



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599

www.miamidade.gov/building

Harmon, Inc.

**1933 West New Hampshire Street
Orlando, FL 32804**

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER-Product Control Section 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 Section (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. RER reserves the right to revoke this acceptance if it is determined by Miami-Dade County Product Control Section 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 7000" Pressure Plate Glazed, Aluminum Curtain Wall System – S.M.I.

APPROVAL DOCUMENT: Drawing No. **HI7000SM**, titled "Harmon HI 7000 Small Missile – Preglazed & Unitized Pressure Plate Glazing, Aluminum Curtainwall System", sheets 01 through 41 of 41, dated 06/28/04, with revision #8 dated 02/25/21, 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 Section.

MISSILE IMPACT RATING: Small Missile Impact Resistant

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo,

1965 Stanhome Way, Orlando, FL 32804, model/series, and the 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.

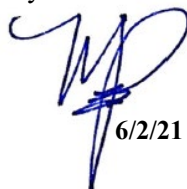
ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

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 NOA No. 19-0409.07** and consists of this page 1 and evidence pages E-1, E-2, E-3 and E-4, as well as approval document mentioned above.

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




6/2/21

NOA No. 21-0405.15
Expiration Date: September 02, 2024
Approval Date: June 10, 2021
Page 1

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

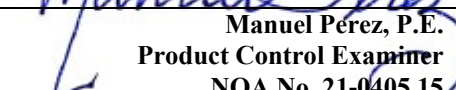
1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA's

A. DRAWINGS

1. Manufacturer's die drawings and sections.
(Submitted under NOA No. 04-0217.13)
2. Drawing No. **HI7000SM**, titled "Harmon HI 7000 Small Missile Preglazed & Unitized Pressure Plate Glazing, Aluminum Curtainwall System", sheets 01 through 41 of 41, dated 06/28/04, with revision #7 dated 03/05/19, prepared by manufacturer, signed and sealed by Ethan A. Charpentier, P.E.
(Submitted under NOA No. 19-0409.07)

B. TESTS

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
4) Large Missile Impact Test per FBC, TAS 201-94
5) Small 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 unitized window wall system, prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0509-06**, dated 08/15/08, signed and sealed by Vinu J. Abraham, P.E.
(Submitted under NOA No. 08-1015.04)
2. 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 (specimens 10, 11, 12 & 13), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0107-03**, various dates, signed and sealed by Vinu J. Abraham, P.E.
(Submitted under NOA No. 04-0217.13)
3. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
2) Small Missile Impact Test per FBC, TAS 201-94
3) Large Missile Impact Test per FBC, TAS 201-94
4) 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-0319-0511-03**, dated 5/06-08/03, signed and sealed by Vinu J. Abraham, P.E.
(Submitted under NOA No. 04-0217.13)


Manuel Pérez, P.E.
Product Control Examiner
NOA No. 21-0405.15
Expiration Date: September 02, 2024
Approval Date: June 10, 2021

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED


1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA's (CONTINUED)

B. TESTS (CONTINUED)

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) 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 1), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0711-03**, dated 07/7-16/03, signed and sealed by Vinu J. Abraham, P.E. **(Submitted under NOA No. 04-0217.13)**
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 W1), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-0627-03**, dated 06/23/03, signed and sealed by Vinu J. Abraham, P.E. **(Submitted under NOA No. 04-0217.13)**
6. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
2) Small 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 (specs. 2, 3 & 4), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1122-02**, dated 11/15-18/02, signed and sealed by Vinu J. Abraham, P.E. **(Submitted under NOA No. 04-0217.13)**
7. 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 (specs. 1 & 2), prepared by Hurricane Test Laboratory, Inc., Test Report No. **HTL-0319-1125-03**, dated 11/24-26/03, signed and sealed by Vinu J. Abraham, P.E. **(Submitted under NOA No. 04-0217.13)**

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with **FBC 5th Edition (2014)**, prepared by Larson Engineering, Inc., dated 07/22/08, 09/18/08 and, revised and updated on 07/18/16, signed and sealed by Ethan A. Charpentier, P.E. **(Submitted partly under NOA No. 08-1015.04)**
2. Glazing complies with **ASTM E1300-04**


Manuel Perez, P.E.
Product Control Examiner
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Harmon, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS NOA's (CONTINUED)

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER).

E. MATERIAL CERTIFICATIONS

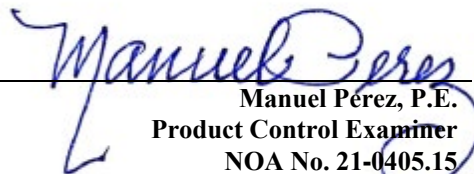
1. Notice of Acceptance No. **14-0423.16** issued to **Eastman Chemical Company (MA)** for their "**Saflex HP Clear or Color Glass Interlayers**" dated 06/19/14, expiring on 04/14/18.

F. STATEMENTS

1. Statement letter of conformance, complying with **FBC 5th Edition (2014)**, dated July 15, 2016, signed and sealed by Ethan A. Charpentier, P.E.
(Submitted under NOA No. 16-0726.07)
2. Statement letter of no financial interest, dated July 18, 2016, signed and sealed by Ethan A. Charpentier, P.E.
(Submitted under NOA No. 16-0726.07)
3. Laboratory compliance letter for Test Report No. **HTL-0319-0509-06**, issued by Hurricane Test Laboratory, Inc., dated 08/09/06, signed and sealed by Vinu J. Abraham, P.E.
(Submitted under NOA No. 08-1015.04)

G. OTHER

1. Notice of Acceptance No. **14-0624.20**, issued to Harmon, Inc. for their Series "HI 7000" Pressure Plate Glazed, Aluminum Curtain Wall System – S.M.I., approved on 10/23/14 and expiring on 09/02/19.


Manuel Pérez, P.E.
Product Control Examiner
NOA No. 21-0405.15
Expiration Date: September 02, 2024
Approval Date: June 10, 2021

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

2. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. Drawing No. **HI7000SM**, titled “Harmon HI 7000 Small Missile Preglazed & Unitized Pressure Plate Glazing, Aluminum Curtainwall System”, sheets 01 through 41 of 41, dated 06/28/04, with revision #8 dated 02/25/20, prepared by manufacturer, signed and sealed by Ethan A. Charpentier, P.E.

B. TESTS

1. None.

C. CALCULATIONS

1. None.

D. QUALITY ASSURANCE

1. Miami-Dade Department of Regulatory and Economic Resources (RER)

E. MATERIAL CERTIFICATIONS


1. Notice of Acceptance No. **20-0622.02** issued to **Eastman Chemical Company (MA)** for their “**Saflex HP Clear or Color Glass Interlayers**” dated 08/06/20, expiring on 04/14/23.

F. STATEMENTS

1. Statement letter of conformance, complying with **FBC 7th Edition (2020)**, dated March 23, 2021, signed and sealed by Ethan A. Charpentier, P.E.
2. Statement letter of no financial interest, dated March 23, 2021, signed and sealed by Ethan A. Charpentier, P.E.

G. OTHERS

1. Notice of Acceptance No. **19-0409.07**, issued to Harmon, Inc. for their Series “HI 7000” Pressure Plate Glazed, Aluminum Curtain Wall System – S.M.I., approved on 06/06/19 and expiring on 09/02/24.


