



MIAMI-DADE COUNTY
BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
 (305) 375-2901 FAX (305) 372-6339

NOTICE OF ACCEPTANCE (NOA)

www.miamidade.gov/buildingcode

Harmon, Inc.
9111 Meridian Way
West Chester, OH 45069

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code. This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Series "HI 5000" Pressure Plate Glazed, Aluminum Window Wall System – L.M.I.

APPROVAL DOCUMENT: Drawing No. **HI5000LM**, titled "Harmon HI 5000 Large Missile – Preglazed and Unitized Pressure Plate Glazed, Aluminum Window Wall System", sheets 1 through 14 of 14, dated 06/28/04 with revision #3 dated 08/04/09, prepared by manufacturer, signed and sealed by Ethan A. Charpentier, P.E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Division.

MISSILE IMPACT RATING: Large Missile Impact Resistant

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official. This NOA **revises and renews NOA # 04-0217.08** and consists of this page 1 and evidence pages E-1, E-2, and E-3, as well as approval document mentioned above.

The submitted documentation was reviewed by **Manuel Perez, P.E.**



NOA No. 08-1015.01
Expiration Date: August 26, 2014
Approval Date: October 28, 2009
 Page 1

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

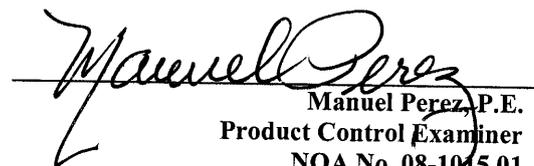
A. DRAWINGS

1. Manufacturer's die drawings and sections.
2. Drawing No. **HI5000LM**, titled "Harmon HI 5000 Large Missile Preglazed & Unitized Pressure Plate Glazed, Aluminum Window Wall System", sheets 1 through 14 of 14, dated 06/28/04 with revision #3 dated 08/04/09, prepared by manufacturer, signed and sealed by Ethan A. Charpentier, P.E.

B. TESTS

(All submitted under previous NOA#04-0217.08)

1. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
3) Water Resistance Test, per FBC, TAS 202-94
along with marked-up drawings and installation diagram of an aluminum window wall system (specimen 1), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 11/06/02, signed and sealed by Vinu J. Abraham, P.E.
2. Test reports on: 1) Large Missile Impact Test per FBC, TAS 201-94
2) Cyclic Wind Pressure Loading per FBC, TAS 203-94
along with marked-up drawings and installation diagram of an aluminum window wall system (specimen 2), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1211-02**, dated 12/10/02, signed and sealed by Vinu J. Abraham, P.E.
3. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
3) Water Resistance Test, per FBC, TAS 202-94
4) Large Missile Impact Test per FBC, TAS 201-94
5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
along with marked-up drawings and installation diagram of an aluminum window wall system (specimen 3), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 11/7/02-12/11/02, signed and sealed by Vinu J. Abraham, P.E.
4. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
2) Large Missile Impact Test per FBC, TAS 201-94
3) Cyclic Wind Pressure Loading per FBC, TAS 203-94
along with marked-up drawings and installation diagram of an aluminum window wall system (specimen 5), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 11/7-8/02, signed and sealed by Vinu J. Abraham, P.E.


Manuel Perez, P.E.
Product Control Examiner
NOA No. 08-1015.01

Expiration Date: August 26, 2014
Approval Date: October 28, 2009

Harmon, Inc.

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C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with FBC-2004 and 2007, prepared by Larson Engineering, Inc., dated 06/25/08 and 11/20/08, signed and sealed by Ethan A. Charpentier, P.E.
Complies with ASTM E1300-02/04

D. QUALITY ASSURANCE

1. Miami Dade Building Code Compliance Office (BCCO).

E. MATERIAL CERTIFICATIONS

1. Notice of Acceptance No. **07-1116.04** issued to E.I. DuPont DeNemours & Co., Inc. for their "**DuPont Sentry Glass ® Plus**" dated 01/03/08, expiring on 01/14/12.
2. Notice of Acceptance No. **08-0206.01** issued to Solutia Inc. for their "**Saflex HP Glass Interlayer**" dated 04/17/2008, expiring on 04/17/13.
3. Notice of Acceptance No. **09-0210.05** issued to Viracon, Inc. for their "**Viracon HRG-2 Glass Interlayers**", dated 03/26/09, expiring on 02/12/14.
4. Notice of Acceptance No. **08-0520.08** issued to Solutia Inc. for their "**Vanceva Composites Glass Interlayer**" dated 7/17/08, expiring on 12/11/13.
5. Notice of Acceptance No. **06-0216.06** issued to Solutia Inc. for their "**Saflex III Clear or colored interlayer**" dated 05/04/06, expiring on 05/21/11.

F. STATEMENTS

1. Statement letter of conformance, dated November 20, 2008, signed and sealed by Ethan A. Charpentier, P.E.
2. Statement letter of no financial interest, dated November 20, 2008, signed and sealed by Ethan A. Charpentier, P.E.

G. OTHER

1. Notice of Acceptance No. **04-0217.08**, issued to Harmon, Inc. for their "HI5000 (6" Monolithic Insulated & Laminated Glass) Aluminum Window Wall System", approved on 08/26/04 and expiring on 08/26/09.


Manuel Perez, P.E.
Product Control Examiner
NOA No. ~~08-1015.01~~
Expiration Date: August 26, 2014
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HARMON HI 5000 LARGE MISSILE

PREGLAZED AND UNITIZED PRESSURE PLATE GLAZED ALUMINUM WINDOW WALL SYSTEM. THIS NOW INCLUDES STOREFRONT AND PUNCH OPENING SINGLE LITE APPLICATIONS AS WELL AS OPTION FOR TWO-SIDED STRUCTURAL SILICONE GLAZED DESIGN

DESIGN PARAMETERS

- 2007 FLORIDA BUILDING CODE (HVHZ) REQUIREMENTS
- TAS-201 - LARGE MISSILE IMPACT
- TAS-202 - AIR LEAKAGE, WATER PENETRATION & STRUCTURAL PERFORMANCE
(WATER @ 20 psf, STRUCTURAL @ +90/-90 psf)
- TAS-203 - CYCLING
- ASTM STANDARDS
- E283 - AIR LEAKAGE
- E330 - STRUCTURAL PERFORMANCE
- E331 - WATER PENETRATION
- E1886 LEVEL "D" - IMPACT BY "MISSILE" & CYCLIC PRESSURES
- E1996 - IMPACT BY WINDBORNE DEBRIS
- AAMA - TIR - A9-91

SYSTEM DIMENSIONS

- 2 1/2" X 6" (MONOLITHIC GLASS)
- 2 1/2" X 6 3/4" (INSULATED GLASS)

FINISH

- ON A PER JOB BASIS (EXPOSED AREAS)
- CLEAR ANODIZED (NON-EXPOSED AREAS)
- MILL FINISH (NON-EXPOSED AREAS) SETTING CHAIRS, ANCHORS, ETC.
- ALUMINUM IN CONTACT WITH DISSIMILAR MATERIALS SHALL BE PROTECTED AS SPECIFIED IN SECTION 2003.8.4 OF THE FLORIDA BUILDING CODE

ALUMINUM ALLOY

- 6063-T5 6063-T6 6005-T5 6105-T5
- SEE ALSO ALUMINUM MATERIAL LIST ON SHT 2

STEEL

ALL CLIP ANGLES OR REINFORCING STEEL SHALL BE PER ASTM-36 (PRIME PAINTED)

WELDING

CURRENT ASTM STANDARDS E70 - XX ELECTRODES UNLESS OTHERWISE NOTED

GLASS

SEE SHEET 5

GASKETS

SILICONE OR EPDM --- SEE GASKET CHART ON SHEET 2

SEALANTS

- STRUCTURAL SILICONE -- DOW CORNING 983 (TWO PART) / RE-GLAZING -- DOW CORNING 995
- FRAME ASSEMBLY SEALS -- DOW CORNING 795 OR DOW CORNING 791
- PERIMETER WEATHER SEAL, BACKER ROD AND DOW CORNING 795

ANCHORAGE

FASTENERS TO BE CORROSION RESISTANT AS DETAILED HEREIN AND CONFORM TO F.B.C. SEE ASSEMBLY SCREW CHART ON SHEET 2

INDEX OF DRAWINGS

PAGE	DESCRIPTION
1	COVER SHEET
2	MATERIAL LISTS
3	GLAZING DETAILS -- RE-GLAZING DETAILS
4	ELEVATION-SIMPLE SPAN (WINDOWWALL/STOREFRONT/PUNCH OPENING)
5	GLASS SCHEDULE -- LARGE MISSILE
6	PART DRAWINGS
7	MULLION APPLICATION CHART -- ANCHOR REVIEW
8	DETAILS OF TYPICAL HEADS, SILLS & INTERMEDIATE HORIZONTALS
9	DETAILS OF TYPICAL VERTICALS
10	DETAILS OF DOOR AND SEGMENTED VERTICAL
11	DETAIL OF 90 DEGREE OUTSIDE CORNER AND JAMB SPAN TABLE
12	STRAP ANCHOR & THRU-FRAME ANCHOR
13	ANGLES IN VERTICAL ANCHOR & ALUMINUM LUG IN VERTICAL ANCHOR
14	JAMB ANCHORS

SYSTEM SELECTION

WINDOW WALL / STOREFRONT / PUNCH OPENING
SINGLE SPAN -- SHEET 4

2-SIDED SILICONE OPTIONS SEE PAGE 9

Larson Engineering, Inc.
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DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. DB-1015-01
Expiration Date AUG. 26, 2014
By Maureen Gray
Miami Dade Product Control
Division

ENGINEER STAMP

Ethan A. Charpentier

Florida Firm No. F-0200005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

HI 5000 LARGE MISSILE
COVER SHEET

DATE: 06/28/04	4	9/2/09
2	3/25/09	3
DWG. NO. HI5000LM		
SHEET 01 OF 14		

SEP 02 2009

FRAME ASSEMBLY FASTENER LIST				GASKET LIST				ALUMINUM MATERIAL LIST						
								DESCRIPTION	PART #	ALLOY	TYPICAL THICK.	REMARKS	REV	
(A)	PRESSURE PLATE BOLT FOR INSULATED GLASS SYSTEM	#14 X 1" HWH S.S. "A" POINT XYLAN COATED	2 1/2" FROM END AND 9" ON CENTER	(A)		PART # 770301	85 DUR. SILICONE	INTERIOR FIXED GASKET FOR 5/8" & 1 3/8" THICK GLASS (1/4" THICK SEAL)						
(B)	TYPICAL HORIZONTAL FRAME ASSEMBLY SCREW	#12 X 1 1/2" HWH GRADE 5 "A" POINT XYLAN COATED	(4) REQUIRED PER JOINT	(B)		PART # 750301	70 DUR. SILICONE	VERTICAL WHISKER GASKET	1	FEMALE VERTICAL MULLION	304001	6063-T6	.110	
(C)	NON-TYPICAL HORIZONTAL ASSEMBLY SCREW TO BYPASS STEEL	#12 X 1 1/2" PFH GRADE 5 "A" POINT XYLAN COATED	(4) REQUIRED PER JOINT	(C)		PART # 720301	70 DUR. EPDM	EXTERIOR SLIDE IN VERTICAL PRESSURE PLATE	2	MALE VERTICAL MULLION	304002	6063-T6	.110	
(D)	ANCHOR STEEL FIXING PLATE INTO HORIZONTAL	#17-14 X 1" TYPE AB 304 STAINLESS	(1) REQUIRED PER PLATE	(D)		PART # 730301	70 DUR. EPDM	EXTERIOR WEDGE	3	INTERMEDIATE HORIZONTAL	304101	6063-T5	.100	
(E)	TEMPORARY ANCHOR FOR CORNER END CAPS	#10 X 1 1/4" TEK SCREW	(1) REQUIRED PER END CAP	(E)		PART # 790301	70 DUR. EPDM	THERMAL BREAK FOR PRESSURE PLATE	4	JAMB - MONOLITHIC GLASS	304004	6063-T6	.110	
(F)	PRESSURE PLATE BOLT FOR MONOLITHIC GLASS SYSTEM	#14 X 3/4" HWH S.S. "A" POINT XYLAN COATED	2 1/2" FROM END AND 9" ON CENTER	(F)		PART # 770302	85 DUR. SILICONE	INTERIOR, FIXED GASKET FOR 9/16" & 1 5/16" THICK GLASS (5/16" THICK SEAL)	5	HEAD & SILL - MONOLITHIC GLASS	304103	6063-T5	.110	
(G)	ALLEN HEAD SCREW FOR ANCHOR USED w/ STACK HORIZONTAL	1/4-20 ALLEN HEAD BOLT GRADE 5	LOCATED AT TOP & BOTTOM OF ANCHOR	(G)		PART # 790303	90 DUR. EPDM	ALL PERIMETERS	6	JAMB - INSULATED GLASS	304003	6063-T6	.110	
				(H)		PART # 790302	90 DUR. EPDM	PERIMETER THERMAL BREAK	7	HEAD & SILL - INSULATED GLASS	304102	6063-T5	.110	
				(J)		PART # 780301	70 DUR. SILICONE	ZONE DAM FOR MONOLITHIC GLASS 2 1/2" LONG	8	JAMB COVER	300203	6063-T5	.100	
				(K)		PART # 780302	70 DUR. SILICONE	ZONE DAM FOR INSULATED GLASS 2 1/2" LONG	9	HEAD & SILL EXTERIOR COVER	300202	6063-T5	.100	
				(L)		PART # 700303	90 DUR. SILICONE	5" LONG SETTING BLOCK. (TEAR IN HALF FOR MONOLITHIC GLASS)	10	HEAD & SILL INTERIOR FILLER	304401	6063-T5	.080	
				(M)		PART # 740301	70 DUR. EPDM	AT BUTT JOINT FOR MONOLITHIC GLASS	11	HORIZONTAL COVER	300201	6063-T5	.100	
				(N)		PART # 740302	70 DUR. EPDM	AT BUTT JOINT FOR INSULATED GLASS	12	VERTICAL COVER	300236	6063-T5	.060	
				(O)				INTERIOR FIXED TAPE FOR 5/8" & 1 3/8" THICK GLASS (1/4" THICK SEAL)	13	VERTICAL PRESSURE PLATE	300701	6105-T5	.100	
				(P)				INTERIOR FIXED TAPE FOR 9/16" & 1 5/16" THICK GLASS (5/16" THICK SEAL)	14	PERIMETER ADAPTOR - MONOLITHIC GLASS	300305	6105-T5	.080	
				(Q)				SPACER TAPE FOR SEGMENTED MULLION	15	PERIMETER ADAPTOR - INSULATED GLASS	300304	6105-T5	.080	
									16	HORIZONTAL ADAPTOR - MONOLITHIC GLASS	300303	6105-T5	.080	
									17	HORIZONTAL ADAPTOR - INSULATED GLASS	300302	6105-T5	.080	
									18	VERTICAL ADAPTOR - MONOLITHIC GLASS	300308	6105-T5	.093	
									19	VERTICAL ADAPTOR - INSULATED GLASS	300301	6105-T5	.093	
									20	ANTI-BUCKLING CLIP (EXTERIOR SIDE)	300306	6105-T5	.060	4" LONG 30" O.C. MAX.
									21	ANTI-BUCKLING CLIP (INTERIOR SIDE)	300310	6105-T5	.060	4" LONG 30" O.C. MAX.
									22	STRAP ANCHOR FEMALE (KEEPER)	930102	6105-T5	.177	SEE DET. 1-4 SHT. 12
									23	STRAP ANCHOR MALE	930106	6105-T5	.187	SEE DET. 1-4 SHT. 12
									24	SLIDING ANCHOR FEMALE	930105	6105-T5	.250	SEE DET. 5-8 SHT. 13
									25	SLIDING ANCHOR MALE	930103	6105-T5	.435	SEE DET. 5-8 SHT. 13

