Product Approval
USER: Public User

FL #	FL6417-R3
Application Type	Revision
Code Version	2010
Application Status	Approved
Comments	
Archived	
Product Manufacturer	Transparent Protection Systems, Inc.
Address/Phone/Email	6643 42nd Terrace North West Palm Beach, FL 33407
Authorized Signature	Frank Bennardo frank@engexp.com
Technical Representative Address/Phone/Email	
Quality Assurance Representative Address/Phone/Email	
Category	Shutters
Subcategory	Storm Panels
Compliance Method	Evaluation Report from a Florida Registered Architect or a Licensed Florida Professional Engineer Evaluation Report - Hardcopy Received
Florida Engineer or Architect Name who developed the Evaluation Report	Frank L. Bennardo, P.E.
Florida License	PE-0046549
Quality Assurance Entity	National Accreditation and Management Institute
Quality Assurance Contract Expiration Date	12/31/2012
Validated By	Jorge A. Pomerantz, P.E. Validation Checklist - Hardcopy Received
Certificate of Independence	FL6417_R3_COI_Cert_Indep.pdf

Referenced Standard and Year (of Standard)

Standard	Year
ASTM E1886	2002
ASTM E1886	2005
ASTM E1996	2002
ASTM E1996	2005
ASTM E330	2002

Equivalence of Product Standards Certified By	Florida Licensed Professional Engineer or Architect FL6417_R3_Equiv_Equiv_Std.pdf
Sections from the Code	

Product Approval Method	Method 1 Option D
Date Submitted	12/16/2011
Date Validated	12/16/2011
Date Pending FBC Approval	12/26/2011
Date Approved	01/31/2012

Summary of Products

FL #	Model, Number or Name	Description
6417.1	ClearGuard Non-HVHZ Panels	ClearGuard Polycarbonate Storm Panels (Non-HVHZ Product)
Limits of Use **Approved for use in HVHZ:** No **Approved for use outside HVHZ:** Yes **Impact Resistant:** Yes **Design Pressure:** N/A **Other:** See engineering drawings for design limitations (allowable spans, mounting conditions, anchor options, etc.)		**Installation Instructions** FL6417_R3_II_Dwg.pdf Verified By: Frank L. Bennardo, P.E. PE0046549 Created by Independent Third Party: Yes **Evaluation Reports** FL6417_R3_AE_Eval_Rpt.pdf Created by Independent Third Party: Yes

Back Next

Contact Us :: 1940 North Monroe Street, Tallahassee FL 32399 Phone: 850-487-1824

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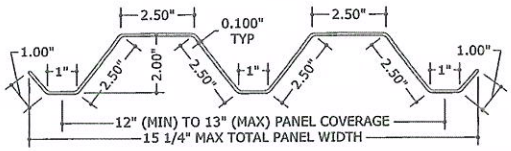
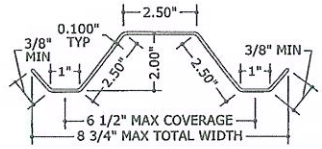
Product Approval Accepts:

CLEAR GUARD® POLYCARBONATE STORM PANELS (Non-HVHZ)



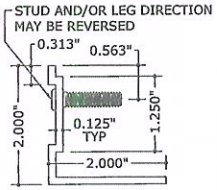
1 FULL PANEL PROFILE
3" = 1'-0" (SEE GEN NOTE 7)

MOUNT WITH FASTENERS OR STUDS AT 13" O.C. MAX

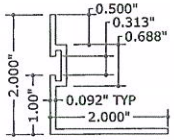


2 HALF PANEL PROFILE
3" = 1'-0" (SEE GEN NOTE 7)

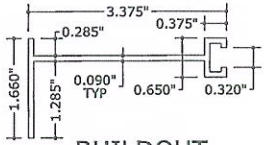
MOUNT WITH FASTENERS OR STUDS AT 6-1/2" O.C. MAX



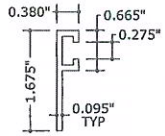
3 STUD ANGLE
6" = 1'-0"



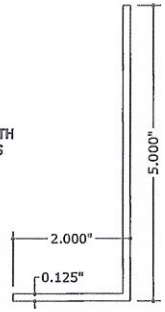
4 REVERSE 'F' ANGLE
6" = 1'-0"



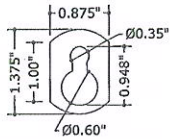
5 BUILDOUT 'F' TRACK
6" = 1'-0"



6 'F' TRACK
6" = 1'-0"

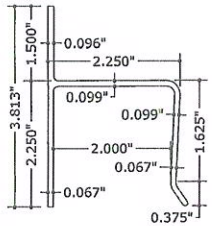


7 CLOSURE ANGLE
6" = 1'-0"

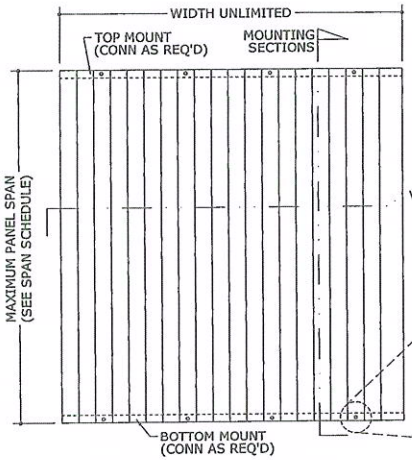


8 KEYHOLE WASHER
6" = 1'-0"

9 WASHERED WINGNUT
6" = 1'-0"

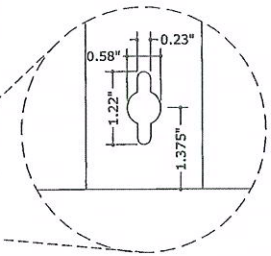


10 'H' HEADER
6" = 1'-0"



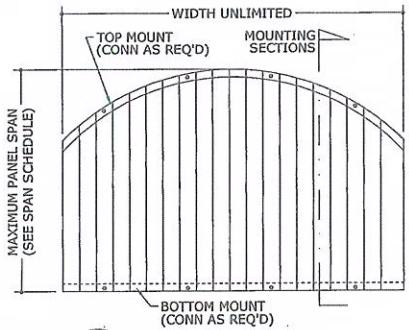
1 TYPICAL ELEVATION
1 N.T.S.

PLAN VIEWS



2 KEYHOLE DETAIL
1 N.T.S.

ALT: FIELD DRILL Ø3/8" HOLE (OR Ø5/8" HOLE W/ KEYHOLE WASHER)



3 ALT. ARCH TOP*
1 N.T.S.

GENERAL NOTES:

1) THIS SYSTEM HAS BEEN TESTED AND EVALUATED AS A LARGE MISSILE IMPACT PROTECTIVE SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 FLORIDA BUILDING CODE AND THE 2009 INTERNATIONAL BUILDING/RESIDENTIAL CODE PER ASTM STANDARDS E330, E1886, & E1996. PANELS ARE APPROVED FOR USE IN FLORIDA OUTSIDE THE HIGH VELOCITY HURRICANE ZONE, OR THROUGHOUT OTHER AREAS GOVERNED BY THE 2009 IBC/IRC.

2) NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS PRODUCT.

3) POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE. SITE-SPECIFIC PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7-10 AND CHAPTER 1609 OF THE 2010 FLORIDA BUILDING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.

4) DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.

5) THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. IF SITE CONDITIONS DEVIATE FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS TO BE USED IN CONJUNCTION WITH THIS DOCUMENT.

6) THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS IS OUTSIDE THE SCOPE OF THIS CERTIFICATION AND SHALL BE VERIFIED BY OTHERS.

7) CLEAR POLYCARBONATE STORM PANELS (FULL, HALF, & DOUBLE-WIDE) MAY VARY IN "COVERAGE" WIDTH UP TO THE RESPECTIVE MAXIMA SHOWN HEREIN, PROVIDED THAT THE PANEL PROFILE HEIGHT BE MAINTAINED. PANELS SHALL BE MOUNTED WITH FASTENERS OR STUDS AT MAXIMUM SPACING SHOWN FOR EACH PROFILE.

8) ALL POLYCARBONATE PANELS SHALL BE MANUFACTURED BY TRANSPARENT PROTECTION SYSTEMS, Inc.

9) THIS PRODUCT APPROVAL IS FOR THE USE OF CLEAR POLYCARBONATE PANELS ONLY. ALL POLYCARBONATE PANELS SHALL BE EXTRUDED WITH THICKNESS t=0.100" (±0.010") AND SHALL BE MANUFACTURED FROM 100% SYNTHETIC THERMOPLASTIC POLYMER RESIN (UV STABILIZED). TYPICAL SYNTHETIC THERMOPLASTIC POLYMER TENSILE STRENGTH Fy=8.908 KSI, FLEXURAL STRENGTH Fby=12.90 KSI, & FLEXURAL MODULUS IS 328.7 KSI.

10) ALL EXTRUSIONS SHALL BE 6063-T6 ALUMINUM ALLOY, U.N.O.

11) PANELS SHALL BE PERMANENTLY LABELED WITH A MINIMUM OF ONE LABEL PER PANEL CONTAINING THE FOLLOWING:
TRANSPARENT PROTECTION SYSTEMS, INC.
WEST PALM BEACH, FLORIDA
ASTM E330, E1886 & E1996
PRODUCT APPROVAL NUMBER

12) STORM PANELS HAVE BEEN DESIGNED AND TESTED TO THE MAXIMUM SPANS AND CORRESPONDING LOADS SHOWN HEREIN. REFERENCE CONSTRUCTION TESTING CORPORATION (CTC OF MIAMI, FL) TEST REPORTS #04-009-FE-ASTM & #04-009-LE-ASTM, AS WELL AS HURRICANE TEST LAB (HTL OF RIVIERA BEACH, FL) TEST REPORTS #0239-0107-05, #0239-1013-07, #0239-0312-06, #0239-0110-07 & #0239-0813-06.

13) TOP & BOTTOM MOUNTING SECTIONS MAY BE INTERCHANGED AS FIELD CONDITIONS DICTATE. PANELS MAY BE MOUNTED VERTICALLY OR HORIZONTALLY AS APPLICABLE.

14) USE OF KEYHOLE WASHERS IS OPTIONAL IN CONJUNCTION WITH ANY MOUNTING CONDITION. HOLES MAY BE FIELD DRILLED AT Ø3/8" (OR Ø5/8" WITH KEYHOLE WASHER) WITH ANY FASTENER TYPE. WASHERED WINGNUTS SHALL HAVE 0.865" MINIMUM WASHER DIAMETER.

15) ALL BOLTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI.

16) THE HURRI-OUT EGRESS STORM PANEL DETAILS ARE INTENDED TO ALLOW THE POSSIBILITY OF REMOVING PANELS FROM INSIDE OF DWELLING. RESULTS MAY VARY ACCORDING TO INSTALLATION, END-USER, AND TRAINING, ETC. ENGINEERING EXPRESS AND TRANSPARENT PROTECTION SYSTEMS DO NOT ASSUME ANY RESPONSIBILITY OR LIABILITY ASSOCIATED WITH USE OF THIS INSTALLATION AND OR ITS APPLICATIONS.

*NOTE: FOR ALTERNATE ARCH TOP INSTALLATIONS, THE TOP TRACK OR U-HEADER SHALL BE CUT INTO 6" MINIMUM ADJACENT SEGMENTS. EACH SEGMENT SHALL HAVE ANCHORS SPACED PER THE ANCHOR SCHEDULE, WITH A MINIMUM OF (2) ANCHORS PER SEGMENT. ANCHORS SHALL BE 1-1/2" MIN FROM ENDS OF EACH SEGMENT AND SPACED 3" MINIMUM FROM ADJACENT ANCHORS. FOR STUDDED TRACKS ONLY, THERE SHALL BE A MINIMUM OF (1) STUD PER SEGMENT FASTENED TO THE STORM PANEL. STUDS SHALL BE LOCATED 2" MINIMUM FROM ENDS OF EACH SEGMENT.

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CERT OF AUTH #28888
A FRANK L. BENNARDO, P.E., INC. INCORPORATION

TPS Transparent Protection Systems, Inc.
6643 42nd Terrace North
West Palm Beach, FL 33407

CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
ORIG ISSUE	CL	FLB	8/17/04
2004 FBC	CL	FLB	8/05/05
Clear-MAX PROFILE ADDED	CL	FLB	2/08/06
2007 FBC REVISION	KL	CL	12/28/06
2010 FBC REVISIONS	EFT	KL	12/12/11

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1 OF 7

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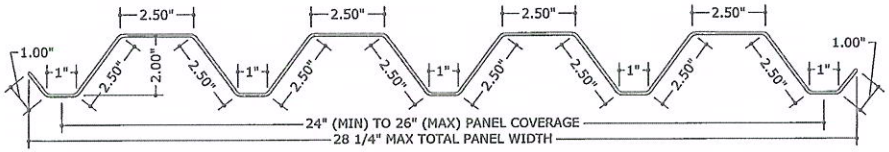
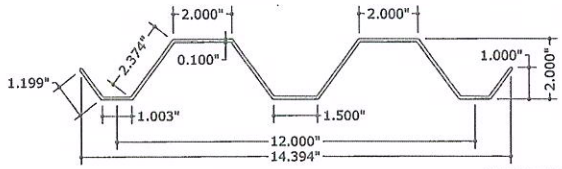


11 "CLEARMAX™" DOUBLE-WIDE PANEL PROFILE

3" = 1'-0" (SEE GEN NOTE 6)