Manuel Pérez, P.E.
Product Control Examiner
NOA No. 21-0405.15
Expiration Date: September 02, 2024
Approval Date: June 10, 2021

HARMON HI 7000 SMALL MISSILE PREGLAZED & UNITIZED PRESSURE PLATE GLAZING, ALUMINUM CURTAINWALL SYSTEM

THIS NOA INCLUDES WINDOW WALL, STOREFRONT & PUNCH OPENING SINGLE LITE APPLICATIONS AS WELL AS OPTION 2-SIDED STRUCTURAL SILICONE GLAZING DESIGN

DESIGN PARAMETERS

THIS PRODUCT HAS BEEN DESIGNED & TESTED IN ACCORDANCE WITH THE CURRENT FLORIDA 2020 BUILDING CODE 7th EDITION REQUIREMENTS INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ)

TAS-201 - LARGE & SMALL MISSILE IMPACT

TAS-202 - AIR LEAKAGE, WATER PENETRATION & STRUCTURAL PERFORMANCE
(WATER @ 20 psf, STRUCTURAL @ +110/-130 psf & +79.2/-148.9 psf)

TAS-203 - CYCLING

ASTM STANDARDS (MIAMI)

E283 - AIR LEAKAGE

E330 - STRUCTURAL PERFORMANCE

E331 - WATER PENETRATION

E1886 LEVEL "D" - IMPACT BY "MISSILE" & CYCLIC PRESSURES

E1996 - IMPACT BY WINDBORNE DEBRIS

AAMA - TIR - A9-14

SYSTEM DIMENSIONS

2 1/2" X 8" (MONOLITHIC GLASS)

2 1/2" X 8 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 7.

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

SYSTEM SELECTION

CURTAINWALL

TWIN SPAN - SHEET 5

STACK C.W. - SHEET 6 & 24

CORNERS - SHEET 24

WINDOW WALL / STOREFRONT / PUNCH OPENING

SINGLE SPAN - SHEET 4

CORNERS - SHEET 24

2-SIDED SILICONE OPTIONS SEE PAGE 15

INDEX OF DRAWINGS

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4	ELEVATION - SINGLE SPAN WINDOW WALL / STOREFRONT
5	ELEVATION - TWIN SPAN CURTAINWALL
6	ELEVATION - TWIN SPAN w/ STACK HORIZONTAL CURTAINWALL
7	GLASS SCHEDULE - SMALL MISSILE
8	PART DRAWINGS
9	PART DRAWINGS
10	MULLION APPLICATION CHARTS SINGLE SPAN WINDOW WALL/STOREFRONT
11	MULLION APPLICATION CHARTS TWIN SPAN CURTAINWALL
12	MULLION APPLICATION CHARTS TWIN SPAN WITH STACK RAIL CURTAINWALL
13	ANCHOR APPLICATIONS
14	DETAILS OF TYPICAL HEADS, SILLS, & INTERMEDIATE HORIZONTALS
15	DETAILS OF TYPICAL VERTICALS
16	DETAIL OF DOOR, HEAD & JAMB AND SEGMENTED VERTICAL
17	DETAIL OF 90 DEGREE OUTSIDE CORNER (BOX)
18	DETAIL OF 5" STACK HORIZONTAL W/ SPLICE SLEEVE
19	STRAP ANCHOR & THRU-FRAME ANCHOR
20	ANGLES IN VERTICAL ANCHOR & ALUMINUM LUG IN VERTICAL ANCHOR
21	MID-SPAN ANCHOR & STACK WALL ANCHOR
22	JAMB ANCHORS / STACK WALL ANCHOR - EXPLODED ISOMETRIC VIEW
23	JAMB WINDLOAD CHARTS
24	ELEVATION - TWIN SPAN W/ STACK HORIZ. & 90° CORNER MULL.
25	HORIZONTAL DETAILS WITH MONOLITHIC ADAPTORS AND INS. SILL
26	HORIZONTAL DETAILS WITH BACK PANS
27	3 3/8" STACK HORIZONTAL DETAIL WITH SECTION CUT
28	3 3/8" STACK HORIZONTAL DETAIL WITH SECTION CUT
29	3 3/8" STACK HORIZ. DETAIL WITH SECTION CUT AT BACK PAN DETAILS
30	VERTICAL DETAILS BACK PAN AND MONOLITHIC ADAPTORS
31	VERTICAL DETAILS BACK PAN
32	90° CORNER MULLION DETAILS (DART)
33	VERTICAL JAMB DETAILS
34	DEADLOAD ANCHOR DETAIL WITH SECTION CUT
35	WINDLOAD ANCHOR DETAIL WITH SECTION CUT
36	OUTSIDE 90° CORNER DEADLOAD ANCHOR DETAIL
37	OUTSIDE 90° CORNER WINDLOAD ANCHOR DETAIL
38	OUTSIDE 90° CORNER @ SILL DETAIL
39	OUTSIDE 90° CORNER @ STACK DETAIL WITH SECTION CUT
40	VERTICAL JAMB AT SILL ANCHOR DETAIL
41	VERTICAL SILL ANCHOR AT MULLION, STIFFENER & REINFORCEMENT



Larson Engineering, Inc.

3524 Labors Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201

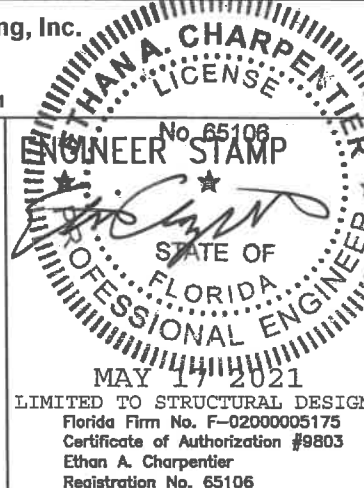
DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code

NOA-No. **21-0405.15**

Expiration Date: **09/02/2024**

By: *Manuel Perez*
Miami-Dade Product Control



Harmon

HI 7000 SMALL MISSILE

COVER SHEET

DATE: 06/28/04	6/17/16
1 11/18/08	3 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 01 OF 41

FRAME ASSEMBLY FASTENER LIST			
A	PRESSURE PLATE BOLT FOR INSULATED GLASS SYSTEM	#14 X 1" HWH S.S. "A" POINT XLYAN COATED	2 1/2" FROM END AND 9" ON CENTER
B	TYPICAL HORIZONTAL FRAME ASSEMBLY SCREW	#12 X 1 1/2" HWH "A" POINT GRADE 5 XLYAN COATED	(4) REQUIRED PER JOINT
C	NON-TYPICAL HORIZONTAL ASSEMBLY SCREW TO BYPASS STEEL	#12 X 1 1/2" PFH "A" POINT GRADE 5 XLYAN COATED	(4) REQUIRED PER JOINT
D	ANCHOR STEEL FIXING PLATE INTO HORIZONTAL	#17-14 X 1" TYPE A8 304 STAINLESS	(1) REQUIRED PER PLATE
E	TEMPORARY ANCHOR FOR CORNER END CAPS	#10 X 1 1/4" TEK SCREW	(1) REQUIRED PER END CAP
F	PRESSURE PLATE BOLT FOR MONOLITHIC GLASS SYSTEM	#14 X 3/4" HWH S.S. "A" POINT XLYAN COATED	2 1/2" FROM END AND 9" ON CENTER
G	ALLEN HEAD SCREW FOR ANCHOR USED w/ STACK HORIZONTAL	1/4-20 ALLEN HEAD BOLT GRADE 5	LOCATED AT TOP & BOTTOM OF ANCHOR
H	GLASS ADAPTOR FOR MONOLITHIC GLASS SYSTEM	#12 X 1 1/4" PFH DRIL-FLEX	9" ON CENTER
J	ANCHOR FOR SILL	1/2" X 3 1/2" HWH GRADE 5 BOLT WITH WASHER AND NUT	(1) REQUIRED PER MULLION
K	ANCHOR FOR ANCHOR STRAP	3/8" X 3 3/4" PFH POWER BOLT WITH 3 1/2" MIN. EMBEDMENT	(2) REQUIRED PER MULLION
L	POCKET FILLER FOR STEEL BACK PAN	#12 X 2 1/2" PFH DRIL-FLEX	9" ON CENTER
M	STEEL REINFORCEMENT TO MULLION	3/8"-16 X 1" HWH GRADE 5 BOLT XLYAN COATED	(2) REQUIRED PER MULLION
N	STEEL CHANNEL STIFFENER ATTACHED TO STEEL BACK PAN	#12 X 1 1/2" HWH SELF TAPPING XLYAN COATED	9" ON CENTER
P	STEEL REINFORCING INTO CORNET MULLION	3/8"-16 RIVIT NUT	(2) REQUIRED PER MULLION
Q	STEEL ANGLE ATTACHED TO FRAME AND TO STEEL BACK PAN	1/4" STEEL POP RIVET	9" ON CENTER
R	STEEL BACK PAN INTO STEEL ANGLE	#12 X 3/4" HWH SELF TAPPING	9" ON CENTER
S	ANCHOR FOR STEEL ANGLES	3/8" X 3 3/4" HWH POWER BOLT WITH 3 1/2" MIN. EMBEDMENT	(2) REQUIRED PER CLIP
T	FOR INTERMEDIATE ANCHOR TO MULLION	3/8" X 1 1/4" HWH GRADE 5 BOLT WITH WASHER AND NUT	(4) REQUIRED PER CLIP
U	JACK BOLT FOR HOOK ANCHOR	3/8" X 2 1/2" HWH GRADE 5 BOLT WITH NUT	(1) REQUIRED PER CLIP

