Engineering Evaluation Report #0700-020625

Prepared by:
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Manufacturer:
PGT Industries, LLC
3400 Precision Drive
N. Venice, FL 34275

Product Description:
SGD770NS Series Impact-resistant Aluminum Sliding Glass Window, (LM & SM); FL Approval #29699

Compliance:
The above-mentioned product has been evaluated for compliance with the requirements of the Florida Department of Business and Professional Regulation for Statewide Acceptance per Rule 61 G20-3.005 method 1(d). The product listed herein complies with requirements of the current Florida Building Code.

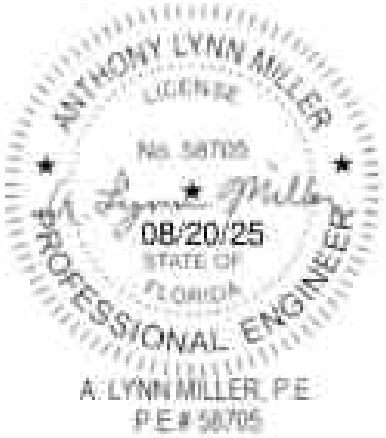
This product has been evaluated and is in compliance with the current Florida Building Code, including the "High Velocity Hurricane Zone" (HVHZ).

Supporting Technical Documentation:
1. Approval document: drawing number 770NS-W-FPA, signed and sealed by A. Lynn Miller, P.E.

2. Test Report Nos. FTL-5980, FTL-6001, FTL-6014, FTL-6015, FTL-6017, FTL-6022, FTL-6024, FTL-6025, FTL-6028, FTL-6033, FTL-5993, FTL-6023, FTL-6031, and FTL-6036, signed and sealed by Julio E. Gonzalez, FTL-7554, signed and sealed by Marlin D. Brinson, and OAI NOK-0013, signed and sealed by Idalmis Ortega.
TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

3. Calculations, signed and sealed by A. Lynn Miller, P.E., dated 12/20/22.

Limitations and Conditions of use:
- Units must be glazed per ASTM E1300-09, refer to approval document for glazing details.
- This product is rated to be used in the HVHZ.
- This product is impact resistant and does not require impact protection in wind borne debris regions.
- Frame and panel material to be extruded Aluminum.
- Units must be installed in accordance with approval documents.



Optional Performance Options	IMPACT RATING
SEE TABLES 1-3 ON SHEETS 4-6	RATED FOR LARGE & SMALL MISSILE IMPACT RESISTANCE

SERIES 770NS-IV, IMPACT RESISTANT, NARROW STILE SLIDING GLASS WINDOW INCLUDING POCKETS & 90° / 135° CORNERS

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

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

3) DESIGN PRESSURES:
A. NEGATIVE DESIGN LOADS BASED ON TESTED PRESSURE AND ASTM E1300 CALCULATIONS.
B. POSITIVE DESIGN LOADS BASED ON WATER TEST PRESSURE AND ASTM E1300 CALCULATIONS.
C) DESIGN LOADS ARE BASED ON ALLOWABLE STRESS DESIGN, ASD

4) ANCHORAGE: THE 33-1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE CURRENT FLORIDA BUILDING CODE. FOR ANCHORAGE DETAILS SEE SHEETS 6-14.

5) OVERALL SEALING/FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS AND IS BEYOND THE SCOPE OF THESE INSTRUCTIONS.

6) REFERENCES: ELCO ULTRACON, DEWALT ULTRACON+, DEWALT ELCO DRTEFILE+ AND AGGREGATOR NOA'S, ANSI/AF&PA NDS FOR WOOD CONSTRUCTION AND ADM, ALUMINUM DESIGN MANUAL

7) SIZES MUST BE VERIFIED FOR COMPLIANCE WITH EGRESS REQUIREMENTS PER CURRENT FLORIDA BUILDING CODE, 69 APPLICABLE.

TABLE A

Anchor Group	Anchor Type	Frame Member	Substrate	Min. Edge Distance	Min. O.C. Distance	Min Embedment or Metal Thickness
A	#12 18-8 SMS or #12 410 SS SMS (min. #7 Y threads) beyond metal substrate	All	Southern Pine (SG = 0.55)	0.75"	1.0"	1.25"
			6063-T5 Aluminum	0.5"	0.75"	0.077" (12 Ga)
			A36 Steel	0.5"	0.75"	0.060"
			Ø .33 Steel Stud	0.5"	0.75"	0.043" (18 Ga)
	1/4" DeWalt Elco Aggre-Gator®	All	Concrete (min. 3,000 psi)	1.125"	3"	1.25"
		Jamb / P-hook	Filled Block (ASTM C90)	2"	2"	8"
		Jamb / P-hook	Hollow Block (ASTM C90)	2"	2"	1.125"
		All	Southern Pine (SG = 0.55)	1"	1"	1.25"
B	#12 Steel SMS (Gr. 1) (min. #7 3 threads) beyond metal substrate	All	Southern Pine (SG = 0.55)	0.75"	1.0"	1.25"
			6063-T5 Aluminum	0.5"	0.75"	0.077" (12 Ga)
			A36 Steel	0.5"	0.75"	0.060"
			Ø .33 Steel Stud	0.5"	0.75"	0.043" (18 Ga)
C	1/4" DeWalt Ultracon +	Head / Sill	Concrete (min. 3 ksi)	1.125"	3"	1.25"
		Jamb / P-hook	Concrete (min. 3 ksi)	1"	3"	1.25"
		Jamb / P-hook	Hollow Block (ASTM C90)	1"	3"	1.125"
		All	Southern Pine (SG = 0.55)	1"	1"	1.25"
D	1/4" 410 SS DeWalt Elco Ordaflex®	Head / Sill	Concrete (min. 3,000 psi)	1"	4"	1.25"
		Jamb / P-hook	Concrete (min. 3,000 psi)	1"	6"	1.25"
		Jamb / P-hook	Hollow Block (ASTM C90)	2.125"	6"	1.125"
		All	Southern Pine (SG = 0.55)	1"	1"	1.25"

1) WHERE SUBSTRATE CONDITIONS REQUIRE ANCHORAGE FROM MORE THAN ONE OF THE ANCHOR GROUPS ABOVE, CHOOSE THE ANCHOR GROUP OF THE LOWEST LETTER FOR ALL TABLES IN THIS APPROVAL.
2) ALL ANCHOR HEAD TYPES ARE ACCEPTABLE.
3) HOLLOW BLOCK VALUES MAY ALSO BE USED IN FILLED BLOCK APPLICATIONS.
4) ANCHORS MUST BE OF SUFFICIENT LENGTH SO THAT A MINIMUM OF 3 THREADS EXTEND BEYOND METAL SUBSTRATE.

ANCHOR NOTES:
1) SEE TABLE A ON THIS SHEET FOR EMBEDMENT, EDGE DISTANCE AND SUBSTRATE ANCHORAGE REQUIREMENTS. ALL ANCHOR HEAD TYPES ARE ACCEPTABLE.

2) WOOD BUCKS DEPICTED AS 1X ARE LESS THAN 1-1/2" THICK, PROPERLY SECURED, 1X WOOD BUCKS ARE OPTIONAL IF UNIT IS INSTALLED DIRECTLY TO SOLID CONCRETE. WOOD BUCKS DEPICTED AS 2X ARE 1-1/2" THICK OR GREATER. 1X AND 2X BUCKS (WHEN USED) SHALL BE DESIGNED TO PROPERLY TRANSFER LOADS TO THE STRUCTURE. BUCK DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD & TO BE REVIEWED BY THE BUILDING OFFICIAL.

3) METAL SUBSTRATE TO MEET MIN. STRENGTH AND THICKNESS REQUIREMENTS PER CURRENT FLORIDA BUILDING CODE AND TO BE REVIEWED BY THE AUTHORITY HAVING JURISDICTION.

4) IF SILL IS TIGHT TO SUBSTRATE, GROUT OR OTHER MATERIAL IS NOT REQUIRED. IF USED, NON-SHRINK, NON-METALLIC GROUT, MAX. 1/4" THICK & 3400 PSI MIN., (DONE BY OTHERS) MUST FULLY SUPPORT THE ENTIRE LENGTH OF THE SILL THAT IS NOT TIGHT TO THE SUBSTRATE, AND TRANSFER SHEAR LOAD TO SUBSTRATE. IF SUBSTRATE IS WOOD, 30# FELT PAPER OR MASTIC IS REQUIRED BETWEEN THE GROUT AND WOOD SUBSTRATE, OR AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

GENERAL NOTES 1
ANCHORAGE 1,6-8
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INSTALL DETAILS 12-14
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REVISIONS

DESCRIPTION	DATE
REVISED PER ENGINEER	4/30/2015

PGT INDUSTRIES

TITLE: SERIES 770NS-IV IMPACT RESISTANT NARROW STILE SLIDING GLASS WINDOW INCLUDING POCKETS & 90° / 135° CORNERS (SEN NOTES AND ANCHOR)

DRAWING NO. 1 OF 22

REVISION NO. 4

DATE: 4/30/2015

SCALE: NTS

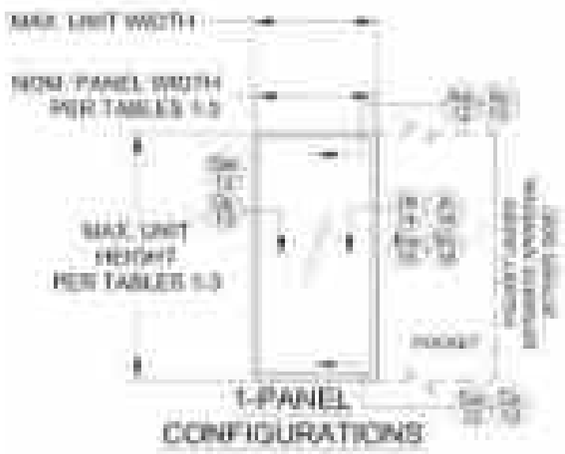
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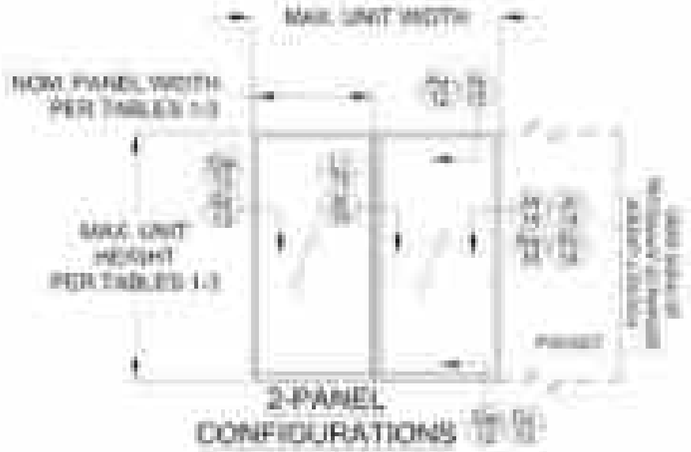
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NORTH VENICE, FL 34275



EXAMPLE CONFIGURATIONS



1-PANEL CONFIGURATIONS



2-PANEL CONFIGURATIONS

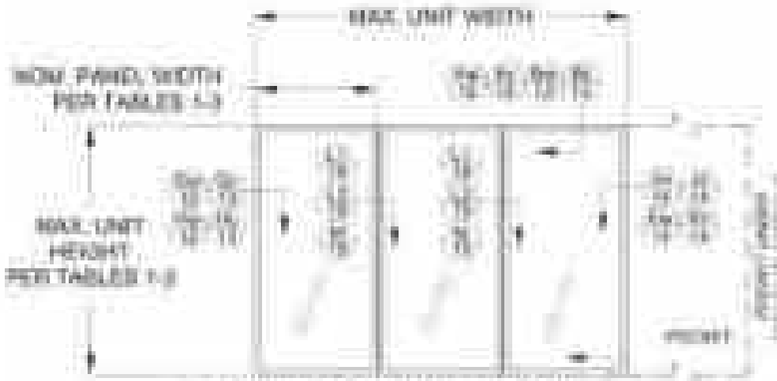
CONFIGURATIONS NOTES:
1) ALL CONFIGURATIONS SHOWN ARE ALSO AVAILABLE AS POCKET CONFIGURATIONS AT EITHER OR BOTH JAMB LOCATIONS USING DETAIL "JW", "JU", "RW" OR "RU" INSTALLATION EXAMPLE: 4-PANEL XOXX IN POCKET (p) CONFIGURATION CAN BE pXOXXp, pXOXX OR XOXXp. OXXX IN POCKET CONFIGURATION CAN BE pOXXXp

2) 90° & 135° CORNER CONFIGURATIONS CAN BE A COMBINATION OF ANY 2 STRAIGHT CONFIGURATIONS

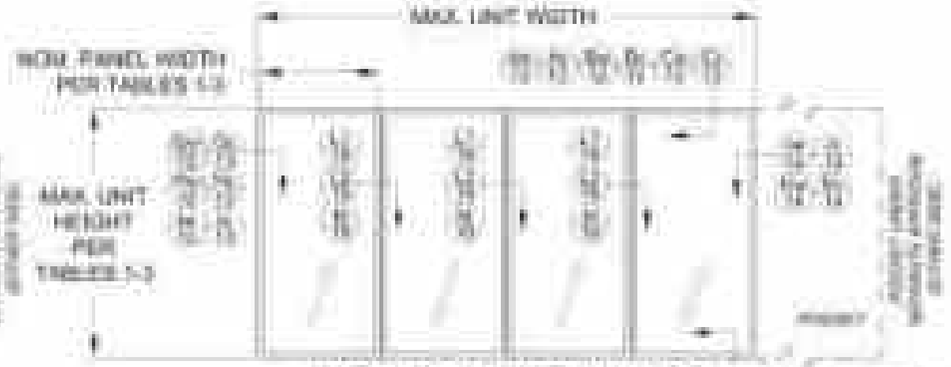
3) FOR NOM. PANEL WIDTH, SEE TABLES 1-3.

4) FOR INSTALLATIONS IN THE HVHZ, UNIT FRAME SQUARE FOOTAGE TO 375 S.F.

