



**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](http://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 – S.M.I.**

**APPROVAL DOCUMENT:** Drawing No. **HI5000SM**, titled "Harmon HI 5000 Small 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: Small 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 # 04-0217.09** 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. 08-1015.02**  
**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. **HI5000SM**, titled "Harmon HI 5000 Small 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#04-0217.09)*

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) Small Missile Impact Test per FBC, TAS 201-94  
5) Large Missile Impact Test per FBC, TAS 201-94  
6) 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 Reports No. **HTL-0319-1102-02**, and No. **HTL-0319-1211-02** dated 11/07-12/11/02, signed and sealed by Vinu J. Abraham, P.E.
4. 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) Small 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 4), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 10/29/02, signed and sealed by Vinu J. Abraham, P.E.

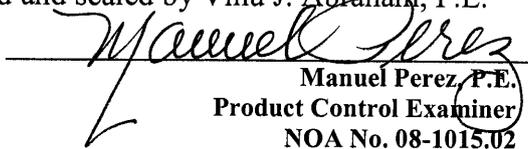
  
Manuel Perez, P.E.  
Product Control Examiner  
NOA No. 08-1015-02  
Expiration Date: August 26, 2014  
Approval Date: October 28, 2009

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

**B. TESTS (CONTINUED)**

*(All submitted under previous NOA#04-0217.09)*

5. 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.
6. 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 6), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1211-02**, dated 12/16/02, signed and sealed by Vinu J. Abraham, P.E.
7. 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 7), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0107-03**, dated 1/8/03-2/13/03, signed and sealed by Vinu J. Abraham, P.E.
8. 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 8), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 11/11-12/02, signed and sealed by Vinu J. Abraham, P.E.
9. 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 9), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1102-02**, dated 11/12-13/02, signed and sealed by Vinu J. Abraham, P.E.
10. 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 2), prepared by Hurricane Test Laboratory, Inc., Test Report **HTL-0319-0906-03**, dated 09/9-10/03, signed and sealed by Vinu J. Abraham, P.E.

  
Manuel Perez, P.E.  
Product Control Examiner

NOA No. 08-1015.02  
Expiration Date: August 26, 2014  
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**NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED**

**B. TESTS (CONTINUED)**

*(All submitted under previous NOA#04-0217.09)*

11. 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) Small 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 1), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0724-03**, dated 07/21-23/03, signed and sealed by Vinu J. Abraham, P.E.
12. 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 1), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0906-03**, dated 09/4-8/03, signed and sealed by Vinu J. Abraham, P.E.

**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**

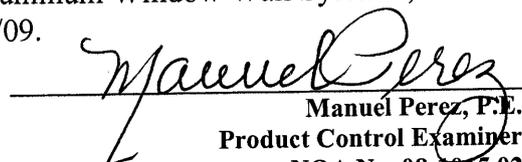
1. Notice of Acceptance No. **06-0216.06** issued to Solutia Inc. for their "Saflex III G Clear or colored interlayer" dated 05/04/06, expiring on 05/21/11.

**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. **04-0217.09**, 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. 08-1015.02  
Expiration Date: August 26, 2014  
Approval Date: October 28, 2009

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# HARMON HI 5000 SMALL 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 - SMALL 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

 <b>Larson Engineering, Inc.</b> 3524 Labore Road White Bear Lake, MN 55110 (P) 651.481.9120 (F) 651.481.9201						
<b>DADE CO. STAMP</b>  PRODUCT REVISED as complying with the Florida Building Code Acceptance No. <b>08-1015.02</b> Expiration Date <b>AUG 26, 2014</b> By <i>Manuel Perez</i> Missions/Code Product Control Division	<b>ENGINEER STAMP</b>    Florida Firm No. F-02000005175 Certificate of Authorization #9803 Ethar A. Charpentier Registration No. 65108	 <b>Harmon</b>  HI 5000 SMALL MISSILE COVER SHEET  <table border="1" style="width: 100%; border-collapse: collapse;"> <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> DWG. NO. HI5000SM SHEET 01 OF 14	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					

FRAME ASSEMBLY FASTENER LIST				GASKET LIST				ALUMINUM MATERIAL LIST						
	DESCRIPTION	QUANTITY	REMARKS	SYMBOL	DIAGRAM	PART #	MATERIAL	DESCRIPTION	PART #	ALLOY	TYPICAL THICK.	REMARKS	REV	
A	PRESSURE PLATE BOLT FOR INSULATED GLASS SYSTEM		2 1/2" FROM END AND 9" ON CENTER			770301	85 DUR. SILICONE	INTERIOR FIXED GASKET FOR 5/8" & 1 3/8" THICK GLASS (1/4" THICK SEAL)	1	FEMALE VERTICAL MULLION	304001	6063-T6	.110	
B	TYPICAL HORIZONTAL FRAME ASSEMBLY SCREW		(4) REQUIRED PER JOINT			750301	70 DUR. SILICONE	VERTICAL WHISKER GASKET	2	MALE VERTICAL MULLION	304002	6063-T6	.110	
C	NON-TYPICAL HORIZONTAL ASSEMBLY SCREW TO BYPASS STEEL		(4) REQUIRED PER JOINT			720301	70 DUR. EPDM	EXTERIOR SLIDE IN VERTICAL PRESSURE PLATE	3	INTERMEDIATE HORIZONTAL	304101	6063-T5	.100	
D	ANCHOR STEEL FIXING PLATE INTO HORIZONTAL		(1) REQUIRED PER PLATE			730301	70 DUR. EPDM	EXTERIOR WEDGE	4	JAMB - MONOLITHIC GLASS	304004	6063-T6	.110	
E	TEMPORARY ANCHOR FOR CORNER END CAPS		(1) REQUIRED PER END CAP			790301	70 DUR. EPDM	THERMAL BREAK FOR PRESSURE PLATE	5	HEAD & SILL - MONOLITHIC GLASS	304103	6063-T5	.110	
F	PRESSURE PLATE BOLT FOR MONOLITHIC GLASS SYSTEM		2 1/2" FROM END AND 9" ON CENTER			770302	85 DUR. SILICONE	INTERIOR, FIXED GASKET FOR 9/16" & 1 5/16" THICK GLASS (5/16" THICK SEAL)	6	JAMB - INSULATED GLASS	304003	6063-T6	.110	
G	ALLEN HEAD SCREW FOR ANCHOR USED w/ STACK HORIZONTAL		LOCATED AT TOP & BOTTOM OF ANCHOR			790303	90 DUR. EPDM	ALL PERIMETERS	7	HEAD & SILL - INSULATED GLASS	304102	6063-T5	.110	
						790302	90 DUR. EPDM	PERIMETER THERMAL BREAK	8	JAMB COVER	300203	6063-T5	.100	
						780301	70 DUR. SILICONE	ZONE DAM FOR MONOLITHIC GLASS 2 1/2" LONG	9	HEAD & SILL EXTERIOR COVER	300202	6063-T5	.100	
						780302	70 DUR. SILICONE	ZONE DAM FOR INSULATED GLASS 2 1/2" LONG	10	HEAD & SILL INTERIOR FILLER	304401	6063-T5	.080	
						700303	90 DUR. SILICONE	5" LONG SETTING BLOCK. (TEAR IN HALF FOR MONOLITHIC GLASS)	11	HORIZONTAL COVER	300201	6063-T5	.100	
						740301	70 DUR. EPDM	AT BUTT JOINT FOR MONOLITHIC GLASS	12	VERTICAL COVER	300236	6063-T5	.060	
						740302	70 DUR. EPDM	AT BUTT JOINT FOR INSULATED GLASS	13	VERTICAL PRESSURE PLATE	300701	6105-T5	.100	
							HARD. SHORE A	INTERIOR FIXED TAPE FOR 5/8" & 1 3/8" THICK GLASS (1/4" THICK SEAL)	14	PERIMETER ADAPTOR - MONOLITHIC GLASS	300305	6105-T5	.080	
							HARD. SHORE A	INTERIOR FIXED TAPE FOR 9/16" & 1 5/16" THICK GLASS (5/16" THICK SEAL)	15	PERIMETER ADAPTOR - INSULATED GLASS	300304	6105-T5	.080	
							HARD. SHORE A	SPACER TAPE FOR SEGMENTED MULLION	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