X		PART # 780306	70 DUR. SILICONE	END PLUG BOTTOM OF CORNER MULL. AT STACK
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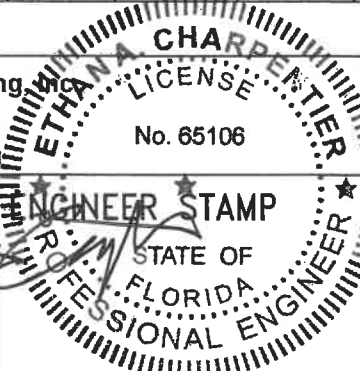
GASKET CHART				
A		PART # 770301	85 DUR. SILICONE	INTERIOR FIXED GASKET FOR 5/8" & 1 3/8" THICK GLASS (1/4" THICK SEAL)
B		PART # 750301	70 DUR. SILICONE	VERTICAL WHISKER GASKET
C		PART # 720301	70 DUR. EPDM	EXTERIOR SLIDE IN VERTICAL PRESSURE PLATE
D		PART # 730301	70 DUR. EPDM	EXTERIOR WEDGE
E		PART # 790301	70 DUR. EPDM	THERMAL BREAK FOR PRESSURE PLATE
F		PART # 770302	85 DUR. SILICONE	INTERIOR, FIXED GASKET FOR 9/16" & 1 5/16" THICK GLASS (5/16" THICK SEAL)
G		PART # 790303	90 DUR. EPDM	ALL PERIMETERS
H		PART # 790302	90 DUR. EPDM	PERIMETER THERMAL BREAK
J		PART # 780301	70 DUR. SILICONE	ZONE DAM FOR MONOLITHIC GLASS 2 1/2" LONG
K		PART # 780302	70 DUR. SILICONE	ZONE DAM FOR INSULATED GLASS 2 1/2" LONG
L		PART # 700303	90 DUR. SILICONE	5" LONG SETTING BLOCK. (TEAR IN HALF FOR MONOLITHIC GLASS)
M		PART # 740301	70 DUR. EPDM	AT BUTT JOINT FOR MONOLITHIC GLASS
N		PART # 740302	70 DUR. EPDM	AT BUTT JOINT FOR INSULATED GLASS
O				STICKY SIDE 1/4" X 3/8"
P				STICKY SIDE 3/8" X 3/8"
Q				.060 X 3/8"
R		PART # 780307	70 DUR. SILICONE	ZONE DAM FOR INSULATED GLASS 4 3/4" LONG
S		PART # 78030X	70 DUR. SILICONE	ZONE DAM FOR INSULATED GLASS 4 3/4" LONG
T		PART # 740601	60 DUR. EPDM	AT STACK HORIZONTAL EXTERIOR BULB GASKET
U		PART # 780303	70 DUR. SILICONE	END PLUG BOTTOM OF FEMALE MULL. AT STACK 2 1/2" LONG
V		PART # 780304	70 DUR. SILICONE	END PLUG BOTTOM OF MALE MULL. AT STACK 2 1/2" LONG
W		PART # 780305	70 DUR. SILICONE	END PLUG BOTTOM OF JAMB MULL. AT STACK 2 1/2" LONG

ALUMINUM MATERIAL LIST					
	DESCRIPTION	PART #	ALLOY	TYP. THK.	REMARKS
1	FEMALE VERTICAL MULLION	306001	6063-T6	.110	
2	MALE VERTICAL MULLION	306002	6063-T6	.110	
3	INTERMEDIATE HORIZONTAL	306101	6063-T5	.100	
4	JAMB - MONOLITHIC GLASS	306004	6063-T6	.110	
5	HEAD & SILL - MONOLITHIC GLASS	306103	6063-T5	.110	
6	JAMB - INSULATED GLASS	306003	6063-T6	.110	
7	HEAD & SILL - INSULATED GLASS	306102	6063-T5	.110	
8	JAMB COVER	300203	6063-T5	.100	
9	HEAD & SILL EXTERIOR COVER	300202	6063-T5	.100	
10	HEAD & SILL INTERIOR FILLER	306401	6063-T5	.080	
11	HORIZONTAL COVER	300201	6063-T5	.100	
12	VERTICAL COVER	300236	6063-T5	.060	
13	VERTICAL PRESSURE PLATE	300701	6105-T5	.100	
14	PERIMETER ADAPTOR - MONOLITHIC GLASS	300305	6105-T5	.080	
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	930102	6105-T5	.177	SEE DET. 1-4 SHT. 19
23	STRAP ANCHOR MALE	930106	6105-T5	.187	SEE DET. 1-4 SHT. 19
24	SLIDING ANCHOR FEMALE	930105	6105-T5	.250	SEE DET. 5-8 SHT. 20
25	SLIDING ANCHOR MALE	930104	6105-T5	.435	SEE DET. 5-8 SHT. 20
26	"STACK" SPLICE PLATE	930107	6005-T5	.187	SEE DET. 1 SHT. 18
27	SERRATED PLATE	930110	6005-T5	.191	SEE DET. 3 & 4 SHT. 21
28	"KNUCKLE" ANCHOR	930109	6005-T5	.250	SEE DET. 3 & 4 SHT. 21
29	HOOK ANCHOR	930108	6005-T5	.250	SEE DET. 3 & 4 SHT. 21
30	FLOOR EDGE PLATE	930111	6005-T5	.685	SEE DET. 3 & 4 SHT. 21
31	ANTI-WALK ANGLE	.	6105-T5	.125	SEE DET. 3 & 4 SHT. 21
32	MONOLITHIC ADAPTOR	300312	6063-T5	.060	SEE DET. 1,2&4 SHT. 25
33	VERTICAL COVER	300216	6063-T5	.060	SEE DET. 12&13 SHT. 30
34	90° CORNER COVER	300218	6063-T5	.055	SEE DET. 16&17 SHT. 32
35	90° CORNER PRESSURE PLATE	300702	6063-T6	.100	SEE DET. 16&17 SHT. 32
36	90° CORNER FEMALE MULLION	306005	6063-T6	.125	SEE DET. 16&17 SHT. 32
37	90° CORNER MALE MULLION	306006	6063-T6	.125	SEE DET. 16&17 SHT. 32
38	STACK HORIZONTAL SILL	306181	6063-T6	.125	SEE DET. 8 SHT. 27
39	STACK HORIZONTAL HEAD	306191	6063-T6	.110	SEE DET. 8 SHT. 27
40	STACK COVER	300217	6063-T5	.100	SEE DET. 8 SHT. 27
41	STACK SPLICE SLEEVE	306801	6063-T6	.125	SEE DET. 8 SHT. 27
42	MULLION SPLICE SLEEVE	306802	6063-T6	.100	SEE DET. 8 SHT. 27
43	POCKET FILLER	300313	6063-T5	.060	SEE DET. 5-7 SHT. 26
44	OPTIONAL CORNER COVER	300321	6063-T5	.100	SEE DET. 22A SHT. 36