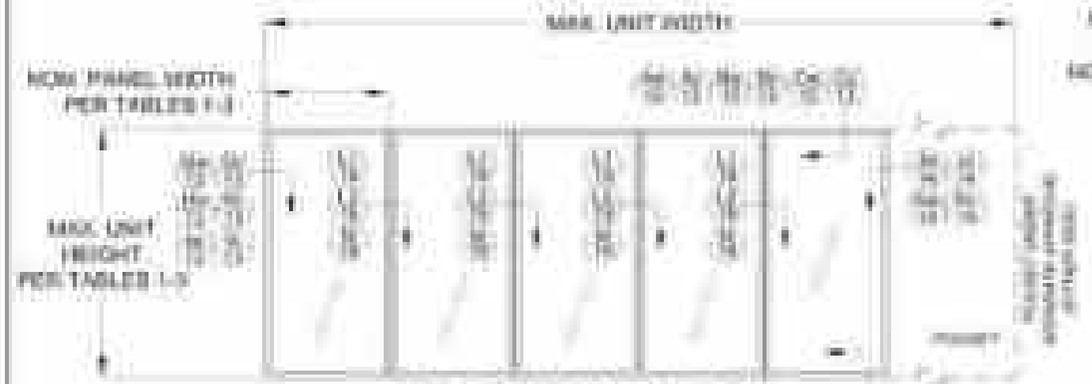
"X" = OPERABLE PANEL
"O" = INOPERABLE PANEL
"p" = POCKET



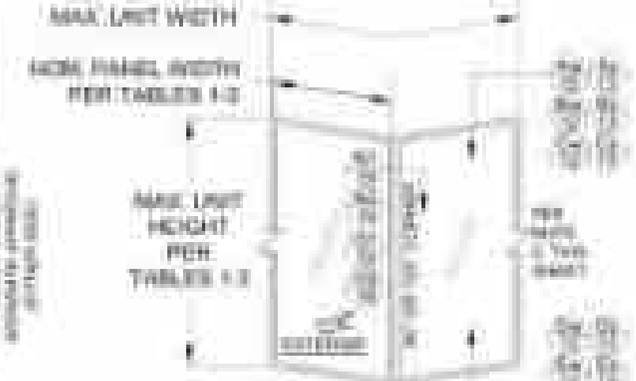
3-PANEL CONFIGURATIONS



4-PANEL CONFIGURATIONS



5-PANEL CONFIGURATIONS



CORNER, TYP.
(OUTSIDE CORNER SHOWN, INSIDE CORNER SIMILAR)

DETAIL LETTER
"W" = WOOD OR METAL INSTALLATION
"U" = CONCRETE INSTALLATION
SHEET NUMBER

GLASS WIDTH = NOMINAL PANEL WIDTH -0.25"
D.O. WIDTH = NOM. PANEL WIDTH + .75"
D.O. HEIGHT = WINDOW UNIT HEIGHT - 10 1/2"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 1 3/8"

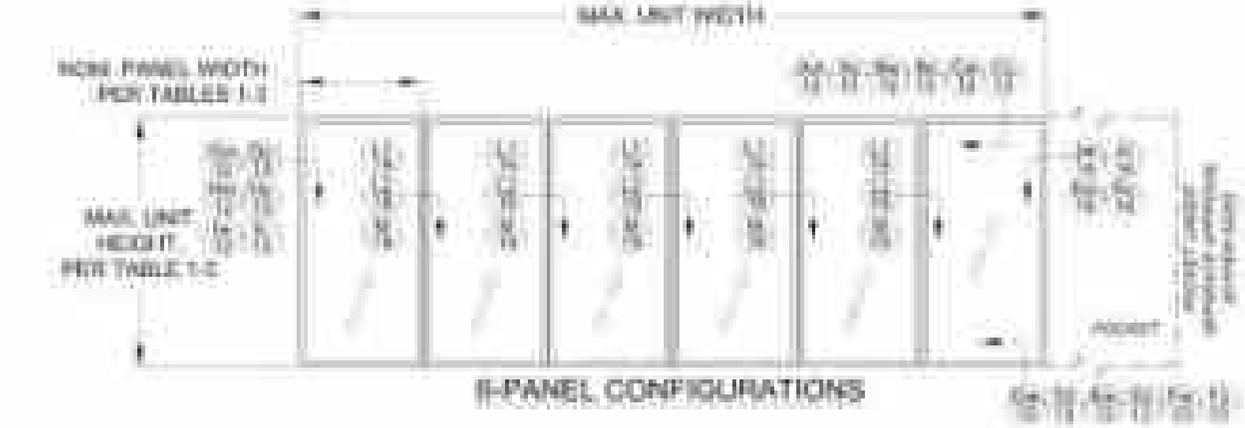
D			
	4. MORE ITEMS		
	3. ITEMS		
	2. ITEMS		
	1. ITEMS		

EXAMPLE CONFIGURATIONS

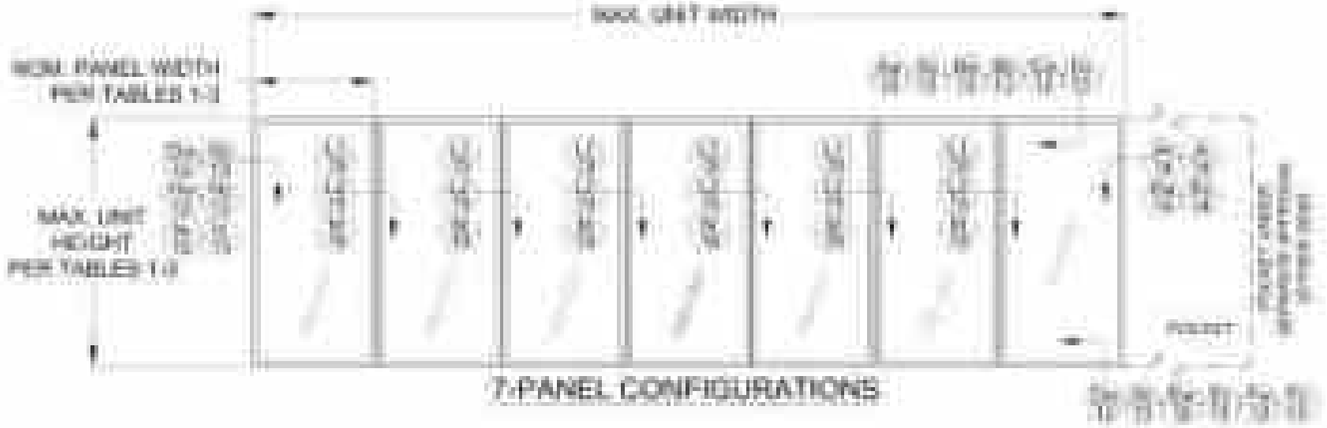
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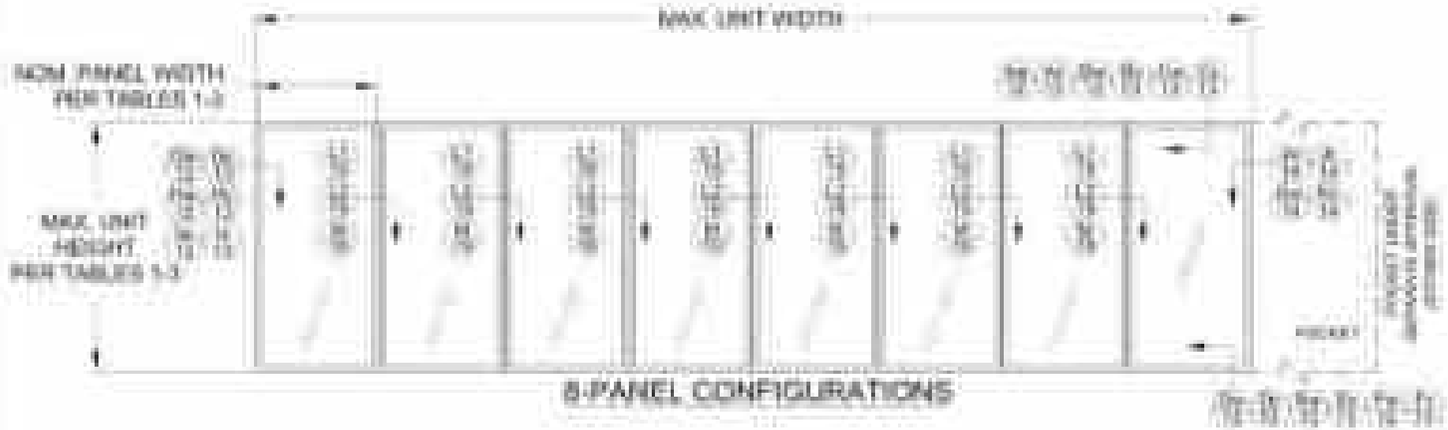
EXAMPLE CONFIGURATIONS



II-PANEL CONFIGURATIONS



7-PANEL CONFIGURATIONS



8-PANEL CONFIGURATIONS

CONFIGURATIONS NOTES:
1) ALL CONFIGURATIONS SHOWN ARE ALSO AVAILABLE AS POCKET CONFIGURATIONS AT EITHER OR BOTH JAMB LOCATIONS USING DETAIL "Jw", "Jz", "Kw" OR "Kz" INSTALLATION. EXAMPLE: 4-PANEL XOOX IN POCKET (z) CONFIGURATION CAN BE (zOOXw); (zXOOX OR XOOXz). OOXX IN POCKET CONFIGURATION CAN BE OOXXz.

2) 90° & 135° CORNER CONFIGURATIONS CAN BE A COMBINATION OF ANY 2 STRAIGHT CONFIGURATIONS.

3) FOR NOM. PANEL WIDTH, SEE TABLES 1-3.

4) FOR INSTALLATION IN THE MAX. UNIT FRAME SQUARE FOOTAGE TO 375 S.F.

"X" = OPERABLE PANEL
"O" = INOPERABLE PANEL
"y" = POCKET

DETAIL LETTER
"w" = WOOD OR METAL INSTALLATION
"z" = CONCRETE INSTALLATION
SHEET NUMBER

GLASS WIDTH = NOMINAL PANEL WIDTH -3.25"
O.O. WIDTH = NOM. PANEL WIDTH - ± .75"
O.O. HEIGHT = WINDOW UNIT HEIGHT - TO 125"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 1.969"

10	
4	MORE ESSEX
3	
2	
1	
NO.	ISSUE

EXAMPLE CONFIGURATIONS

PGT



GLAZING DETAILS



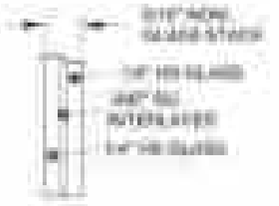
GLASS TYPE 2



GLASS TYPE 2A



GLASS TYPE 4



GLASS TYPE 4A



GLASS TYPE 5



GLASS TYPE 5A



GLASS TYPE 6



GLASS TYPE 6A

TABLE 2

Glass Type	Description & Ideal Performance Information
2	7/16" LAMI; 3/16" HS; .060" PVB; 3/16" HS
2A	9/16" LAMI; 1/2" HS; .090" PVB; 1/2" HS
4	7/16" LAMI; 3/16" HS; .060" SG; 3/16" HS
4A	9/16" LAMI; 1/2" HS; .090" SG; 1/2" HS
5	1" LAMI IG; 9/16" TP CAP; AIRSPACE; 3/16" HS; .060" PVB; 3/16" HS
5A	1" LAMI IG; 1/4" TP CAP; ARGPACE; 3/16" HS; .090" PVB; 3/16" HS
6	1" LAMI IG; 3/16" TP CAP; AIRSPACE; 3/16" HS; .060" SG; 3/16" HS
6A	1" LAMI IG; 1/4" TP CAP; AIRSPACE; 3/16" HS; .060" SG; 3/16" HS

HS = HEAT STRENGTHENED
TP = TEMPERED
PVB = TROSIFOL PVB INTERLAYER BY KURARAY AMERICA, INC.
SG = SENTRYGLAS PVB INTERLAYER BY KURARAY AMERICA, INC.

IGT

10	
9	
8	MORLESS
7	
6	
5	
4	
3	
2	
1	
NO.	ISSUE/DESCRIPTION

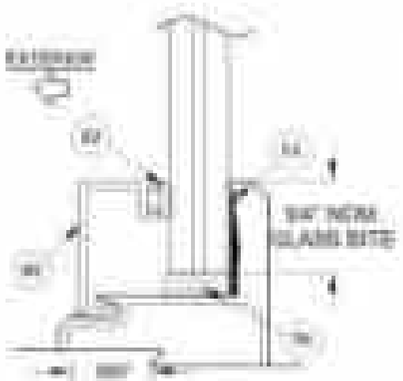
GLAZING DETAILS

OF 22

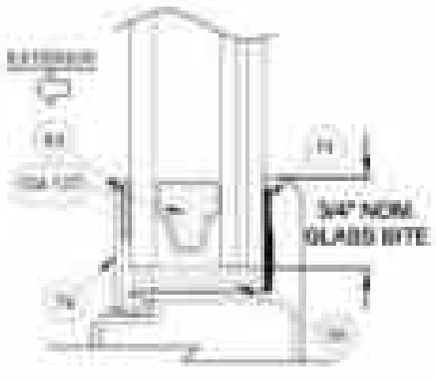
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GLAZING DETAILS: CONT.



LAMI GLAZING DETAIL

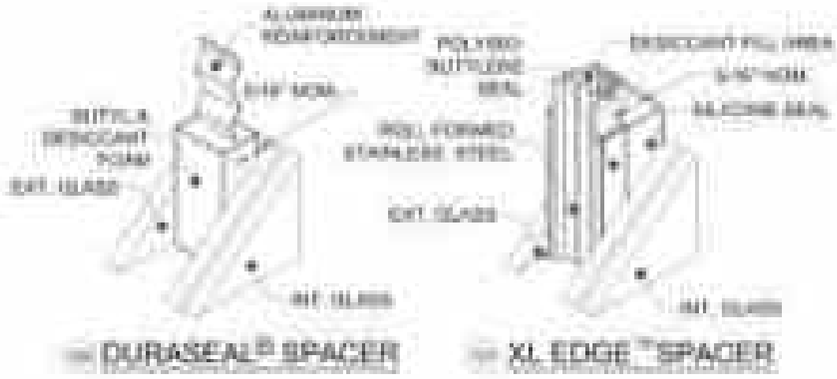


LAMI IG GLAZING DETAIL



KODISPACE 4SG TPS

SUPER SPACER® NXT™



DURASEAL® SPACER

XL EDGE™ SPACER

Part #	Description	Material
124	Kommerling 4SG TPS Spacer System	See the Shop for Materials
126	Quanex Super Spacer NXT with (No Mill) Bare	
128	Quanex Duraseal Spacer	
127	Cardinal XL Edge Spacer	

REFERENCE TEST REPORTS: [illegible]

IGT

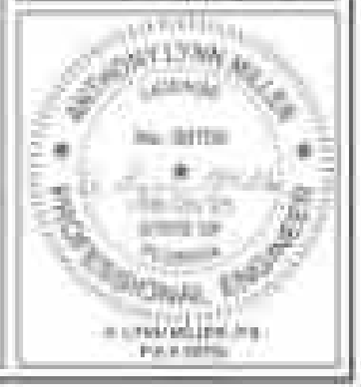


TABLE 1

Design Pressure (DP) and Anchor Quantities Required, (for all approved configurations on Sheets 2 & 3)

Pro-rated for actual anchorage at 90° or 180° corner units, see Sheet 17

+60 / -60 psf

Test positive (p) Pass Types 1, 1A, 2, & 3A (as used, required, see Notes "NOT", page 12) Pos. (+) DP may be limited by Table 1A			Dual Unit Ratios																			
			60" (60.188" DLO)				108" (113.188" DLO)				60" (60.188" DLO)				108" (113.188" DLO)				108" (113.188" DLO)			
			Anchor Group				Anchor Group				Anchor Group				Anchor Group				Anchor Group			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Typical Frame Width (in)	4ft (48.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
		Min	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+
	2ft (24.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
		Min	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+
	3ft (36.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
		Min	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+
	4ft (48.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
		Min	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+
	5ft (60.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY
		Min	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+
	6ft (72.188" DLO)	Number	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY				
		Min	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6				
		Pmax	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+	60+				

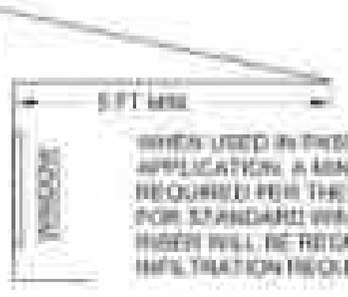
FOR EXAMPLE ON USING TABLE SEE SHEET 6

TABLE 1A

Sill Height to Max. (+) DP (Water Infiltration Rating)	
Sill Riser Height (Tall or Thin, see Sheet 17)	(+) Design Pressure psf
8"Tall - 1-1/2"	see note 2
Low - 2-1/2"	+ 40.57
Medium - 5-1/8"	+ 60.0
High - 8"	+ 60.0

SEE NOTES BELOW

FIG 1



WHEN USED IN PASS-THROUGH WINDOW APPLICATION, A MIN. 5-FT OVERHANG IS REQUIRED PER THE CURRENT BUILDING CODE. FOR STANDARD WINDOW APPLICATION, A SILL RISER WILL BE REQUIRED TO MEET THE WATER INFILTRATION REQUIREMENT

NOTES:

1) IF WATER INFILTRATION RESISTANCE IS REQUIRED, THE LESSER VALUES OF EITHER TABLE 1 AND TABLE 1A DETERMINES THE WATER LIMITED (+) DP. WATER TEST PRESSURE IS 15% OF THAT VALUE.

2) IF WATER INFILTRATION RESISTANCE IS NOT REQUIRED OR OVERHANG IS PER FIG 1, A SILL RISER IS NOT REQUIRED. IN THAT CASE, +DPS SHOWN IN TABLE 1 MAY BE USED.

3) SEE SILL RISER TYPES ON SHEET 17. SHEET APPLIES TO 2, 3 AND 4 TRACK CONFIGURATIONS.