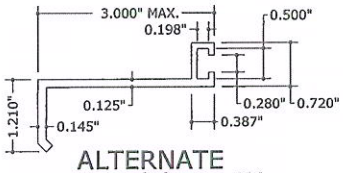
MOUNT WITH FASTENERS OR STUDS AT 13" O.C. MAX



12 ALT. FULL PANEL PROFILE

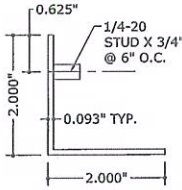
N.T.S. (SEE GEN NOTE 6)

MOUNT WITH FASTENERS OR STUDS AT 13" O.C. MAX



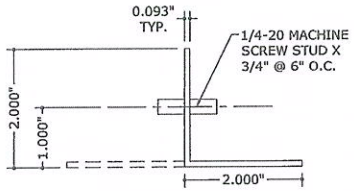
13 ALTERNATE B.O. 'F' TRACK

6" = 1'-0"



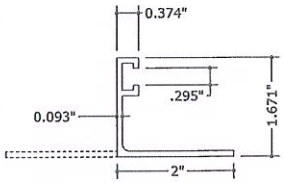
14 ALTERNATE STUD ANGLE

6" = 1'-0"



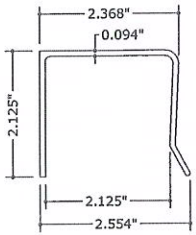
15 STUDDED ANGLE

6" = 1'-0"



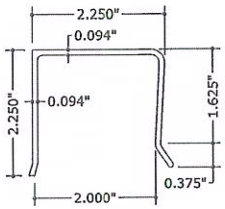
20 'F' TRACK ANGLE

6" = 1'-0"



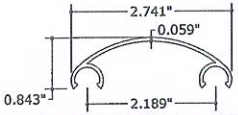
16 U-HEADER

N.T.S. 6063-T6



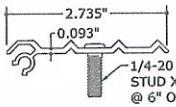
17 ALTERNATE U-HEADER

N.T.S. 6063-T6



18 CLAMSHELL COVER

N.T.S. 6063-T6



19 CLAMSHELL TRACK

N.T.S. 6063-T6

MAXIMUM PANEL SPAN SCHEDULE (POSITIVE CONN.)

LOAD (psf)	MAX SPAN (ft)
38	12'-0"
40	11'-5"
45	10'-1"
50	9'-1"
55	8'-3"
60	7'-7"
65	7'-0"
70	6'-7"
75	6'-1"
80	5'-9"
90	5'-1"
100	4'-7"
110	4'-2"
120	3'-10"

MAXIMUM PANEL SPAN SCHEDULE (W/ "H" HEADER)

LOAD (psf)	MAX SPAN (ft)
17.3	8'-7"
24.2	7'-9"
34.6	7'-0"
41.6	6'-0"
55.4	5'-0"
104	4'-0"

MAXIMUM PANEL SPAN SCHEDULE (W/ "U" HEADER)

MAX SPAN (ft)	MAX DESIGN PRESSURES POSITIVE (psf)	NEGATIVE (psf)
6'-3"	35	38
5'-3"	48	48
4'-4"	78	80

MAXIMUM SPAN SCHEDULE NOTES:

1. SPANS SHOWN IN "MAX PANEL SPAN SCHEDULES" ARE MAXIMUM ALLOWABLE SPANS AT EACH RESPECTIVE DESIGN PRESSURE.
2. THE <POSITIVE CONNECTION> SPAN SCHEDULE MAY BE USED TO DETERMINE MAXIMUM ALLOWABLE SPANS FOR PANELS INSTALLED USING ANY COMBINATION OF MOUNTING EXTRUSIONS INVOLVING A POSITIVE CONNECTION - i.e. ALL INSTALLATIONS WHICH DO NOT INCLUDE AN "H" OR "U" HEADER.
3. THE <WITH "H" HEADER> SPAN SCHEDULE SHALL BE USED FOR ALL INSTALLATIONS WHICH INCLUDE AN "H" HEADER.
4. THE <WITH "U" HEADER> SPAN SCHEDULE SHALL BE USED FOR ALL INSTALLATIONS WHICH INCLUDE A "U" HEADER
5. TABLES ARE VALID FOR PANELS MOUNTED HORIZONTALLY OR VERTICALLY. SPAN DIRECTION IS ALWAYS PERPENDICULAR TO LINE OF ANCHORAGE.

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CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
ORIG ISSUE	CL	FLB	8/17/04
2004 REC	CL	FLB	9/05/05
ClearMAX PROFILE ADDED	CL	FLB	2/06/06
2007 REC REVISION	KL	CL	12/26/08
2010 REC REVISIONS	EFT	KL	12/12/11

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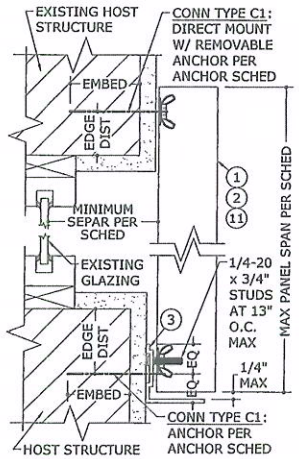
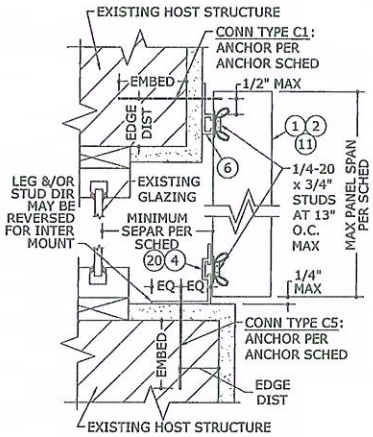
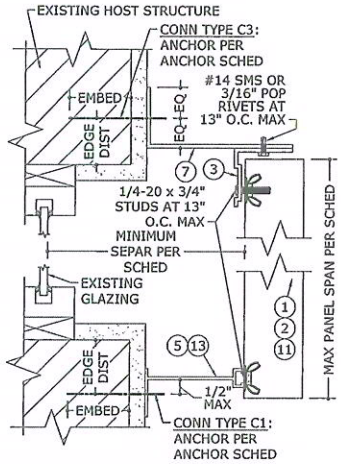


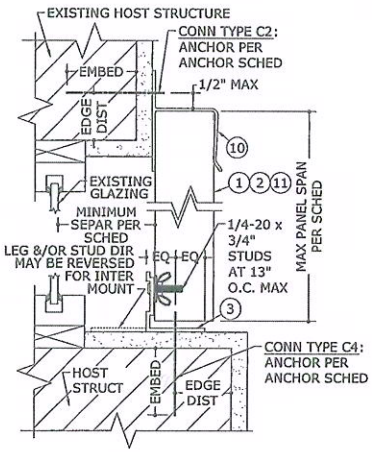
1/3 MOUNTING SECTION
3" = 1'-0" VERT SECTION