Larson Engineering
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
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control



MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

HI 7000 SMALL MISSILE
MATERIAL LISTS

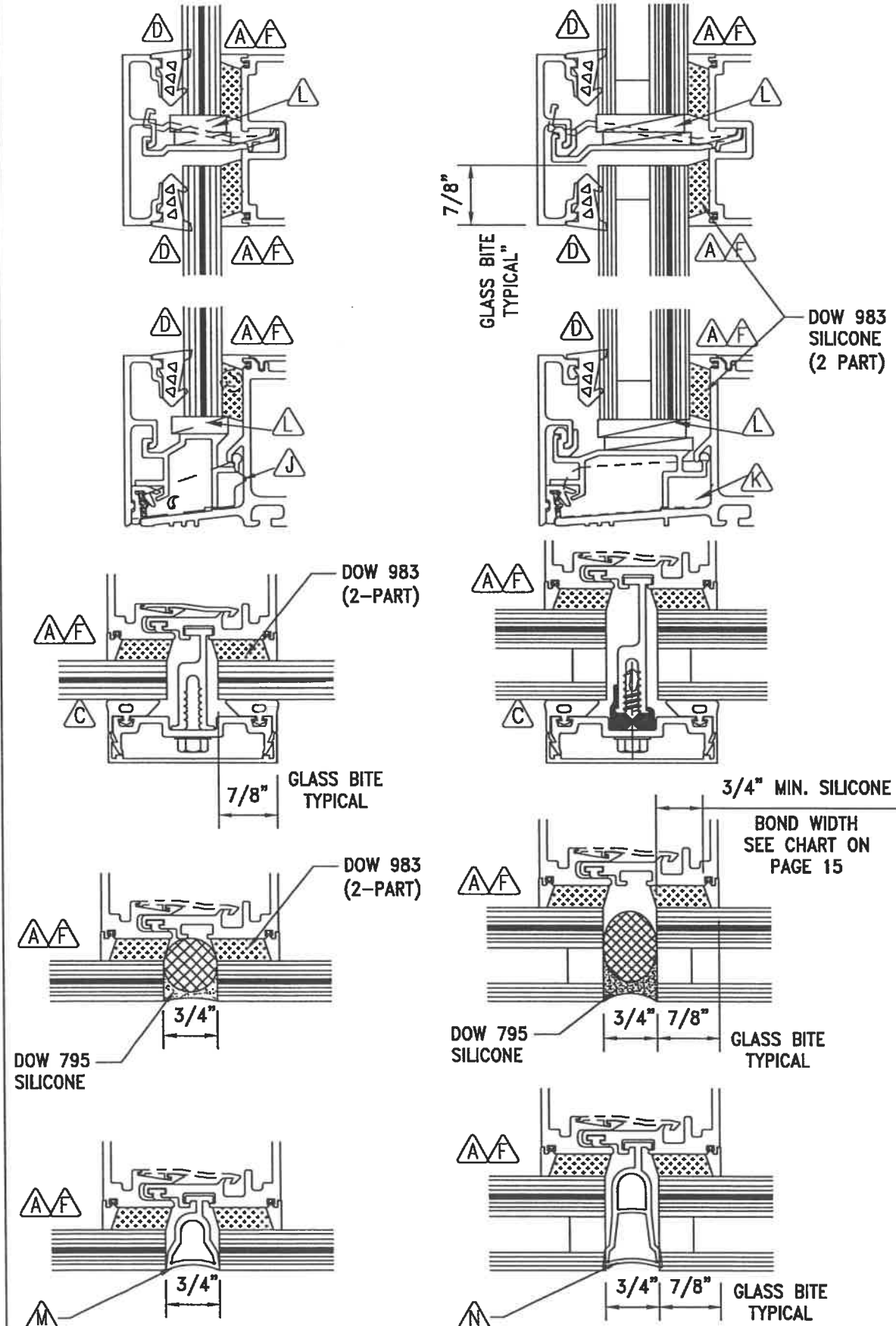
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1 11/18/08	3 03/05/19
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4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