4) REFER TO ANCHOR NOTES, SHEET 1 & ENCLOSED SHEETS FOR ANCHORAGE SPACING, EDGE DISTANCE AND EMBEDMENT INFORMATION.

5) DOOR SIZE TO COMPLY WITH CURRENT FBC EGRESS REQUIREMENTS WHEN REQUIRED.

6) JAMB ANCHORS ARE SPECIFIED AS THE TOTAL QUANTITY. DIVIDE BY 2 FOR PAIRS TO BE INSTALLED.

GLASS WIDTH = NOMINAL PANEL WIDTH -0.25"
SLD WIDTH = NOM. PANEL WIDTH - 4.75"
SLD HEIGHT = WINDOW UNIT HEIGHT - 10 1/2"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 1.969"

IGT
DP & ANCHORAGE

TABLE 1:

Design Pressure (DP) and Anchor Guarantee Required, for all approved configurations on Sheets 2 & 3

For other design pressures (DP) or DP not listed, see note 1

Daily signature No. (Series Typical 1, 2, 3, 3A, 3B, 4 Panel Assembly see above "Unit" Jamb for Max. (+) DP)			Number of 2 Panels (L.H.)													
			20" (50.8 cm) Inactive Panel				30" (76.2 cm) Inactive Panel				36" (91.4 cm) Inactive Panel				48" (121.9 cm) Inactive Panel			
			A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
24"	24 7/8" (63.2)	Design Pressure	For these sizes, see table 2 on sheet 5													
		Positive														
		psf/Pa														
		Allowable														
30"	30 7/8" (78.4)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														
36"	36 7/8" (93.7)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														
48"	48 7/8" (124.1)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														
60"	60 7/8" (154.6)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														
72"	72 7/8" (185.1)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														
96"	96 7/8" (246.1)	Design Pressure														
		Positive														
		psf/Pa														
		Allowable														

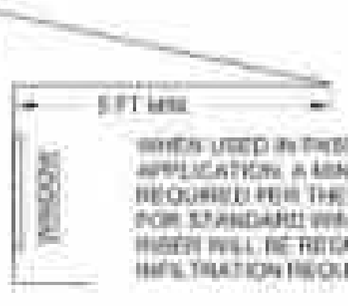
FOR EXAMPLE ON USING TABLE, SEE SHEET 5

TABLE 3A

Sill Height to Max. (+) DP
(Water Infiltration Rating)

Sill Riser Height (Flat or Box, see Sheet 17)	(+) Design Pressure, psf
Flush - 1 1/2"	see note 2
Low - 3 1/2"	+ 46.67
Medium - 5 1/4"	+ 60.0
High - 7"	+ 60.0

FIG 1



WHEN USED IN PASS-THROUGH WINDOW APPLICATION, A MIN. 5-FT OVERHANG IS REQUIRED PER THE CURRENT BUILDING CODE. FOR STANDARD WINDOW APPLICATION, A SILL RISER WILL BE REQUIRED TO MEET THE WATER INFILTRATION REQUIREMENT.

NOTES:

1) IF WATER INFILTRATION RESISTANCE IS REQUIRED, THE LESSER VALUES OF EITHER TABLE 2 AND TABLE 3A DETERMINES THE WATER LIMITED (+) DP. WATER TEST PRESSURE IS 15% OF THAT VALUE.

2) IF WATER INFILTRATION RESISTANCE IS NOT REQUIRED OR OVERHANG IS PER FIG 1, A SILL RISER IS NOT REQUIRED. IN THAT CASE, +DP'S SHOWN IN TABLE 2 MAY BE USED.

3) SEE SILL RISER TYPES ON SHEET 17. SHEET APPLIES TO E 3 AND 4 TRACK CONFIGURATIONS.

4) REFER TO ANCHOR NOTES, SHEET 4 & ENCLOSED SHEETS FOR ANCHORAGE SPACING, EDGE DISTANCE AND EMBEDMENT INFORMATION.

5) DOOR SIZE TO COMPLY WITH CURRENT FBC EGRESS REQUIREMENTS WHEN REQUIRED.

6) JAMB ANCHORS ARE SPECIFIED AS THE TOTAL QUANTITY. DIVIDE BY 2 FOR PAIRS TO BE INSTALLED.

GLASS WIDTH = NOMINAL PANEL WIDTH -3.25"
SLD WIDTH = NOM. PANEL WIDTH - 4.75"
SLD HEIGHT = WINDOW UNIT HEIGHT - 10 1/2"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 1.969"

PGT

A. MORLESS

DP & ANCHORAGE

SHEET 16 OF 17

REVISIONS

STATE OF FLORIDA

TABLE 3

Design Pressure (DP) and Anchor Quantities Required, (for all approved configurations on Sheets 2 & 3)

For screw spacings and edge distances, see sheet 11

+30 / -30 psf

Track location on (Reference Figures 2, 3A, 3B, & 4A) (do not install non-structural "fins", page 15) *Note: (-) DP may be limited by Table 3A			Size (mm height)															
			60" (1524 mm)				72" (1829 mm)				84" (2134 mm)				96" (2438 mm)			
			Anchor Spacing				Anchor Spacing				Anchor Spacing				Anchor Spacing			
			4"	8"	12"	16"	4"	8"	12"	16"	4"	8"	12"	16"	4"	8"	12"	16"
Second Floor (Jamb)	0°	Head/Sill	12+1	12+1	12+1	12+1	14+1	14+1	14+1	14+1	12+1	12+1	14+1	14+1	12+1	12+1	14+1	14+1
		Jamb	6	6	6	6	6	6	6	6	4	4	6	6	6	6	6	6
		P-Track	6+7	6+7	6+7	6+7	6+7	6+7	6+7	6+7	7+8	7+8	7+8	7+8	7+9	7+9	7+9	7+9
	30°	Head/Sill	12+1	12+1	12+1	12+1	14+1	14+1	14+1	14+1	12+1	12+1	14+1	14+1	12+1	12+1	14+1	14+1
		Jamb	6	6	6	6	6	6	6	6	4	4	6	6	6	6	6	6
		P-Track	6+7	6+7	6+7	6+7	6+7	6+7	6+7	6+7	7+8	7+8	7+8	7+8	7+9	7+9	7+9	7+9
	45°	Head/Sill	12+1	12+1	12+1	12+1	14+1	14+1	14+1	14+1	12+1	12+1	14+1	14+1	12+1	12+1	14+1	14+1
		Jamb	10	8	8	8	10	8	8	8	8	6	8	8	10	8	8	8
		P-Track	6+7	6+7	6+7	6+7	7+8	7+8	7+8	7+8	7+8	7+8	7+9	7+9	7+9	7+9	8+10	8+10
	60°	Head/Sill	12+1	12+1	12+2	14+2	12+2	12+2	12+2	12+2	12+2	12+2	14+2	14+2	12+3	12+3	12+3	12+3
		Jamb	12	8	8	8	12	8	8	8	12	10	8	8	14	10	8	8
		P-Track	7+8	7+8	7+8	7+10	7+10	7+10	7+10	8+10	8+10	8+10	8+10	8+11	8+10	8+10	8+10	8+11

FOR EXAMPLE ON USING TABLE SEE SHEET 6

EXAMPLE ON SHEET 6

TABLE 3A

Sill Height to Max. (+) DP
(Water Infiltration Rating)

Sill Riser Height (Flat or Bns. see Sheet 17)	(+) Design Pressure, psf
Flush - 1 1/2"	see note 3
Low - 2 1/2"	+ 45.67
Medium - 5 1/8"	+ 60.0
High - 8"	+ 60.0



WHEN USED IN PASS-THROUGH WINDOW APPLICATION, A MIN. 5-FT OVERHANG IS REQUIRED PER THE CURRENT BUILDING CODE. FOR STANDARD WINDOW APPLICATION, A SILL RISER WILL BE REQUIRED TO MEET THE WATER INFILTRATION REQUIREMENT

NOTES:

1) IF WATER INFILTRATION RESISTANCE IS REQUIRED, THE LESSER VALUES OF EITHER TABLE 3 AND TABLE 3A DETERMINES THE WATER LIMITED (+) DP. WATER TEST PRESSURE IS 15% OF THAT VALUE.

2) IF WATER INFILTRATION RESISTANCE IS NOT REQUIRED OR OVERHANG IS PER FIG 1, A SILL RISER IS NOT REQUIRED. IN THAT CASE, +DPS SHOWN IN TABLE 3 MAY BE USED.

3) SEE SILL RISER TYPES ON SHEET 17. SHEET APPLIES TO E.3 AND 4 TRACK CONFIGURATIONS.

4) REFER TO ANCHOR NOTES, SHEET 1 & ENCLOSED SHEETS FOR ANCHORAGE SPACING, EDGE DISTANCE AND EMBEDMENT INFORMATION.

5) DOOR SIZE TO COMPLY WITH CURRENT FBC EGRESS REQUIREMENTS WHEN REQUIRED.

6) JAMB ANCHORS ARE SPECIFIED AS THE TOTAL QUANTITY. DIVIDE BY 2 FOR PAIRS TO BE INSTALLED.

GLASS WIDTH = NOMINAL PANEL WIDTH -0.25"
GLO WIDTH = NOM. PANEL WIDTH - 4.75"
GLO HEIGHT = WINDOW UNIT HEIGHT - 10 1/2"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 1.969"

IGT

TABLE OF ANCHORAGE

REVISIONS

SEE SHEET 1 FOR REVISIONS

DRAWING NO. 1

SHEET NO. 5

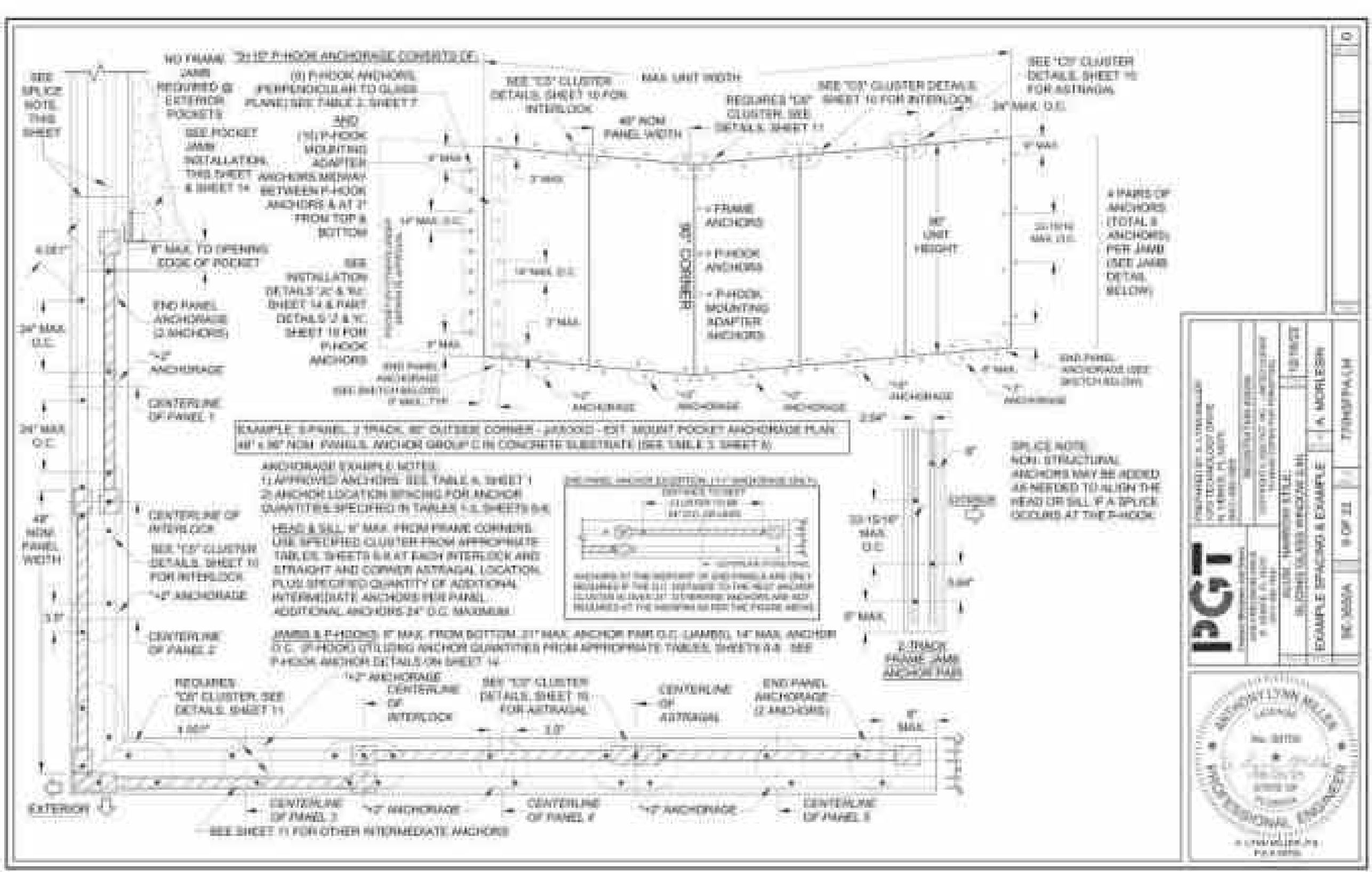
PRODUCT APPROVAL NUMBER

FL 17870.1

REGISTERED ARCHITECT
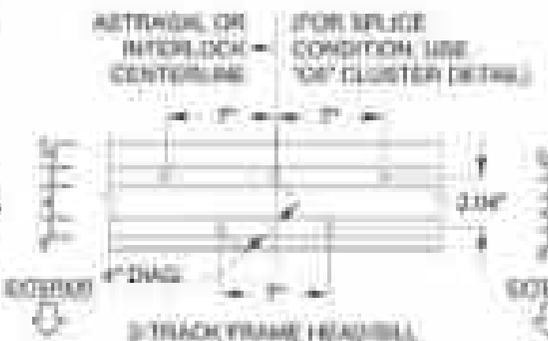
No. 32709

STATE OF FLORIDA


NO FRAME JAMB REQUIRED @ EXTERIOR POCKETS
SEE SPLICE NOTE THIS SHEET
SEE POCKET JAMB INSTALLATION, THIS SHEET & SHEET 14
6" MAX. TO OPENING EDGE OF POCKET
END PANEL ANCHORAGE (2 ANCHORS)
6" ANCHORAGE
CENTERLINE OF PANEL 1
24" MAX O.C.
48" NOM PANEL WIDTH
3.0"
CENTERLINE OF INTERLOCK
SEE "CS" CLUSTER DETAILS, SHEET 10 FOR INTERLOCK
CENTERLINE OF PANEL 2
"P" ANCHORAGE
"P" ANCHORAGE
"P" ANCHORAGE



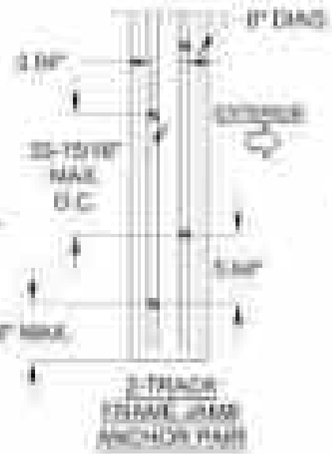
2-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 4 CLUSTER ANCHORS ARE REQUIRED: "C4")



2-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 5 CLUSTER ANCHORS ARE REQUIRED: "C5")
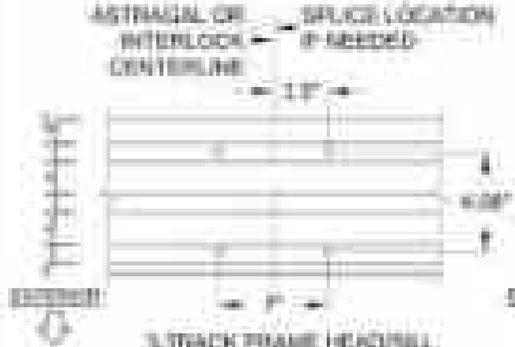