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PRODUCT REVISED
 as complying with the Florida
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 Acceptance No. 08-1015-01
 Expiration Date AUG. 26, 2014
 By *Manuel Perez*
 Miami Dade Product Control
 Division

ENGINEER STAMP

Ethan A. Charpentier

Florida Firm No. F-02000005175
 Certificate of Authorization #9803
 Ethan A. Charpentier
 Registration No. 65106

Harmon

HI 5000 LARGE MISSILE
 MATERIAL LISTS

DATE: 06/28/04 4 9/2/09
2 3/25/09 3 08/04/09

DWG. NO. HI5000LM
 SHEET 02 OF 14

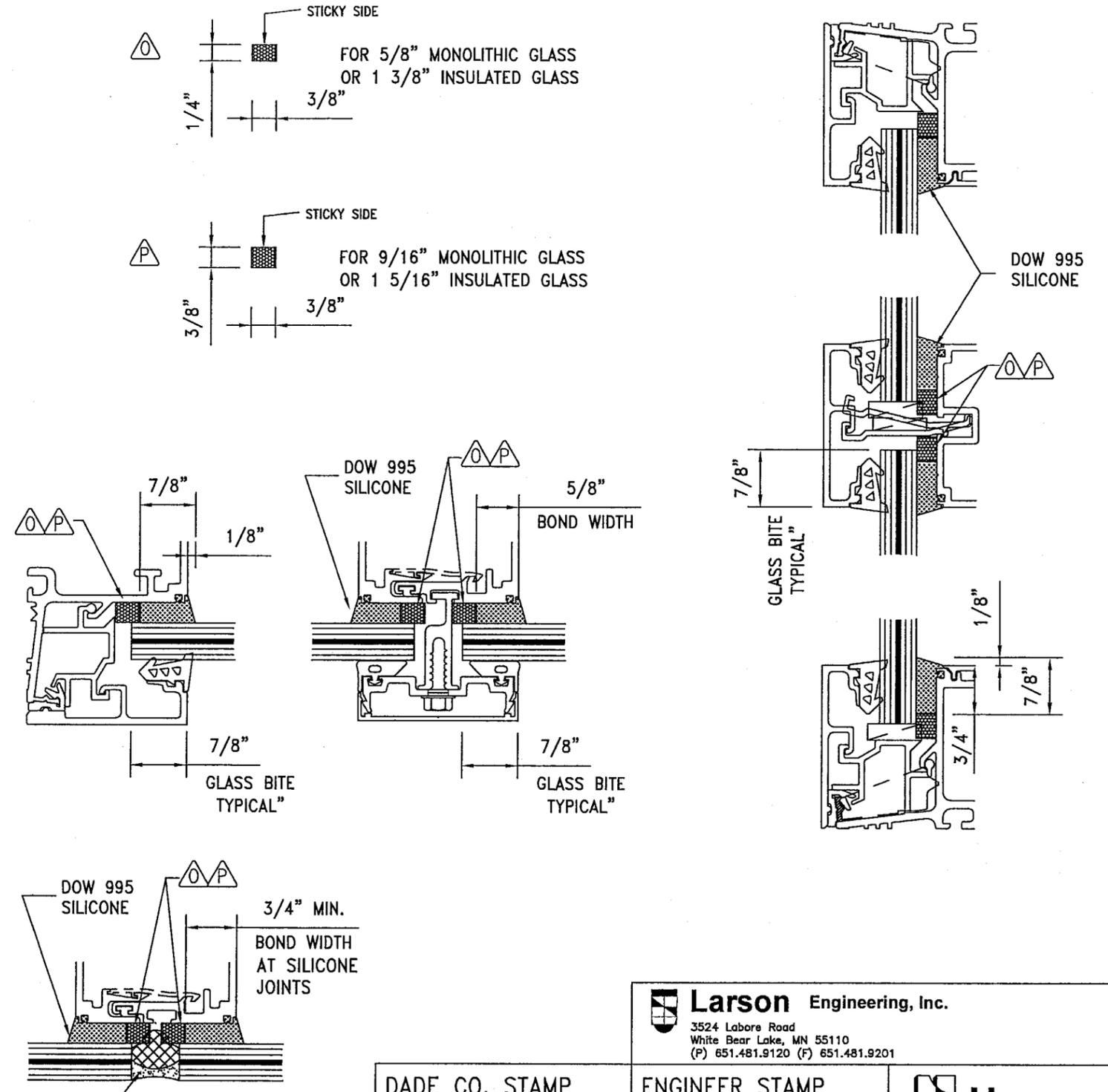
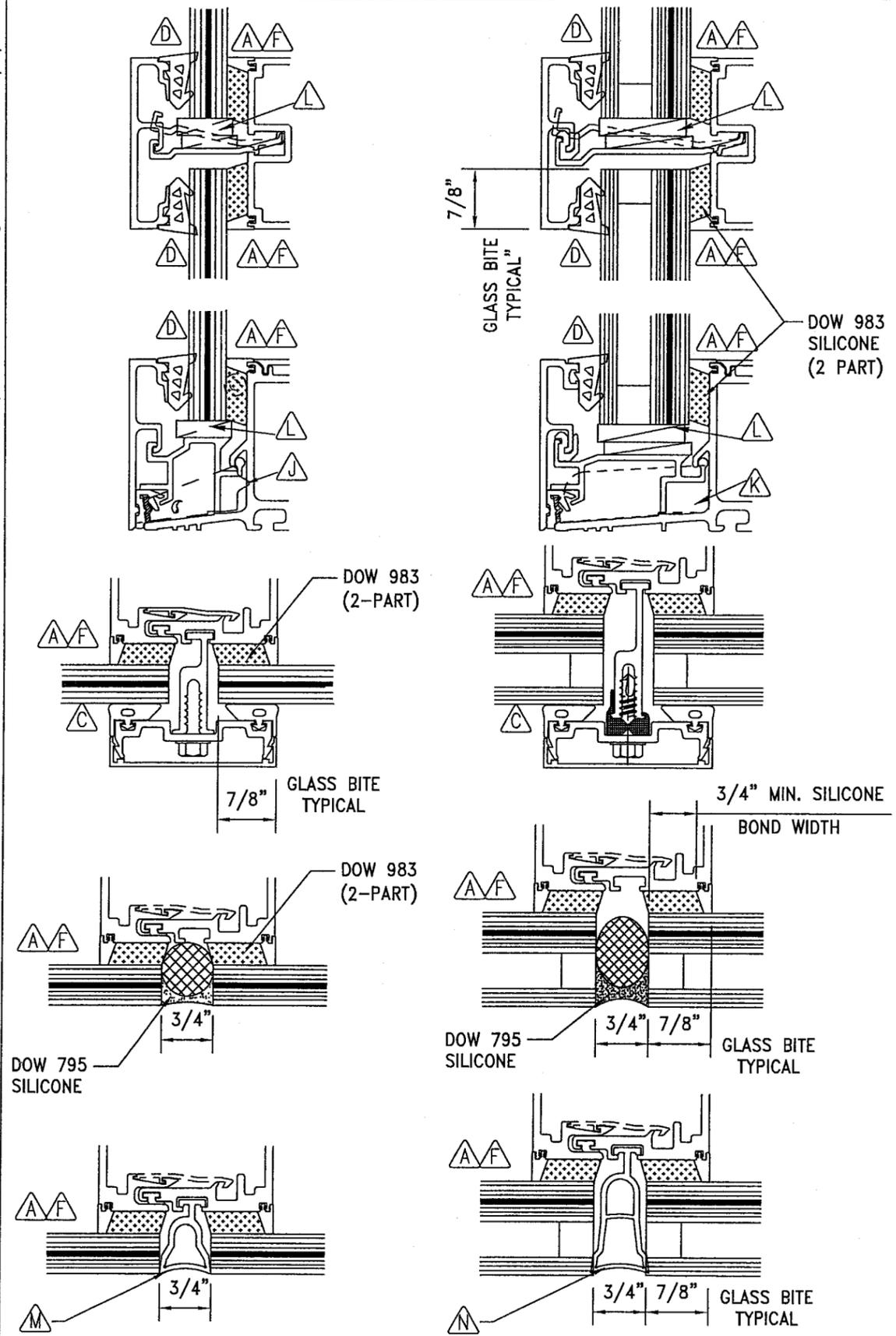
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GLAZING DETAILS

RE-GLAZING DETAILS

LAMINATED GLASS DETAILS

INSULATED LAMINATED GLASS DETAILS



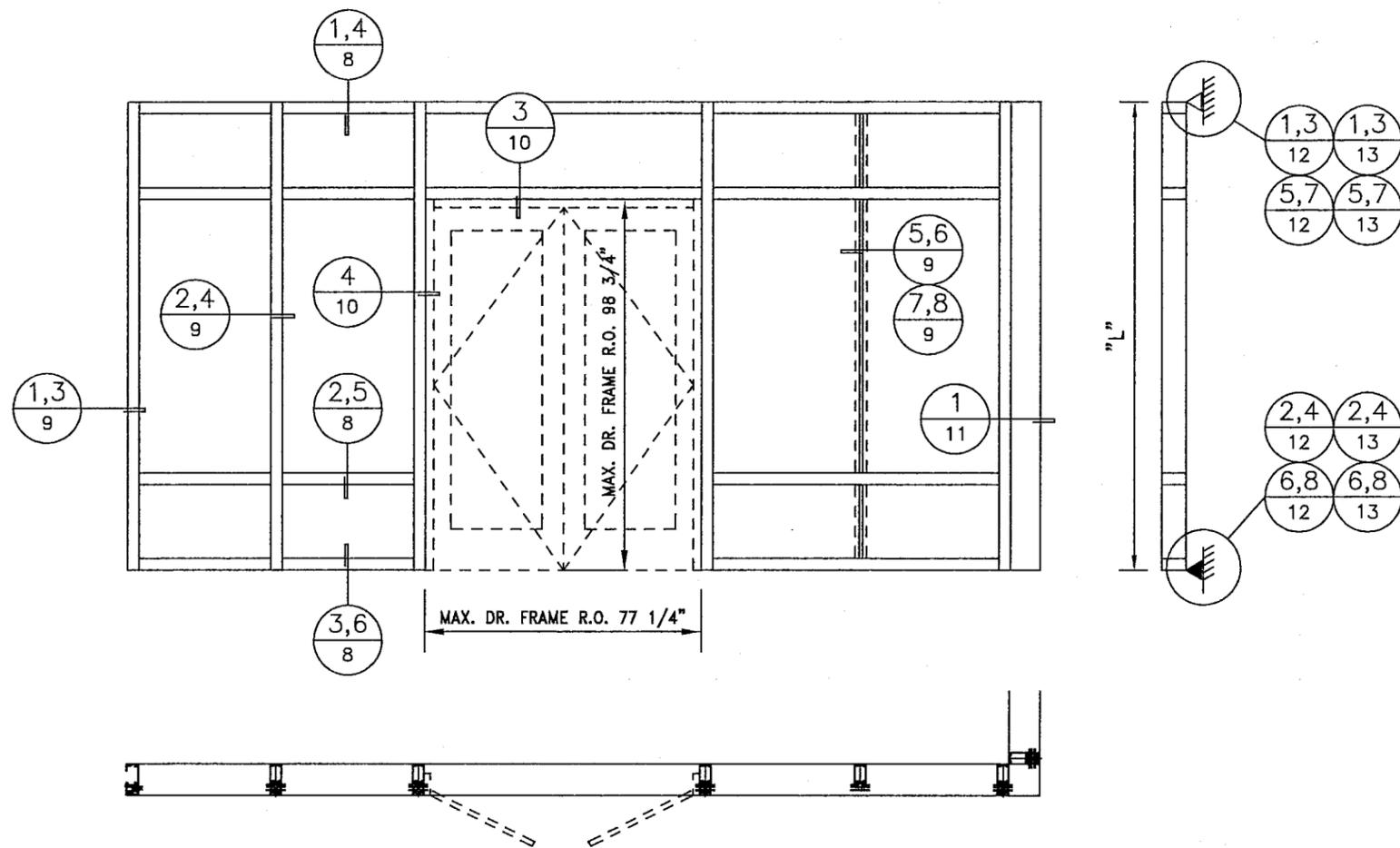
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Harmon
 HI 5000 LARGE MISSILE
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 RE-GLAZING DETAILS
 DATE: 06/28/04 4 9/2/09
 2 3/25/09 3 08/04/09
 DWG. NO. HI5000LM
 SHEET 03 OF 14



SYSTEM APPLICATION GUIDELINES:

- 1 SELECT GLASS FROM CHARTS ON SHEET 5. NOTE THE GLASS THICKNESS AND 4-SIDE CAPTURED VERSUS CAPTURED/SSG OPTIONS.
- 2 SELECT MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 7 FOR SINGLE SPAN APPLICATION. APPLICATION BASED ON WIND LOAD, MODULE "B", AND SPAN "L". REFER TO GENERAL NOTES AND GUIDELINES REGARDING SPAN LIMITATIONS AND COMBINATIONS.
- 3 SELECT ANCHOR APPLICATIONS FROM SHEET 7. MAKE SELECTION BASED ON PERIMETER CONDITION AND END REACTIONS. NOTE MAXIMUM TESTED END REACTIONS FOR PROPER APPLICATION.
- 4 SELECT APPROPRIATE DETAILS FROM ELEVATION AT LEFT, BASED ON GLASS APPLICATION AND MULLION REINFORCING REQUIREMENTS. FOR SPECIFIC ANCHOR DETAILS, SEE DETAILS REFERENCED ON ANCHOR APPLICATION SHEET 7.
- 5 SELECT JAMB MULLION AND AND REINFORCING OPTION AS REQUIRED FROM CHARTS ON SHEET 11 OF 14.
- 6 THE LOWEST VALUE OF ALL TABLES SHALL APPLY FOR THE ENTIRE ASSEMBLY.