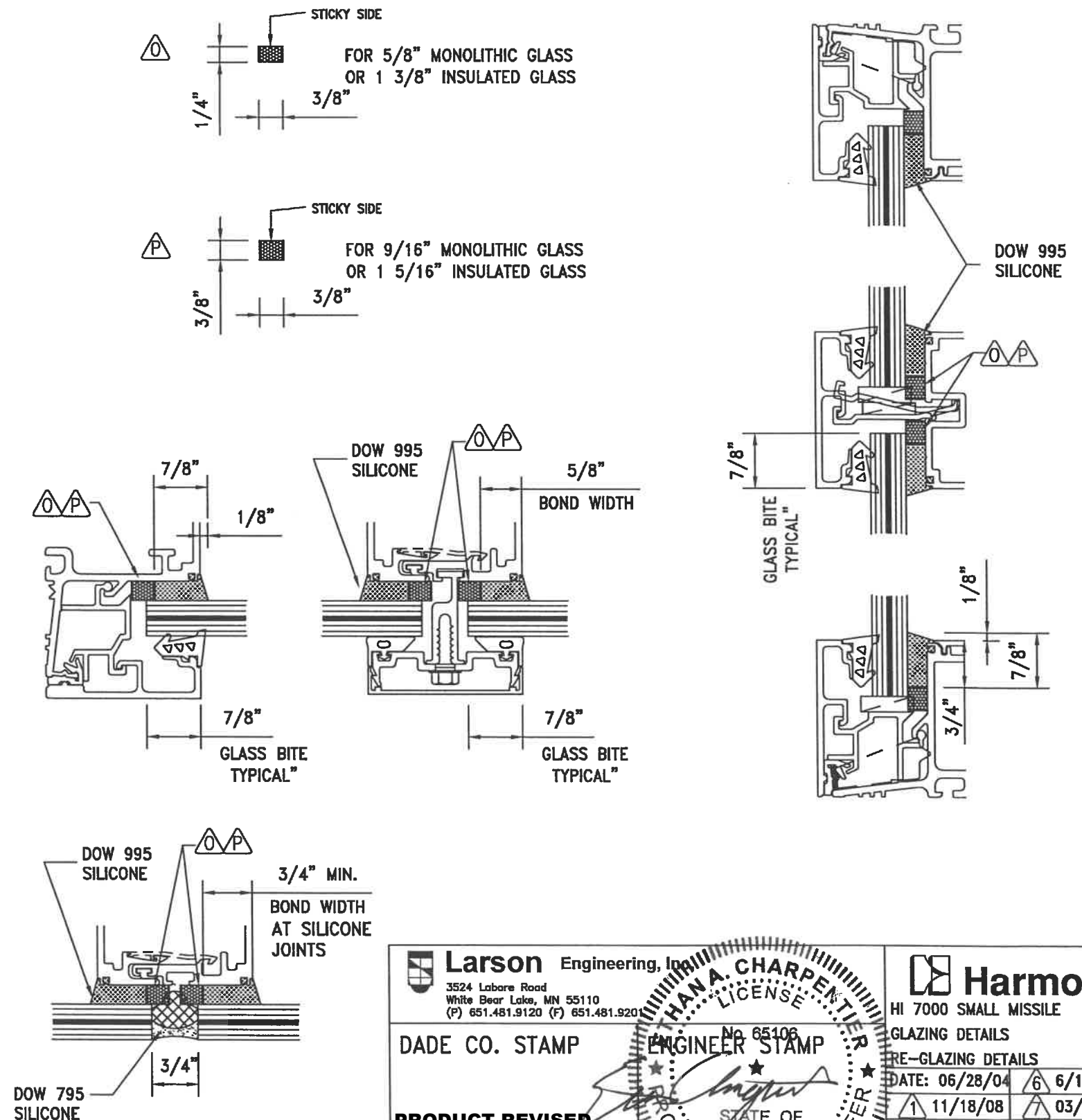
GLAZING DETAILS

LAMINATED GLASS DETAILS

INSULATED LAMINATED GLASS DETAILS



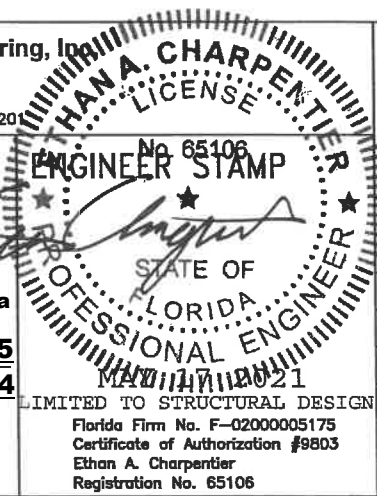
RE-GLAZING DETAILS



Larson Engineering, Inc.
3524 Labare Road
White Bear Lake, MN 55110
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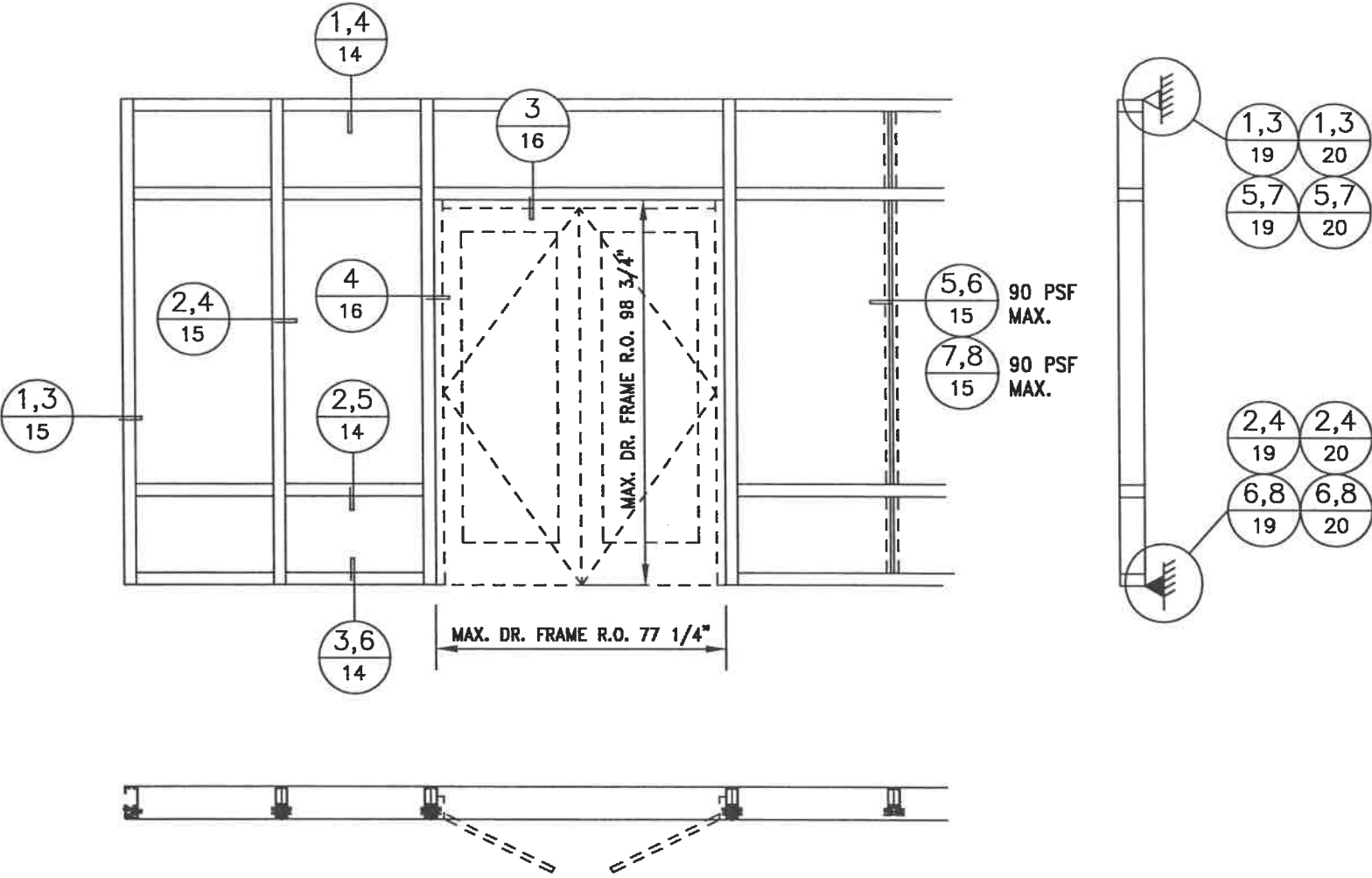
DADE CO. STAMP

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Miami-Dade Product Control



Harmon	
HI 7000 SMALL MISSILE	
GLAZING DETAILS	
RE-GLAZING DETAILS	
DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	
DWG. NO. HI7000SM	
SHEET 03 OF 41	

STOREFRONT, WINDOW WALL & PUNCHED OPENING



SYSTEM APPLICATION GUIDELINES:

- 1 SELECT GLASS FROM CHARTS ON SHEET 7. NOTE THE GLASS THICKNESS AND 4-SIDE CAPTURED VERSUS CAPTURED/SSG OPTIONS.
- 2 SELECT MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 10 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 13. 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 13.
- 5 SELECT JAMB MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 23.
6. LOWEST VALUE OF ALL TABLES SHALL APPLY FOR THE ENTIRE ASSEMBLY.