2-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 6 CLUSTER ANCHORS ARE REQUIRED: "C6")



2-TRACK FRAME JAMB ANCHOR PAIR



4-TRACK FRAME JAMB ANCHOR PAIR



3-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 4 CLUSTER ANCHORS ARE REQUIRED: "C4")



3-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 5 CLUSTER ANCHORS ARE REQUIRED: "C5")

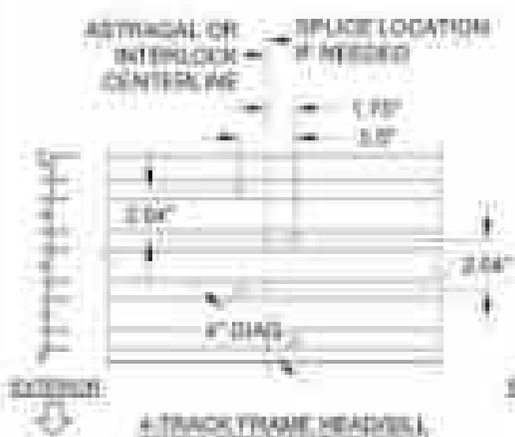


3-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 6 CLUSTER ANCHORS ARE REQUIRED: "C6")

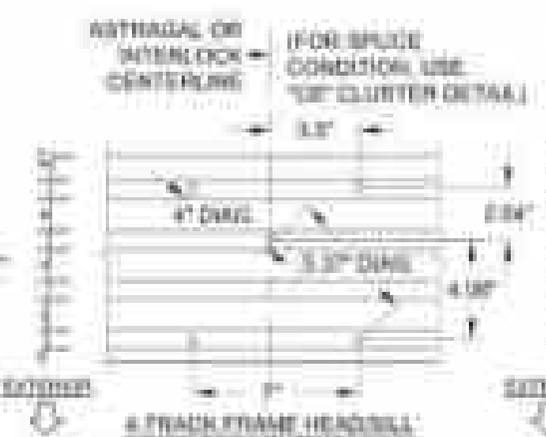


3-TRACK FRAME JAMB ANCHOR PAIR

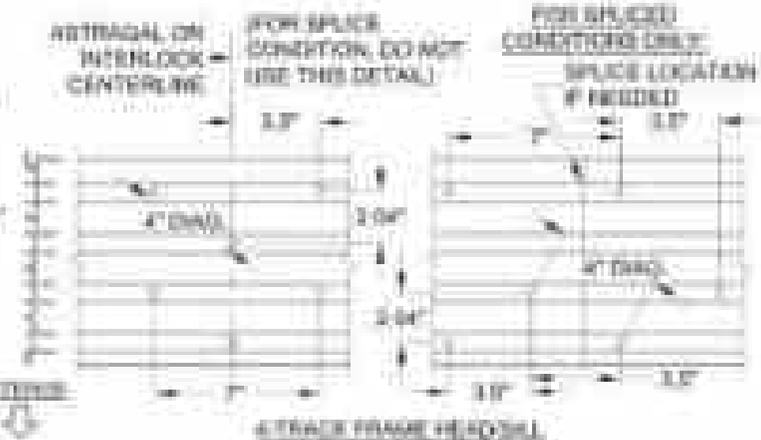
NOTES:
1. ALL DIMENSIONS SHOWN ARE BASED ON MIN ALLOWED.
2. FOR HEAD OR SILL SPLICE LOCATIONS/ANCHORAGE AT P-MARK SEE SHEET 9



4-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 4 CLUSTER ANCHORS ARE REQUIRED: "C4")



4-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 5 CLUSTER ANCHORS ARE REQUIRED: "C5")



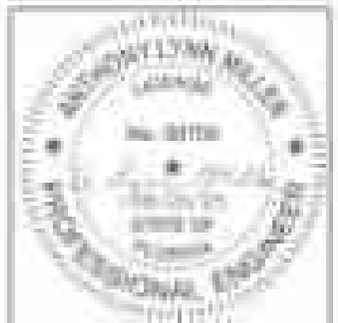
4-TRACK FRAME HEAD/SILL @ ASTRAGAL OR INTERLOCK (USE WHERE 6 CLUSTER ANCHORS ARE REQUIRED: "C6") WITH & WITHOUT SPLICE CONDITION

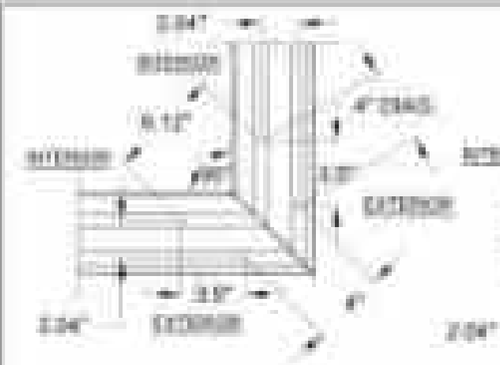
PGT
PGT INDUSTRIES, INC.
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
941.486.0600
941.486.0664 FAX

REV	DESCRIPTION	DATE
D		
C		
B	4. MORE ESSN	7/19/07
A	INITIAL RELEASE	11/15/06

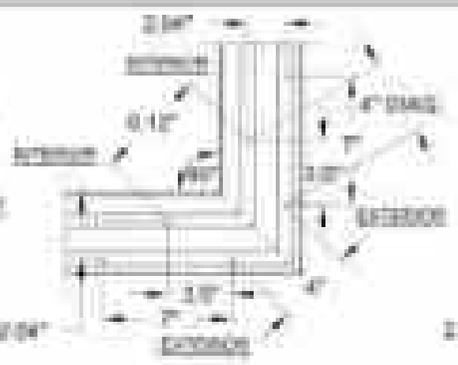
ASTRAGAL CLUSTERS

DRAWN BY	CHECKED BY	APPROVED BY
MSK	MSK	MSK

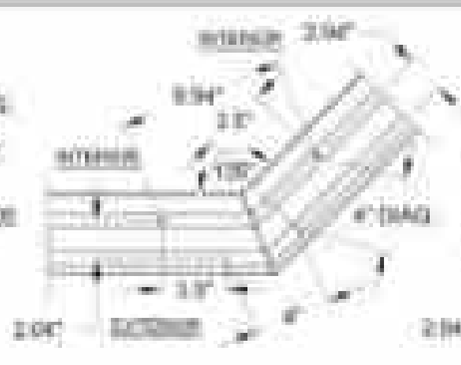




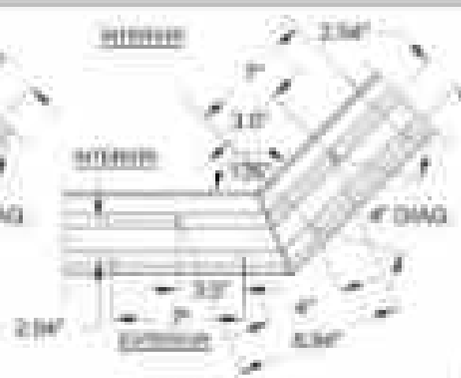
90° CORNER
2-TRACK FRAME HEADSILL
(USE WHERE 4 CLUSTER
ANCHORS ARE REQUIRED "C/C")



90° CORNER
2-TRACK FRAME HEADSILL
(USE WHERE 3 OR 6 CLUSTER
ANCHORS ARE REQUIRED "C/E")



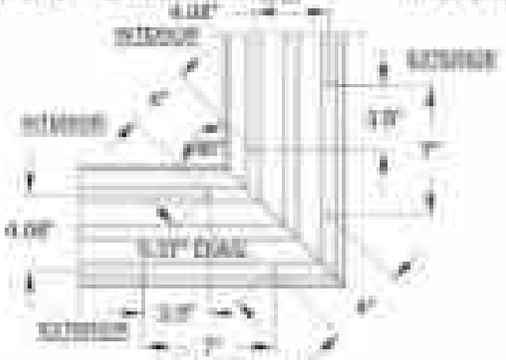
135° CORNER
2-TRACK FRAME HEADSILL
(USE WHERE 4 CLUSTER
ANCHORS ARE REQUIRED "C/C")



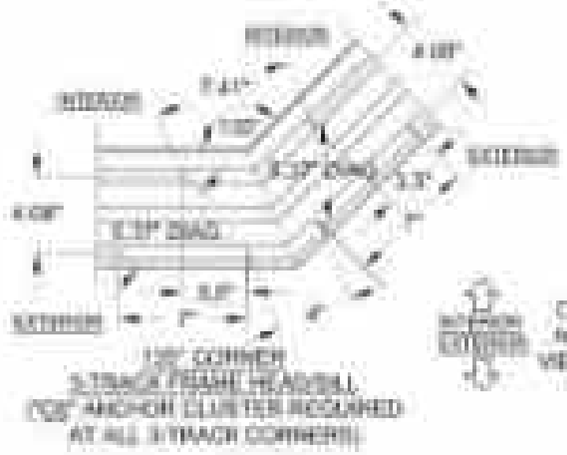
135° CORNER
2-TRACK FRAME HEADSILL
(USE WHERE 6 OR 9 CLUSTER
ANCHORS ARE REQUIRED "C/E")







90° CORNER
3-TRACK FRAME HEADSILL
("C/E" ANCHOR CLUSTER REQUIRED
AT ALL 3-TRACK CORNERS)



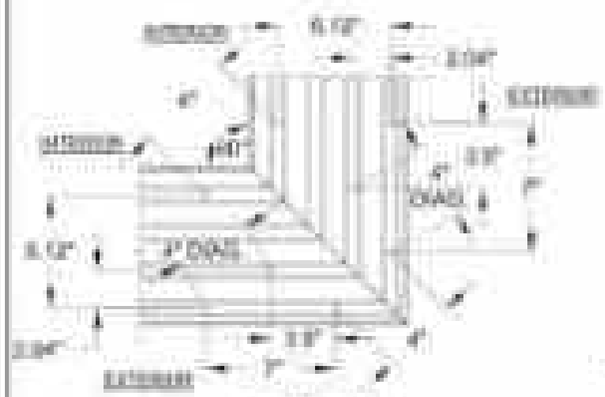
135° CORNER
3-TRACK FRAME HEADSILL
("C/E" ANCHOR CLUSTER REQUIRED
AT ALL 3-TRACK CORNERS)



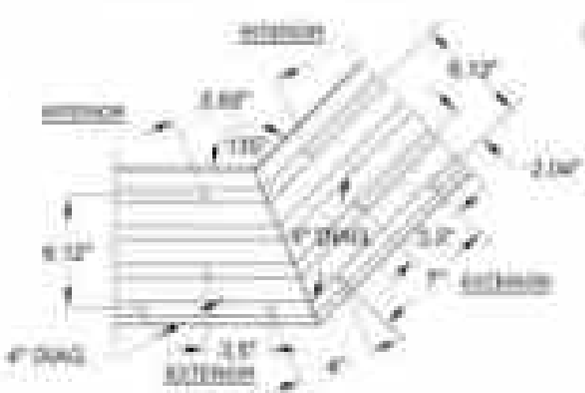
4-TRACK FRAME HEADSILL
INTERMEDIATE ANCHOR LAYOUT
(3-TRACK SIMILAR)



2-TRACK FRAME HEADSILL
INTERMEDIATE ANCHOR LAYOUT



90° CORNER
4-TRACK FRAME HEADSILL
("C/E" ANCHOR CLUSTER REQUIRED
AT ALL 4-TRACK CORNERS)

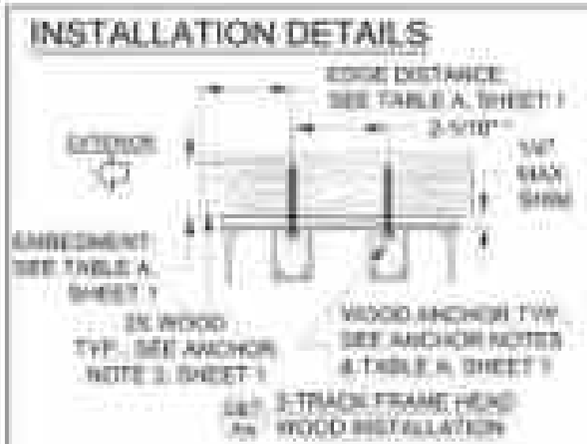


135° CORNER
4-TRACK FRAME HEADSILL
("C/E" ANCHOR CLUSTER REQUIRED
AT ALL 4-TRACK CORNERS)

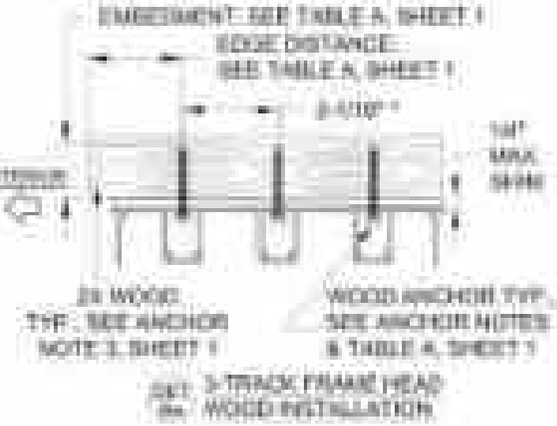
NOTES:
1. ALL DIMENSIONS SHOWN ARE BASED ON MINIMUM ALLOWED.
2. DETAILS DEPICT ANCHOR QUANTITY AND SPACING, AND WOULD BE IDENTICAL FOR EXTERIOR OR INTERIOR CORNER CONFIGURATIONS.

PGT
4 MORGESIN
ANCHORAGE CLUSTERS
WINDSTORM RELIEF
No. 99999
STATE OF
REGISTERED ENGINEER

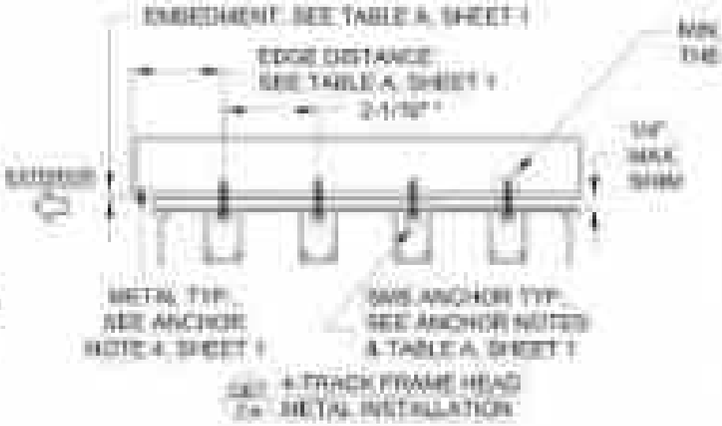
INSTALLATION DETAILS



(3E1) 3-TRACK FRAME HEAD
(5x) WOOD INSTALLATION



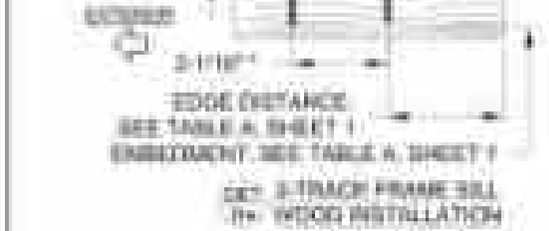
(3E1) 3-TRACK FRAME HEAD
(5x) WOOD INSTALLATION



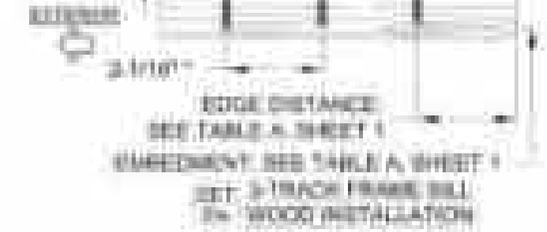
(4E1) 4-TRACK FRAME HEAD
(2x) METAL INSTALLATION

NOTES:
1. ALL DIMENSIONS SHOWN ARE BASED ON MIN. ALLOWED.
2. METAL OR WOOD SUBSTRATES MAY BE USED FOR ALL FRAME TYPES PER TABLE A, SHEET 1.