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

**Harmon**  
 HI 5000 SMALL MISSILE MATERIAL LISTS

DATE: 06/28/04 / 4 9/2/09  
 2 3/25/09 / 3 08/04/09  
 DWG. NO. HI5000SM  
 SHEET 02 OF 14

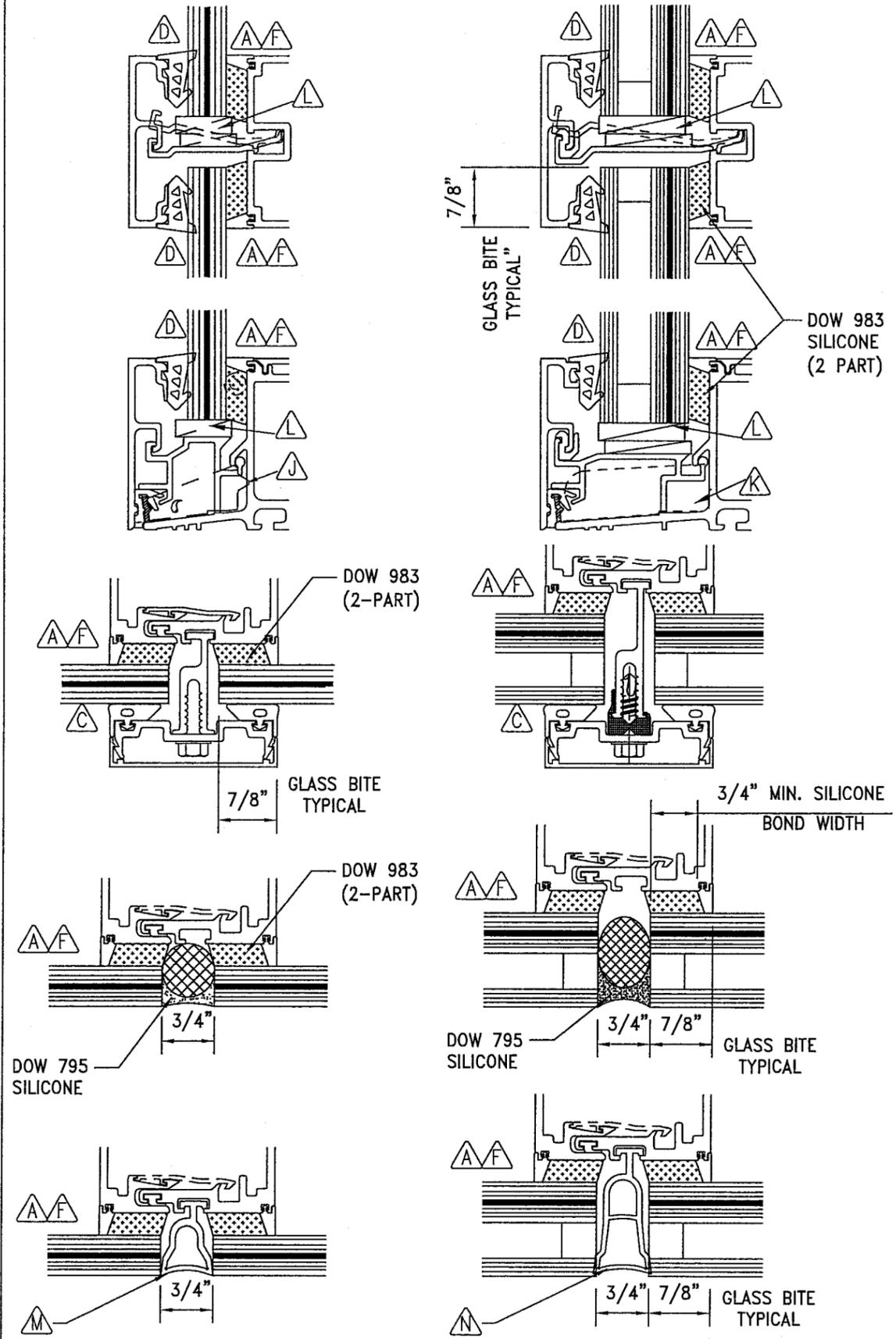
DADE CO. STAMP  
 PRODUCT REVISED as complying with the Florida Building Code  
 Acceptance No. 08-1015-02  
 Expiration Date AUG. 26, 2014  
 By *Manuel Perez*  
 Miami Dade Product Control Division

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

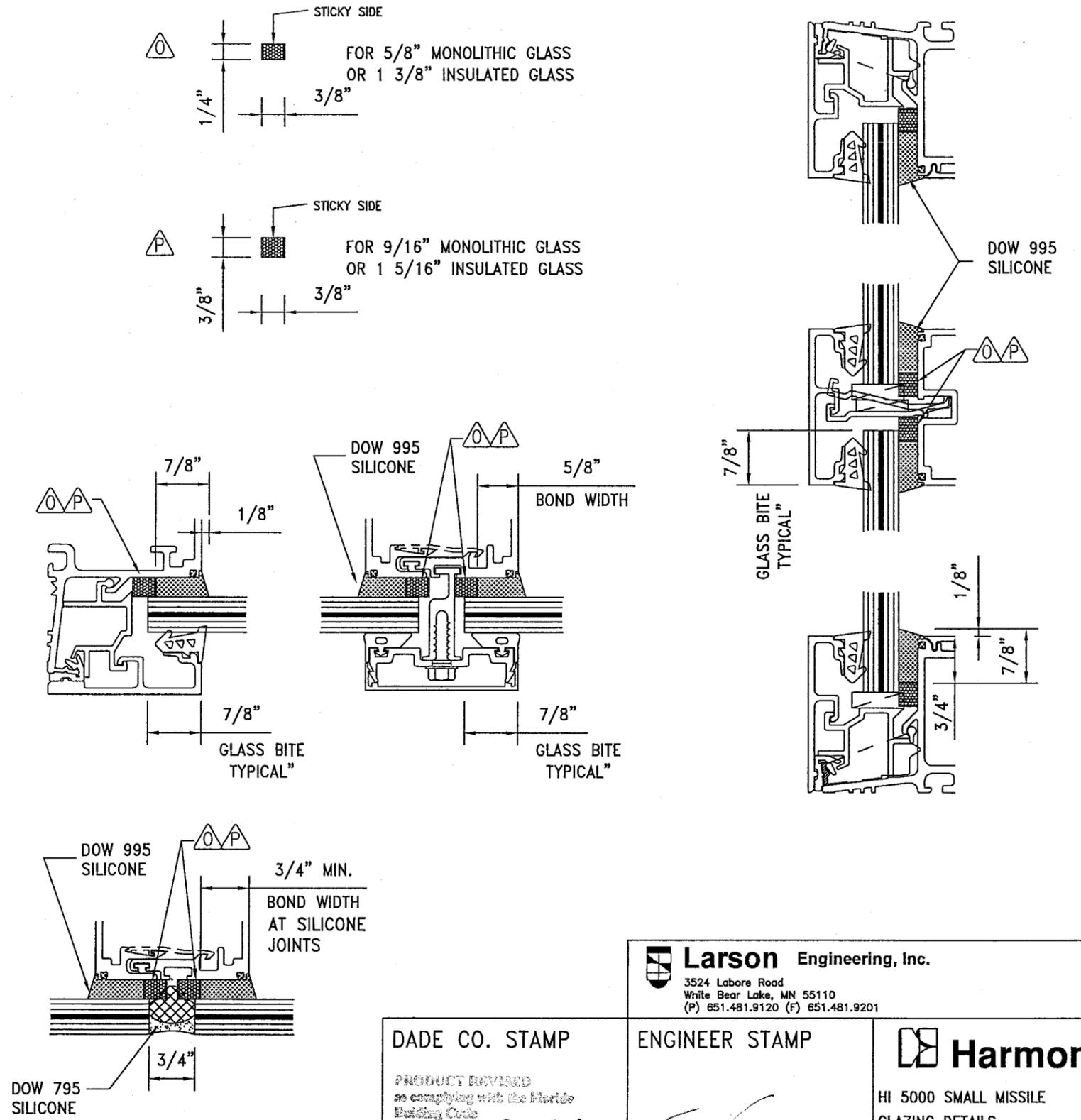
GLAZING DETAILS

LAMINATED GLASS DETAILS

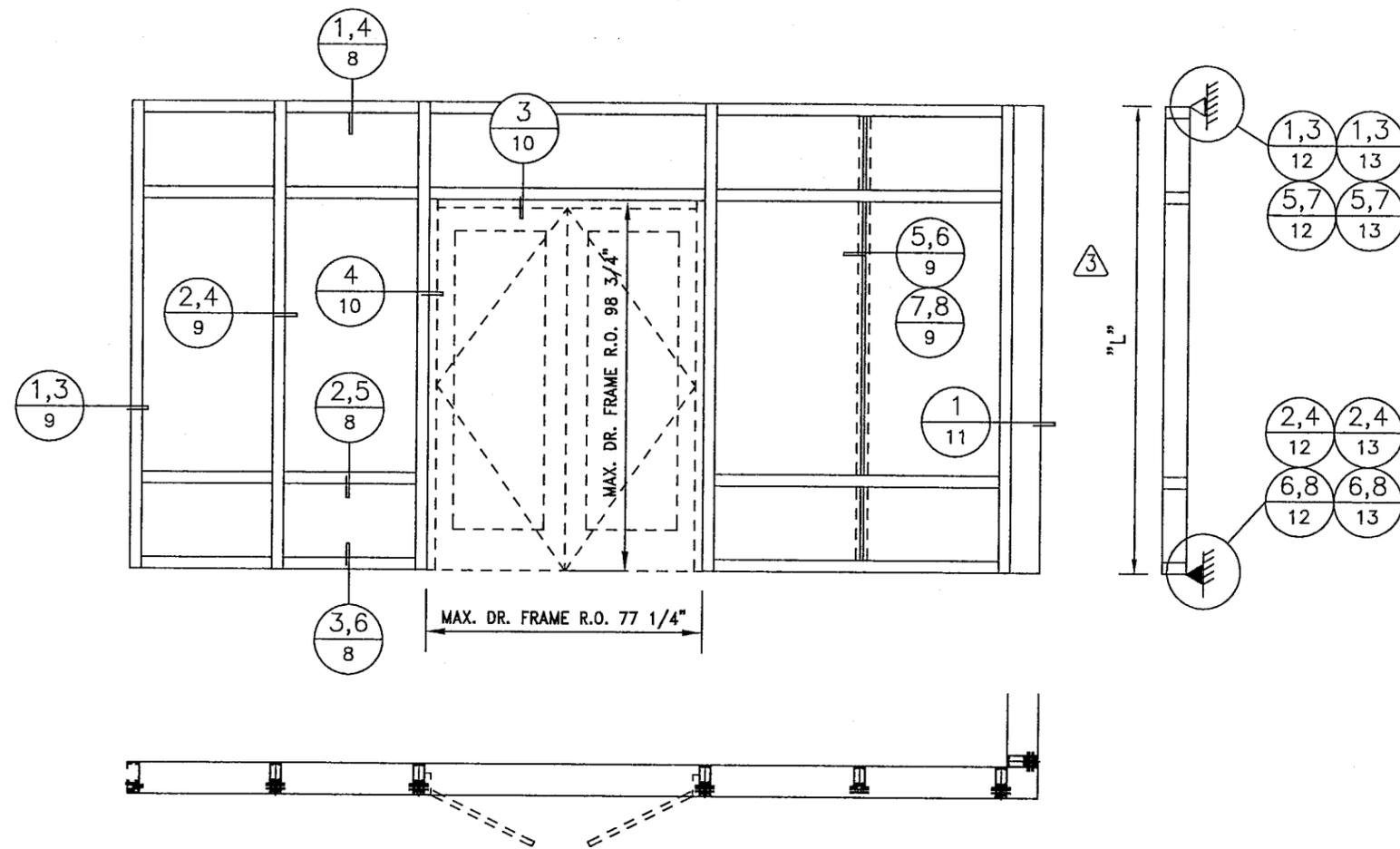
INSULATED LAMINATED GLASS DETAILS



RE-GLAZING DETAILS



<p><b>Larson Engineering, Inc.</b> 3524 Labore Road White Bear Lake, MN 55110 (P) 651.481.9120 (F) 651.481.9201</p>	
<p>DADE CO. STAMP</p> <p>PRODUCT REVIEWED in compliance with the Florida Building Code Acceptance No. <u>08-1015.02</u> Expiration Date <u>Aug 26, 2014</u> <i>Manuel Perez</i> Miami-Dade Precast Concrete Division</p>	<p>ENGINEER STAMP</p> <p><i>Ethan A. Charpentier</i></p> <p>Florida Firm No. F-02000005175 Certificate of Authorization #9803 Ethan A. Charpentier Registration No. 65106</p>
<p> <b>Harmon</b></p> <p>HI 5000 SMALL MISSILE GLAZING DETAILS RE-GLAZING DETAILS</p> <p>DATE: 06/28/04 / 9/2/09 3/25/09 / 08/04/09</p> <p>DWG. NO. HI5000SM</p> <p>SHEET 03 OF 14</p>	