GENERAL NOTES:

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

Larson Engineering, Inc.
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White Bear Lake, MN 55110
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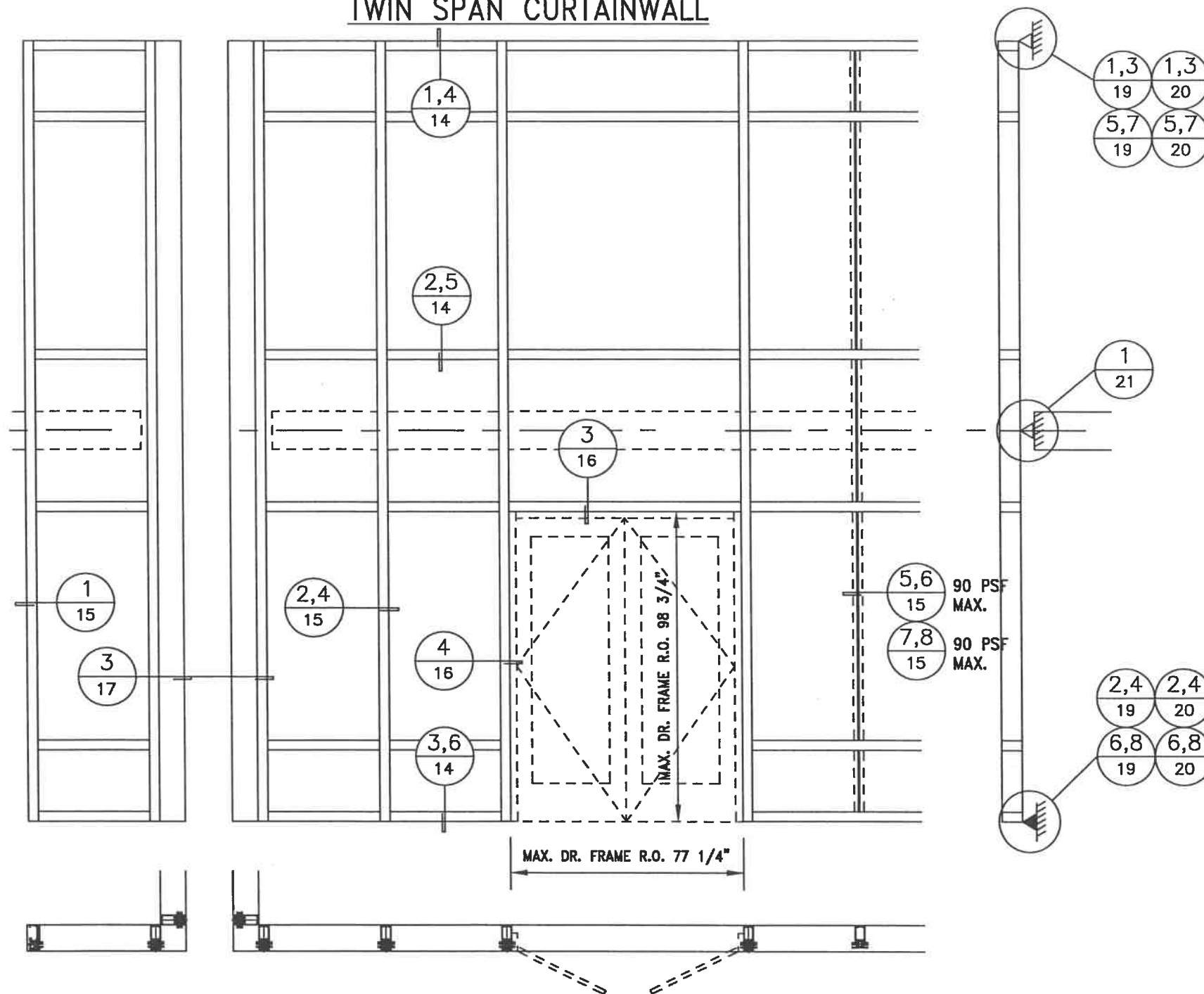
ENGINEER STAMP
No. 65106
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon
HI 7000 SMALL MISSILE
SINGLE SPAN APPLICATION
JAMBS

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM
SHEET 04 OF 41

TWIN SPAN CURTAINWALL



SYSTEM APPLICATION GUIDELINES:

- 1 SELECT GLASS FROM CHARTS ON SHEET 7. NOTE THE GLASS THICKNESS AND 4-SIDE CAPTURED VERSES CAPTURED/SSG OPTIONS.
- 2 SELECT MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 11 FOR TWIN 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 13. 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 13.
- 5 SELECT JAMB MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 23.
6. LOWEST VALUE OF ALL TABLES SHALL APPLY FOR THE ENTIRE ASSEMBLY.

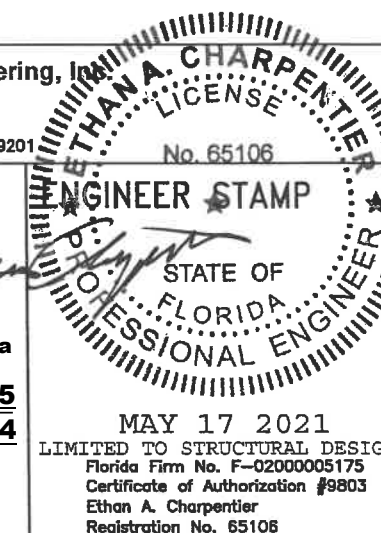
GENERAL NOTES:

- DOOR AREA TESTED IS 90 PSF.
- SILICONE VERTICAL JOINTS AND GASKET JOINTS ARE TESTED 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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By: *Manuel Perez*
Miami-Dade Product Control