2/3 MOUNTING SECTION
3" = 1'-0" VERT SECTION



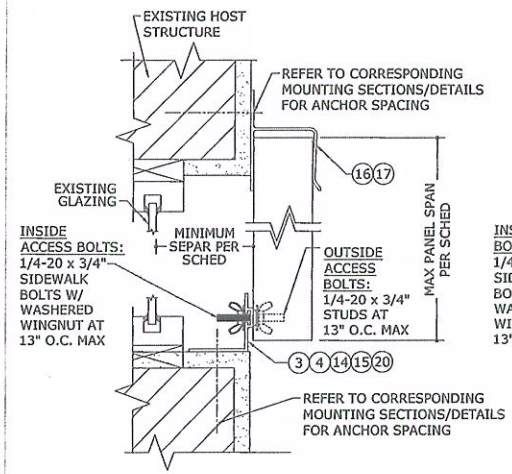
3/3 MOUNTING SECTION
3" = 1'-0" VERT SECTION



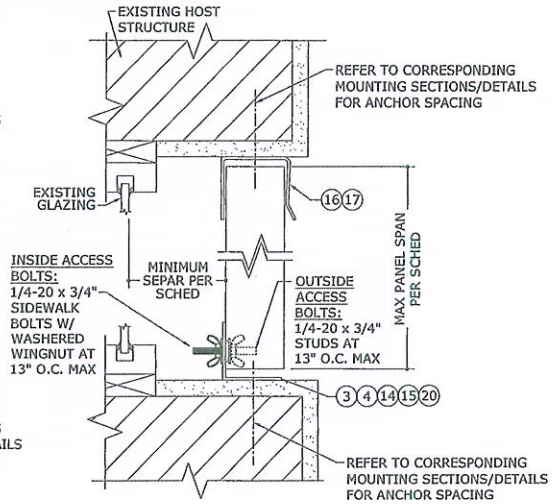
4/3 MOUNTING SECTION
3" = 1'-0" VERT SECTION

HURRI-OUT™ EGRESS STORM PANEL DETAILS*

(*NOTE: SEE GENERAL NOTE #15)

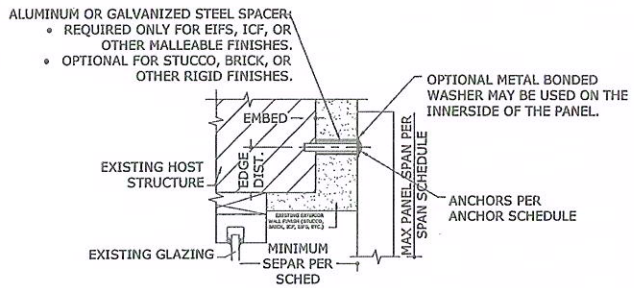


5/3 MOUNTING SECTION
N.T.S. VERT SECTION



6/3 MOUNTING SECTION
N.T.S. VERT SECTION

NOTE: SHUTTER SYSTEM MAY BE ANCHORED THROUGH EXTERIOR WALL FINISH TO HOST STRUCTURE WITH ANY MOUNTING CONDITION SHOWN HEREIN.



7/3 MOUNTING SECTION THRU EXTERIOR WALL FINISH (BRICK, ICF, EIFS, ETC.)
N.T.S. VERT SECTION

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CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
0903 ISSUE	CL	FLB	8/17/04
2004 FBC	CL	FLB	8/05/05
ClearMAX PROFILE ADDED	CL	FLB	2/06/06
2007 FBC REVISION	KL	CL	12/28/06
2010 FBC REVISIONS	EFT	KL	12/12/11

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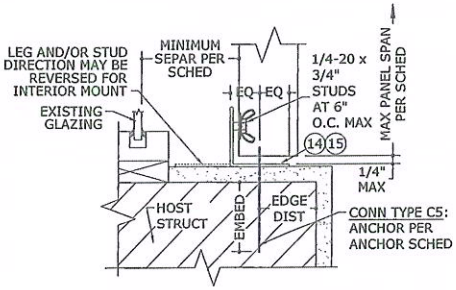
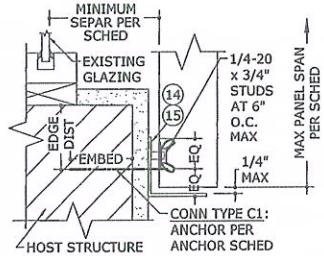
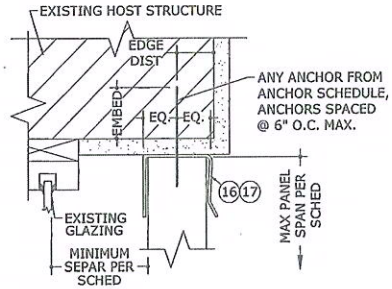


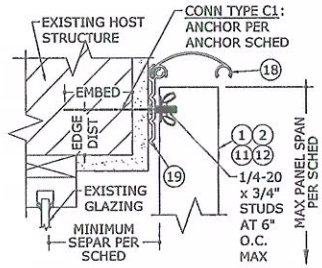
1/4 MOUNTING SECTION
3" = 1'-0" VERT SECTION



2/4 MOUNTING SECTION
3" = 1'-0" VERT SECTION

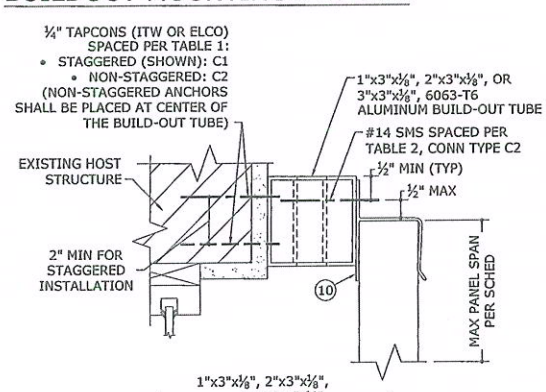


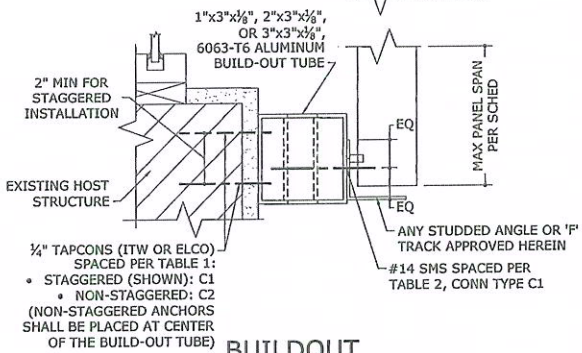
3/4 MOUNTING SECTION
N.T.S. VERT SECTION