GENERAL NOTES:

- DOOR TESTED IS UP TO 90 PSF.
- DOORS AND DOOR FRAMES ARE NOT PART OF THIS SUBMISSION. ANY DOOR USED MUST MEET DADE COUNTY NOA.
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- DOORS AND DOOR FRAMES ARE NOT PART OF THIS SUBMISSION. ANY DOOR USED MUST MEET DADE COUNTY NOA.

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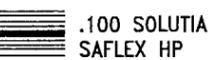
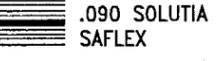
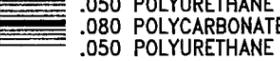
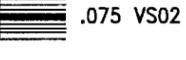
Harmon

HI 5000 LARGE MISSILE
 SINGLE SPAN APPLICATIONS

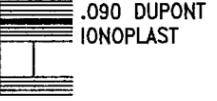
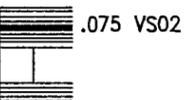
DATE: 06/28/04	4	9/2/09
2	3/25/09	3
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SHEET 04 OF 14		

HI 5000 Glass Load Capacity			Monolithic Glass Types				Insulated Glass Types			
DLO "B"	DLO "H"	SF	Type 2	Type 4	Type 10	Type 16	Type 5T	Type 6	Type 7	Type 17
30"	54"	11.25 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-60 PSF	+/-90 PSF
36"	54"	13.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
42"	54"	15.75 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
48"	54"	18 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
54"	54"	20.25 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
60"	54"	22.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
66"	54"	24.75 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
72"	54"	27 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
36"	60"	15 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
42"	60"	17.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
48"	60"	20 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
54"	60"	22.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
60"	60"	25 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
66"	60"	27.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
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48"	66"	22 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
54"	66"	24.75 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
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66"	66"	30.25 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
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48"	72"	24 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
54"	72"	27 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
60"	72"	30 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
66"	72"	33 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
72"	72"	36 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
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54"	114"	42.75 SF	N/A	N/A	+/-90 PSF	N/A	N/A	N/A	N/A	N/A
24"	120"	20 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
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48"	120"	40 SF	N/A	N/A	+/-90 PSF	N/A	N/A	N/A	N/A	N/A
54"	120"	45 SF	N/A	N/A	+/-90 PSF	N/A	N/A	N/A	N/A	N/A
24"	132"	22 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
30"	132"	27.5 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
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24"	143"	23.83 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-60 PSF	+/-90 PSF
30"	143"	29.79 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF
36"	143"	35.75 SF	+/-90 PSF	+/-60 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	+/-90 PSF	N/A	+/-90 PSF

MONOLITHIC GLASS - LARGE MISSILE

2	9/16" (.100) SAFLEX H P HS / HS	TEST PRESSURE: +/-90 PSF DLO SF <= 38.03 SF	1/4" HS  .100 SOLUTIA SAFLEX HP
			1/4" HS
4	9/16" (.090) SAFLEX H.S. / H.S.	TEST PRESSURE: +/-60 PSF DLO SF <= 38.03 SF	1/4" HS  .090 SOLUTIA SAFLEX
			1/4" HS
10	5/8" (.180) HRG-2 HS / HS	TEST PRESSURE +/-90 PSF DLO SF <= 45.42 SF	1/4" HS  .050 POLYURETHANE .080 POLYCARBONATE .050 POLYURETHANE
			1/4" HS
16	9/16" (.075) VS02 H.S. / H.S.	TEST PRESSURE +/-90 PSF DLO SF <= 38.03 SF	1/4" HS  .075 VS02
			1/4" HS

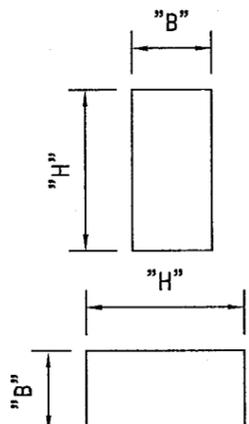
INSULATED GLASS - LARGE MISSILE

5T	1 5/16" (.090) SGP IG HS / HS - TEMP.	TEST PRESSURE: +/-90 PSF DLO SF <= 38.03 SF	1/4" HS 1/4" HS AIR SPACE 1/4" TEMPERED  .090 DUPONT IONOPLAST
6	1 5/16" (.100) SAFLEX HP IG HS / HS - HS	TEST PRESSURE: +/-90 PSF DLO SF <= 38.03 SF	1/4" HS 1/4" HS AIR SPACE 1/4" HS  .100 SOLUTIA SAFLEX HP
7	1 5/16" (.090) SAFLEX IG HS / HS - HS	TEST PRESSURE +/-60 PSF DLO SF <= 26.25 SF	1/4" HS 1/4" HS AIR SPACE 1/4" HS  .090 SOLUTIA SAFLEX PVB
17	1 5/16" (.075) VS02 HS / HS - HS	TEST PRESSURE +/-90 PSF DLO SF <= 38.03 SF	1/4" HS 1/4" HS AIR SPACE 1/4" HS  .075 VS02

NOTES:

ALL GLASS SIZES MUST MEET ASTM E1300-04 WITH THE SQUARE FOOT LESS THAN OR EQUAL TO THE TESTED SQUARE FOOT SIZES AT THE TESTED PRESSURES.

GLASS FORMULA FOR ALL GLASS = DLO+1 3/4" HORIZONTALLY AND VERTICALLY



DIM. "B" AND "H" REFER TO DLO ON SHOP DRAWINGS

NOTE:
ALL GLASS TYPES HAVE BEEN TESTED FOR 4-SIDE CAPTURED APPLICATION.

ONLY GLASS TYPES 16 & 17 HAVE BEEN TESTED FOR VERTICAL SSG APPLICATION.

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201

DADE CO. STAMP

PRODUCT REVISED as complying with the Florida Building Code
Acceptance No. 08-1015.01
Expiration Date AUG. 16, 2014
By *Michael Perez*
Miami Dade Product Control Division

ENGINEER STAMP

[Signature]

Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

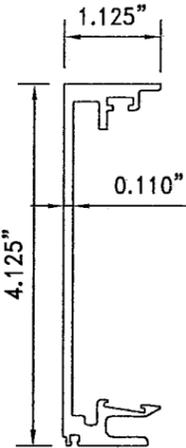
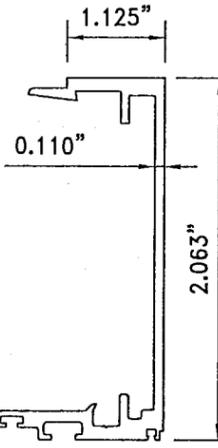
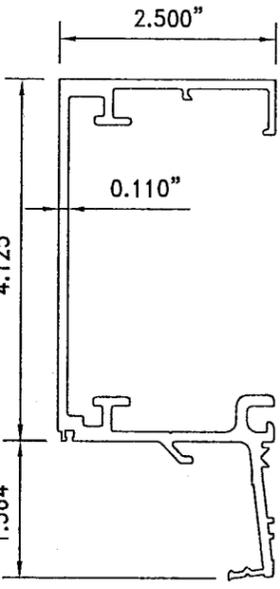
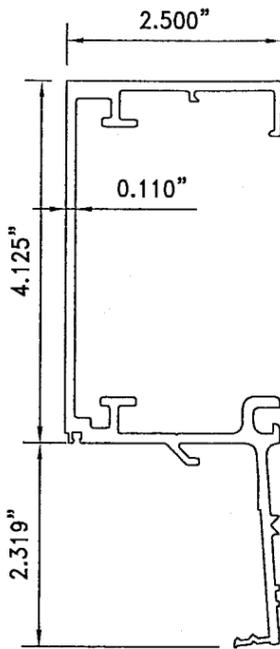
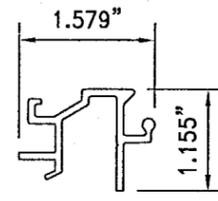
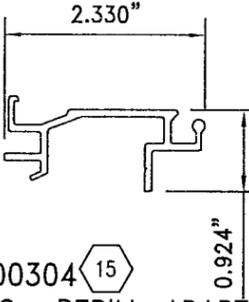
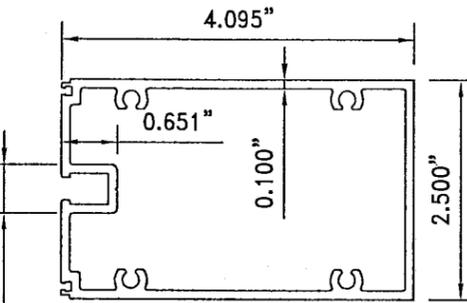
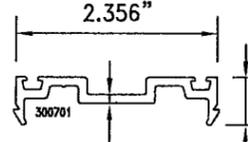
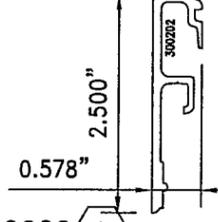
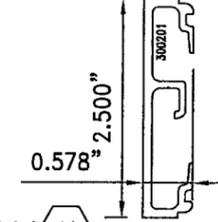
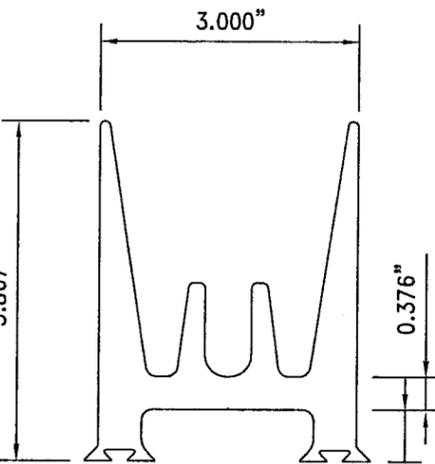
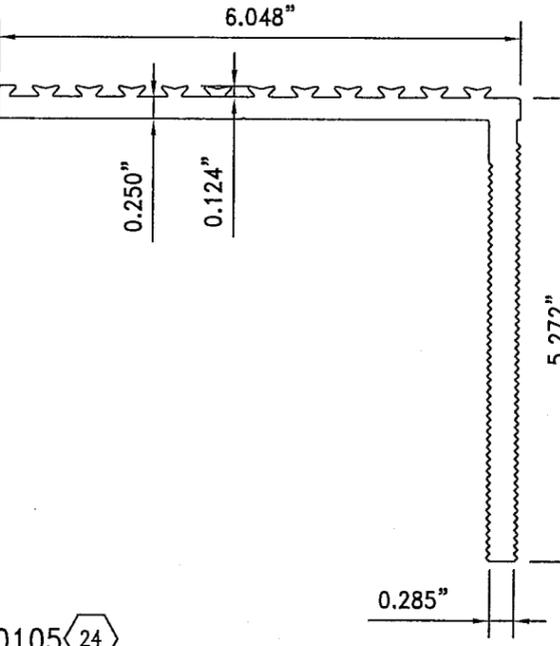
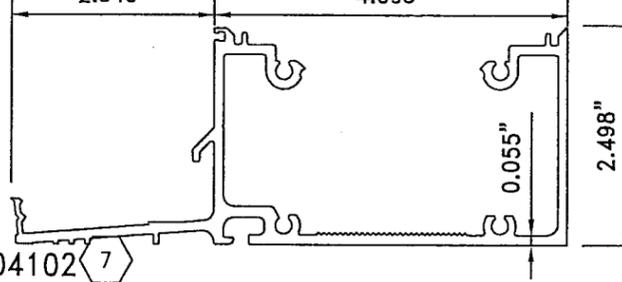
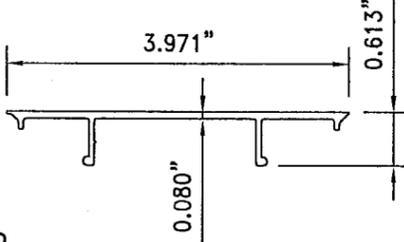
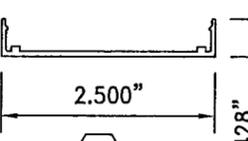
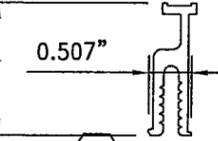
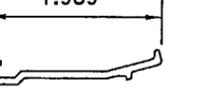
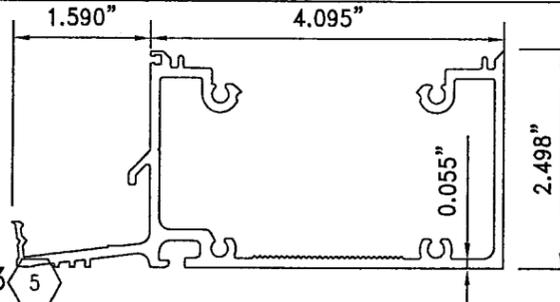
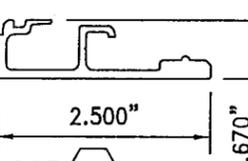
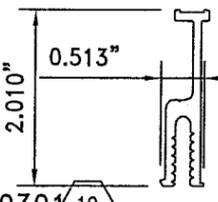
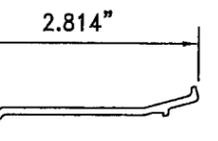
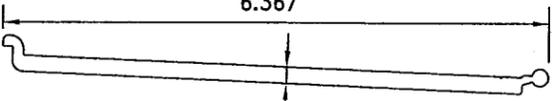
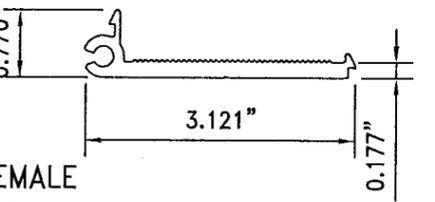
Harmon

