seal, so this vertical silicone can not be seen as supporting, glass vertical sides are free standing.

1 X 3 WITH OUTSIDE CORNER CONFIGURATION

ADDITIONAL PANELS, INSIDE CORNER OR STRAIGHT CONFIGURATION ALSO ALLOWED.

PREPARED BY A. LYNN MILLER, P.E.
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275 (941) 480-1600

REGISTRATION #29296

ANTHONY LYNN MILLER LICENSE No. 58705 STATE OF FLORIDA PROFESSIONAL ENGINEER
02/09/23
A. LYNN MILLER, P.E.
P.E.# 58705

Rev.	Date	
A	02/08/23	CORRECTED ANCHOR O.C.

Drawn By	Date	
J ROSOWSKI	10/10/21	7/8" TP

Sheet	DWG No.	
1 OF 3	9994.2-FPA	NOTES & ANCHORS
NTS		AZED WDW. SYSTEM