**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.

**DADE CO. STAMP**

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 08-1015-07  
 Expiration Date: AUG. 26, 2014  
 By: *Manuel Perez*  
 Miami Dade Product Control  
 Division

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

**ENGINEER STAMP**

*Ethan A. Charpentier*

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

**Harmon**

HI 5000 SMALL MISSILE  
 SINGLE SPAN APPLICATIONS

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

DWG. NO. HI5000SM  
 SHEET 04 OF 14

HI 5000 Glass Load Capacity			Monolithic Glass Types		Insulated Glass Types	
DLO "B"	DLO "H"	SF	Type 8	Type 9		
30"	54"	11.25 SF	+/-90 PSF	+/-90 PSF		
36"	54"	13.5 SF	+/-90 PSF	+/-90 PSF		
42"	54"	15.75 SF	+/-90 PSF	+/-90 PSF		
48"	54"	18 SF	+/-90 PSF	+/-90 PSF		
54"	54"	20.25 SF	+/-90 PSF	+/-90 PSF		
60"	54"	22.5 SF	+/-90 PSF	+/-90 PSF		
66"	54"	24.75 SF	+/-90 PSF	+/-90 PSF		
72"	54"	27 SF	+/-90 PSF	+/-90 PSF		
36"	60"	15 SF	+/-90 PSF	+/-90 PSF		
42"	60"	17.5 SF	+/-90 PSF	+/-90 PSF		
48"	60"	20 SF	+/-90 PSF	+/-90 PSF		
54"	60"	22.5 SF	+/-90 PSF	+/-90 PSF		
60"	60"	25 SF	+/-90 PSF	+/-90 PSF		
66"	60"	27.5 SF	+/-90 PSF	+/-90 PSF		
72"	60"	30 SF	+/-90 PSF	+/-90 PSF		
36"	66"	16.5 SF	+/-90 PSF	+/-90 PSF		
42"	66"	19.25 SF	+/-90 PSF	+/-90 PSF		
48"	66"	22 SF	+/-90 PSF	+/-90 PSF		
54"	66"	24.75 SF	+/-90 PSF	+/-90 PSF		
60"	66"	27.5 SF	+/-90 PSF	+/-90 PSF		
66"	66"	30.25 SF	+/-90 PSF	+/-90 PSF		
72"	66"	33 SF	+/-90 PSF	+/-90 PSF		
36"	72"	18 SF	+/-90 PSF	+/-90 PSF		
42"	72"	21 SF	+/-90 PSF	+/-90 PSF		
48"	72"	24 SF	+/-90 PSF	+/-90 PSF		
54"	72"	27 SF	+/-90 PSF	+/-90 PSF		
60"	72"	30 SF	+/-90 PSF	+/-90 PSF		
66"	72"	33 SF	+/-90 PSF	+/-90 PSF		
72"	72"	36 SF	+/-90 PSF	+/-90 PSF		
36"	78"	19.5 SF	+/-90 PSF	+/-90 PSF		
42"	78"	22.75 SF	+/-90 PSF	+/-90 PSF		
48"	78"	26 SF	+/-90 PSF	+/-90 PSF		
54"	78"	29.25 SF	+/-90 PSF	+/-90 PSF		
60"	78"	32.5 SF	+/-90 PSF	+/-90 PSF		
66"	78"	35.75 SF	+/-90 PSF	+/-90 PSF		
72"	78"	39 SF	N/A	N/A		
36"	84"	21 SF	+/-90 PSF	+/-90 PSF		
42"	84"	24.5 SF	+/-90 PSF	+/-90 PSF		
48"	84"	28 SF	+/-90 PSF	+/-90 PSF		
54"	84"	31.5 SF	+/-90 PSF	+/-90 PSF		
60"	84"	35 SF	+/-90 PSF	+/-90 PSF		
66"	84"	38.5 SF	N/A	N/A		
72"	84"	42 SF	N/A	N/A		
36"	90"	22.5 SF	+/-90 PSF	+/-90 PSF		
42"	90"	26.25 SF	+/-90 PSF	+/-90 PSF		
48"	90"	30 SF	+/-90 PSF	+/-90 PSF		
54"	90"	33.75 SF	+/-90 PSF	+/-90 PSF		
60"	90"	37.5 SF	+/-90 PSF	+/-90 PSF		
66"	90"	41.25 SF	N/A	N/A		
72"	90"	45 SF	N/A	N/A		
36"	96"	24 SF	+/-90 PSF	+/-90 PSF		
42"	96"	28 SF	+/-90 PSF	+/-90 PSF		
48"	96"	32 SF	+/-90 PSF	+/-90 PSF		
54"	96"	36 SF	+/-90 PSF	+/-90 PSF		
60"	96"	40 SF	N/A	N/A		
66"	96"	44 SF	N/A	N/A		
36"	102"	25.5 SF	+/-90 PSF	+/-90 PSF		
42"	102"	29.75 SF	+/-90 PSF	+/-90 PSF		
48"	102"	34 SF	+/-90 PSF	+/-90 PSF		
54"	102"	38.25 SF	N/A	N/A		
60"	102"	42.5 SF	N/A	N/A		
36"	108"	27 SF	+/-90 PSF	+/-90 PSF		
42"	108"	31.5 SF	+/-90 PSF	+/-90 PSF		
48"	108"	36 SF	+/-90 PSF	+/-90 PSF		
54"	108"	40.5 SF	N/A	N/A		
60"	108"	45 SF	N/A	N/A		
30"	114"	23.75 SF	+/-90 PSF	+/-90 PSF		
36"	114"	28.5 SF	+/-90 PSF	+/-90 PSF		
43"	114"	34.04 SF	+/-90 PSF	+/-90 PSF		
48"	114"	38 SF	+/-90 PSF	+/-90 PSF		
54"	114"	42.75 SF	N/A	N/A		
24"	120"	20 SF	+/-90 PSF	+/-90 PSF		
30"	120"	25 SF	+/-90 PSF	+/-90 PSF		
36"	120"	30 SF	+/-90 PSF	+/-90 PSF		
42"	120"	35 SF	+/-90 PSF	+/-90 PSF		
48"	120"	40 SF	N/A	N/A		
54"	120"	45 SF	N/A	N/A		
24"	132"	22 SF	+/-90 PSF	+/-90 PSF		
30"	132"	27.5 SF	+/-90 PSF	+/-90 PSF		
36"	132"	33 SF	+/-90 PSF	+/-90 PSF		
24"	143"	23.83 SF	+/-90 PSF	+/-90 PSF		
30"	143"	29.79 SF	+/-90 PSF	+/-90 PSF		
36"	143"	35.75 SF	+/-90 PSF	+/-90 PSF		

**MONOLITHIC GLASS - SMALL MISSILE**

8	9/16" (.060) SAFLEX HS / HS	TEST PRESSURE: +/-90 PSF DLO SF <= 38.03 SF	1/4" HS	.060 SOLUTIA SAFLEX PVB
			1/4" HS	

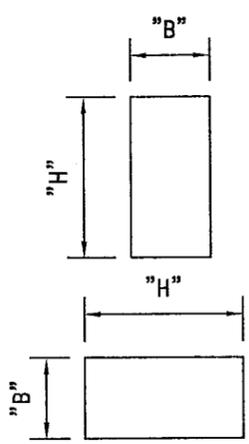
**INSULATED GLASS - SMALL MISSILE**

9	1 5/16" (.060) SAFLEX IG HS / HS - TEMP	TEST PRESSURE: +/-90 PSF DLO SF <= 38.03 SF	1/4" HS 1/4" HS AIR SPACE 1/4" TEMPERED	.060 SAFLEX PVB

**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

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

**Harmon**  
 HI 5000 SMALL MISSILE  
 GLASS APPLICATIONS  
 LARGE MISSILE

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

DWG. NO. HI5000SM  
 SHEET 05 OF 14

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

**DADE CO. STAMP**

PRODUCT REVISED  
 to comply with the Florida  
 Building Code  
 Acceptance No. 08-1015.02  
 Expiration Date AUG. 26, 2014

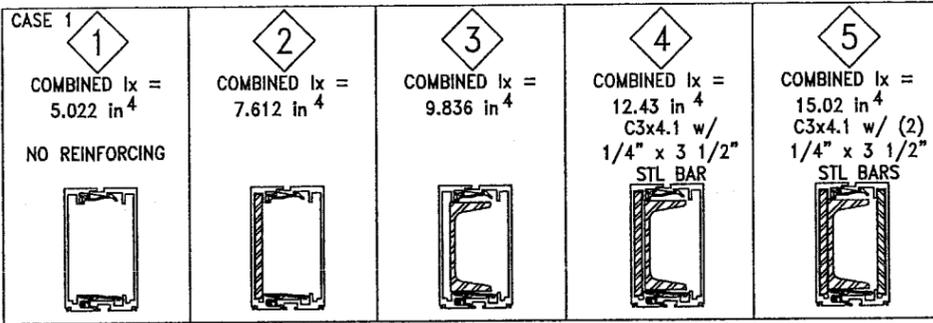
*Manuel Perez*  
 Miami-Dade Product Control  
 Division