HI 5000 LARGE MISSILE GLASS APPLICATIONS
LARGE MISSILE

DATE: 06/28/04 Δ 9/02/08
 Δ 3/25/09 Δ 08/04/09

DWG. NO. HI5000LM

SHEET 05 OF 14

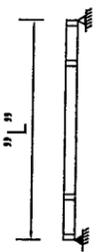
 <p>304001 ¹ FEMALE MULLION</p>	 <p>304002 ² MALE MULLION</p>	 <p>304004 ⁴ MONOLITHIC JAMB</p>	 <p>304003 ⁶ INSULATED JAMB</p>	 <p>300305 ¹⁴ MONO-PERIM.ADAPT.</p>	 <p>300304 ¹⁵ INS-PERIM. ADAPT.</p>	 <p>304101 ³ INTERMEDIATE HORIZONTAL</p>
 <p>300701 ¹³ PRESSURE BAR</p>	 <p>300202 ⁹ HD/SILL COVER</p>	 <p>300201 ¹¹ HORIZ. COVER</p>	 <p>930103 ²⁵ SLIDING ANCHOR MALE</p>	 <p>930105 ²⁴ SLIDING ANCHOR FEMALE</p>	 <p>304102 ⁷ INSULATED HEAD/SILL</p>	 <p>304401 ¹⁰ HEAD/SILL COVER</p>
 <p>300236 ¹² VERTICAL COVER</p>	 <p>300308 ¹⁸ MONO-VERT. ADAPT.</p>	 <p>300303 ¹⁶ MONO-HORIZ.ADAPT.</p>				 <p>304103 ⁵ MONO- HEAD/SILL</p>
 <p>300203 ⁸ JAMB COVER</p>	 <p>300301 ¹⁹ INS.-VERT. ADAPT.</p>	 <p>300302 ¹⁷ INS.-HORIZ.ADAPT.</p>				<p>DADE CO. STAMP</p> <p>PRODUCT REVISED as complying with the Florida Building Code Acceptance No. <u>08-1015.01</u> Expiration Date <u>06/26/2014</u> By <u>Manuel Perez</u> Miss/Scale Product Control Division</p>
 <p>930106 ²³ STRAP ANCHOR MALE</p>	 <p>930102 ²² STRAP ANCHOR FEMALE</p>	<p>Harmon</p> <p>HI 5000 LARGE MISSILE PART DRAWINGS</p> <table border="1"> <tr> <td>DATE: 06/28/04</td> <td>4 9/2/09</td> </tr> <tr> <td>2 3/25/09</td> <td>3 08/04/09</td> </tr> </table> <p>DWG. NO. HI5000LM SHEET 06 OF 14</p>	DATE: 06/28/04	4 9/2/09	2 3/25/09	3 08/04/09
DATE: 06/28/04	4 9/2/09					
2 3/25/09	3 08/04/09					

CASE 1 COMBINED I _x = 5.022 in ⁴ NO REINFORCING	CASE 2 COMBINED I _x = 7.612 in ⁴ 1/4" x 3 1/2" STL BAR	CASE 3 COMBINED I _x = 9.836 in ⁴ C3x4.1	CASE 4 COMBINED I _x = 12.43 in ⁴ C3x4.1 w/ 1/4" x 3 1/2" STL BAR	CASE 5 COMBINED I _x = 15.02 in ⁴ C3x4.1 w/ (2) 1/4" x 3 1/2" STL BARS
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	Case 1	Case 2	Case 3	Case 4	Case 5	
	"B"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3'-0"	8'-6" 766	10'-5" 944	11'-9" 1061	12'-8" 1147	13'-6" 1221
	4'-0"	7'-4" 885	9'-0" 1089	10'-3" 1238	11'-6" 1389	12'-3" 1479
	5'-0"	6'-7" 989	8'-1" 1218	9'-2" 1384	10'-4" 1556	11'-4" 1710
	6'-0"	6'-0" 1084	7'-4" 1334	8'-5" 1516	9'-5" 1704	10'-4" 1874
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	3'-0"	7'-10" 828	9'-8" 1019	11'-0" 1158	12'-1" 1271	12'-10" 1354
	4'-0"	6'-9" 956	8'-4" 1177	9'-6" 1337	10'-8" 1503	11'-8" 1640
	5'-0"	6'-1" 1069	7'-6" 1315	8'-6" 1495	9'-7" 1681	10'-6" 1847
	6'-0"	5'-6" 1171	6'-10" 1441	7'-9" 1638	8'-9" 1841	9'-7" 2024
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	3'-0"	7'-4" 885	9'-0" 1089	10'-3" 1238	11'-6" 1389	12'-3" 1479
	4'-0"	6'-4" 1022	7'-10" 1258	8'-11" 1430	10'-0" 1607	11'-0" 1766
	5'-0"	5'-8" 1142	7'-0" 1406	7'-11" 1598	8'-11" 1797	9'-10" 1975
	6'-0"	5'-2" 1251	6'-4" 1540	7'-3" 1751	8'-2" 1968	9'-0" 2163
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	3'-0"	6'-11" 939	8'-6" 1155	9'-8" 1313	10'-11" 1476	11'-10" 1600
	4'-0"	6'-0" 1084	7'-4" 1334	8'-5" 1516	9'-5" 1704	10'-4" 1874
	5'-0"	5'-4" 1212	6'-7" 1492	7'-6" 1695	8'-5" 1906	9'-3" 2095
	6'-0"	4'-10" 1327	6'-0" 1634	6'-10" 1857	7'-8" 2087	8'-5" 2295

GENERAL NOTES:

- "L" = MAXIMUM MULLION SPAN (LENGTH)
- "W" = C/L TO C/L SPACING
- "B" = $\frac{W1 + W2}{2}$ (TRIBUTARY AREA)
- "R" = REACTION (LBS.)
- FOR SINGLE SPAN MAXIMUM DEFL. = L/180 or 1"
- (WHEN STEEL RIENF. IS USED, LENGTH OF STEEL IS LENGTH OF SPAN MINUS 12")
- SPANS ARE LIMITED BY MAXIMUM TESTED END REACTIONS



ANCHOR TYPE	STRAP ANCHOR	THRU-FRAME ANCHOR	STEEL ANGLES IN VERTICAL	ALUMINUM LUG IN VERTICAL	JAMB ANCHOR
WOOD					
CONC.					
STEEL					
STUD					
	MAXIMUM END REACTION (2) STRAPS-5" LONG = 1880# (2) STRAPS-11" LONG = 2176# SEE SHEET 12 FOR DETAILS	MAXIMUM END REACTION = 732# IN CONCRETE = 1880# IN STEEL SEE SHEET 12 FOR DETAILS	MAXIMUM END REACTION (2) ANGLES = 2335# IN STEEL = 1915# IN CONCRETE REIN. ANGLES w/ (1) FAST. SEE SHEET 13 FOR DETAILS	MAXIMUM END REACTION = 1555# SEE SHEET 13 FOR DETAILS	MAXIMUM END REACTION (1) STRAP-25" LONG w/ (2) 5" KEEPERS= 1225# IN CONC. = 850# IN METAL STUDS SEE DETAIL 2/14

INSTRUCTIONS:

FIND THE MULLION SPAN ("L") AND MODULE ("B") ON SPAN CHART. USE THE REACTION INDICATED TO FIND THE PROPER ANCHOR ATTACHMENT METHOD.

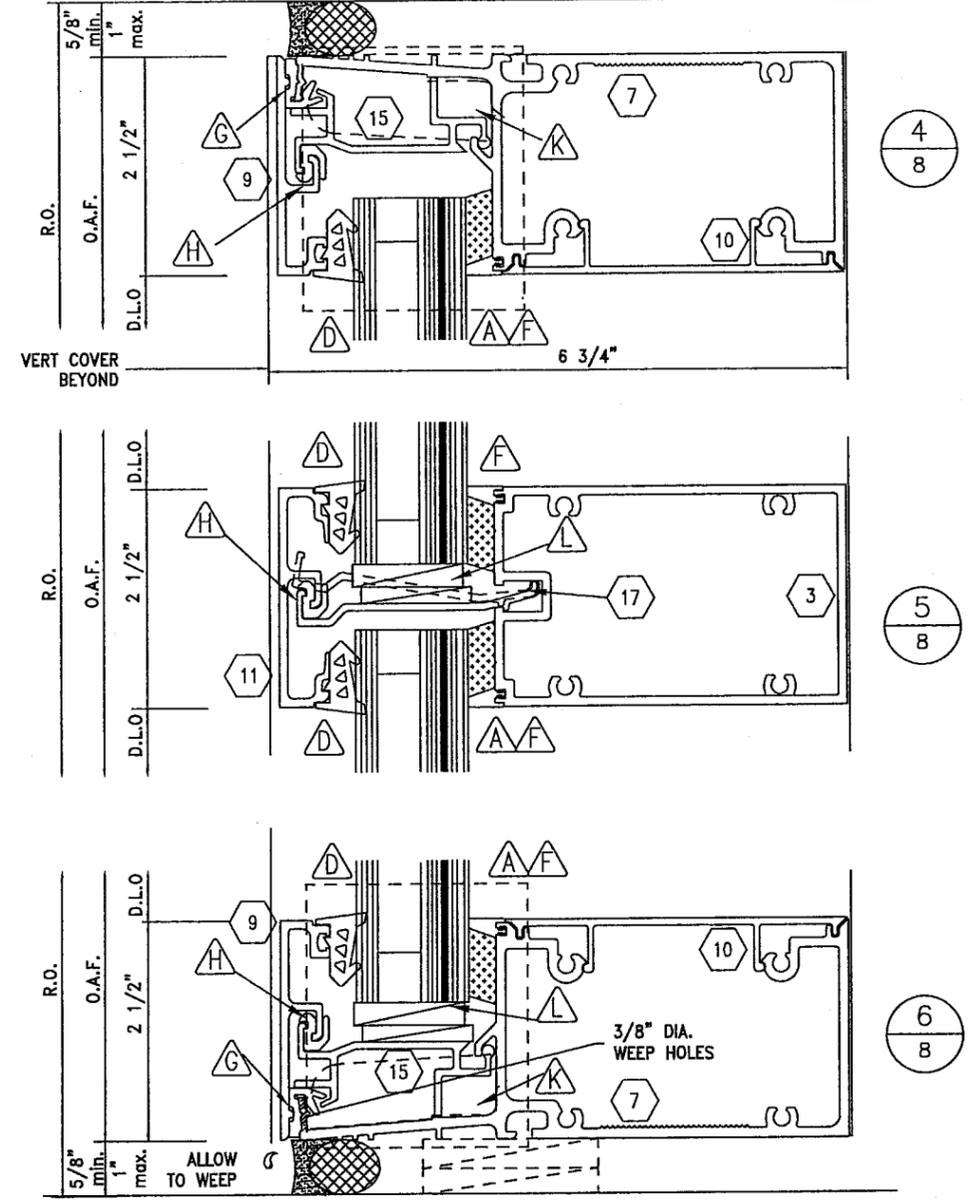
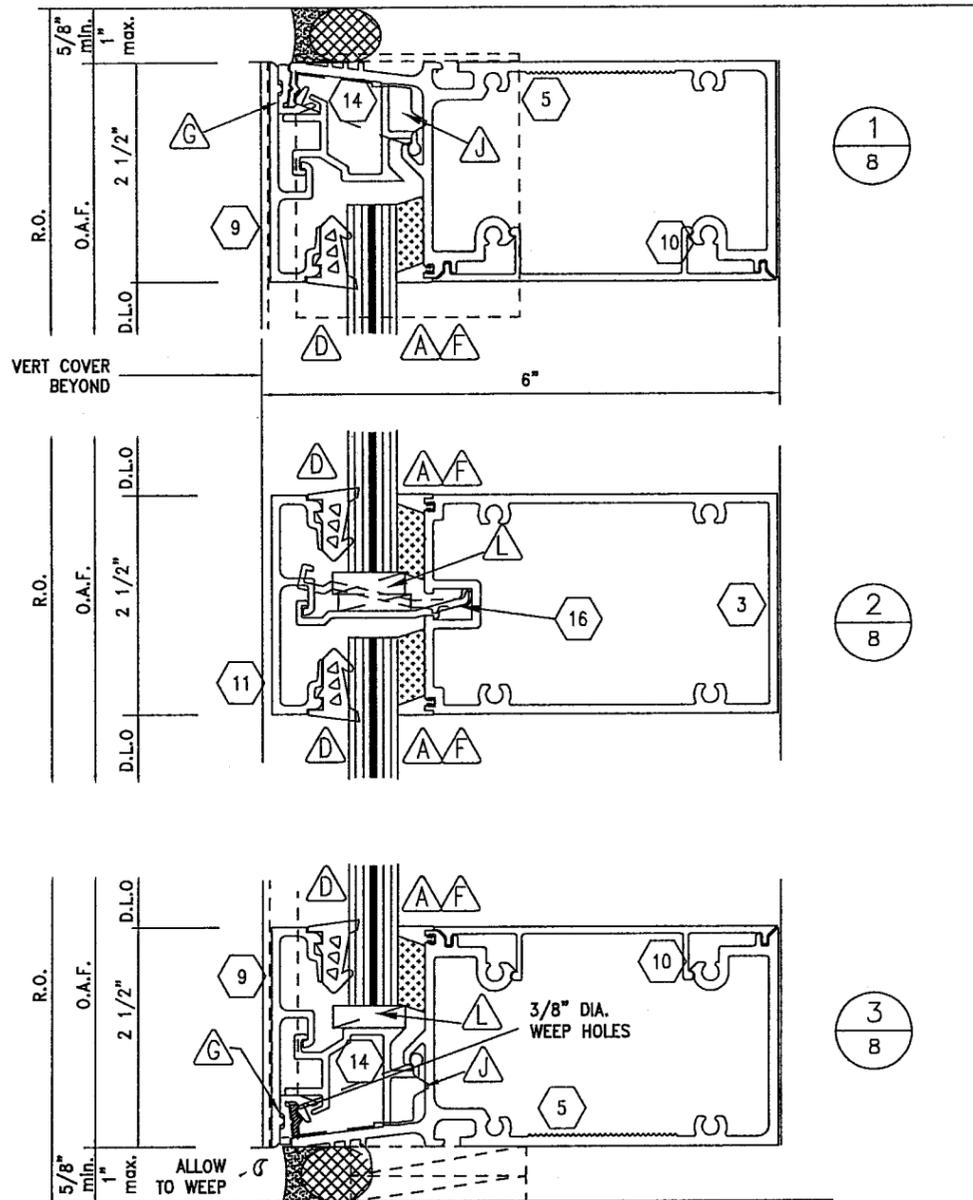
DADE CO. STAMP
 PRODUCT REVISED as complying with the Florida Building Code
 Acceptance No. 08-1015-01
 Expiration Date AUG 26, 2014
 By *Manuel Perez*
 Miami State Product Control
 Division