Harmon

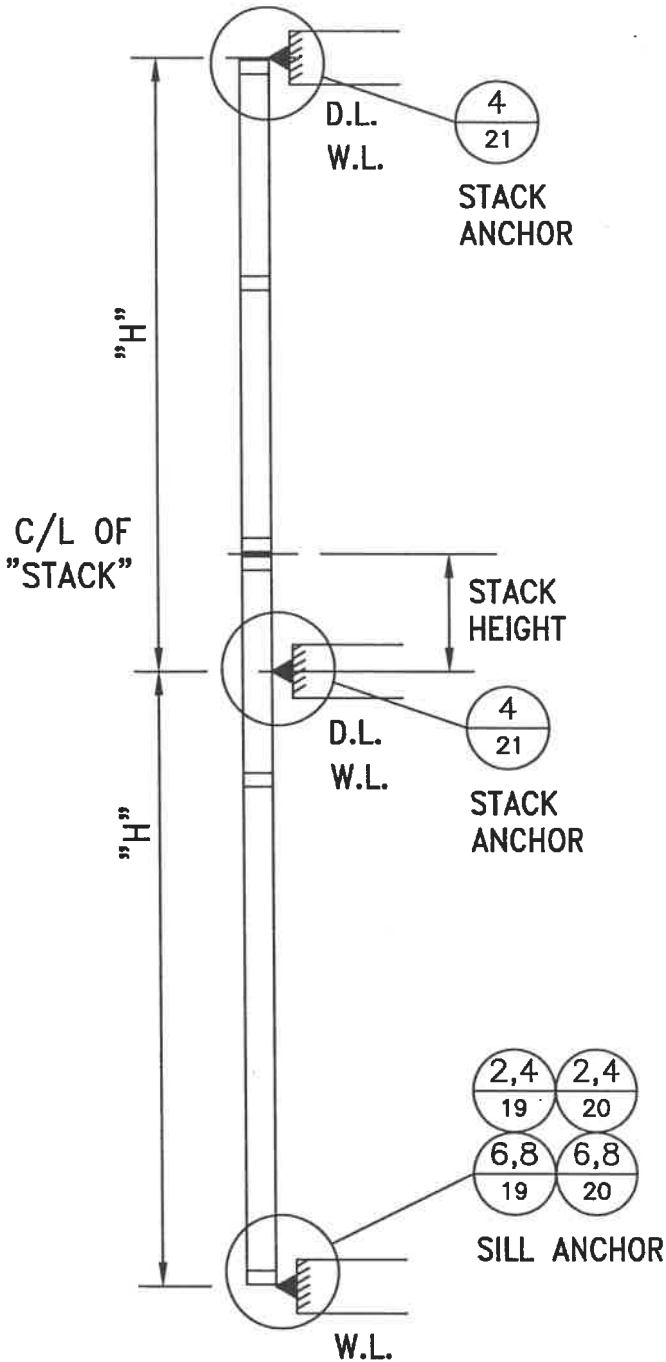
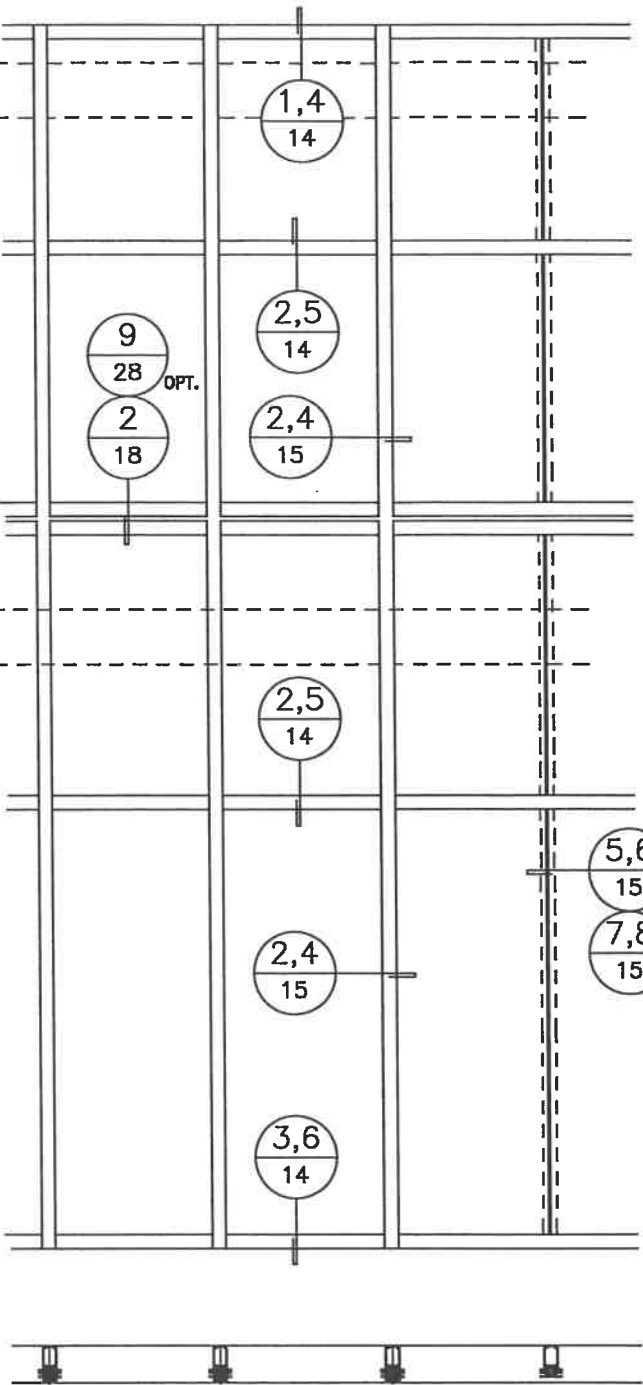
HI 7000 SMALL MISSILE
TWIN SPAN APPLICATION

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 05 OF 41

STACK CURTAINWALL



SYSTEM APPLICATION GUIDELINES:

- 1 SELECT GLASS FROM CHARTS ON SHEET 7. NOTE THE GLASS THICKNESS AND 4-SIDE CAPTURED VERSES CAPTURED/SSG OPTIONS.
- 2 SELECT MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 12 FOR TWIN SPAN w/ STACK HORIZONTAL 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 13. 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 13.
- 5 SELECT JAMB MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 23.
6. LOWEST VALUE OF ALL TABLES SHALL APPLY FOR THE ENTIRE ASSEMBLY.

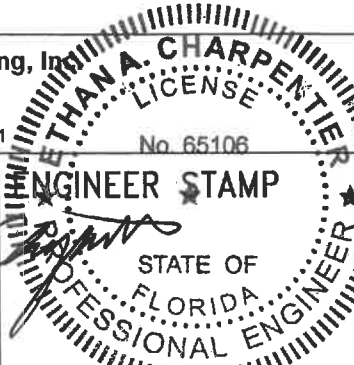
GENERAL NOTES:

- SILICONE VERTICAL JOINTS AND GASKET JOINTS ARE TESTED TO 90 PSF
- SEE SHEET 24 FOR OPTIONAL STACK AND CORNER APPLICATION GUIDELINES

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DADE CO. STAMP

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Miami Dade Product Control



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

Harmon

HI 7000 SMALL MISSILE	
TWIN SPAN APPLICATION	
w/ STACK HORIZONTAL	
DATE: 06/28/04	03/05/19
1 11/18/08	8 02/25/21
2 3/10/09	
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

HI 7000 Glass Load Capacity			Monolithic Glass Types		Insulated Glass Types	
DLO "B"	DLO "H"	SF	Type 8		Type 9	
30"	54"	11.25 SF	+110/-148 PSF		+110/-148 PSF	
36"	54"	13.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	54"	15.75 SF	+110/-148 PSF		+110/-148 PSF	
48"	54"	18 SF	+110/-148 PSF		+110/-148 PSF	
54"	54"	20.25 SF	+110/-148 PSF		+110/-148 PSF	
60"	54"	22.5 SF	+110/-148 PSF		+110/-148 PSF	
66"	54"	24.75 SF	+110/-148 PSF		+110/-148 PSF	
72"	54"	27 SF	+110/-148 PSF		+110/-148 PSF	
36"	60"	15 SF	+110/-148 PSF		+110/-148 PSF	
42"	60"	17.5 SF	+110/-148 PSF		+110/-148 PSF	
48"	60"	20 SF	+110/-148 PSF		+110/-148 PSF	
54"	60"	22.5 SF	+110/-148 PSF		+110/-148 PSF	
60"	60"	25 SF	+110/-148 PSF		+110/-148 PSF	
66"	60"	27.5 SF	+110/-148 PSF		+110/-148 PSF	
72"	60"	30 SF	+110/-148 PSF		+110/-148 PSF	
36"	66"	16.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	66"	19.25 SF	+110/-148 PSF		+110/-148 PSF	
48"	66"	22 SF	+110/-148 PSF		+110/-148 PSF	
54"	66"	24.75 SF	+110/-148 PSF		+110/-148 PSF	
60"	66"	27.5 SF	+110/-148 PSF		+110/-148 PSF	
66"	66"	30.25 SF	+110/-148 PSF		+110/-148 PSF	
72"	66"	33 SF	+110/-130 PSF		+110/-130 PSF	
36"	72"	18 SF	+110/-148 PSF		+110/-148 PSF	
42"	72"	21 SF	+110/-148 PSF		+110/-148 PSF	
48"	72"	24 SF	+110/-148 PSF		+110/-148 PSF	
54"	72"	27 SF	+110/-148 PSF		+110/-148 PSF	
60"	72"	30 SF	+110/-148 PSF		+110/-148 PSF	
66"	72"	33 SF	+110/-130 PSF		+110/-130 PSF	
72"	72"	36 SF	+110/-130 PSF		+110/-130 PSF	
36"	78"	19.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	78"	22.75 SF	+110/-148 PSF		+110/-148 PSF	
48"	78"	26 SF	+110/-148 PSF		+110/-148 PSF	
54"	78"	29.25 SF	+110/-148 PSF		+110/-148 PSF	
60"	78"	32.5 SF	+110/-130 PSF		+110/-130 PSF	
66"	78"	35.75 SF	+110/-130 PSF		+110/-130 PSF	
36"	84"	21 SF	+110/-148 PSF		+110/-148 PSF	
42"	84"	24.5 SF	+110/-148 PSF		+110/-148 PSF	
48"	84"	28 SF	+110/-148 PSF		+110/-148 PSF	
54"	84"	31.5 SF	+110/-130 PSF		+110/-130 PSF	
60"	84"	35 SF	+110/-130 PSF		+110/-130 PSF	
36"	90"	22.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	90"	26.25 SF	+110/-148 PSF		+110/-148 PSF	
48"	90"	30 SF	+110/-148 PSF		+110/-148 PSF	
54"	90"	33.75 SF	+110/-130 PSF		+110/-130 PSF	
60"	90"	37.5 SF	+110/-130 PSF		+110/-130 PSF	
36"	96"	24 SF	+110/-148 PSF		+110/-148 PSF	
42"	96"	28 SF	+110/-148 PSF		+110/-148 PSF	
48"	96"	32 SF	+110/-130 PSF		+110/-130 PSF	
54"	96"	36 SF	+110/-130 PSF		+110/-130 PSF	
36"	102"	25.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	102"	29.75 SF	+110/-148 PSF		+110/-148 PSF	
48"	102"	34 SF	+110/-130 PSF		+110/-130 PSF	
36"	108"	27 SF	+110/-148 PSF		+110/-148 PSF	
42"	108"	31.5 SF	+110/-130 PSF		+110/-130 PSF	
48"	108"	36 SF	+110/-130 PSF		+110/-130 PSF	
30"	114"	23.75 SF	+110/-148 PSF		+110/-148 PSF	
36"	114"	28.5 SF	+110/-148 PSF		+110/-148 PSF	
42"	114"	33.25 SF	+110/-130 PSF		+110/-130 PSF	
48"	114"	38 SF	+110/-130 PSF		+110/-130 PSF	
24"	120"	20 SF	+110/-148 PSF		+110/-148 PSF	
30"	120"	25 SF	+110/-148 PSF		+110/-148 PSF	
36"	120"	30 SF	+110/-148 PSF		+110/-148 PSF	
42"	120"	35 SF	+110/-130 PSF		+110/-130 PSF	
24"	132"	22 SF	+110/-148 PSF		+110/-148 PSF	
30"	132"	27.5 SF	+110/-148 PSF		+110/-148 PSF	
36"	132"	33 SF	+110/-130 PSF		+110/-130 PSF	
24"	143"	23.83 SF	+110/-148 PSF		+110/-148 PSF	
30"	143"	29.79 SF	+110/-148 PSF		+110/-148 PSF	
36"	143"	35.75 SF	+110/-130 PSF		+110/-130 PSF	