4/4 MOUNTING SECTION
N.T.S. VERT SECTION

BUILDOUT MOUNTING DETAILS





5/4 BUILDOUT MOUNTING DETAIL
N.T.S. VERT SECTION

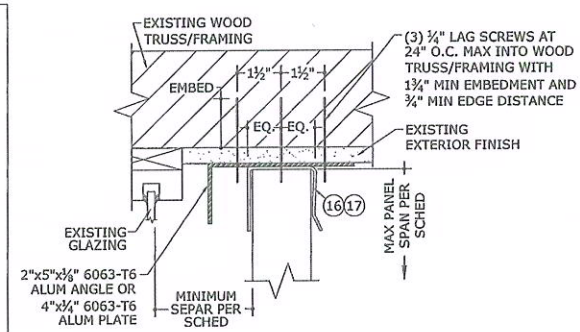
TABLE 1*: BUILDOUT ONLY

HOST STRUCT.	LOAD (psf)	Spans Up To 6'-0" CONN TYPE C1	Spans Up To 6'-0" CONN TYPE C2	Spans Up To 8'-6" CONN TYPE C1	Spans Up To 8'-6" CONN TYPE C2	Spans Up To 11'-4" CONN TYPE C1	Spans Up To 11'-4" CONN TYPE C2
CONCRETE	30	13.0"	13.0"	13.0"	13.0"	13.0"	11.8"
	38	13.0"	13.0"	13.0"	12.4"	13.0"	9.3"
	47	13.0"	13.0"	13.0"	10.1"	13.0"	8.5"
	54	13.0"	12.4"	13.0"	8.8"	13.0"	8.5"
	120	13.0"	8.5"	13.0"	8.5"	13.0"	8.5"
HOLLOW BLOCK	30	10.9"	6.6"	7.7"	4.6"	5.8"	3.5"
	38	8.6"	5.2"	6.1"	3.7"	4.6"	
	47	7.0"	4.2"	4.9"	3.0"	4.2"	
	54	6.1"	3.6"	4.3"		4.2"	
	120	4.2"		4.2"		4.2"	
WOOD	30	13.0"	8.5"	10.0"	6.0"	7.5"	4.5"
	38	11.2"	6.7"	7.9"	4.7"	5.9"	3.6"
	47	9.1"	5.4"	6.4"	3.8"	5.4"	3.3"
	54	7.9"	4.7"	5.6"	3.3"	5.4"	3.3"
	120	5.4"	3.3"	5.4"	3.3"	5.4"	3.3"

TABLE 2*: BUILDOUT ONLY

LOAD (psf)	Spans Up To 6'-0" CONN TYPE C1	Spans Up To 6'-0" CONN TYPE C2	Spans Up To 8'-6" CONN TYPE C1	Spans Up To 8'-6" CONN TYPE C2	Spans Up To 11'-4" CONN TYPE C1	Spans Up To 11'-4" CONN TYPE C2
30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
38	13.0"	13.0"	13.0"	13.0"	11.3"	8.1"
47	13.0"	13.0"	12.2"	9.4"	10.3"	6.8"
54	13.0"	13.0"	10.6"	7.2"	10.3"	6.8"
120	10.3"	6.8"	10.3"	6.8"	10.3"	6.8"

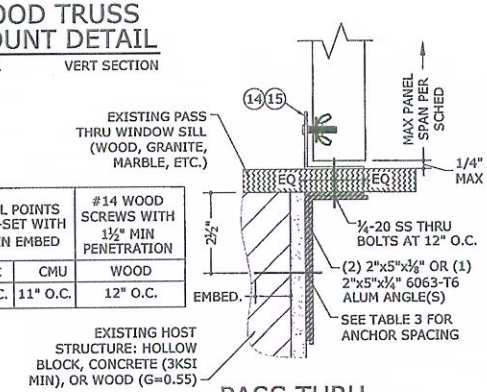
NOTES:
1. TABLE 1 AND 2 APPLY ONLY TO BUILDOUT MOUNTING DETAIL (7/3).
2. TAPCONS SHALL BE INSTALLED WITH THE FOLLOWING MINIMUM EMBEDMENT:
   - TO CONCRETE: 1¾" MIN
   - TO HOLLOW BLOCK: 1¼" MIN
   - TO WOOD: 1½" MIN
3. REFER TO SHT 6 FOR ADDITIONAL ANCHOR NOTES.
4. THESE MOUNTING CONDITIONS MAY BE USED INDEPENDENTLY OF ONE ANOTHER AND IN CONJUNCTION WITH OTHER MOUNTING CONDITIONS/DETAILS DEPICTED HEREIN.



6/4 WOOD TRUSS MOUNT DETAIL
N.T.S. VERT SECTION

TABLE 3:

¼" ITW TAPCONS WITH 1¼" MIN EMBED		¼" ALL POINTS SOLID-SET WITH ⅞" MIN EMBED		#14 WOOD SCREWS WITH 1½" MIN PENETRATION
CONC	CMU	CONC	CMU	WOOD
12" O.C.	8" O.C.	12" O.C.	11" O.C.	12" O.C.



7/4 PASS THRU WINDOW DETAIL
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CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
ORIG ISSUE	CL	FLB	8/17/04
2004 REC	CL	FLB	8/05/05
ClearMAX PROFILE ADDED	CL	FLB	2/05/06
2007 REC REVISION	KL	CL	12/28/06
2010 REC REVISIONS	IEFT	KL	12/12/11

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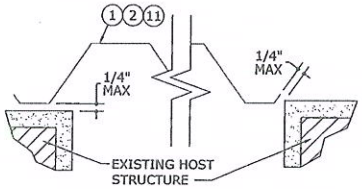
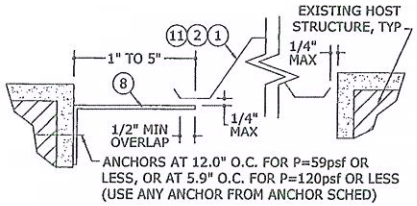
CLOSURE DETAILS



1/5 WALL MOUNT CLOSURE

3" = 1'-0" PLAN VIEW



2/5 TRAP MOUNT CLOSURE

3" = 1'-0" PLAN VIEW

MINIMUM SPAN SCHEDULE

ONE (1) CLOSURE AT TOP OR BOTTOM

		TOP OR BOTTOM MOUNT WITHOUT CLOSURE							
		DIRECT MOUNT	STUD ANGLE (WALL MOUNT)	"F" TRACK	REVERSE "F" ANGLE	B.O. 2x5 + STUD ANGLE	B.O. "F" TRACK	"H" HEADER	STUD ANGLE (TRAP MOUNT)
TOP OR BOTTOM WITH CLOSURE	DIRECT MOUNT	32"	30"	33"	30"	30"	32"	30"	30"
	STUD ANGLE (WALL MOUNT)	32"	30"	33"	30"	30"	32"	30"	30"
	"F" TRACK	33"	30"	35"	30"	30"	33"	30"	30"
	REVERSE "F" ANGLE	32"	30"	33"	30"	30"	32"	30"	30"
	B.O. 2x5 + STUD ANGLE	32"	30"	33"	30"	30"	32"	30"	30"
	B.O. "F" TRACK	32"	30"	33"	30"	30"	32"	30"	30"
	"H" HEADER	30"	30"	30"	30"	30"	30"	30"	30"
	STUD ANGLE (TRAP MOUNT)	32"	30"	33"	30"	30"	32"	30"	30"