Larson Engineering, Inc.
 3524 Labors Road
 White Bear Lake, MN 55110
 (P) 651.481.9120 (F) 651.481.9201

ENGINEER STAMP

 Florida Firm No. F-02000005175
 Certificate of Authorization #9803
 Ethan A. Charpentier
 Registration No. 65106

Harmon
 HI 5000 LARGE MISSILE MULLION APPLICATIONS ANCHOR REVIEW
 DATE: 06/28/04 4 9/2/09
 2 3/25/09 3 08/04/09
 DWG. NO. HI5000LM
 SHEET 07 OF 14



GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 7
- FOR PART IDENTIFICATION REFER TO SHEET 2

- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

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PRODUCT REVISED
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 Building Code
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 Expiration Date AUG 26, 2014
 By Wmuel Perez
 Miami Code Product Control
 Division

Larson Engineering, Inc.

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ENGINEER STAMP

Ethan A. Charpentier

Florida Firm No. F-0200005175
 Certificate of Authorization #9803
 Ethan A. Charpentier
 Registration No. 65106

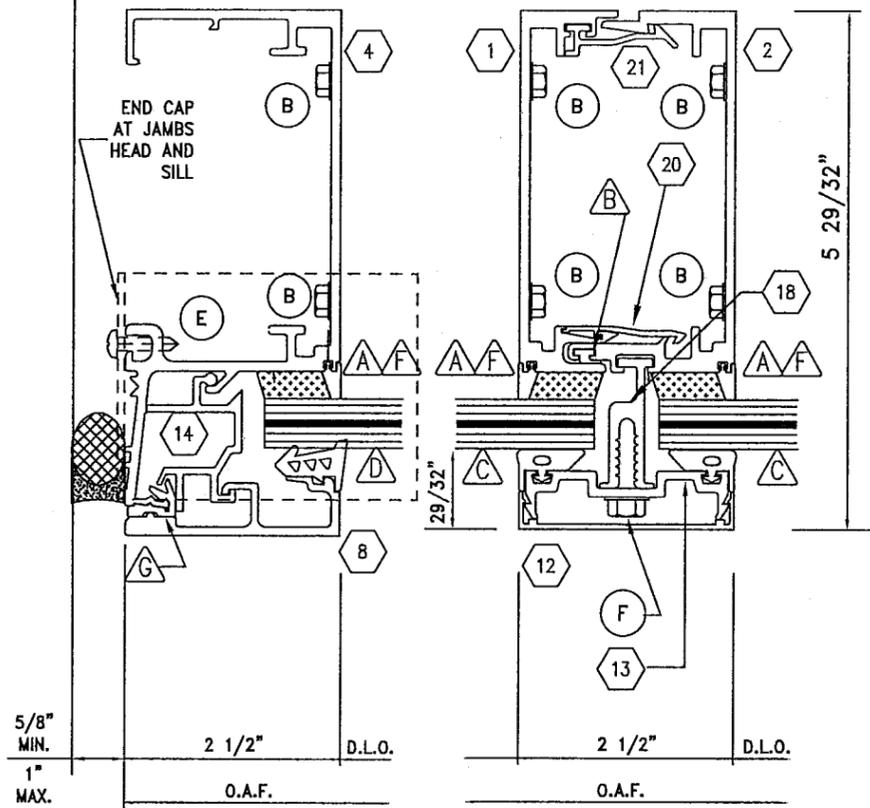
Harmon

HI 5000 LARGE MISSILE
 HORIZONTAL DETAILS

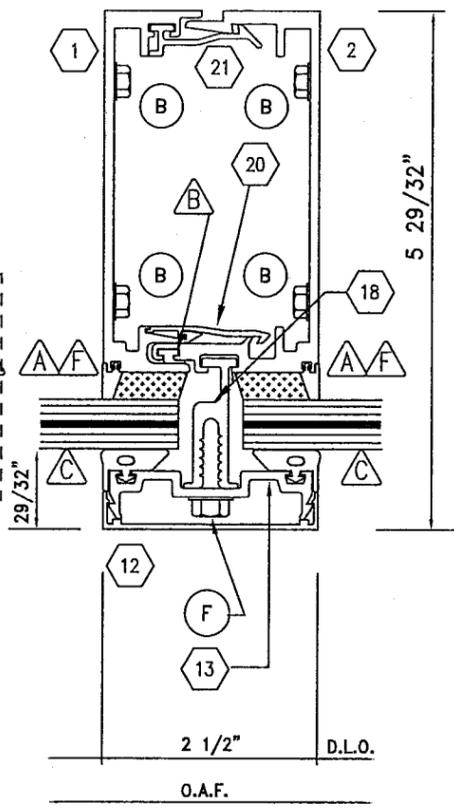
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2	3/25/09	3

DWG. NO. HI5000LM

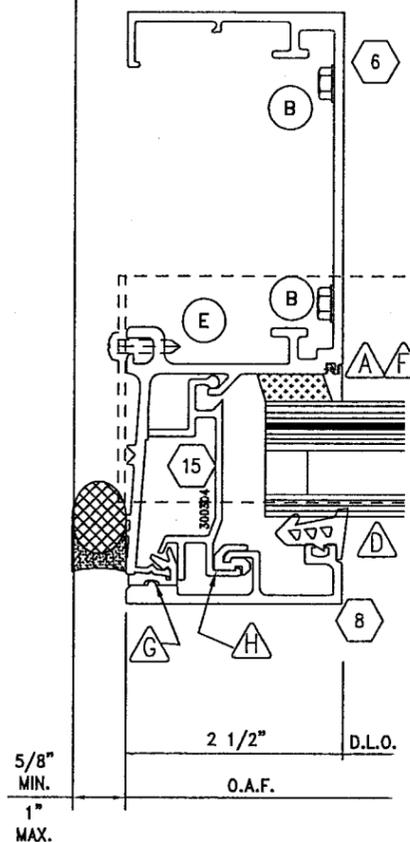
SHEET 08 OF 14



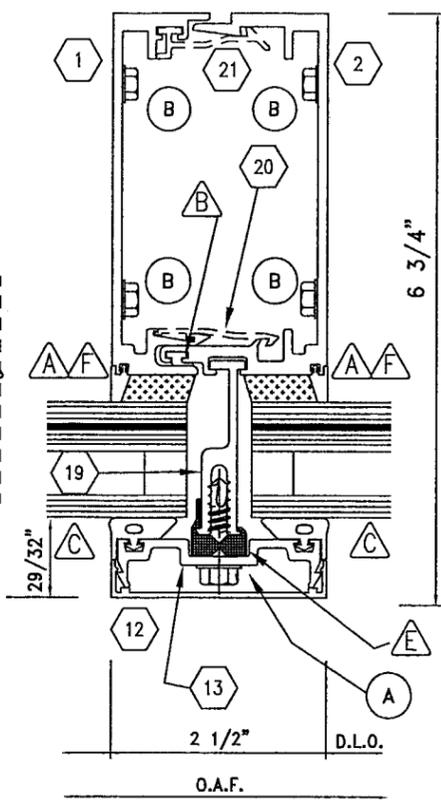
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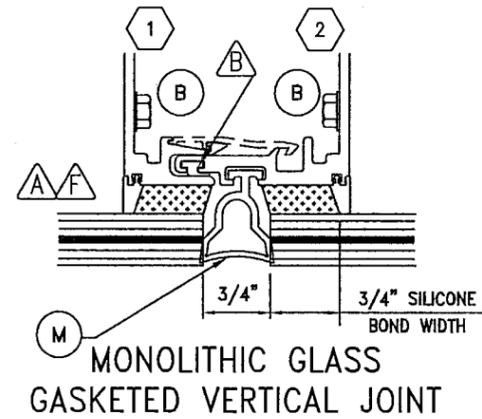
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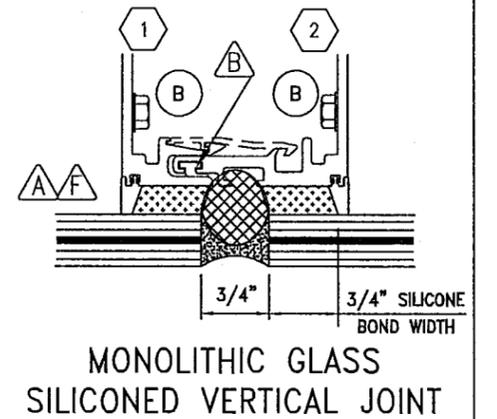
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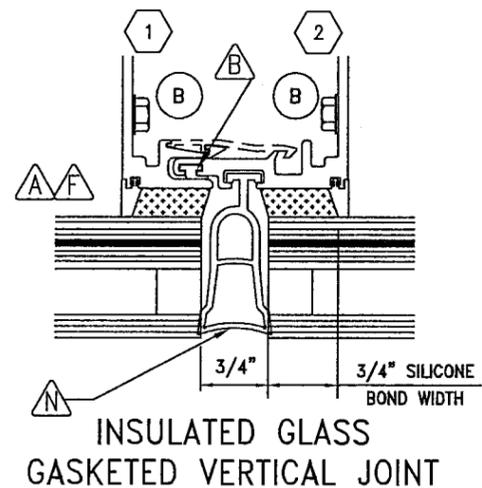
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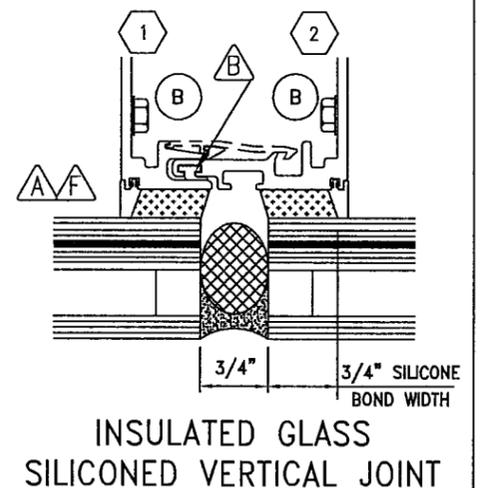
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6/9



7/9



8/9

GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 7
- FOR PART IDENTIFICATION REFER TO SHEET 2

- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

DADE CO. STAMP

PRODUCT REVISED
 as complying with the Florida
 Building Code
 Acceptance No. 08-1015.01
 Expiration Date AUG. 26, 2014
 By *Manuel Perez*
 Miami Code Product Control
 Division

ENGINEER STAMP

Ethan A. Charpentier

Florida Firm No. F-02000005175
 Certificate of Authorization #9803
 Ethan A. Charpentier
 Registration No. 65106