**ENGINEER STAMP**

*Ethan A. Charpentier*

<p>304001 <b>1</b> FEMALE MULLION</p>	<p>304002 <b>2</b> MALE MULLION</p>	<p>304004 <b>4</b> MONOLITHIC JAMB</p>	<p>304003 <b>6</b> INSULATED JAMB</p>	<p>300305 <b>14</b> MONO-PERIM.ADAPT.</p>	<p>300304 <b>15</b> INS-PERIM. ADAPT.</p>	<p>304101 <b>3</b> INTERMEDIATE HORIZONTAL</p>			
<p>300701 <b>13</b> PRESSURE BAR</p>	<p>300202 <b>9</b> HD/SILL COVER</p>	<p>300201 <b>11</b> HORIZ. COVER</p>	<p>930103 <b>25</b> SLIDING ANCHOR MALE</p>	<p>930105 <b>24</b> SLIDING ANCHOR FEMALE</p>	<p>300310 <b>21</b> ANTI-BUCKLING CLIP</p>	<p>300306 <b>20</b> ANTI-BUCKLING CLIP</p>	<p>304401 <b>10</b> HEAD/SILL COVER</p>		
<p>300236 <b>12</b> VERTICAL COVER</p>	<p>300308 <b>18</b> MONO-VERT. ADAPT.</p>	<p>300303 <b>16</b> MONO-HORIZ.ADAPT.</p>			<p>930102 <b>22</b> STRAP ANCHOR FEMALE</p>	<p>DADE CO. STAMP          PRODUCT REVISED          as complying with the Florida          Building Code          Amendment No. 08-1015-02          Application Date: Aug. 26, 2014  <i>Manuel Perez</i>          District Engineer          Division of Building Inspection          Tallahassee, Florida</p>	<p>ENGINEER STAMP            Florida Firm No. F-02000005175          Certificate of Authorization #9803          Ethan A. Charpentier          Registration No. 65106</p>	<p>304102 <b>7</b> INSULATED HEAD/SILL</p>	<p>304103 <b>5</b> MONO- HEAD/SILL</p>
<p>300203 <b>8</b> JAMB COVER</p>	<p>300301 <b>19</b> INS.-VERT. ADAPT.</p>	<p>300302 <b>17</b> INS.-HORIZ.ADAPT.</p>						<p>930106 <b>23</b> STRAP ANCHOR MALE</p>	<p>ENGINEER STAMP            Florida Firm No. F-02000005175          Certificate of Authorization #9803          Ethan A. Charpentier          Registration No. 65106</p>
<p>930106 <b>23</b> STRAP ANCHOR MALE</p>	<p>930102 <b>22</b> STRAP ANCHOR FEMALE</p>	<p>930103 <b>25</b> SLIDING ANCHOR MALE</p>				<p>DATE: 06/28/04 4 9/2/09          2 3/25/09 3 08/04/09          DWG. NO. HI5000SM          SHEET 06 OF 14</p>	<p>SEP 02 2009</p>		

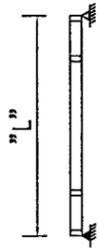
HI 5000 SINGLE SPAN TABLE



	"B"	Case 1	Case 2	Case 3	Case 4	Case 5
		"L"/"R"	"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 REVIEWED as complying with the Florida Building Code  
 Acceptance No. 08-1014.02  
 Expiration Date 08/26/2014  
 By: *Maureen Perry*  
 Product Control Director

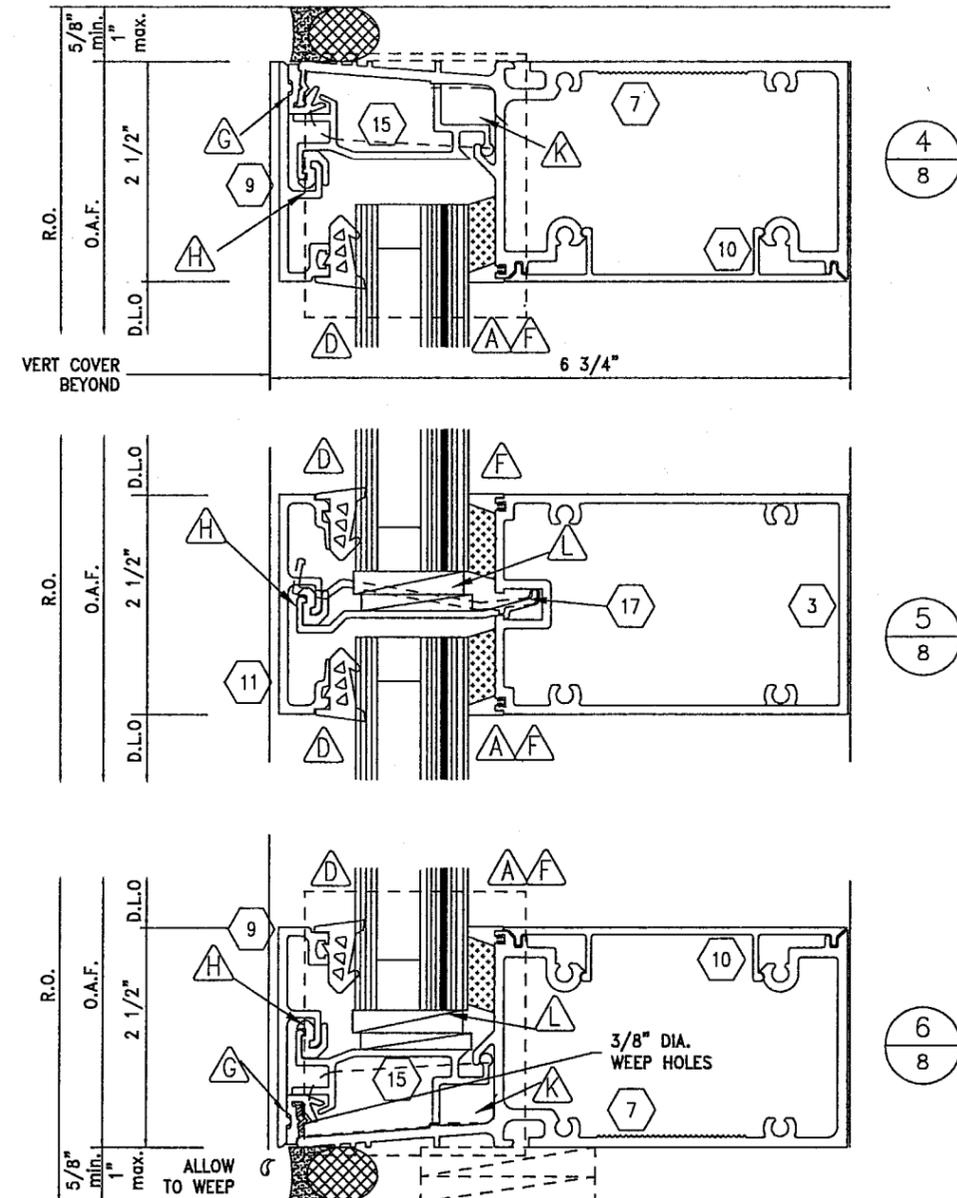
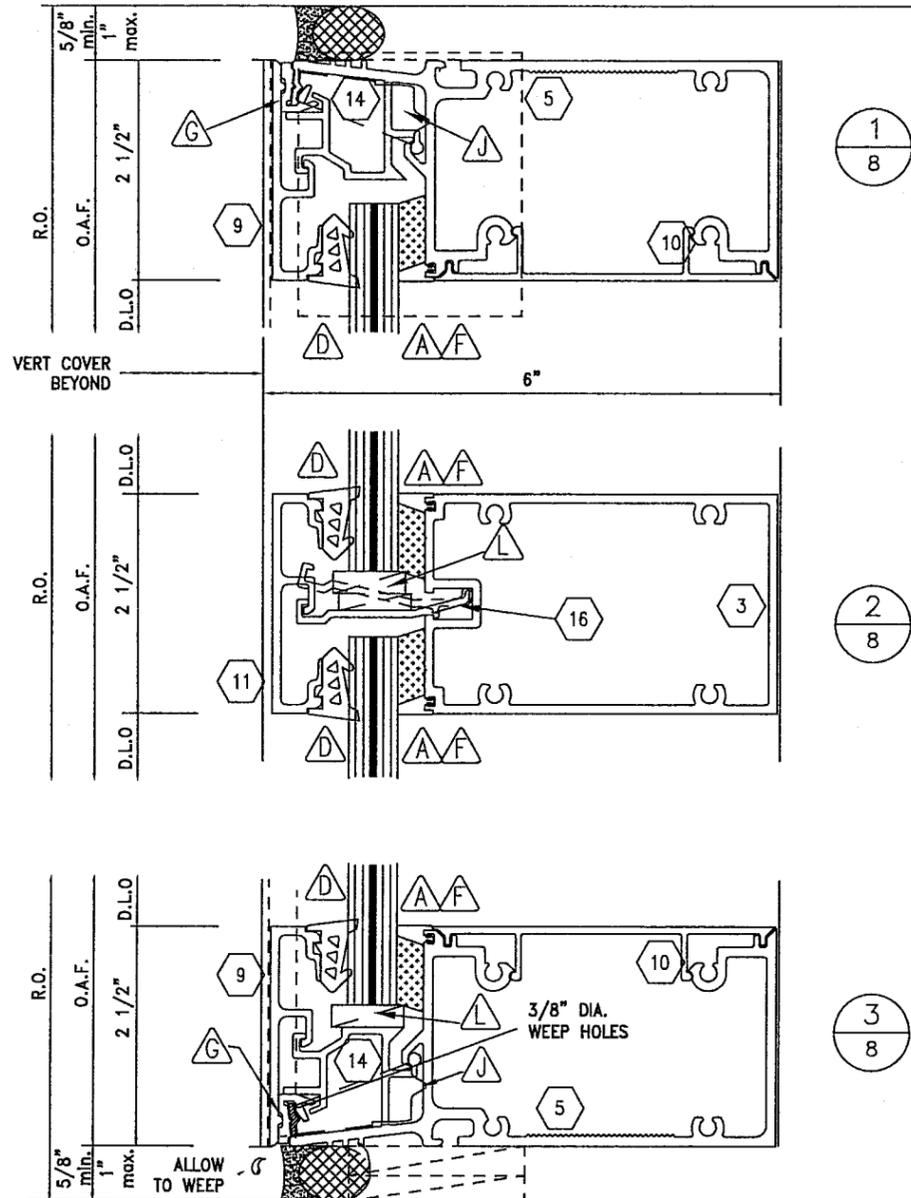
ENGINEER STAMP

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

Harmon

HI 5000 SMALL MISSILE MULLION APPLICATIONS ANCHOR REVIEW  
 DATE: 06/28/04 9/2/09  
 3/25/09 08/04/09  
 DWG. NO. HI5000SM  
 SHEET 07 OF 14

SEP 02 2009



**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.

**Larson Engineering, Inc.**  
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**DADE CO. STAMP**

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 08-1015-02  
 Inspection Code AUG-26-2014  
*Manuel Perez*  
 Product Control  
 Division