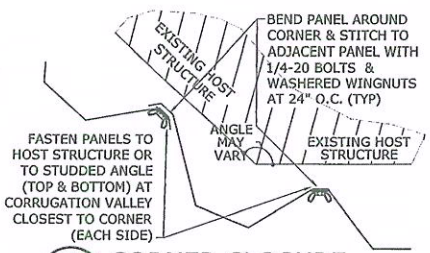
MINIMUM SPAN SCHEDULE

NO TOP/BOTTOM CLOSURES

		BOTTOM MOUNT							
		DIRECT MOUNT	STUD ANGLE (WALL MOUNT)	"F" TRACK	REVERSE "F" ANGLE	B.O. 2x5 + STUD ANGLE	B.O. "F" TRACK	"H" HEADER	STUD ANGLE (TRAP MOUNT)
TOP MOUNT	DIRECT MOUNT	53"	32"	55"	32"	32"	53"	30"	32"
	STUD ANGLE (WALL MOUNT)	32"	30"	33"	30"	30"	32"	30"	30"
	"F" TRACK	55"	33"	57"	33"	33"	55"	30"	33"
	REVERSE "F" ANGLE	32"	30"	33"	30"	30"	32"	30"	30"
	B.O. 2x5 + STUD ANGLE	32"	30"	33"	30"	30"	32"	30"	30"
	B.O. "F" TRACK	53"	32"	55"	32"	32"	53"	30"	32"
	"H" HEADER	30"	30"	30"	30"	30"	30"	30"	30"
	STUD ANGLE (TRAP MOUNT)	32"	30"	33"	30"	30"	32"	30"	30"

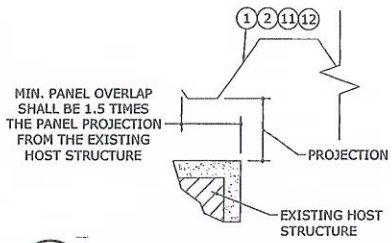
MINIMUM SPAN SCHEDULE NOTES:

1. SPANS SHOWN ABOVE ARE MINIMUM ALLOWABLE SPANS BASED ON ANY COMBINATION OF MOUNTING CONDITIONS AT TOP OR BOTTOM. PANEL LENGTHS LESS THAN THOSE NOTED IN TABLES ABOVE ARE NOT ACCEPTABLE.
2. NO SEPARATION FROM GLASS IS REQUIRED WHEN PANEL LENGTH IS GREATER THAN THAT NOTED FOR RESPECTIVE MOUNTING COMBINATIONS ABOVE.
3. SIDE CLOSURES REQUIRED IF GAP BETWEEN PANEL AND STRUCTURE EXCEEDS DISTANCE SHOWN IN HORIZONTAL SECTION DETAILS (REF. DETAILS 6/3, 7/3 AND 9/3).
4. TABLES ABOVE ARE VALID FOR PANELS MOUNTED HORIZONTALLY OR VERTICALLY.
5. TOP/BOTTOM CLOSURES MAY CONSIST OF NON-STRUCTURAL 28ga (0.018" MIN) GALV STEEL OR 0.022" MIN SHEET ALUMINUM OF ALLOY 5052-H32 OR 3004-H34. REFERENCE DETAILS HEREIN FOR DEPICTION OF TOP/BOTTOM CLOSURE MOUNTING REQUIREMENTS.
6. STORM PANELS MAY BE INSTALLED WITH A 12" MINIMUM SPAN WHEN INSTALLED WITH A CLOSURE ANGLE AT BOTH TOP AND BOTTOM.



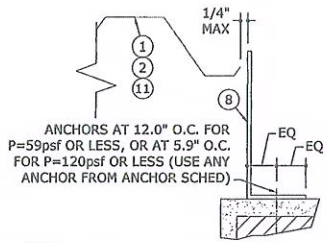
3/5 CORNER CLOSURE

N.T.S. PLAN VIEW



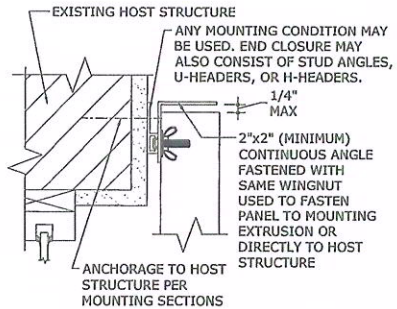
4/5 PANEL OVERLAP

N.T.S. PLAN VIEW



5/5 BUILD-OUT CLOSURE

3" = 1'-0" PLAN VIEW



6/5 TOP/BOTTOM CLOSURE

N.T.S. VERT SECTION

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2007 FBC REVISION	KL	CL	12/28/08
2010 FBC REVISIONS	EFT	KL	12/12/11