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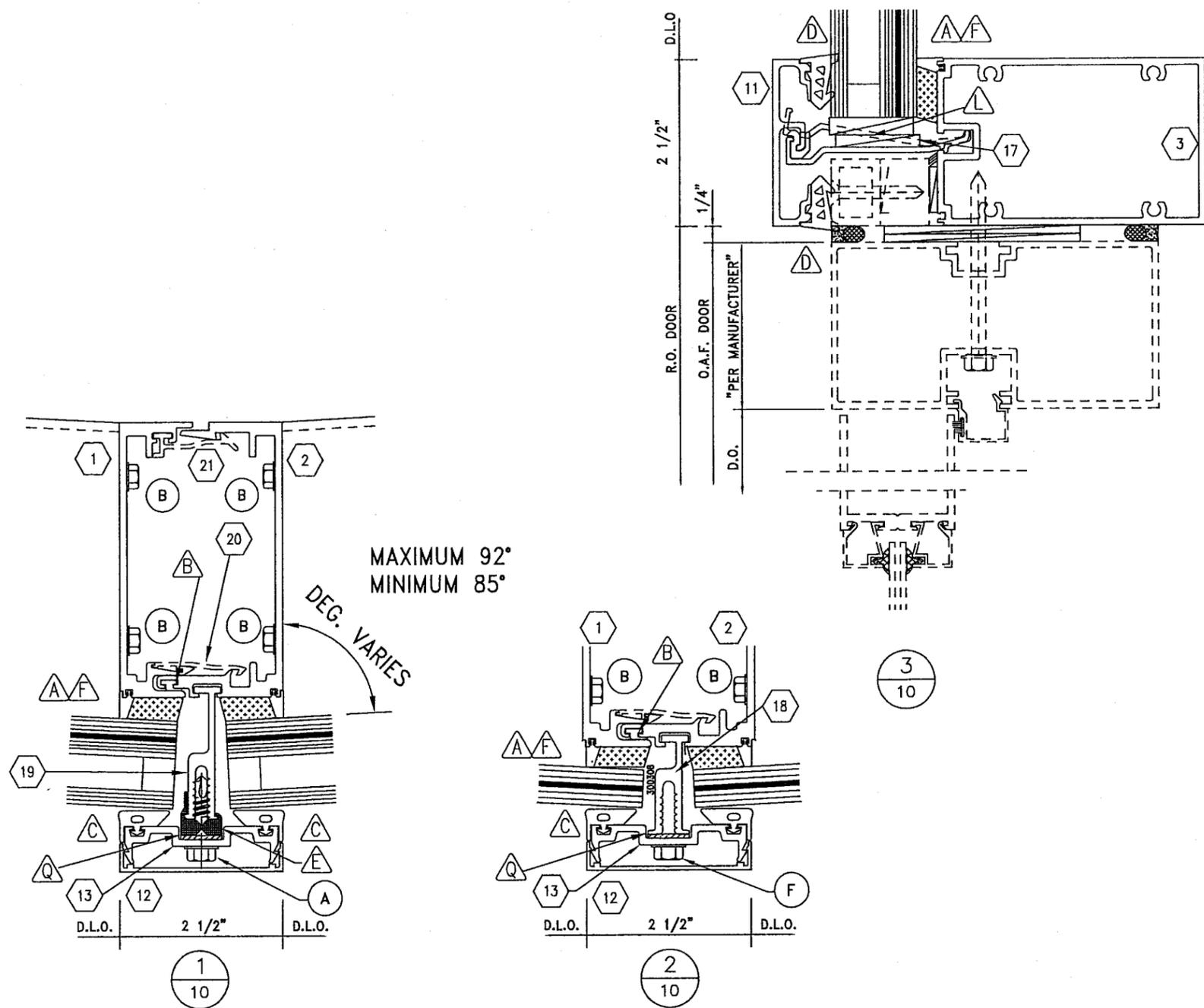
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 VERTICAL DETAILS

DATE: 06/28/04 4 9/2/09

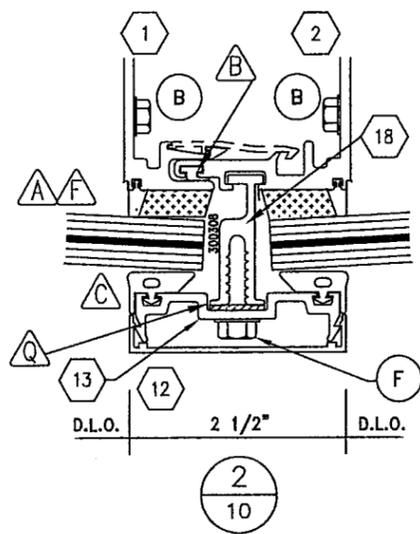
2 3/25/09 3 08/04/09

DWG. NO. HI5000LM

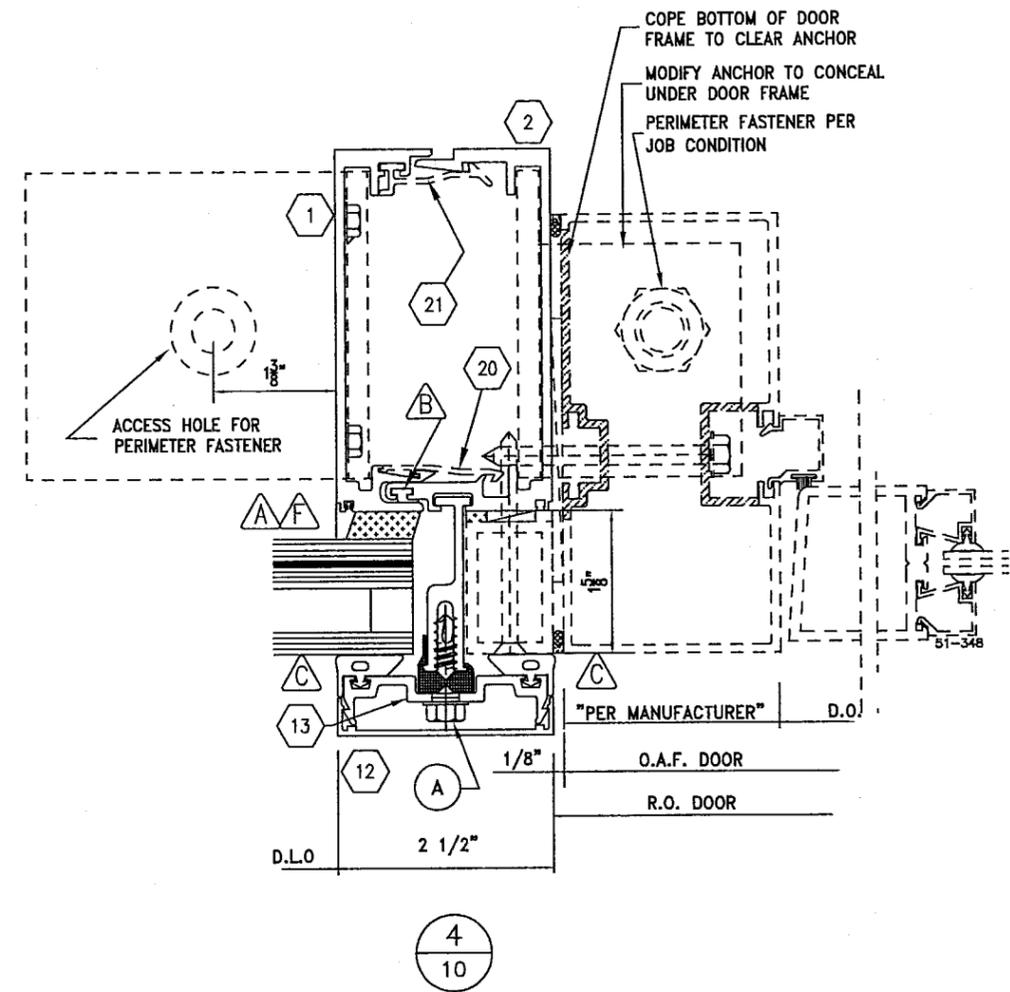
SHEET 09 OF 14



SEGMENTED MULLION
INSULATED GLASS



SEGMENTED MULLION
MONOLITHIC GLASS



GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 7
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- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 08-1015.01
Expiration Date AUG 26, 2014
By *Manuel Perez*
Miami Dade Product Control
Division

ENGINEER STAMP

Ethan A. Charpentier

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Ethan A. Charpentier
Registration No. 65106

Harmon

HI 5000 LARGE MISSILE
SEGMENTED MULLION &
DOOR DETAILS

DATE: 06/28/04 4 9/2/09
2 3/25/09 3 08/04/09

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SHEET 10 OF 14

SEP 02 2009

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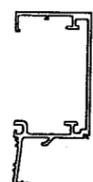
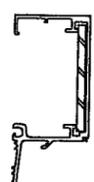
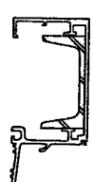
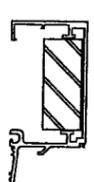
JAMB SPAN TABLE

		REINFORCING OPTIONS			
		6	7	8	9
	"B"	Case 6	Case 7	Case 8	Case 9
	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	1'-6"	10'-1" 489	12'-3" 592	13'-6" 651	14'-6" 698
	2'-0"	8'-10" 560	10'-8" 678	12'-1" 764	13'-6" 856
	2'-6"	7'-11" 623	9'-7" 755	10'-10" 850	12'-6" 979
	3'-0"	7'-3" 680	8'-10" 824	9'-11" 928	11'-5" 1069
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	1'-6"	9'-4" 528	11'-4" 640	12'-9" 721	13'-11" 784
	2'-0"	8'-2" 605	9'-11" 733	11'-2" 825	12'-10" 950
	2'-6"	7'-4" 673	8'-11" 815	10'-0" 918	11'-7" 1057
	3'-0"	6'-9" 735	8'-2" 890	9'-2" 1002	10'-7" 1154
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	1'-6"	8'-9" 565	10'-7" 684	11'-11" 770	13'-5" 866
	2'-0"	7'-8" 647	9'-3" 783	10'-5" 882	12'-0" 1016
	2'-6"	6'-10" 719	8'-4" 871	9'-5" 982	10'-10" 1130
	3'-0"	6'-3" 785	7'-7" 951	8'-7" 1072	9'-4" 1160
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	1'-6"	8'-3" 599	10'-0" 725	11'-3" 817	13'-0" 941
	2'-0"	7'-2" 686	8'-9" 831	9'-10" 936	11'-4" 1078
	2'-6"	6'-6" 763	7'-10" 924	8'-10" 1041	9'-10" 1160
	3'-0"	5'-11" 833	7'-2" 1009	8'-1" 1137	8'-3" 1160

JAMB SPAN TABLE GENERAL NOTES:

- JAMB MULLION SPAN TABLES ARE BASED ON MONOLITHIC PART 304004. THIS TABLE IS CONSERVATIVE FOR INSULATED PART 304003.
- SPANS ARE BASED ON 5/8" JOINT DIMENSION AND 95 1/4" MAXIMUM DLO HEIGHT.
- "L" = MAXIMUM MULLION SPAN
- "W" = C/L TO C/L SPACING
- "B" = $\frac{W}{2}$ (TRIBUTARY AREA)
- FOR SINGLE SPAN MAXIMUM DEFL. = L/180 or 1"
- (WHEN STEEL RIENF. IS USED, LENGTH OF STEEL IS LENGTH OF MULLION MINUS 12")
- SPANS ARE LIMITED BY MAXIMUM TESTED END REACTIONS
- R = REACTION (LBS.) (REFER TO PAGE 7 FOR BUILDING CONDITION TYPES AND PAGES 12, 13 & 14 FOR REACTION DETAIL OPTIONS)

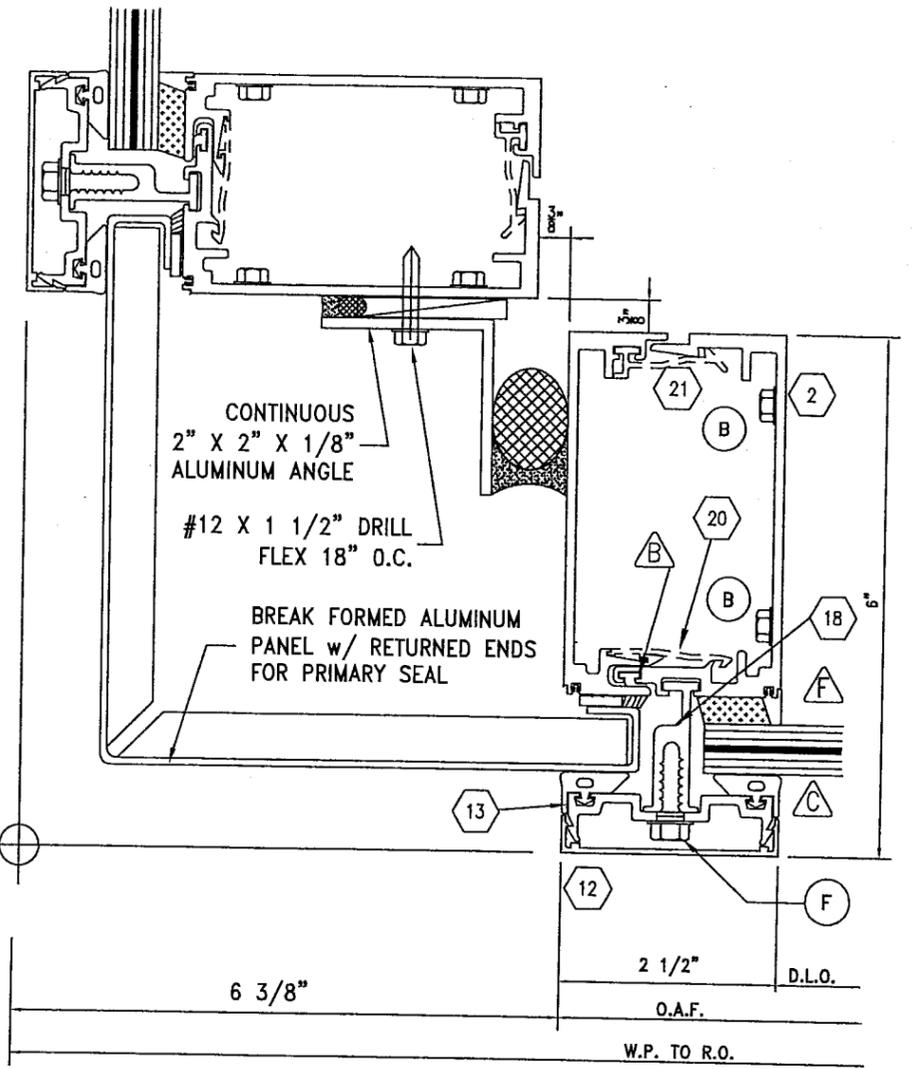
REINFORCING OPTIONS

6	7	8	9
COMBINED Ix = 5.522 in ⁴	COMBINED Ix = 8.142 in ⁴ 1/4" X 3 1/2"	COMBINED Ix = 10.337 in ⁴ C3x4.1	COMBINED Ix = 13.678 in ⁴ 1 1/4 X 3"
			