**ENGINEER STAMP**

*Ethan A. Charpentier*

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

**Harmon**

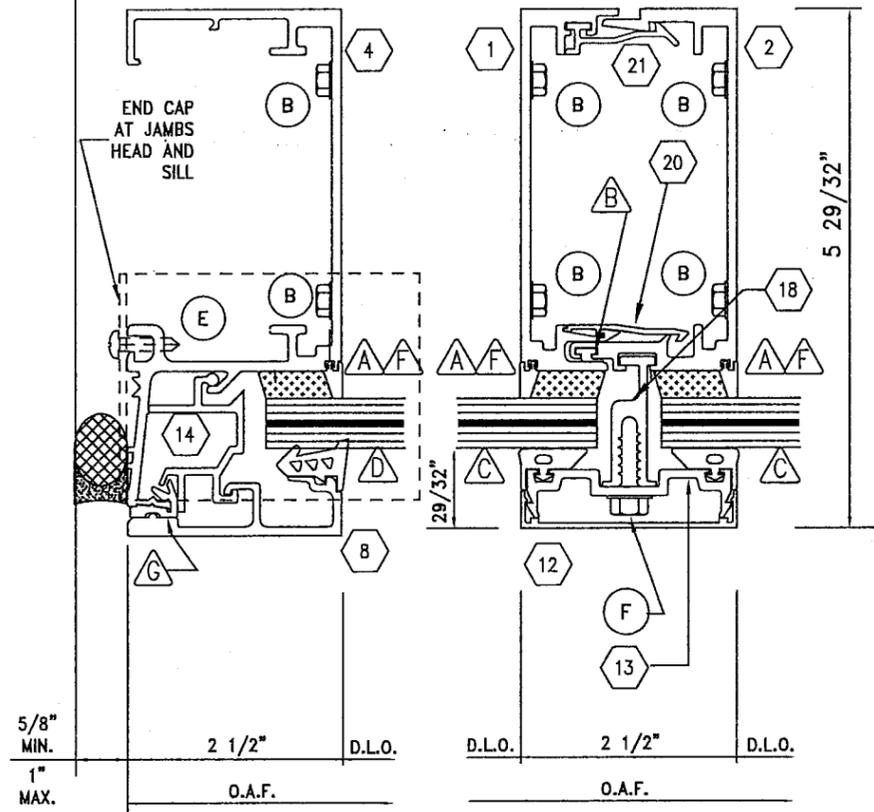
HI 5000 SMALL MISSILE  
 HORIZONTAL DETAILS

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

2 3/25/09 3

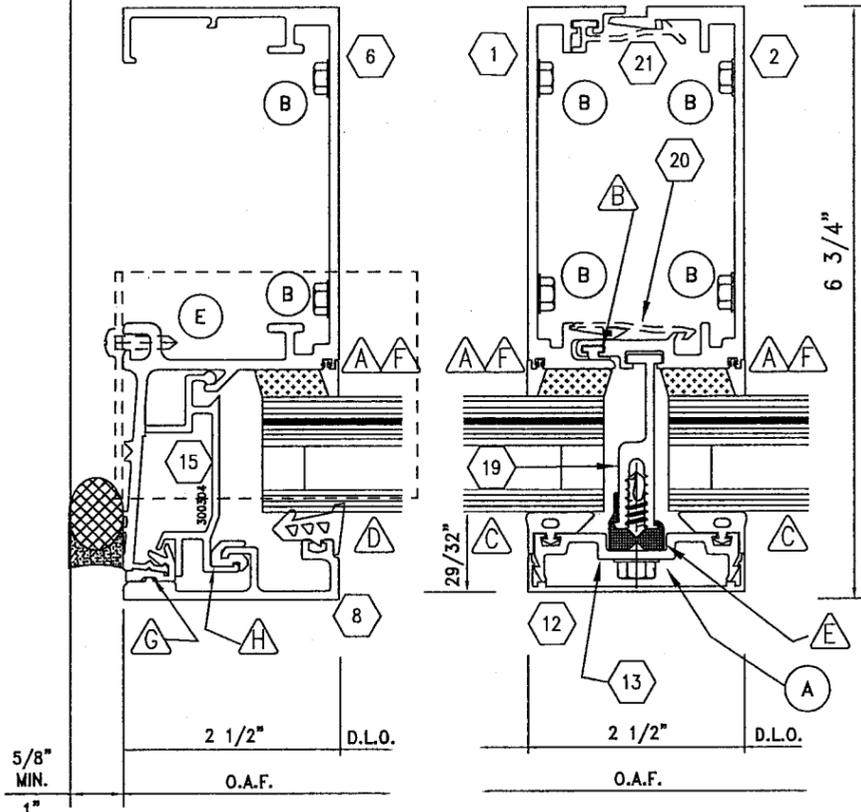
DWG. NO. HI5000SM

SHEET 08 OF 14



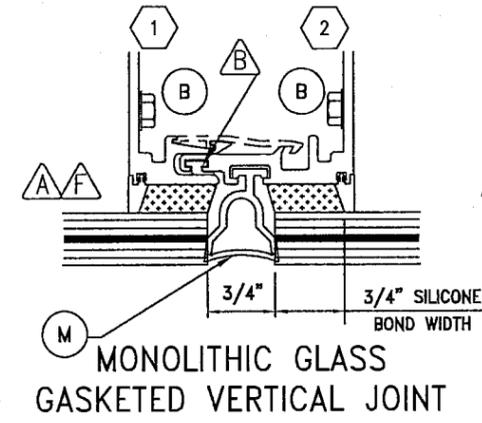
1  
9

2  
9

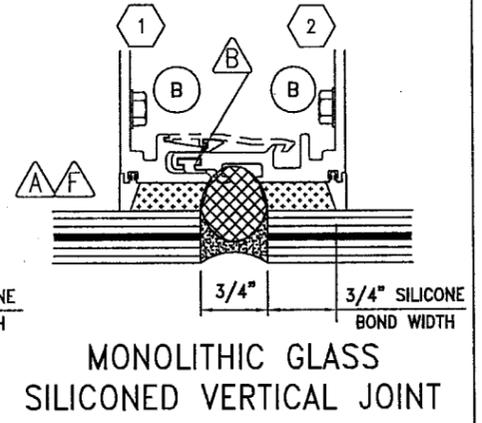


3  
9

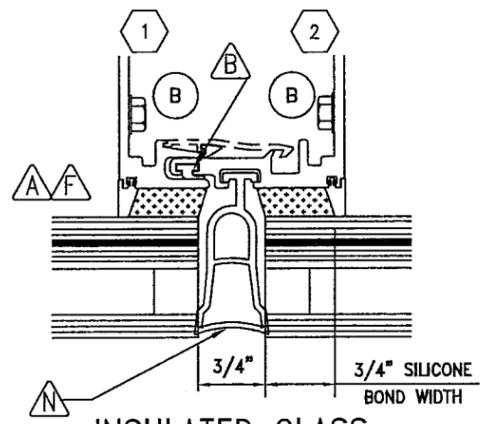
4  
9



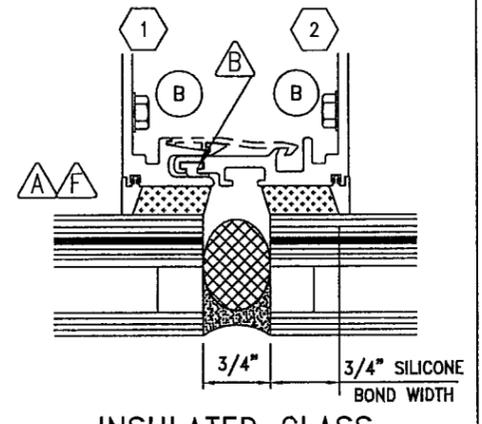
5  
9



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  
 Approved By: *08-10-15-07*  
 Date: *08-26-2014*  
*Maureen Lee*  
 Director of Product Development