† DIAGONAL O.E. IS MIN 4" (HEAD & SILL) OR 6" (JAMB) SEE DETAILS, SHEETS 10 & 11



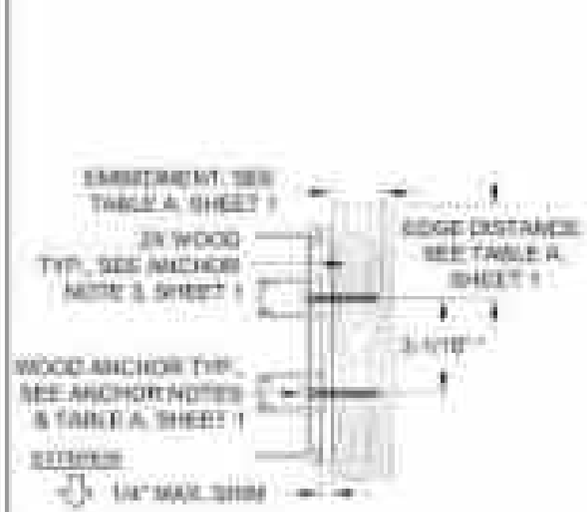
(3E1) 3-TRACK FRAME SILL
(5x) WOOD INSTALLATION



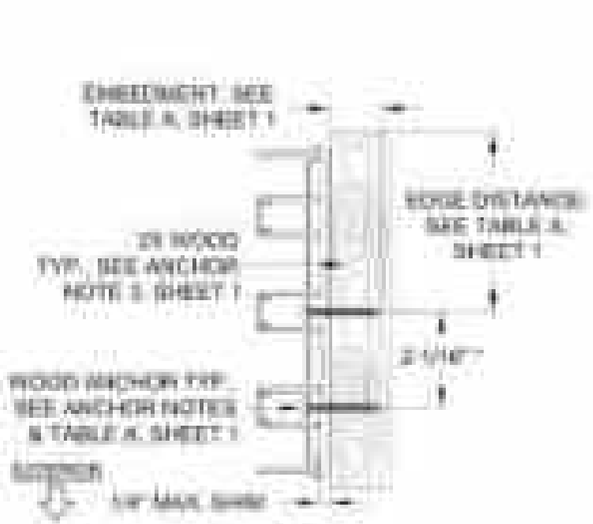
(3E1) 3-TRACK FRAME SILL
(5x) WOOD INSTALLATION



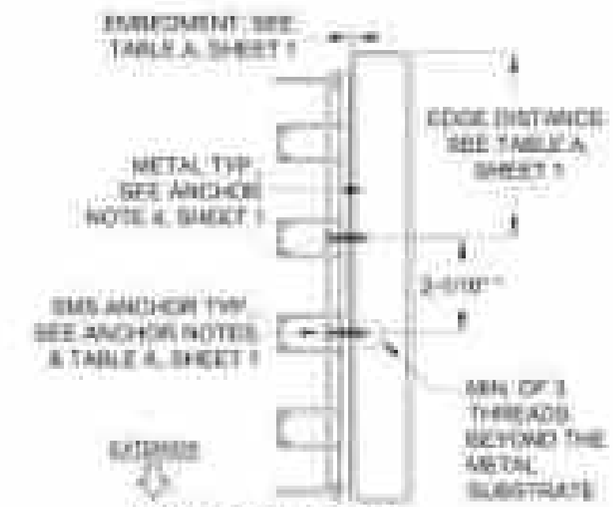
(4E1) 4-TRACK FRAME SILL
(2x) METAL INSTALLATION



(3E1) 3-TRACK FRAME JAMB
(5x) WOOD INSTALLATION



(3E1) 3-TRACK FRAME JAMB
(5x) WOOD INSTALLATION

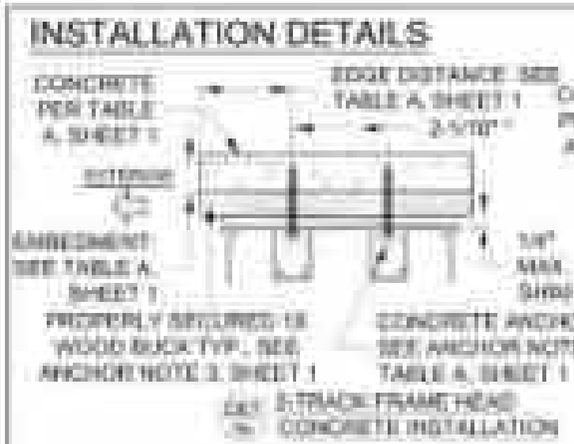


(4E1) 4-TRACK FRAME JAMB
(4x) METAL INSTALLATION

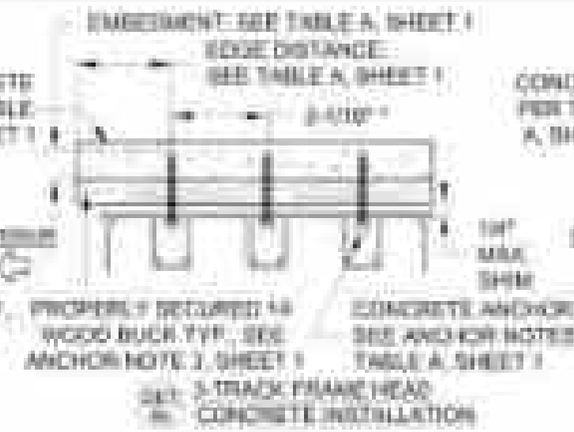
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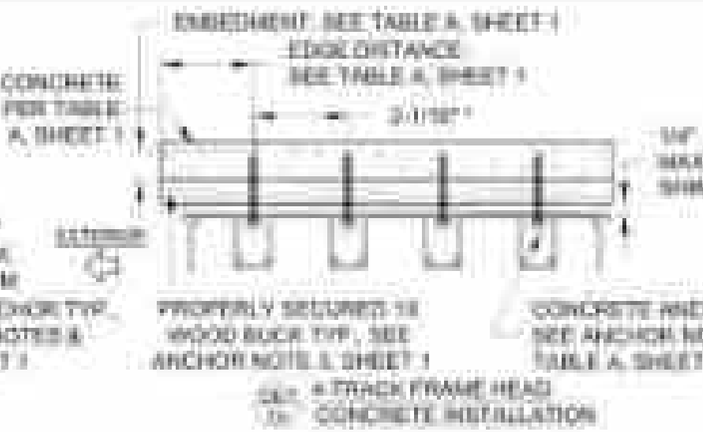
INSTALLATION DETAILS



2-TRACK FRAME HEAD
CONCRETE INSTALLATION



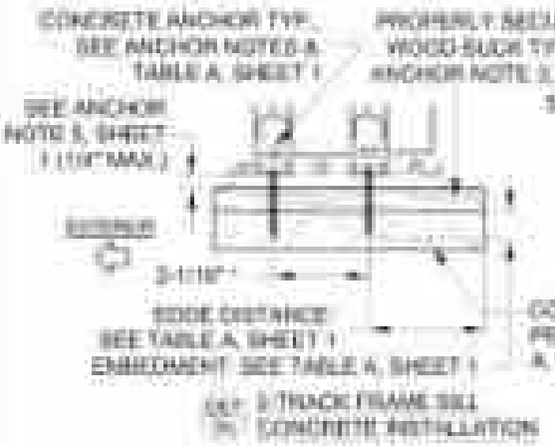
3-TRACK FRAME HEAD
CONCRETE INSTALLATION



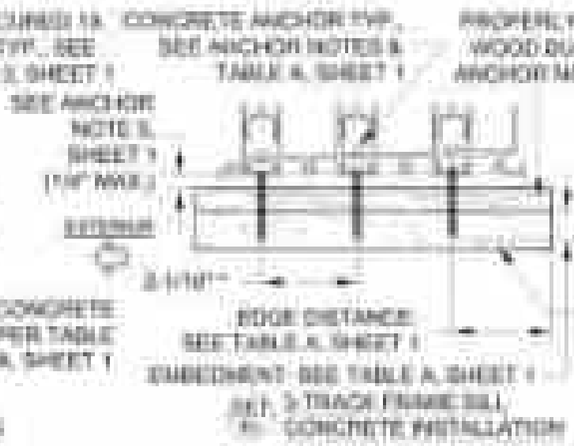
4-TRACK FRAME HEAD
CONCRETE INSTALLATION

NOTES:
1. ALL DIMENSIONS SHOWN ARE BASED ON MIN. ALLOWED.

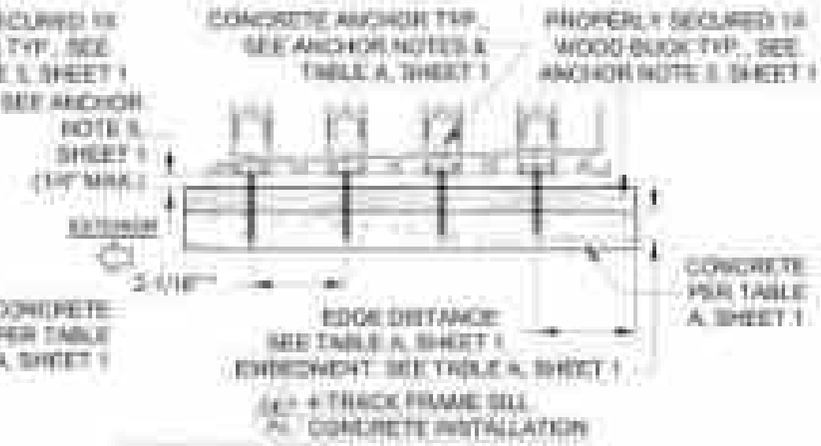
* DIAGONAL O.C. IS MIN 4" (HEAD & SILL) OR 6" (JAMB) SEE DETAILS, SHEETS 10 & 11



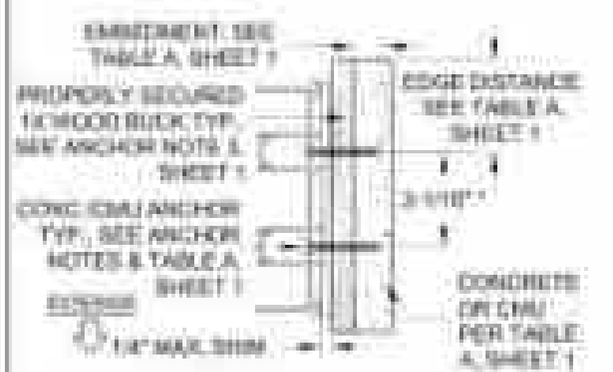
3-TRACK FRAME SILL
CONCRETE INSTALLATION



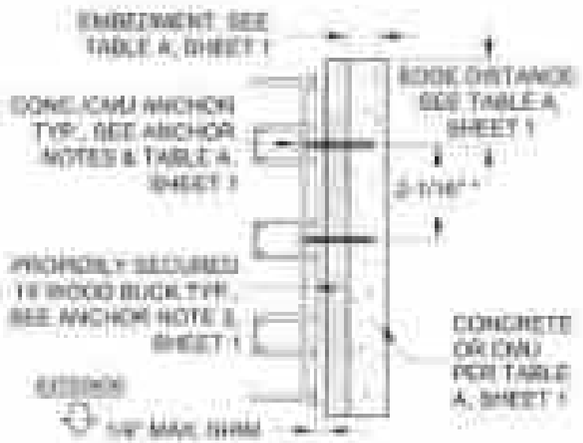
3-TRACK FRAME SILL
CONCRETE INSTALLATION



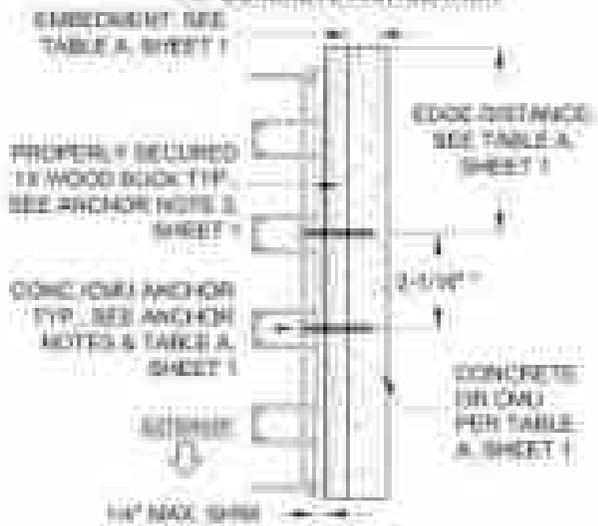
4-TRACK FRAME SILL
CONCRETE INSTALLATION



2-TRACK FRAME JAMB
CONCRETE/CMU INSTALLATION



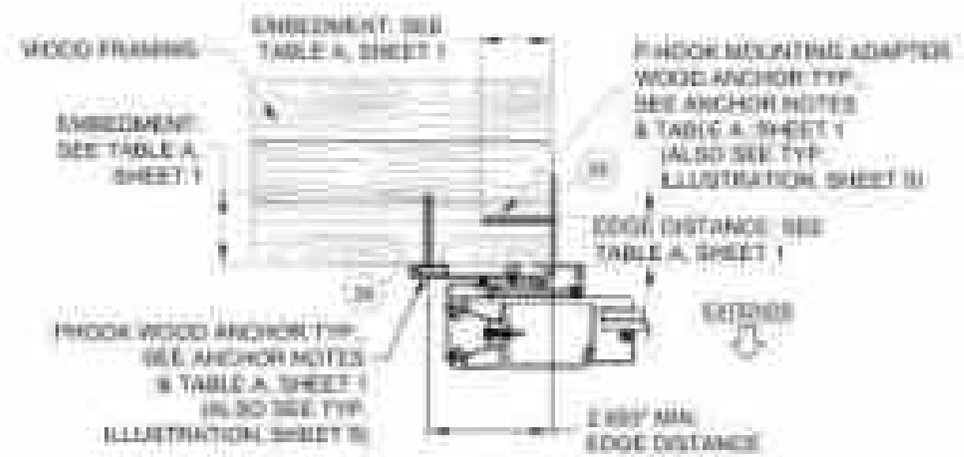
3-TRACK FRAME JAMB
CONCRETE/CMU INSTALLATION



4-TRACK FRAME JAMB
CONCRETE/CMU INSTALLATION

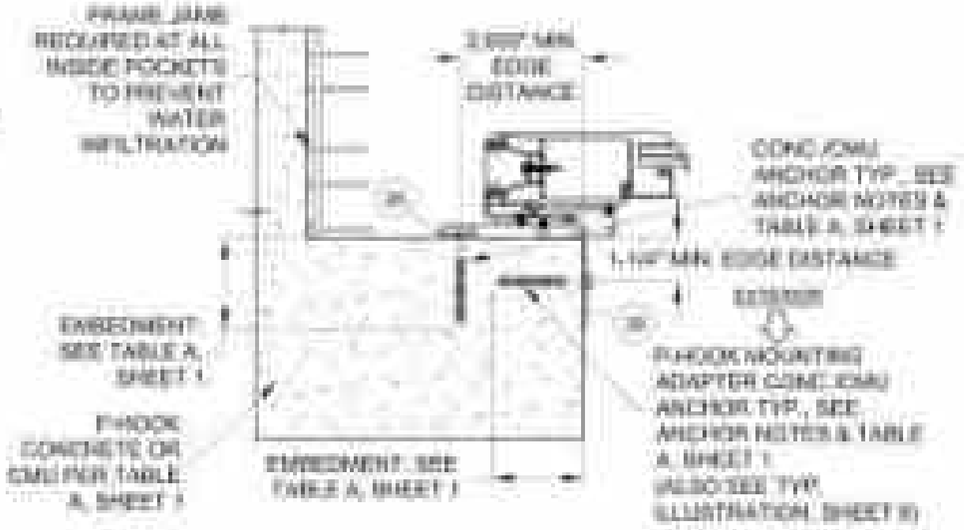
PGT

INSTALLATION DETAILS



SET: P-HOOK FOR USE WITH FLAT SILL RISERS
PARTS #18, 401, 402 OR 404.
WOOD INSTALLATION
(SEE TABLES 1A, 2A & 3A FOR WATER RATINGS)

EXTERIOR MOUNT SHOWN, MAY ALSO BE INSTALLED IN INTERIOR CONDITION



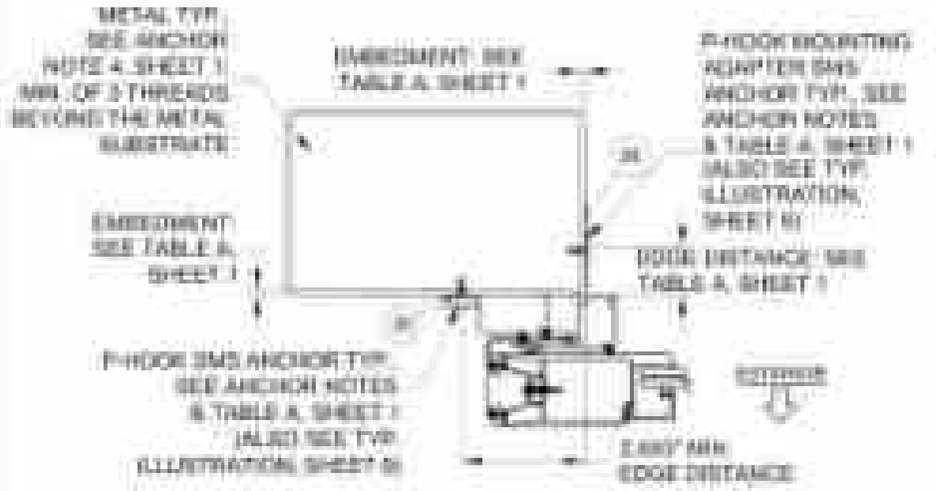
SET: P-HOOK FOR USE WITH ANY SILL RISER
PARTS #18, 401, 402 OR 404.
CONCRETE/CMU INSTALLATION
(SEE TABLES 1A, 2A & 3A FOR WATER RATINGS)

INTERIOR MOUNT SHOWN, MAY ALSO BE INSTALLED IN EXTERIOR CONDITION

NOTES:
1. ALL DIMENSIONS SHOWN ARE BASED ON MIN. ALLOWED.