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS



- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

Larson Engineering, Inc.
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Harmon
HI 5000 LARGE MISSILE
90° OUTSIDE CORNER DETAIL

DATE: 06/28/04 Δ 9/2/09
 Δ 3/25/09 Δ 08/04/09

DWG. NO. HI5000LM

SHEET 11 OF 14

DADE CO. STAMP

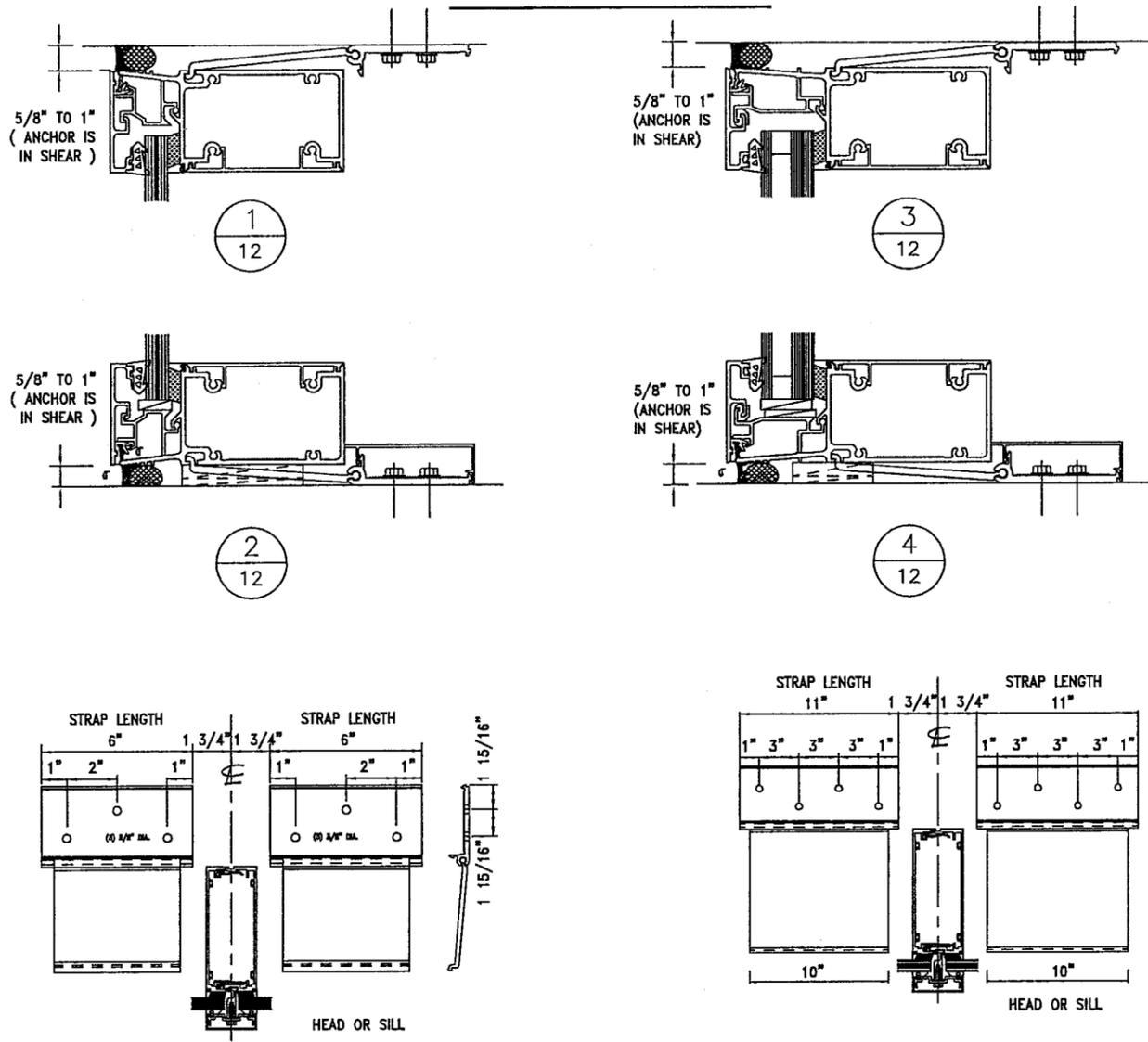
PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 08-1015.01
Expiration Date AUG 26, 2014
By *Maxwell*
Internal State Product Control
Director

ENGINEER STAMP

Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

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STRAP ANCHOR



ANCHOR FASTENER REQUIREMENTS					
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1,880 #	3/8"x3 1/2" LAG BOLT	3	3"	1 1/2"
CONCRETE	1720 #	1/4" HILTI KWIK-CON II	2	1 3/4"	1 1/2"
STEEL	1,880 #	#14 DRILL FLEX	3	N/A	1"
METAL STUD	2230 #	#14 DRILL FLEX	4	N/A	1"

TESTED CONDITIONS SHOWN ABOVE.

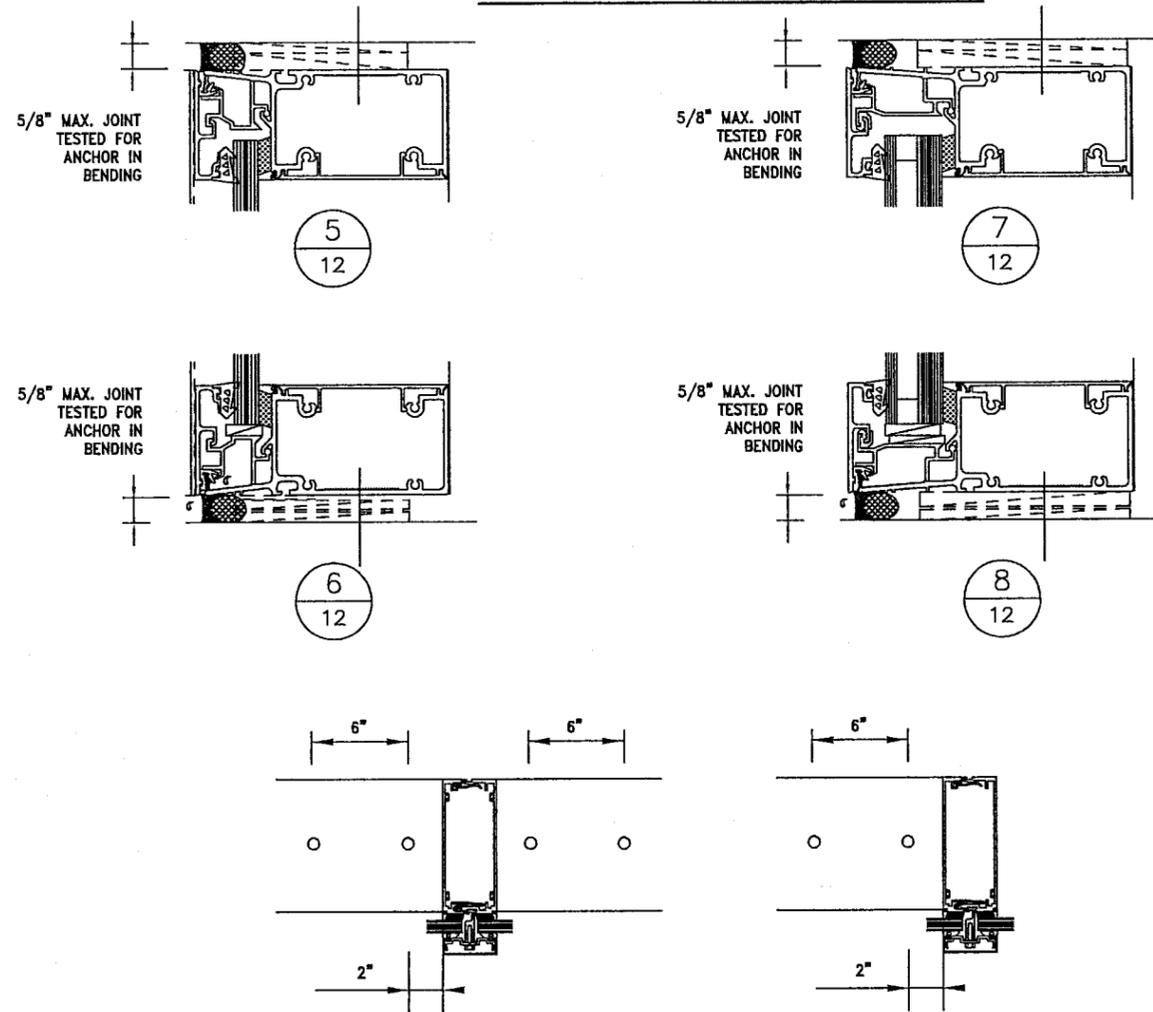
- (2) 5" STRAPS TESTED TO 1880# END REACTION
- (2) 11" STRAPS TESTED TO 2176# END REACTION
- STRAP ANCHORS MAY BE MADE LONGER TO ACCOMMODATE FASTENERS BASED ON JOB SPECIFIC PERIMETER CONDITIONS.
- FASTENER LENGTH VARIES WITH SHIM AND BLOCKING THICKNESS

GENERAL NOTES:

- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING W/ 2007 FBC
- ACTUAL LENGTH AND NUMBER & SIZE OF HOLES TO BE DETERMINED BY PROJECT SPECIFIC PERIMETER CONDITIONS AND TYPES OF FASTENERS USED.
- CONCRETE STRENGTH MUST BE A MINIMUM OF $F_c=4,500$ PSI
- ALL WOOD AND SHEET METAL SCREWS SHALL BE CARBON STEEL GRADE 5.

- ALL SELF DRILLING FASTENERS SHALL BE ELCO "DRIL-FLEX" WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS SHALL BE POWERS "WEDGE BOLTS".

THRU-FRAME ANCHOR



TESTED CONDITIONS SHOWN ABOVE.

- (2) FASTENERS EACH SIDE @ INTER. VERTICAL
- (2) FASTENERS ON SAME SIDE @ JAMBS
- FASTENER SPACING AND QUANTITY MAY CHANGE BASED ON JOB SPECIFIC PERIMETER CONDITIONS.
- FASTENER LENGTH VARIES WTH SHIM AND BLOCKING THICKNESS

ANCHOR FASTENER REQUIREMENTS					
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1700 #	3/8" LAG SCREW	2	3"	1 1/2"
CONCRETE	732 #	1/2" DIA.	2	3"	4"
STEEL	1,880 #	3/8" DIA.	2	N/A	1"
METAL STUD	1880 #	1/4" DUA DRIL-FLEX	2	N/A	1"

Larson Engineering, Inc.
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 White Bear Lake, MN 55110
 (P) 651.481.9120 (F) 651.481.9201

DADE CO. STAMP

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Maureen Perez
 Minimum Quality Product Control
 Division

ENGINEER STAMP

[Signature]

Florida Firm No. F-0200005175
 Certificate of Authorization #9803
 Ethan A. Charpentier
 Registration No. 65108

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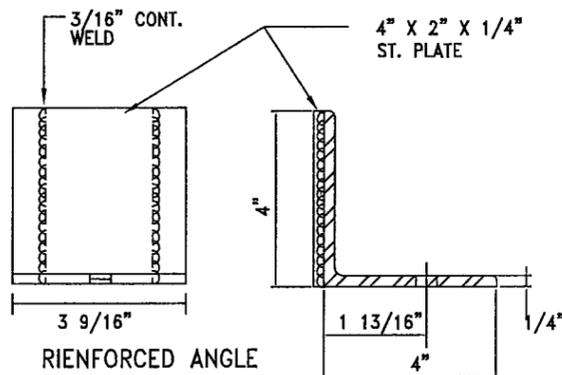
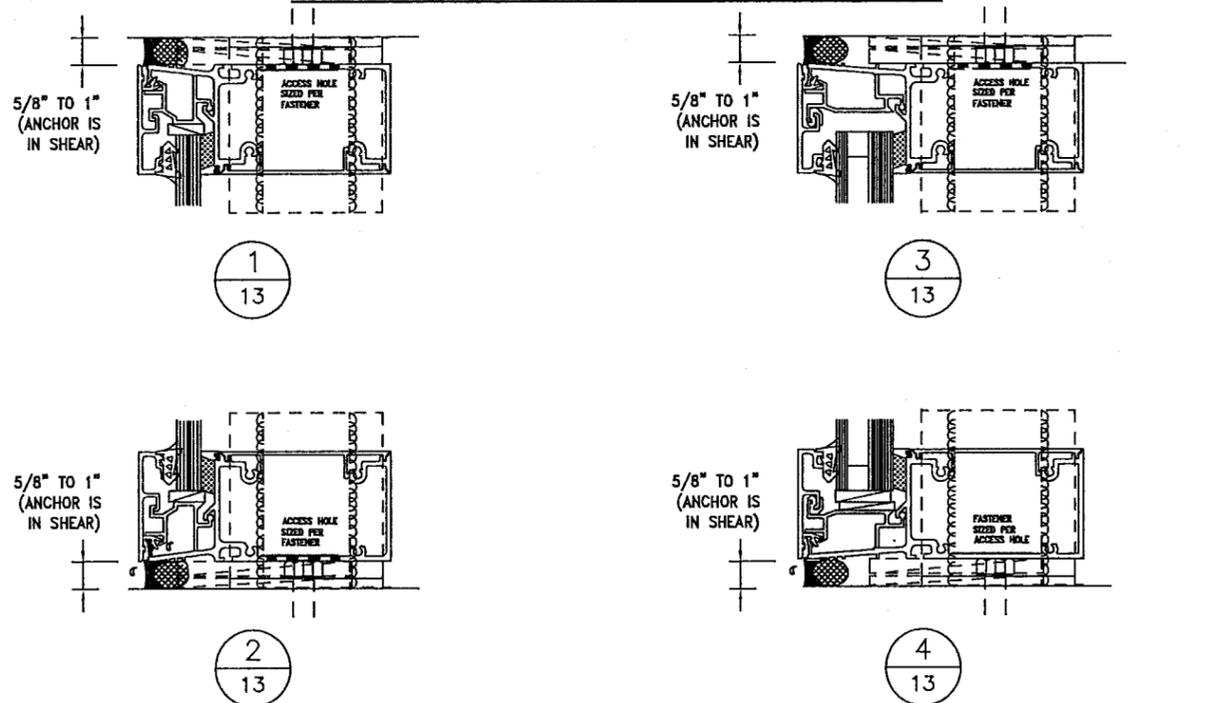
HI 5000 LARGE MISSILE
 ANCHOR APPLICATIONS
 STRAP & THRU-FRAME