**ENGINEER STAMP**

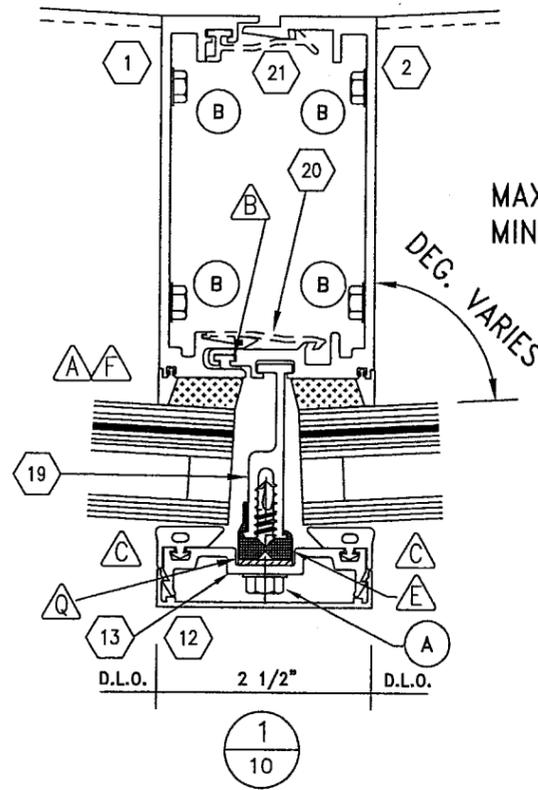
*Ethan A. Charpentier*

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

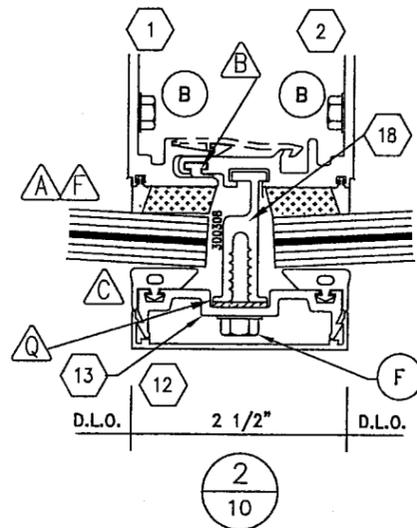
**Harmon**

HI 5000 SMALL MISSILE  
 VERTICAL DETAILS

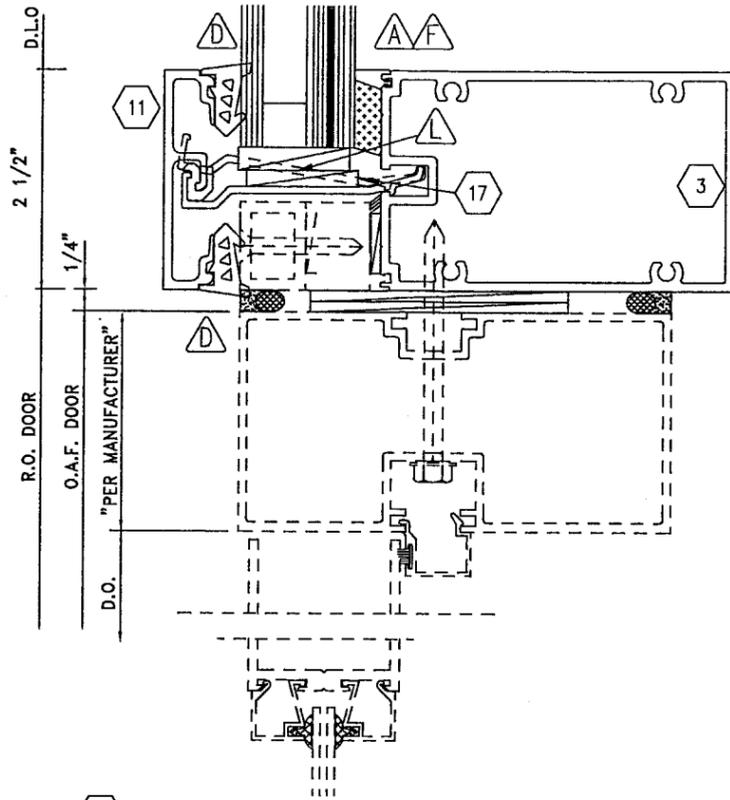
DATE: 06/28/04	4	9/2/09
2	3/25/09	3
DWG. NO. HI5000SM		
SHEET 09 OF 14		



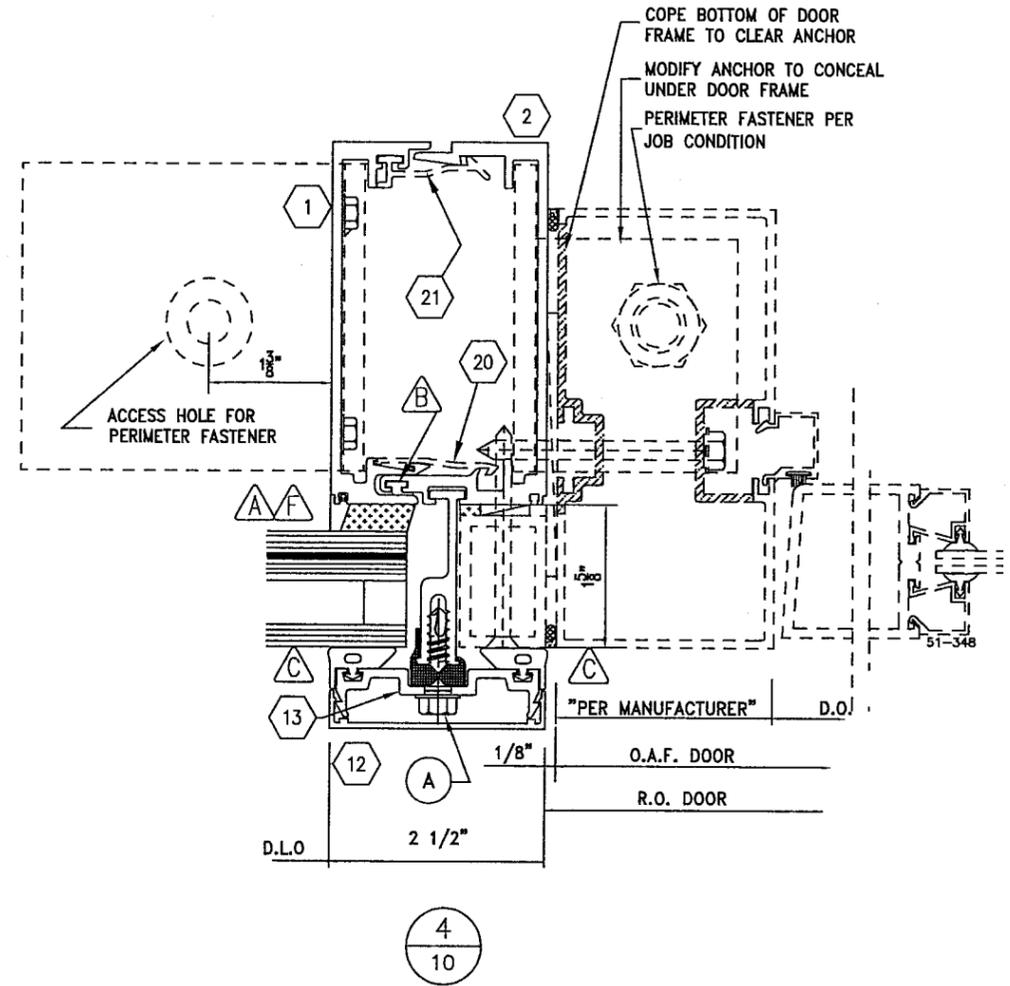
SEGMENTED MULLION  
INSULATED GLASS



SEGMENTED MULLION  
MONOLITHIC GLASS



3  
10



4  
10

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 REVIEWED  
as complying with the Florida  
Building Code  
Approved Date: 08-10-15-02  
Approved By: AUG 26, 2014  
*Maurice Perez*  
Product Control

ENGINEER STAMP

*Ethan A. Charpentier*

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

**Harmon**

HI 5000 SMALL MISSILE  
SEGMENTED MULLION &  
DOOR DETAILS

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

DWG. NO. HI5000SM

SHEET 10 OF 14

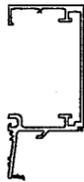
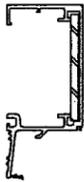
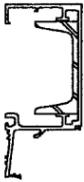
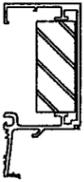
# JAMB SPAN TABLE

		REINFORCING OPTIONS			
		6	7	8	9
	"B"	Case 6 "L"/"R"	Case 7 "L"/"R"	Case 8 "L"/"R"	Case 9 "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 REINF. 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)

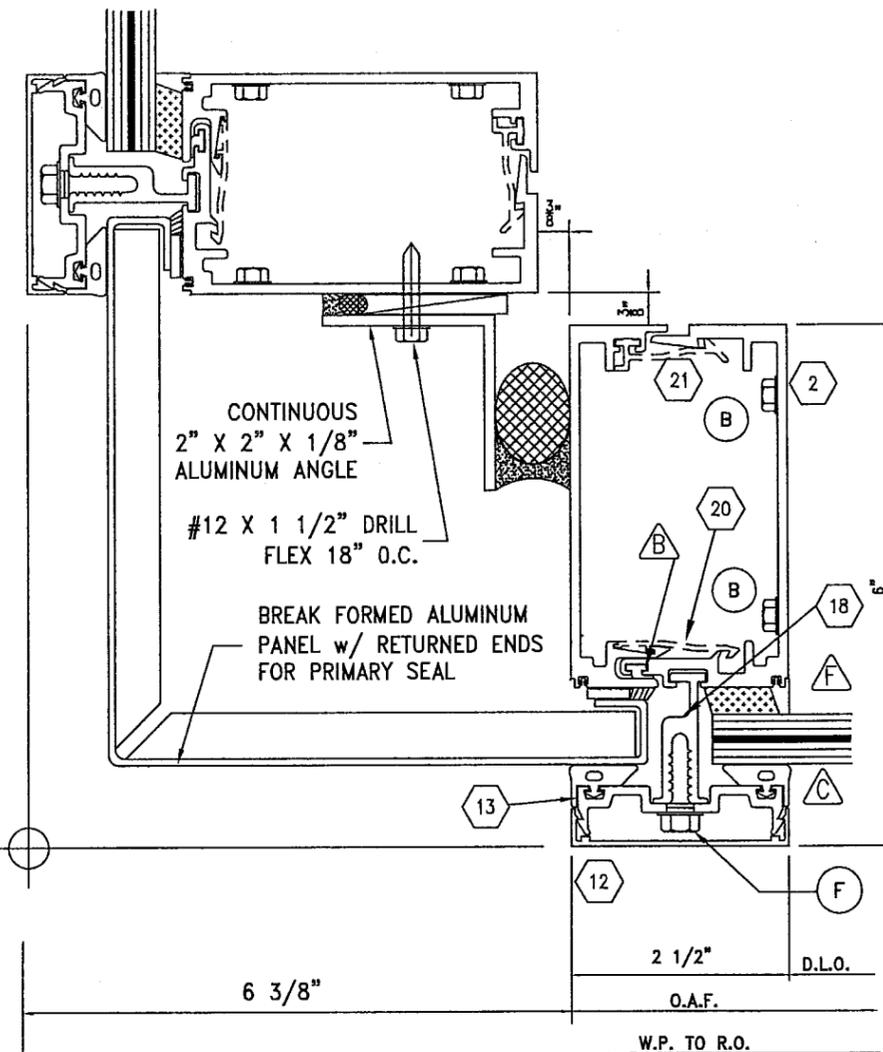
## REINFORCING OPTIONS

6	7	8	9
COMBINED Ix = 5.522 in <sup>4</sup>	COMBINED Ix = 8.142 in <sup>4</sup> 1/4" X 3 1/2"	COMBINED Ix = 10.337 in <sup>4</sup> C3x4.1	COMBINED Ix = 13.678 in <sup>4</sup> 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.**  
 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. 08-1015.02  
 Expiration Date 06/26/2014  
 By *Manuel Perez*  
 Florida State Product Control  
 Division