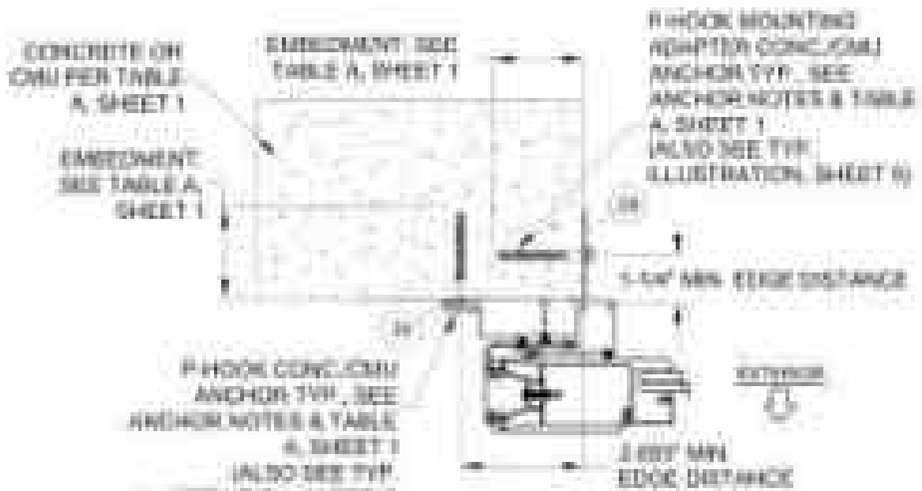
2. FIGURES ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. SEE TABLE A, SHEET 1 FOR ALL APPROVED SUBSTRATES.

3. SEE TABLES 1-3, SHEETS 4-6 FOR REQUIRED P-HOOK AND P-HOOK MOUNTING ADAPTER ANCHOR QUANTITIES. ALSO SEE EXAMPLE ON SHEET 9.



SET: P-HOOK FOR USE WITH BOX SILL RISERS
PARTS #19, 601, 603 OR 605.
METAL INSTALLATION
(SEE TABLES 1A, 2A & 3A FOR WATER RATINGS)

EXTERIOR MOUNT ONLY



SET: P-HOOK FOR USE WITH BOX SILL RISERS
PARTS #19, 601, 603 OR 605.
CONCRETE INSTALLATION
(SEE TABLES 1A, 2A & 3A FOR WATER RATINGS)

EXTERIOR MOUNT ONLY

ID	
4	MORE EDITS
3	ADD SET UP
2	ADD MASONRY
1	ANCHORAGE DETAILS
	P7/8/9/P/A/L/H

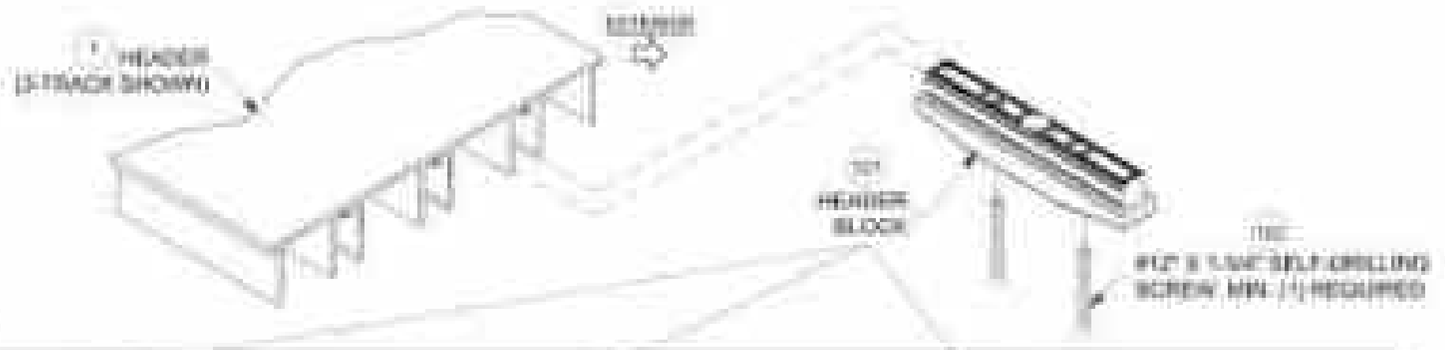
ICC-ES

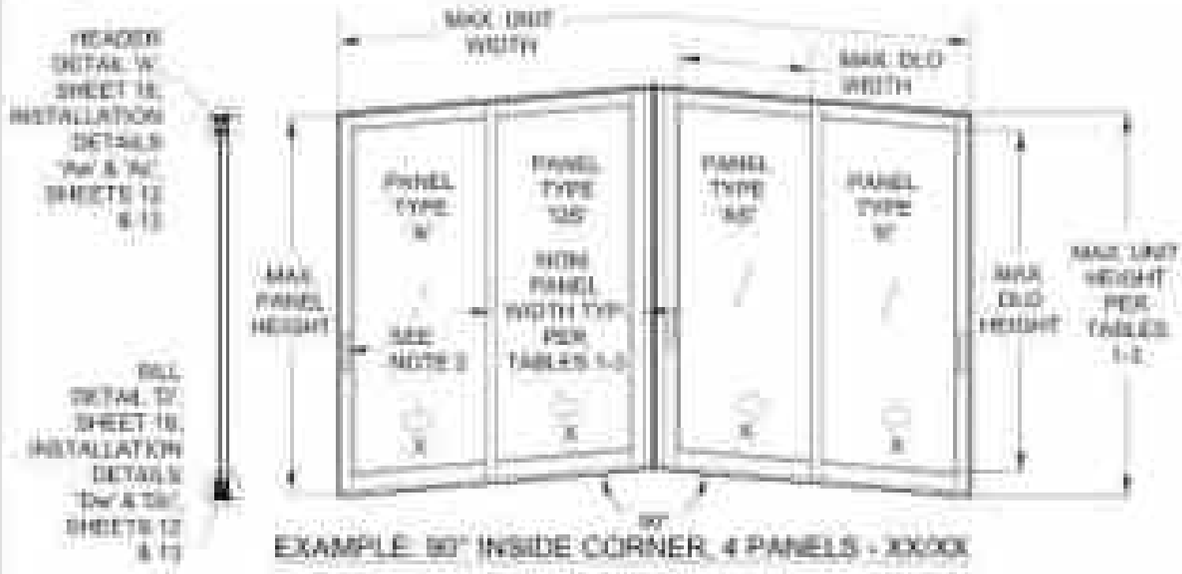
WINDSTORM MILLER
LICENSE
No. 33753
EXPIRE DATE
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
© WINDSTORM MILLER, P.E.
P.E. # 33753

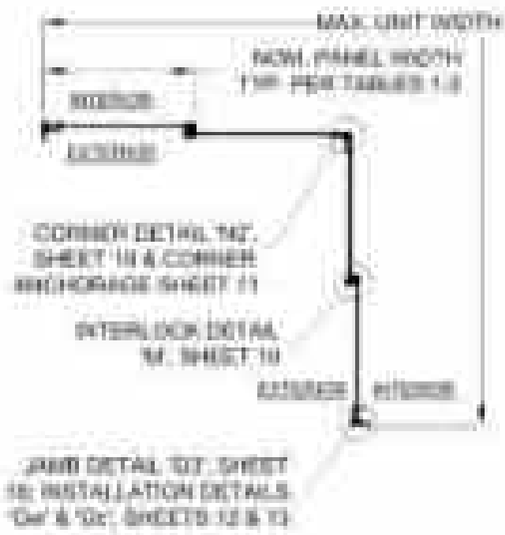
CONFIG. EXAMPLES

HEADER BLOCK TO HEADER ATTACHMENT
TO PREVENT ANY EXTERIOR-OPERABLE PANEL FROM DISLODGING TO THE EXTERIOR, INSTALL ONE HEADER BLOCK AT EACH INTERLOCK, ASTRAGAL AND P-HOOK INTO THE EXTERIOR TRACK OF THE HEADER. TRIM THE SCREW COVER AS NEEDED.

EXAMPLE: HEADER BLOCK PLACEMENT IN 3-PANEL CONFIGURATION. OTHERS SIMILAR.











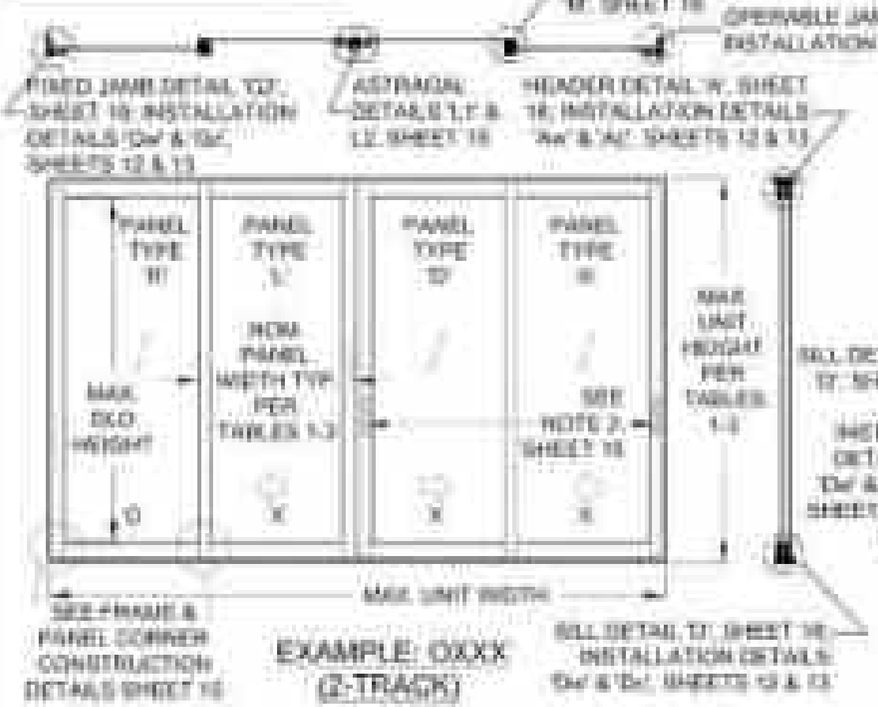
NOTES:
1) SEE SHEET 17 FOR INDIVIDUAL PANEL CONFIGURATIONS AS APPLICABLE. SEE DP/ANCHOR TABLES, SHEETS 5-6 FOR MAX. PANEL HEIGHT AND WIDTH. SEE SHEETS 18 & 19 FOR SECTION DETAILS AND SHEETS 12-14 FOR INSTALLATION DETAILS.
2) (1) LOCK (ITEMS 78 & 187-116) AT EACH LOCKSTILE, LOCKING INTO KEEPER (ITEM 103) AT FRAME JAMB OR ASTRAGAL.
3) PLEASE SEE APPLICABLE REINFORCEMENT PER DP/ANCHOR TABLES.

GLASS WIDTH = NOMINAL PANEL WIDTH -3.25"
O/O WIDTH = NOM. PANEL WIDTH +4.75"
O/O HEIGHT = WINDOW UNIT HEIGHT + 19.125"
PANEL HEIGHT = WINDOW UNIT HEIGHT - 7.875"

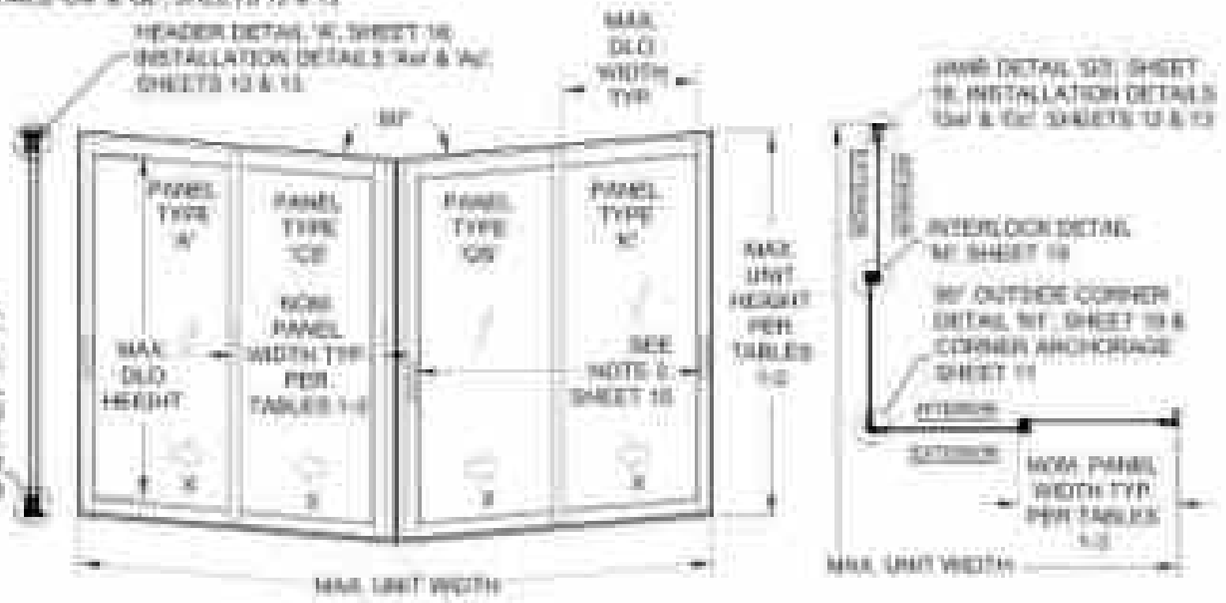
PGT

CONFIG. EXAMPLES

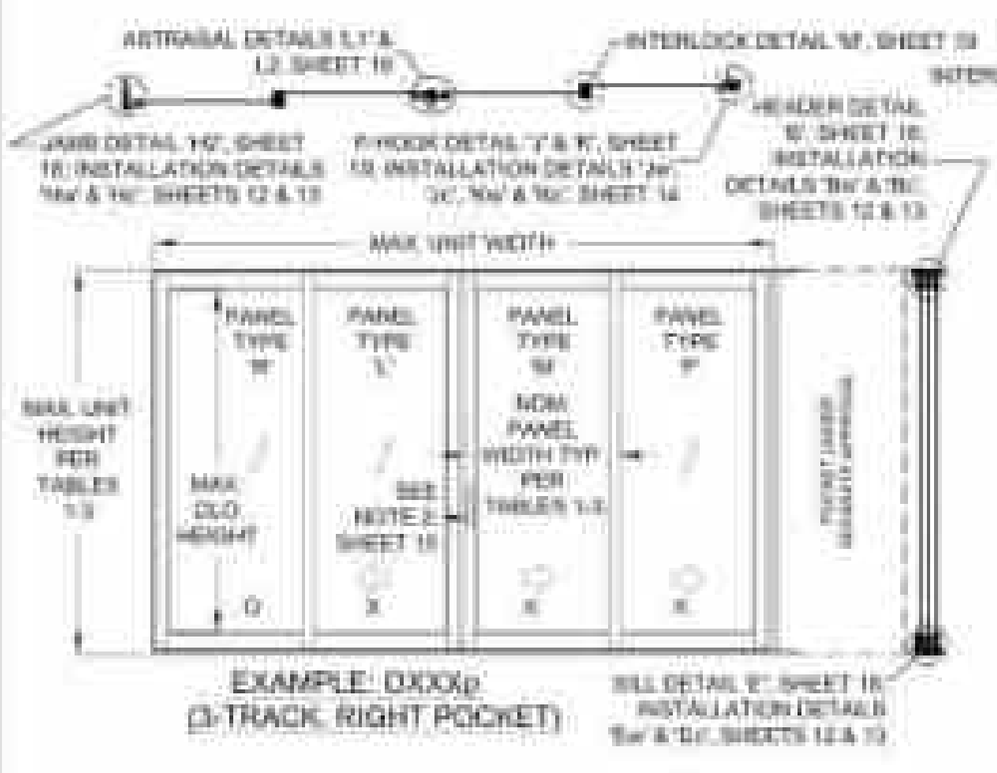
[FOR ALL DETAILS ON THIS SHEET, SEE NOTES ON SHEET 15]