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ANCHOR SCHEDULES

HOST STRUCT.	ANCHOR	LOAD (psf)	2" MIN EDGE DISTANCE														
			Spans Up To 6'-0" CONN TYPE					Spans Up To 8'-6" CONN TYPE					Spans Up To 12'-0" CONN TYPE				
			C1	C2	C3	C4	C5	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5
CONCRETE	1/4" TAPCON (ELCO OR ITW) WITH 1-3/4" EMBED (3192psi MIN CONC)	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.0"	10.6"	13.0"	11.9"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.9"	13.0"	13.0"	13.0"	13.0"	9.8"	10.3"	13.0"	11.6"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	9.9"	10.5"	13.0"	11.7"	13.0"	9.8"	10.3"	13.0"	11.6"
		120	13.0"	9.8"	10.3"	13.0"	11.6"	13.0"	9.8"	10.3"	13.0"	11.6"	13.0"	9.8"	10.3"	13.0"	11.6"
	1/4" ELCO PANELMATE WITH 1-3/4" MIN EMBED (3350psi MIN CONC) *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		120	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
	1/4-20 ALL POINTS SOLID-SET WITH 7/8" MIN EMBED (3000psi MIN CONC) *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		120	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
	1/4-20 POWERS CALK-IN WITH 7/8" MIN EMBED (2000psi MIN CONC) *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	11.3"	11.3"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.6"	12.6"	13.0"	13.0"	13.0"	8.9"	8.9"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.2"	10.2"	13.0"	13.0"	13.0"	8.8"	8.8"
		54	13.0"	13.0"	13.0"	12.5"	12.5"	13.0"	13.0"	13.0"	8.9"	8.9"	13.0"	13.0"	13.0"	8.8"	8.8"
		120	13.0"	13.0"	13.0"	8.8"	8.8"	13.0"	13.0"	13.0"	8.8"	8.8"	13.0"	13.0"	13.0"	8.8"	8.8"
HOLLOW BLOCK	1/4" TAPCON (ELCO OR ITW) WITH 1-1/4" EMBED	30	10.9"	10.9"	10.9"	10.9"	10.9"	7.7"	7.7"	7.7"	7.7"	7.7"	5.8"	5.5"	5.8"	5.8"	5.8"
		38	8.6"	8.6"	8.6"	8.6"	8.6"	6.1"	6.1"	6.1"	6.1"	6.1"	4.6"	3.3"	3.6"	4.6"	3.9"
		47	7.0"	7.0"	7.0"	7.0"	7.0"	4.9"	3.8"	4.5"	4.9"	4.6"	4.3"		3.0"	4.3"	3.4"
		54	6.1"	6.1"	6.1"	6.1"	6.1"	4.3"		3.1"	4.3"	3.4"	4.3"		3.0"	4.3"	3.4"
		120	4.3"		3.0"	4.3"	3.4"	4.3"		3.0"	4.3"	3.4"	4.3"		3.0"	4.3"	3.4"
	1/4" ELCO PANELMATE (FEMALE, MALE, OR PLUS) W/ 1-1/4" MIN EMBED *	30	13.0"	13.0"	13.0"	13.0"	13.0"	10.4"	10.4"	10.4"	10.4"	10.4"	7.8"	7.4"	7.8"	7.8"	7.8"
		38	11.6"	11.6"	11.6"	11.6"	11.6"	8.2"	8.2"	8.2"	8.2"	8.2"	6.1"	4.4"	4.9"	6.1"	5.2"
		47	9.4"	9.4"	9.4"	9.4"	9.4"	6.6"	5.1"	6.1"	6.6"	6.1"	5.7"	3.9"	4.1"	5.7"	4.6"
		54	8.2"	8.2"	8.2"	8.2"	8.2"	5.8"	3.9"	4.1"	5.8"	4.6"	5.7"	3.9"	4.1"	5.7"	4.6"
		120	5.7"	3.9"	4.1"	5.7"	4.6"	5.7"	3.9"	4.1"	5.7"	4.6"	5.7"	3.9"	4.1"	5.7"	4.6"
	1/4-20 ALL POINTS SOLID-SET WITH 7/8" MIN EMBED *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	11.4"	12.7"	11.1"	11.1"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.0"	12.0"	13.0"	10.1"	10.6"	10.4"	10.4"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.1"	10.7"	10.4"	10.4"	13.0"	10.1"	10.6"	10.4"	10.4"
		120	13.0"	10.1"	10.6"	10.4"	10.4"	13.0"	10.1"	10.6"	10.4"	10.4"	13.0"	10.1"	10.6"	10.4"	10.4"

HOST STRUCT.	ANCHOR	LOAD (psf)	3/4" MIN EDGE DISTANCE														
			Spans Up To 6'-0" CONN TYPE					Spans Up To 8'-6" CONN TYPE					Spans Up To 12'-0" CONN TYPE				
			C1	C2	C3	C4	C5	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5
WOOD (G=0.55 MIN)	1/4" TAPCON (ELCO OR ITW) OR #14 WOOD SCREW W/ 1-1/2" EMBED	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		120	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
	1/4" ELCO PANELMATE (FEMALE, MALE, OR PLUS) W/ 1-7/8" MIN EMBED *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		120	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
	7/16" WOOD BUSHING W/ 7/8" MIN EMBED & 1/4-20 S.S. MACHINE SCREW *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.2"	8.3"	8.8"	12.2"	9.9"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.7"	12.7"	13.0"	12.9"	12.1"	8.1"	8.6"	12.1"	9.6"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	12.1"	8.2"	8.7"	12.1"	9.7"	12.1"	8.1"	8.6"	12.1"	9.6"
		120	12.1"	8.1"	8.6"	12.1"	9.6"	12.1"	8.1"	8.6"	12.1"	9.6"	12.1"	8.1"	8.6"	12.1"	9.6"
	1/4" LAG SCREW OR HANGAR BOLT W/ MIN 2-3/32" THREAD PENETR'N THREAD PENETR *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	11.6"	11.6"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	9.2"	9.2"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.5"	10.5"	13.0"	13.0"	9.1"	9.1"
		54	13.0"	13.0"	13.0"	12.9"	12.9"	13.0"	13.0"	13.0"	9.1"	9.1"	13.0"	13.0"	13.0"	9.1"	9.1"
		120	13.0"	13.0"	13.0"	9.1"	9.1"	13.0"	13.0"	13.0"	9.1"	9.1"	13.0"	13.0"	13.0"	9.1"	9.1"
WOOD (G=0.42 MIN)	1/4" TAPCON (ELCO OR ITW) OR #14 WOOD SCREW W/ 1-1/2" EMBED	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.5"	11.1"	11.1"	11.1"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.6"	12.6"	13.0"	10.2"	10.8"	10.9"	10.9"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.3"	10.9"	11.0"	11.0"	13.0"	10.2"	10.8"	10.9"	10.9"
		120	13.0"	10.2"	10.8"	10.9"	10.9"	13.0"	10.2"	10.8"	10.9"	10.9"	13.0"	10.2"	10.8"	10.9"	10.9"
	1/4" ELCO PANELMATE (FEMALE, MALE, OR PLUS) W/ 1-7/8" MIN EMBED *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.3"	12.3"
		47	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.1"	12.1"
		54	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	12.2"	12.2"	13.0"	13.0"	13.0"	12.1"	12.1"
		120	13.0"	13.0"	13.0"	12.1"	12.1"	13.0"	13.0"	13.0"	12.1"	12.1"	13.0"	13.0"	13.0"	12.1"	12.1"
	1/4" LAG SCREW OR HANGAR BOLT W/ MIN 2-3/32" THREAD PENETR'N THREAD PENETR *	30	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	9.8"	9.8"
		38	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	13.0"	10.9"	10.9"	13.0"	13.0"	13.0"	7.7"	7.7"
		47	13.0"	13.0"	13.0"	12.5"	12.5"	13.0"	13.0"	13.0"	8.8"	8.8"	13.0"	13.0"	13.0"	7.6"	7.6"
		54	13.0"	13.0"	13.0"	10.9"	10.9"	13.0"	13.0"	13.0"	7.7"	7.7"	13.0"	13.0"	13.0"	7.6"	7.6"
		120	13.0"	13.0"	13.0"	7.6"	7.6"	13.0"	13.0"	13.0"	7.6"	7.6"	13.0"	13.0"	13.0"	7.6"	7.6"