### ENGINEER STAMP

*Ethan A. Charpentier*

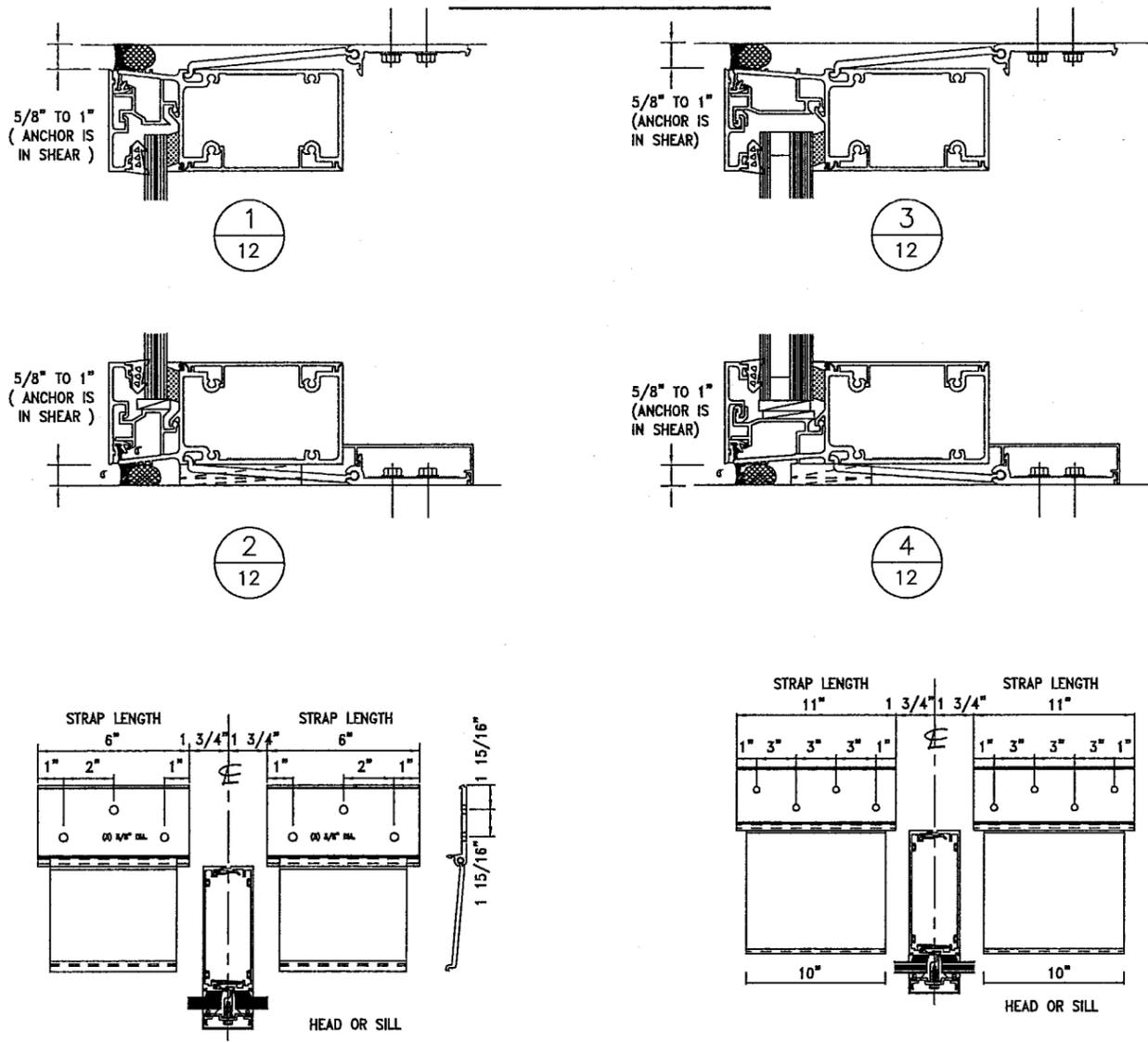
Florida Firm No. F-02000005175  
 Certificate of Authorization #9803  
 Ethan A. Charpentier  
 Registration No. 65106

### Harmon

HI 5000 SMALL MISSILE  
 90° OUTSIDE CORNER DETAIL

DATE: 06/28/04	1	11/14/08
2	3/25/09	3
DWG. NO. HI5000SM		
SHEET 11 OF 14		

## 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.

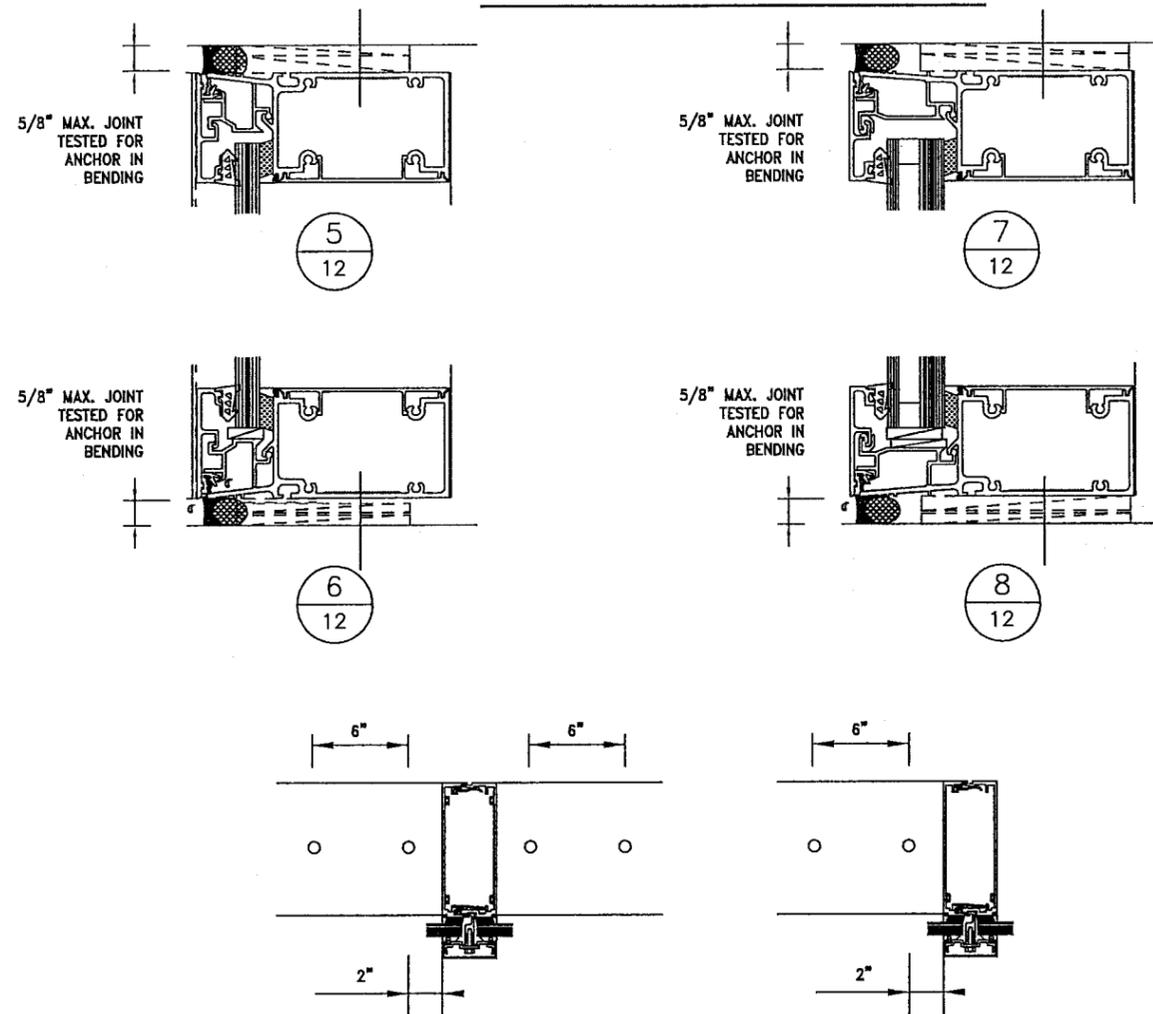
- (2) 5" STRAPS TESTED TO 1880# END REACTION
- (2) 11" STRAPS TESTED TO 2176# END REACTION
- STRAP ANCHORS MAY BE MADE LONGER TO ACCOMMODATE FASTENERS BASED ON JOB SPECIFIC PERIMETER CONDITIONS.
- FASTENER LENGTH VARIES WITH SHIM AND BLOCKING THICKNESS

### 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



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" DIA DRIL-FLEX	2	N/A	1"

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

### DADE CO. STAMP

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 08-1015.D2  
 Expiration Date 10/6-2014  
*Manuel Perez*  
 Licensed Professional Engineer