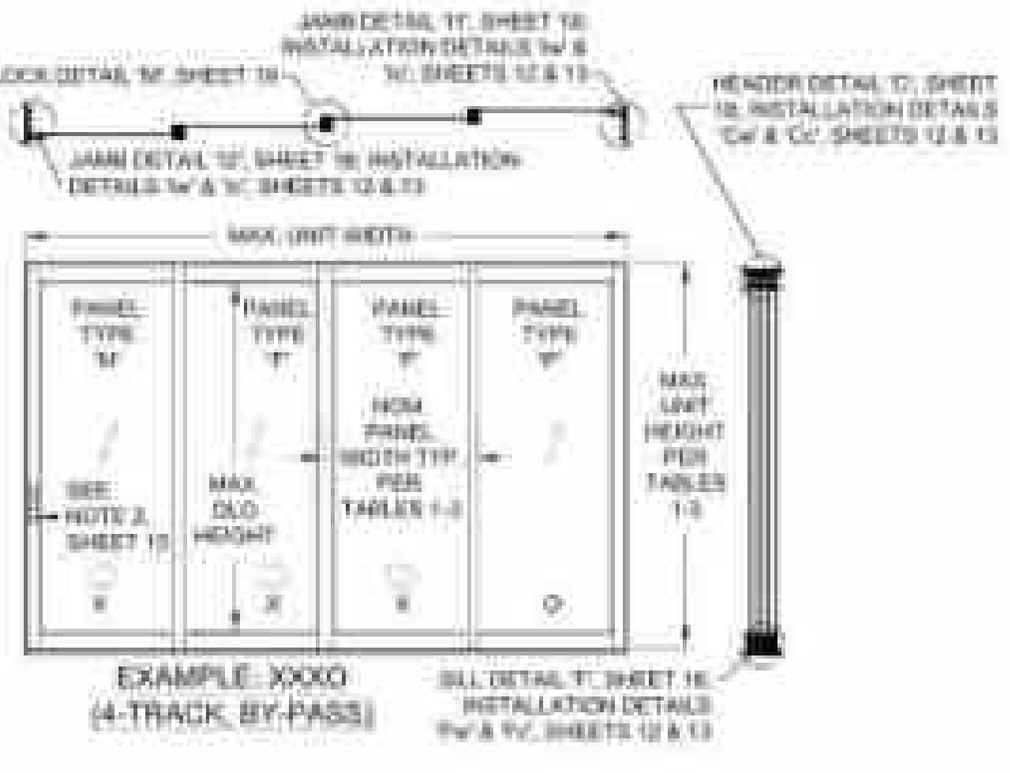
EXAMPLE: OXXX (2-TRACK)



EXAMPLE: 90° OUTSIDE CORNER - XX/XX (2-TRACK)



EXAMPLE: DXXXp (3-TRACK, RIGHT POCKET)



EXAMPLE: XXXO (4-TRACK, BY-PASS)

IGT
4 MORLEES
TYPE/PHASE
EXAMPLE ELEVATION
SHEET
16 OF 20
REVISION

PANEL TYPES	PANEL'S RIGHT STILE TYPE												
	SINGLE INTERLOCK (OUT)	SINGLE INTERLOCK (IN)	FIXED STILE	LOCK STILE W/ HANDLE	ASTRAGAL BOX OUT	ASTRAGAL BOX IN	ASTRAGAL BOX OUT W/ HANDLE	ASTRAGAL BOX IN W/ HANDLE	EXT. CORNER W/ RECEIVER W/ HANDLE (#116)	INT. CORNER W/ RECEIVER W/ HANDLE (#116)	EXT. CORNER W/ RECEIVER (#116)	EXT. CORNER W/ RECEIVER W/ HANDLE (#116)	INT. CORNER W/ RECEIVER W/ HANDLE (#116)
PANEL'S LEFT STILE TYPE													
SINGLE INTERLOCK (OUT)		F	PP	K			L		TC	TA		TV	TW
SINGLE INTERLOCK (IN)	B	E	P	A			C	C	SC	SA		SV	SW
FIXED STILE	RR	R			S	S				FD	FC	FV	FW
LOCK STILE W/ HANDLE	D	M			J	J							
ASTRAGAL BOX OUT W/ HANDLE	LR												
ASTRAGAL BOX IN W/ HANDLE		N											
ASTRAGAL BOX OUT			T	U									
ASTRAGAL BOX IN			T	U									
EXT. CORNER W/ RECEIVER W/ HANDLE (#116)		CT	CS										
INT. CORNER W/ RECEIVER W/ HANDLE (#116)		AT	AS	DF									
EXT. CORNER W/ RECEIVER (#116)				CF									
EXT. CORNER W/ RECEIVER W/ HANDLE (#116)		VT	VS	VF									
INT. CORNER W/ RECEIVER W/ HANDLE (#116)		WT	WS	WF									

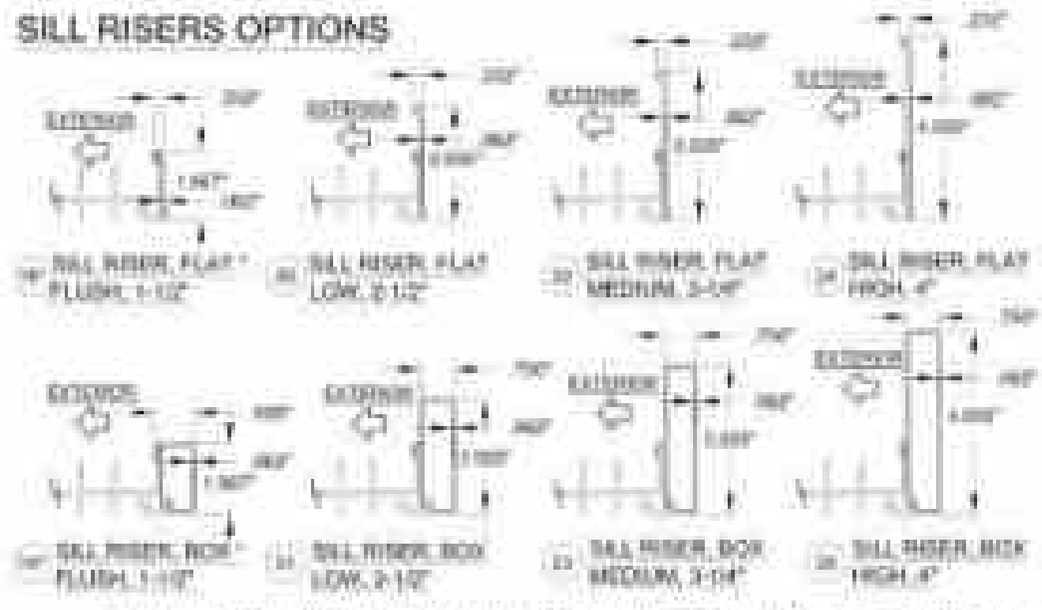
PANEL NOTES:
1. SEE DP TABLES 1-5, SHEETS 5-8 FOR PANEL SIZES & DESIGN PRESSURE.
2. PANEL TYPES NOT SHOWN OR CROSSED OFF ARE NOT REQUIRED FOR ANY CONFIGURATIONS AND ARE NOT AVAILABLE.
3. 90° ASTRAGALS TO USE HEAVY DUTY STILES (#61), CORNER RECEIVER (#116) AND EITHER EXTERIOR (#116) OR INTERIOR (#120) CORNER ASTRAGALS.
4. 135° ASTRAGALS TO USE HEAVY DUTY STILES (#61) AND CORNER ADDON (#31).

EXAMPLE



PANEL 'E' SHOWN. SEE TABLE FOR OTHER PANEL TYPES AND APPLICABLE STILE ASTRAGAL REQUIREMENTS.

SILL RISERS OPTIONS



* NOT VALID FOR WATER INFILTRATION RESISTANCE REQUIREMENTS. SEE SHEETS 5-8

IGT

PANEL TYPES

SHEET 11 OF 11

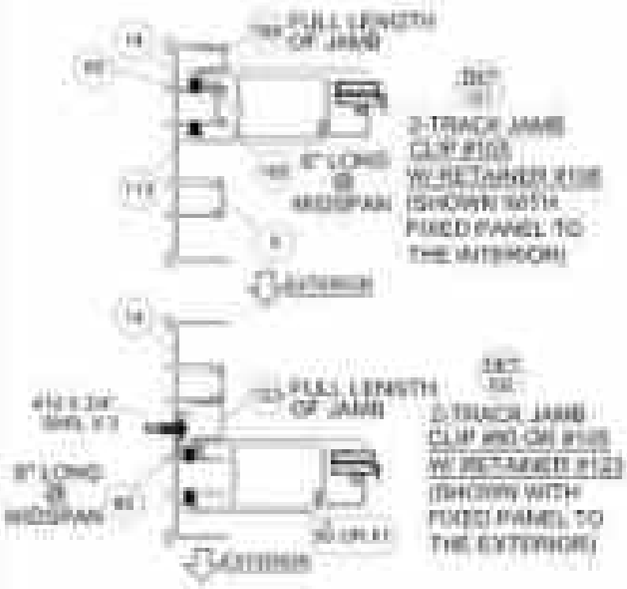
REVISIONS

4. MORLESS

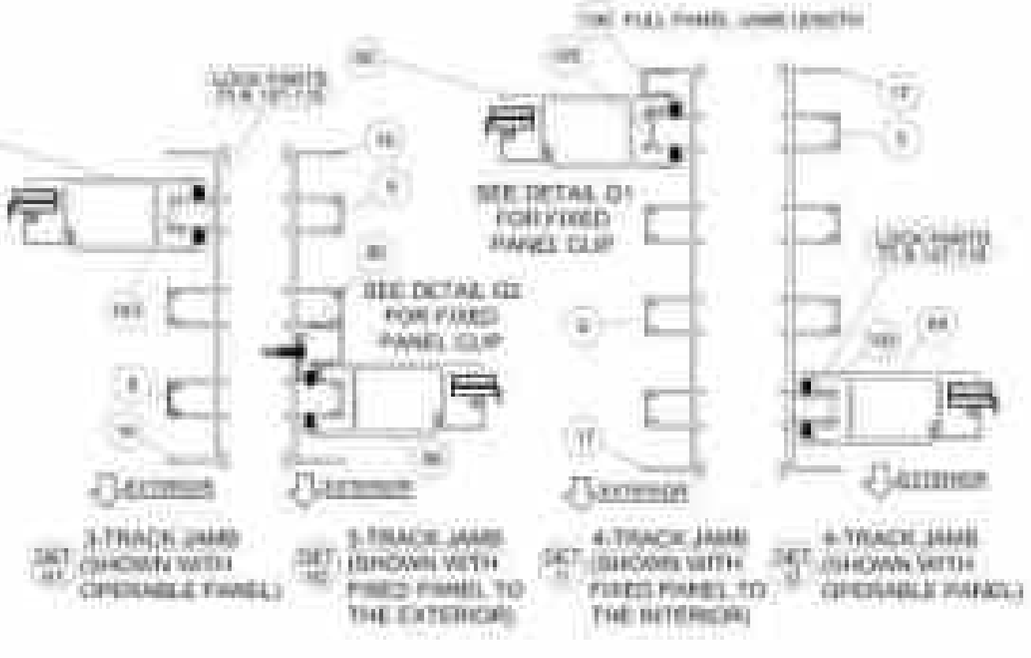
REGISTERED PROFESSIONAL ENGINEER
No. 39750
STATE OF FLORIDA

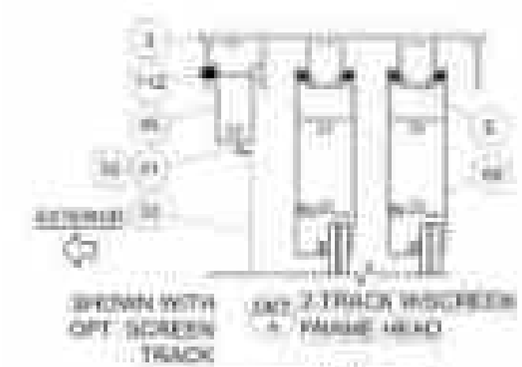
ASSEMBLY DETAILS

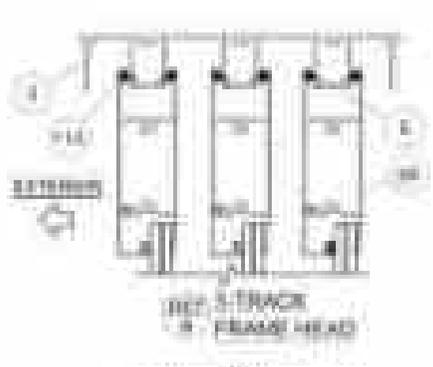
(SEE SHEETS 12-14 FOR FOR INSTALLATION DETAILS)