DATE: 06/28/04 ⁴ 9/2/09
² 3/25/09 ³ 08/04/09
 DWG. NO. HI5000LM
 SHEET 12 OF 14

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STEEL ANGLES IN VERTICALS



ANCHOR FASTENER REQUIREMENTS

SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	865 #	3/8" DIA x 3 1/2"	2	3"	1 1/2"
CONCRETE	1,915 #	3/8" DIA	2	2 1/2"	3 3/4"
STEEL	2,335 #	3/8" DIA	2	N/A	1"
METAL STUD	371 #	1/4" DIA DRIL-FLEX	2	N/A	1"

TESTED CONDITIONS SHOWN ABOVE

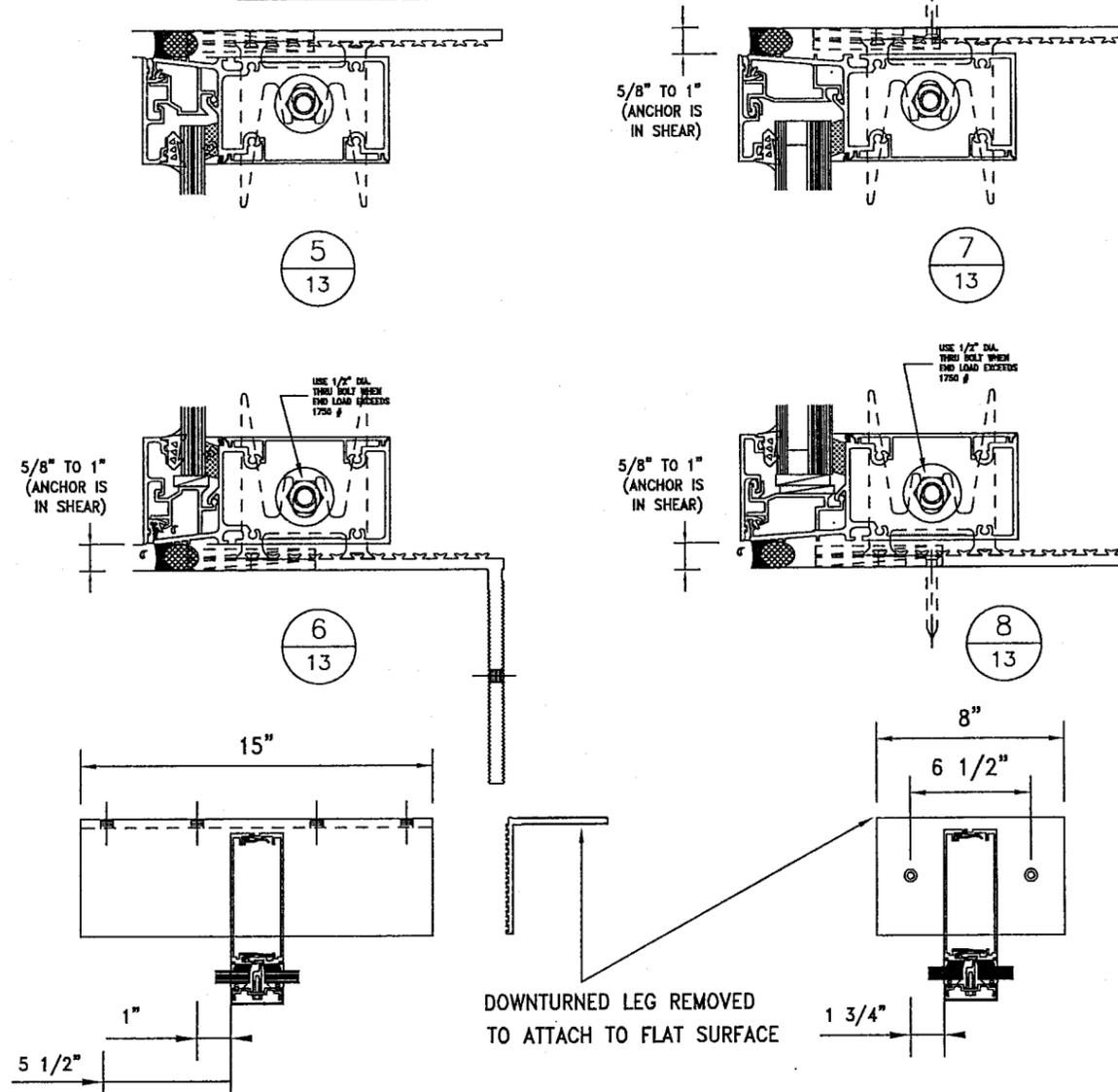
- (2) ANGLES TESTED TO 1915# END REACTION
- REINFORCED ANGLE USED w/ (1) FASTENER. REINFORCING PLATE ADDED TO PREVENT TWIST IMPOSED BY ONLY (1) FASTENER

GENERAL NOTES:

- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING W/ 2007 FBC
- ACTUAL LENGTH AND NUMBER & SIZE OF HOLES TO BE DETERMINED BY PROJECT SPECIFIC PERIMETER CONDITIONS AND TYPES OF FASTENERS USED.
- CONCRETE STRENGTH MUST BE A MINIMUM OF $F_c=4,500$ PSI
- ALL WOOD AND SHEET METAL SCREWS SHALL BE CARBON STEEL GRADE 5.

- ALL SELF DRILLING FASTENERS SHALL BE ELCO "DRIL-FLEX" WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS SHALL BE POWERS "WEDGE BOLTS".

ALUMINUM LUG IN VERTICALS



ANCHOR FASTENER REQUIREMENTS

SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	875 #	3/8" DIA LAG BOLT	2	3"	1 1/2"
CONCRETE	1,769 #	1/2" DIA.	2	3"	3 15/16"
STEEL	1,555 #	1/2" DIA	2	N/A	1"
METAL STUD	560 #	1/4" DIA DRIL-FLEX	2	N/A	1"

TESTED CONDITIONS SHOWN ABOVE

- LUG TESTED TO 1769# END REACTION
- TYPICAL ANCHOR USED w/ (4) FASTENERS IN DOWNTURNED LEG AS SHOWN
- MODIFIED ANCHOR USE w/ (2) FASTENERS IN TOP LEG AS SHOWN

Larson Engineering, Inc.

3524 Labore Road
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DADE CO. STAMP

PRODUCT as required as complying with the Florida Building Code
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Expiration Date AUG 26, 2014
By Manuel Perez
Inspector/State Product Control

ENGINEER STAMP

Ethel A. Charpentier

Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethel A. Charpentier
Registration No. 65106

Harmon

HI 5000 LARGE MISSILE
ANCHOR APPLICATIONS
STRAP & THRU-FRAME

DATE: 06/28/04 4 9/2/09

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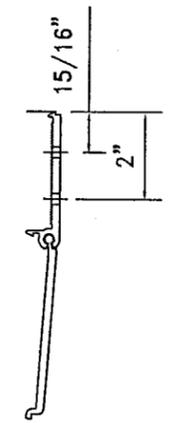
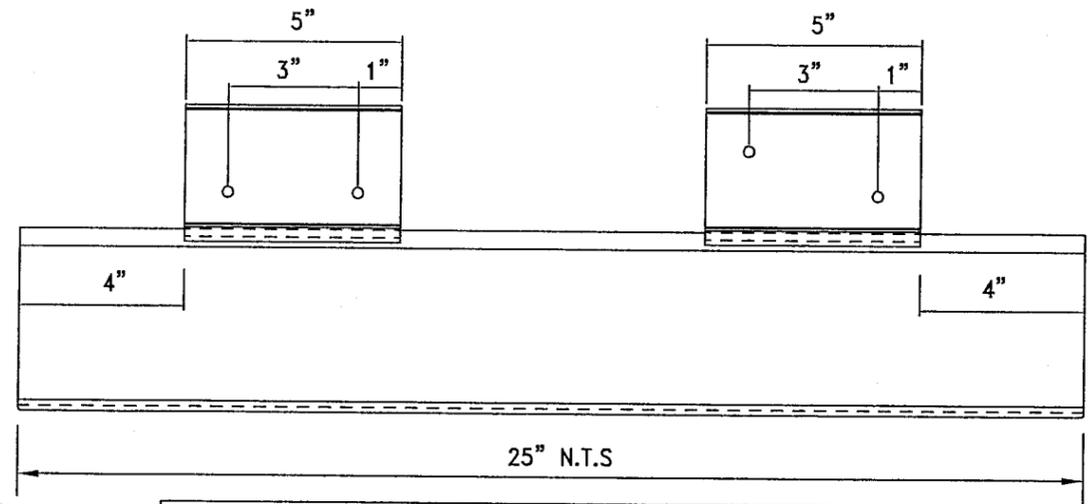
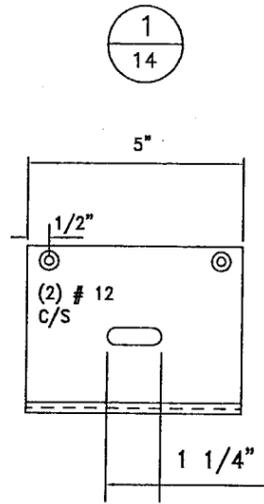
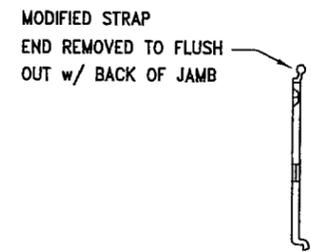
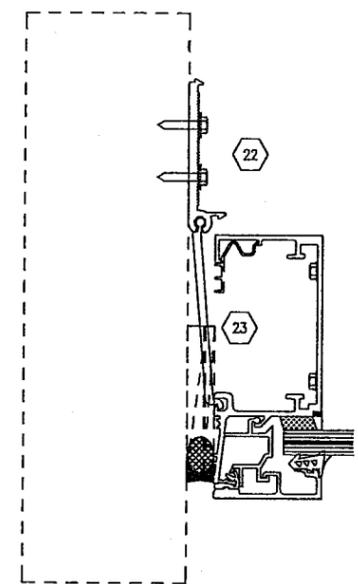
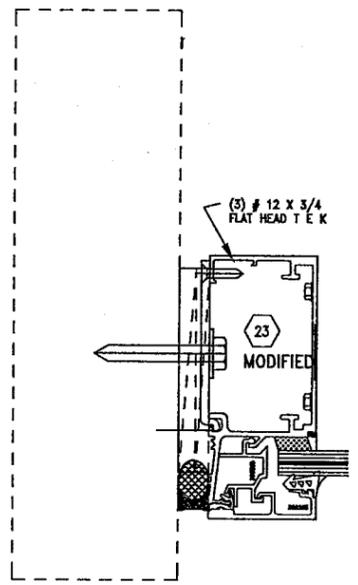
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SHEET 13 OF 14

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JAMB ANCHOR



TESTED CONDITIONS SHOWN ABOVE.
 - (1) 25" STRAP w/ (2) 5" KEEPERS TESTED TO 1225# END REACTION ATTACHED TO CONCRETE; 850# ATTACHED TO STUDS
 - (1) 5" MODIFIED STRAP TESTED TO 765# END REACTION
 - ANCHORS MAY BE MADE LONGER TO ACCOMMODATE MORE FASTENERS BASED ON JOB SPECIFIC PERIMETER CONDITIONS.

ANCHOR FASTENER REQUIREMENTS						
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.	
WOOD	1225 #	3/8"x3 1/2" LAG BOLT	4	3"	1 1/2"	
CONCRETE	1225 #	1/4" HILTI KWIK-CON II	4	1 3/4"	1 1/2"	
STEEL	1225 #	1/4" DIA DRILL FLEX	4	N/A	1"	
METAL STUD	850#	1/4" DIA DRILL FLEX	4	N/A	1"	

GENERAL NOTES:

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- ACTUAL LENGTH AND NUMBER & SIZE OF HOLES TO BE DETERMINED BY PROJECT SPECIFIC PERIMETER CONDITIONS AND TYPES OF FASTENERS USED.
- CONCRETE STRENGTH MUST BE A MINIMUM OF Fc=4,500 PSI
- ALL WOOD AND SHEET METAL SCREWS SHALL BE CARBON STEEL GRADE 5.

- ALL SELF DRILLING FASTENERS SHALL BE ELCO "DRIL-FLEX" WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS SHALL BE POWERS "WEDGE BOLTS".

DADE CO. STAMP
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 By: *Maureen Spray*
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ENGINEER STAMP
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 Registration No. 65106

Harmon
 HI 5000 LARGE MISSILE ANCHOR APPLICATIONS JAMBS
 DATE: 06/28/04 4 9/2/09
 2 3/25/09 3 08/04/09
 DWG. NO. HI5000LM
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