ANCHOR SCHEDULE NOTES:

1. 1/4" TAPCONS MAY BE BY ITW OR BY ELCO. "ELCO PANELMATE" ANCHORS MAY BE MALE, FEMALE, OR PANELMATE PLUS, AS ILLUSTRATED. HEAD STYLE MAY BE STD 13/32" OR WASHERED 5/8" HEX HEAD.
2. ENSURE MINIMUM 2" EDGE DISTANCE FOR ALL ANCHORS TO CONCRETE & TO HOLLOW BLOCK. EDGE DISTANCE OF 3/4" IS ACCEPTABLE FOR ANCHORS TO WOOD.
3. MINIMUM EMBEDMENT SHALL BE AS NOTED IN ANCHOR SCHEDULE. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES.
4. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
5. WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD.
6. WHERE ANCHORS FASTEN TO NARROW FACE OF STUD FRAMING, ANCHOR SHALL BE LOCATED IN CENTER OF NOMINAL 2x4 (MIN) WOOD STUD (i.e. 3/4" EDGE DISTANCE IS ACCEPTABLE FOR ANCHORS TO WOOD FRAMING). WOOD STUD SHALL BE "SOUTHERN PINE" (FOR G=0.55 OR GREATER DENSITY) OR "SPRUCE-PINE-FIR" (FOR G=0.42 OR GREATER DENSITY).
7. ANCHOR SCHEDULE APPLIES FOR ALL PRODUCTS CERTIFIED HEREIN, BUT ONLY PROVIDES MAXIMUM ALLOWABLE ANCHOR SPACING. MAXIMUM ALLOWABLE SPANS AND PRESSURES INDICATED IN SPAN SCHEDULE SHALL APPLY.
8. MACHINE SCREWS SHALL HAVE MINIMUM OF 1/2" ENGAGEMENT OF THREADS IN BASE ANCHOR AND MAY HAVE EITHER A PAN HEAD, TRUSS HEAD, OR WAFER HEAD ("SIDEWALK BOLT") U.N.O.
9. * DESIGNATES REMOVABLE ANCHORS. PANELS SHALL BE MOUNTED DIRECTLY TO THE HOST STRUCTURE ONLY WITH THESE ANCHORS, LOCATED AT KEYHOLES AND LESS THAN OR EQUAL TO ALLOWABLE SPACING SHOWN IN ANCHOR SCHEDULE.
10. ▨ DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE FOR USE.

FRANK L. BENNARDO, P.E.
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12/14/11

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TPS Transparent Protection Systems, Inc.
6643 42nd Terrace North
West Palm Beach, FL 33407

CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
ORIG ISSUE	CL	FLB	6/17/04
2004 FBC	CL	FLB	8/05/05
ClearMAX PROFILE ADDED	CL	FLB	2/06/06
2007 FBC REVISION	KL	CL	12/28/06
2010 FBC REVISIONS	EFT	KL	12/12/11

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PAGE DESCRIPTION:

12/14/2011 - 8:05pm ksh F:\01 Project Files\Transparent Protection (TPS)\2008\08-TPS-0008 ClearGuard Polycarbonate Storm Panels, Non-HVHZ (FSA)\FSA_08 20108-TPS-0008_06b ClearGuard Polycarbonate Storm Panels, Non-HVHZ (FSA).dwg

POSITIVE CONNECTION MINIMUM GLASS SEPARATION SCHEDULE

LOAD (PSF)	SPAN LESS THAN	MINIMUM SEPARATION AT OR BELOW 30' ABOVE GRADE	MINIMUM SEPARATION AT ELEVATION > 30' ABOVE GRADE
38	4'-0"	7.73"	1.65"
	7'-0"	7.73"	4.38"
	12'-0"	8.78"	8.78"
40	4'-0"	7.73"	1.69"
	7'-0"	7.73"	4.56"
	11'-5"	8.33"	8.33"
45	4'-0"	7.73"	1.77"
	7'-0"	7.73"	5.01"
	10'-1"	7.73"	7.39"
50	4'-0"	7.73"	1.86"
	7'-0"	7.73"	5.45"
	9'-1"	7.73"	6.87"
60	4'-0"	7.73"	2.03"
	7'-0"	7.73"	6.34"
	7'-7"	7.73"	6.57"
70	4'-0"	7.73"	2.20"
	6'-7"	7.73"	6.38"
120	3'-10"	7.73"	2.74"

H-HEADER MINIMUM GLASS SEPARATION SCHEDULE

SPAN LESS THAN	MINIMUM SEPARATION AT OR BELOW 30' ABOVE GRADE	MINIMUM SEPARATION AT ELEVATION > 30' ABOVE GRADE
8'-7"	8.60"	7.17"
7'-9"	8.60"	6.69"
7'-0"	8.60"	5.97"
6'-0"	8.60"	4.94"
5'-0"	8.60"	4.10"
4'-0"	8.60"	3.58"

U-HEADER MINIMUM GLASS SEPARATION SCHEDULE

SPAN LESS THAN	MINIMUM SEPARATION AT OR BELOW 30' ABOVE GRADE	MINIMUM SEPARATION AT ELEVATION > 30' ABOVE GRADE
6'-3"	3.98"	3.21"
5'-3"	3.98"	2.58"
4'-4"	3.98"	2.24"

GLASS SEPARATION SCHEDULE NOTES:

1. GLASS SEPARATION SCHEDULE PROVIDES MINIMUM SEPARATION DISTANCE REQUIRED BETWEEN EXTERIOR FACE OF GLAZING (OR OTHER PRODUCT BEING PROTECTED) AND INTERIOR FACE OF INSTALLED STORM PANEL.
2. SEPARATION DISTANCE PER THIS SCHEDULE IS REQUIRED FOR USE WITH POSITIVE LOADS ONLY.
3. SEPARATION FROM GLASS IS REQUIRED ONLY WHEN INSTALLED WITHIN ASTM WIND ZONE 4 AND ESSENTIAL FACILITIES.

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STATE OF FLORIDA
PROFESSIONAL ENGINEER
11-14-2011

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West Palm Beach, FL 33407

CLEARGUARD POLYCARBONATE STORM PANELS
FOR USE OUTSIDE THE HVHZ
FLORIDA STATEWIDE APPROVAL

REMARKS	DRWN	CHKD	DATE
ORIG ISSUE	CL	FLB	8/17/04
2004 FBC	CL	FLB	8/05/05
ClearMAX PROFILE ADDED	CL	FLB	2/05/06
2007 FBC REVISION	KL	CL	12/29/08
2010 FBC REVISIONS	EFT	KL	12/12/11

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