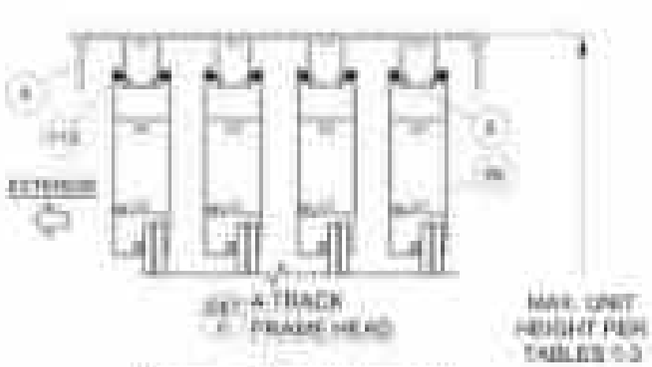








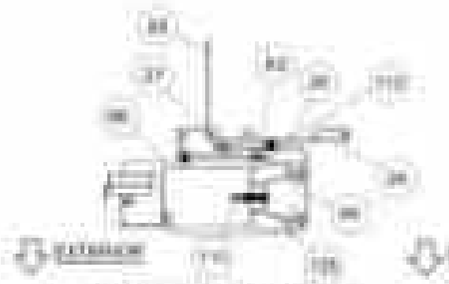




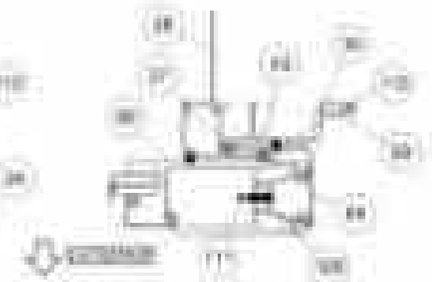
ERICKSON-MILLER ENGINEERING
ERICKSON-MILLER ASSOCIATES

ASSEMBLY DETAILS

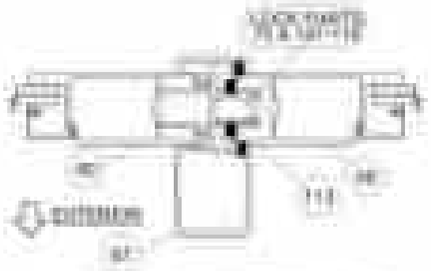
(SEE SHEETS 12-14 FOR FOR INSTALLATION DETAILS)



(36") P-HOOK FOR FLAT SILLS
(EXT. OR INT. MOUNT)

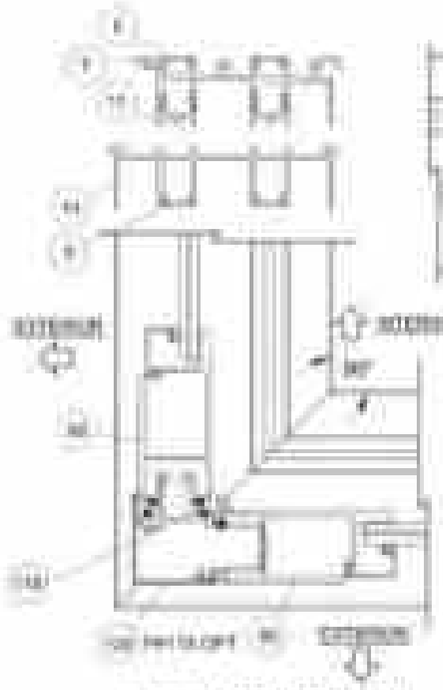


(36") P-HOOK FOR BOX SILLS
EXT. MOUNT ONLY

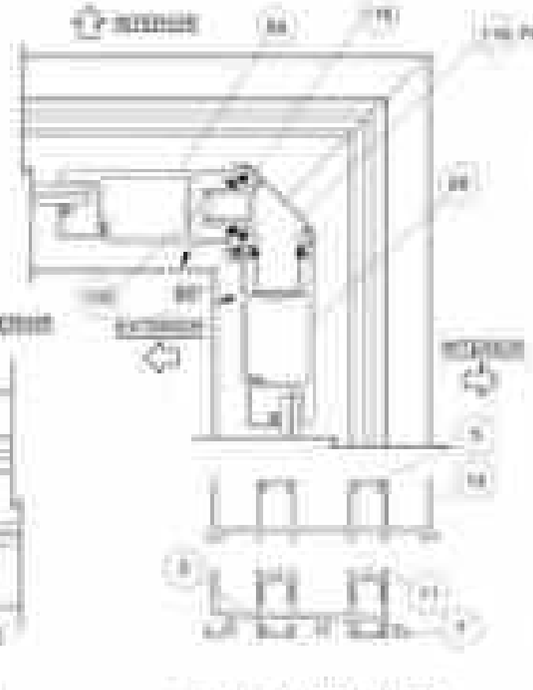


(36") STANDARD ASTRAGAL #67
WITH STANDARD STILES #65

EXTERIOR BOX ASTRAGAL SHOWN
(BOX-OUT) MAY ALSO BE INSTALLED
TOWARDS INTERIOR (BOX-IN)



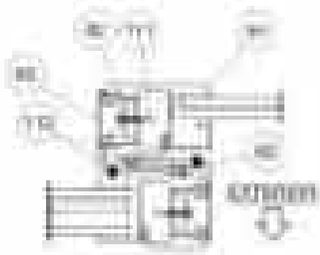
(90°) 90° OUTSIDE CORNER
2-TRACK SHOWN



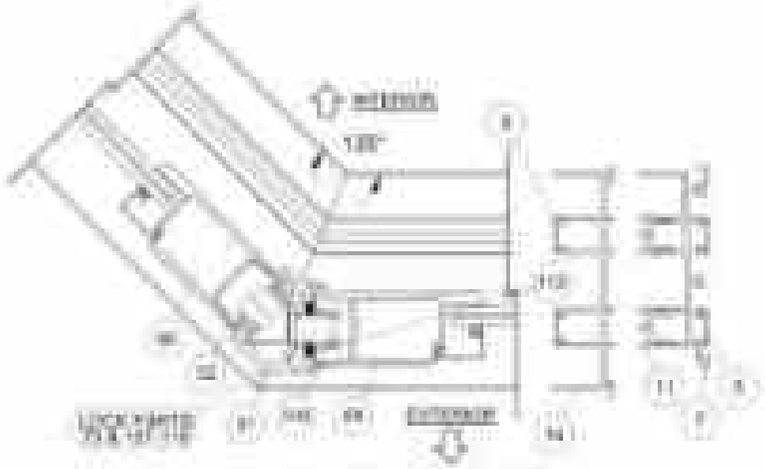
(90°) 90° INSIDE CORNER
2-TRACK SHOWN



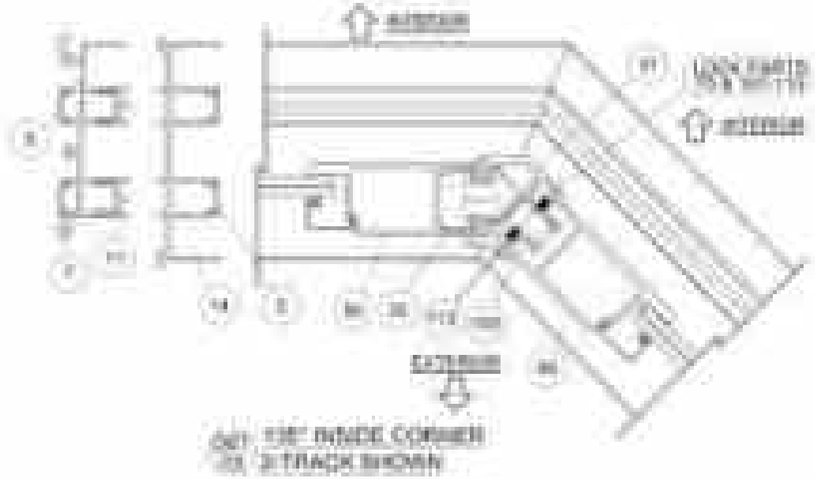
(36") REINFORCED
W/ INTERLOCK



(36") INTERLOCK
W/



(135°) 135° OUTSIDE CORNER
2-TRACK SHOWN



(135°) 135° INSIDE CORNER
2-TRACK SHOWN

DESIGN	
MIXED DECK	
4 MORNING	
3	
2	
1	
REVISIONS	
DATE	
HORIZONTAL SECTION DETAILS	
PGT	
SHEET NO.	

Item	PGT Dwg. #	PGT #	Description
1			
2			
3			
4			
5			
6			
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8			
9			
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11			
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46			

NOTES:
1) ALL ALUMINUM = 6063-T6

2) USE OF #12 OR #13 REQUIRES MIN. #10 DMS OR 3 1/8" MASONRY ANCHORS @ 24" MAX. O.C.

Item	PGT Dwg. #	PGT #	Description
47			
48			
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100			

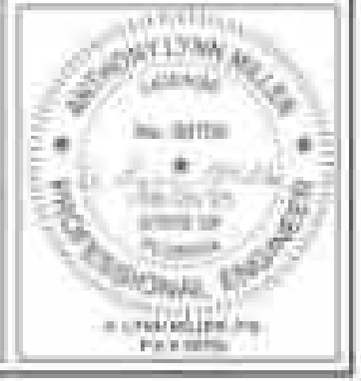
NO.	REVISIONS	BY	DATE
1	MORSE		
2	MF - REVISED DESIGN		

PGT

BILL OF MATERIALS

DRAWN BY:	
CHECKED BY:	
DATE:	
SCALE:	NONE
JOB NO.	
SHEET NO.	

PGT INDUSTRIES
1070 FLORIDA CENTRAL PARKWAY
NORTH VENICE, FLORIDA 34275
PHONE: (941) 486-0594
FAX: (941) 480-1787





1 3-TRACK HEAD
(6063-T6 AL)



4 4-TRACK SILL
(6063-T6 AL)



11 3-TRACK JAMB W/
SCREEN TRACK
(6063-T6 AL)



14 3-TRACK JAMB
(6063-T6 AL)



40 SCREEN
STILE
(6063-T6 AL)



2 2-TRACK HEAD W/ SCREEN TRACK
(6063-T6 AL)



5 3-TRACK SILL
(6063-T6 AL)



3 3-TRACK HEAD
(6063-T6 AL)



6 3-TRACK SILL W/ SCREEN TRACK
(6063-T6 AL)



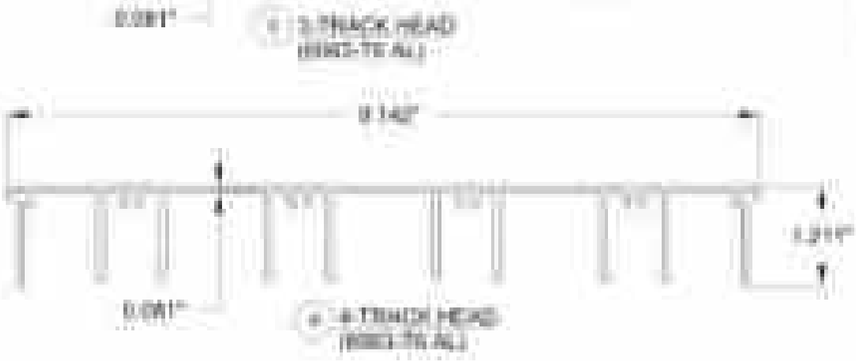
12 3-TRACK JAMB
(6063-T6 AL)



17 4-TRACK JAMB



41 SCREEN
TOP RAIL
(6063-T6 AL)



4 4-TRACK HEAD
(6063-T6 AL)



7 3-TRACK SILL
(6063-T6 AL)



39 SCREEN
BOTTOM RAIL
(6063-T6 AL)



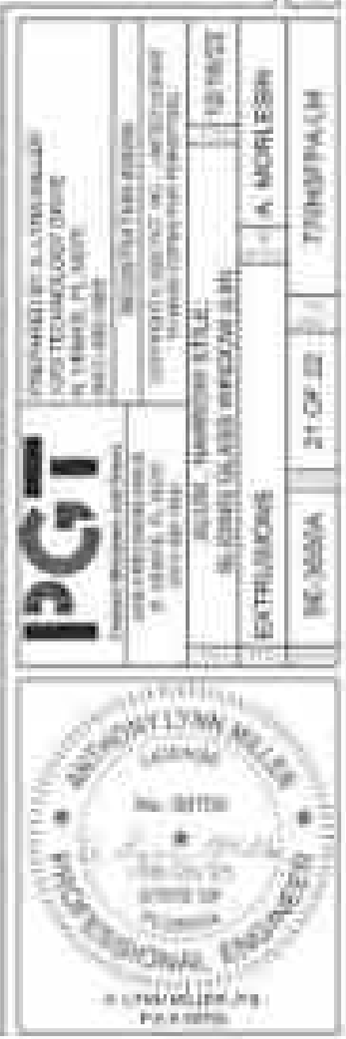
8 FRAME HEAD/JAMB SCREEN
ADD-ON
(6063-T6 AL)

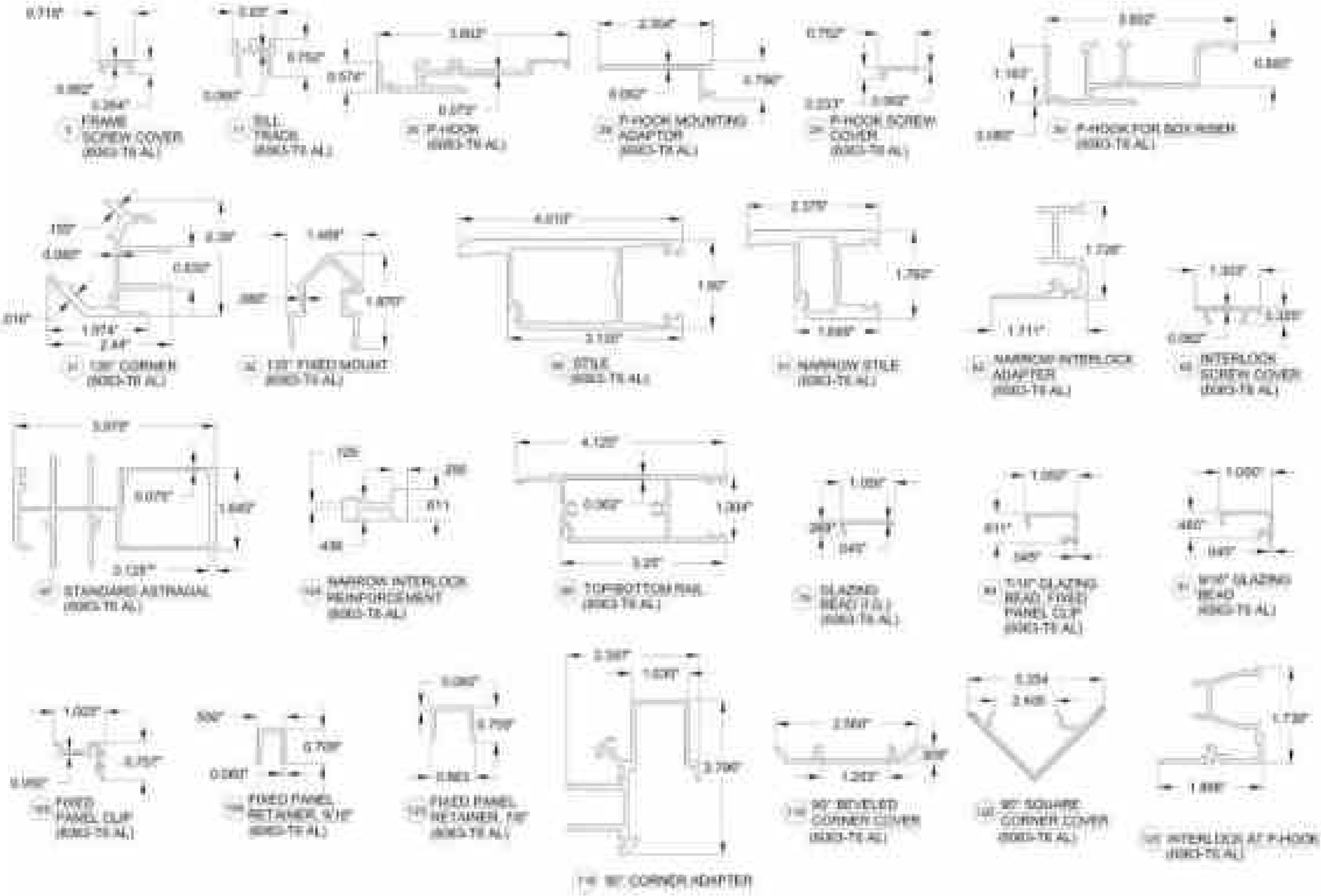


16 FRAME SILL SCREEN
ADD-ON
(6063-T6 AL)



15 FRAME SILL SCREEN
END ADD-ON
(6063-T6 AL)





D

REVISIONS

MIXED FINISH

IN-FRAME SYSTEM

4 MORTISE

EXTRUSIONS

SHEET 22 OF 22

REVISIONS

PGT

REGISTERED PROFESSIONAL ENGINEER
No. 51701
STATE OF FLORIDA
CHRISTOPHER MILLER, P.E.
P.O. BOX 5970