### ENGINEER STAMP

*Ethan A. Charpentier*

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

## Harmon

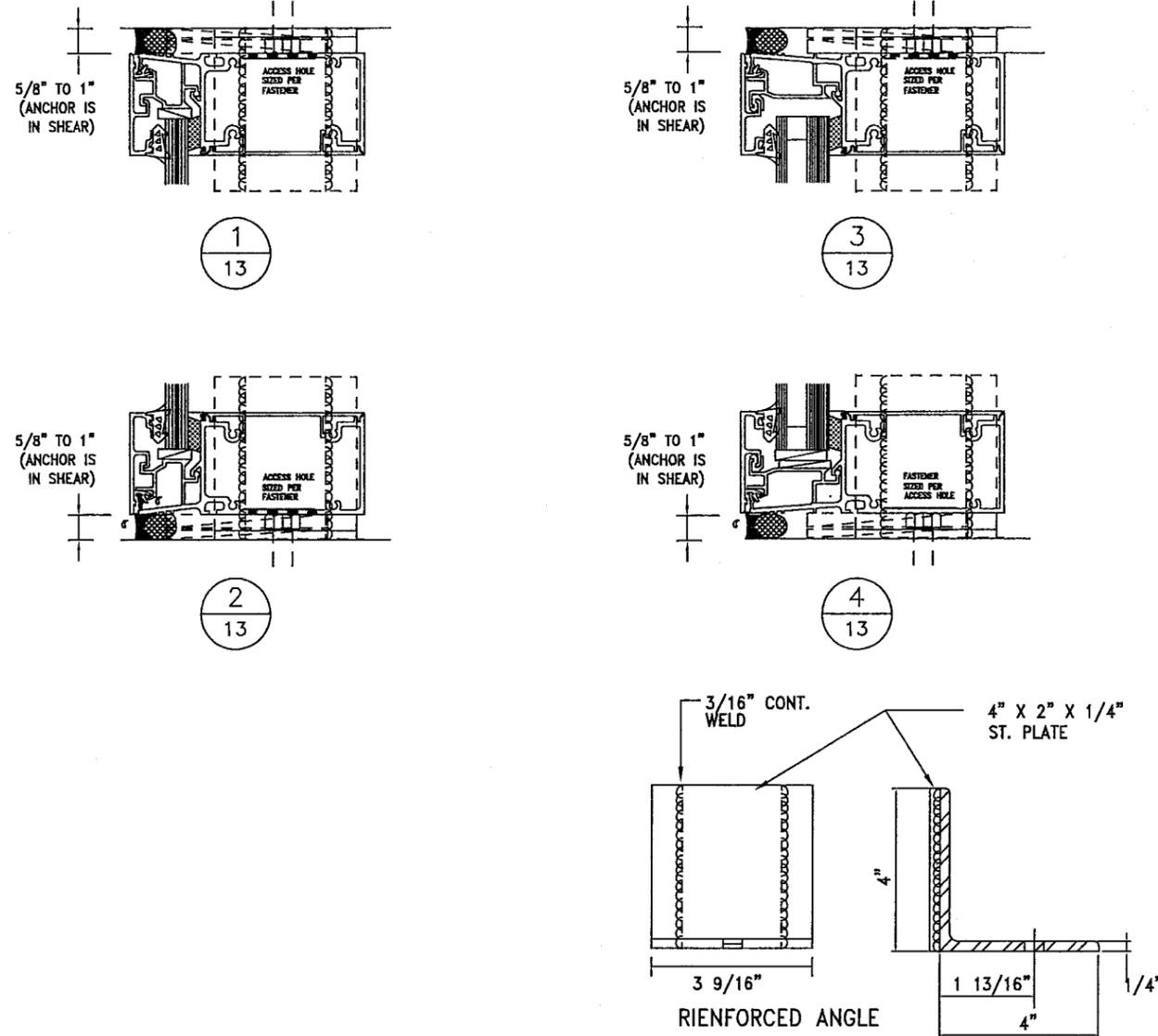
HI 5000 SMALL MISSILE  
 ANCHOR APPLICATIONS  
 STRAP & THRU-FRAME

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

DWG. NO. HI5000SM

SHEET 12 OF 14

## STEEL ANGLES IN VERTICALS

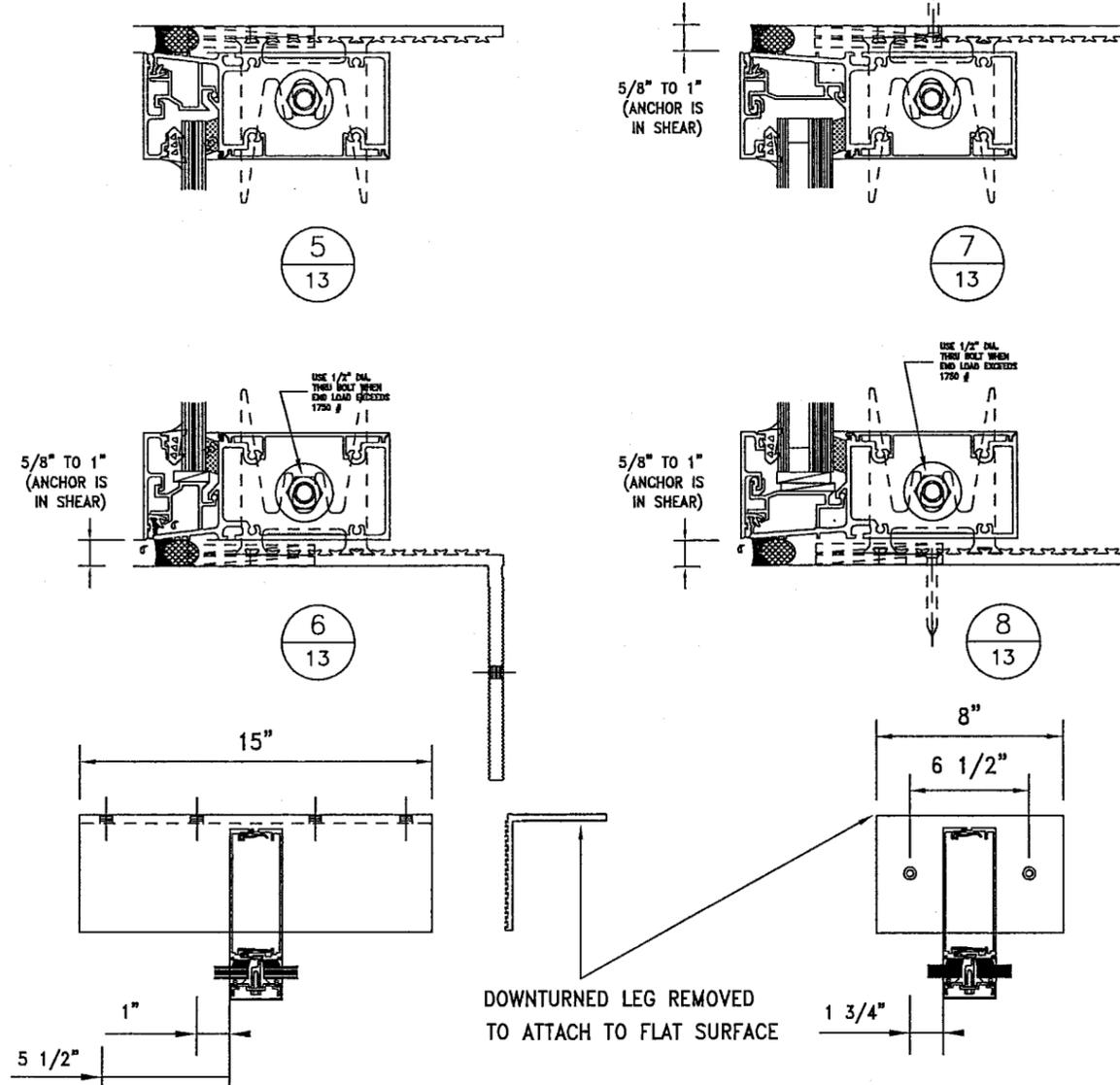


ANCHOR FASTENER REQUIREMENTS

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

## 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.**  
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 White Bear Lake, MN 55110  
 (P) 651.481.9120 (F) 651.481.9201

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".

DADE CO. STAMP

PRODUCT REVISED  
 as complying with the Florida  
 Building Code  
 Acceptance No. 08-1015-02  
 Expiration Date AUG. 22, 2014  
 By *Manuel Serraz*  
 District Area Product Control  
 Division

ENGINEER STAMP

*E. J. ...*

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

**Harmon**

HI 5000 SMALL MISSILE  
 ANCHOR APPLICATIONS  
 STRAP & THRU-FRAME

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

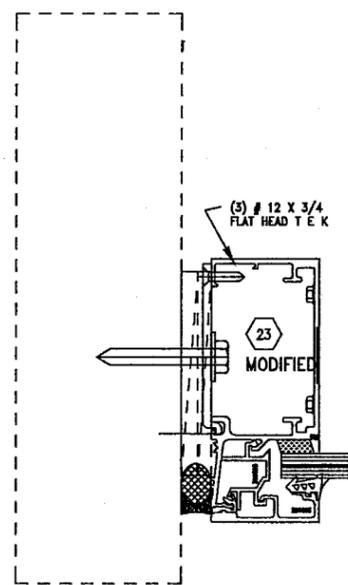
DWG. NO. HI5000SM

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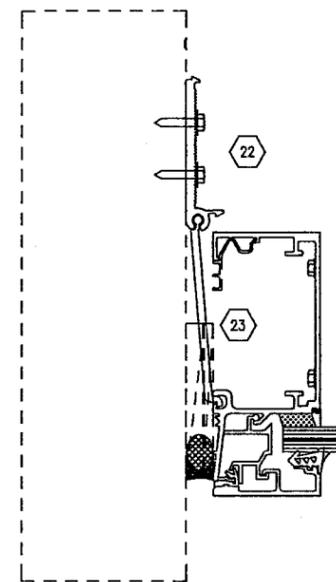
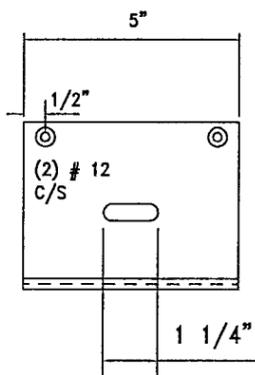
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# JAMB ANCHOR

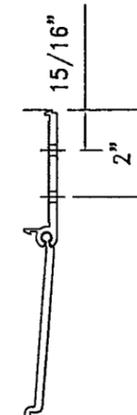
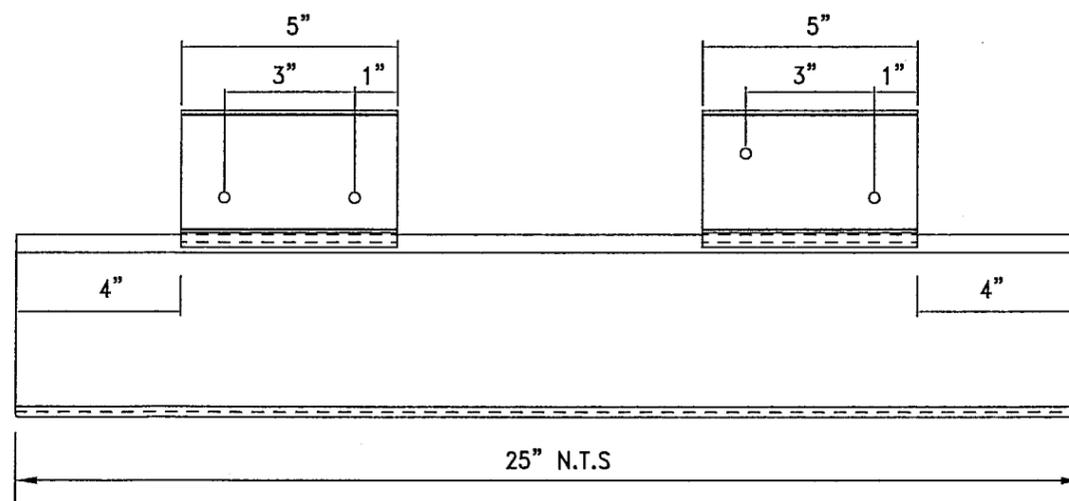


1  
14

MODIFIED STRAP  
END REMOVED TO FLUSH  
OUT w/ BACK OF JAMB



2  
14



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.

GENERAL NOTES:

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- ALL CONCRETE ANCHORS SHALL BE POWERS "WEDGE BOLTS".

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"

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DADE CO. STAMP

PRODUCT REVISED  
in complying with the Florida  
Building Code  
Amendment No. 08-1015-02  
Implementation Date: 08/26/2014  
*Manuel Perez*  
Product Control

ENGINEER STAMP

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

**Harmon**

HI 5000 SMALL MISSILE  
ANCHOR APPLICATIONS  
JAMBS

DATE: 06/28/04 4 9/2/09  
2 3/25/09 3 08/04/09  
DWG. NO. HI5000SM  
SHEET 14 OF 14

SEP 02 2009