MONOLITHIC GLASS – SMALL MISSILE

8

9/16" (.060)
SAFLEX HP
HS / HS

TEST PRESSURE:
+110/-130 PSF
DLO SF <=38.03 SF
+79 PSF/-148 PSF
DLO SF <=31.15 SF

1/4" HS
1/4" HS

.060 EASTMAN
CHEMICAL COMPANY
SAFLEX HP

5

INSULATED GLASS – SMALL MISSILE

9

1 5/16" (.060)
SAFLEX HP
HS / HS – TEMP

TEST PRESSURE:
+110/-130 PSF
DLO SF <=38.03 SF
+79 PSF/-148 PSF
DLO SF <=31.15 SF

1/4" HS
1/4" HS
AIR SPACE
1/4" TEMPERED

.060 EASTMAN
CHEMICAL COMPANY
SAFLEX HP

5

NOTES:

ALL GLASS SIZES MUST MEET
ASTM E1300-16 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

"B"

"H"

"B"

"H"

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 8 & 9
HAVE BEEN TESTED FOR
VERTICAL SSG APPLICATION FOR
MAXIMUM 90 PSF.

Larson Engineering

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White Bear Lake, MN 55110
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ETHAN A. CHARPENTIER

LICENSE

No. 65106

DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
NOA-No. 21-0405.15
Expiration Date: 09/02/2024
By: *Manuel Perez*
Miami-Dade Product Control

ENGINEER STAMP

STATE OF
FLORIDA
PROFESSIONAL ENGINEER

MAY 17 2021

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Ethan A. Charpentier
Registration No. 65106

Harmon

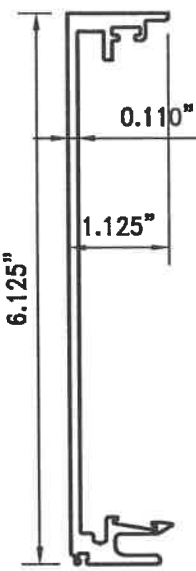
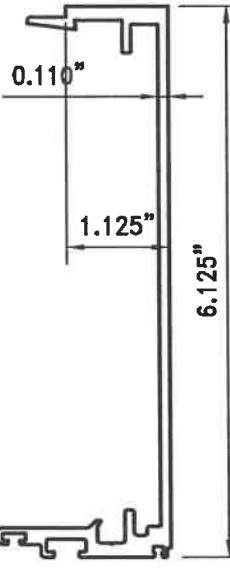
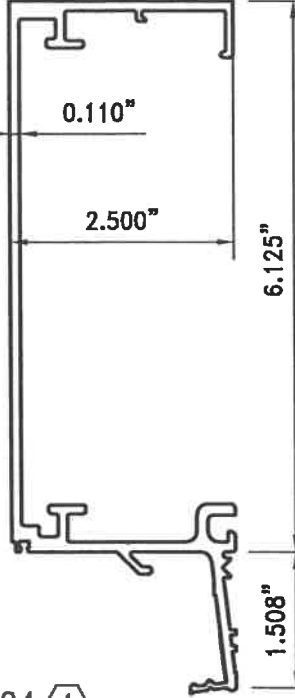
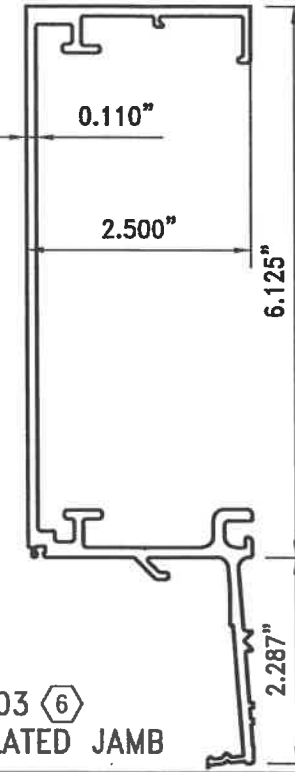
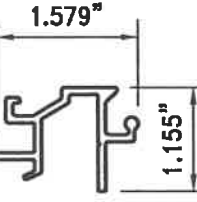
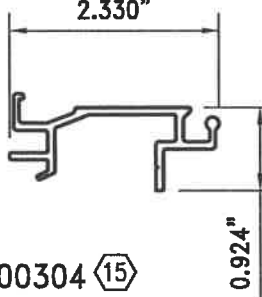
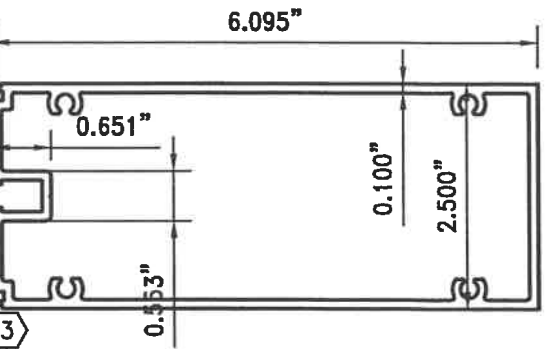
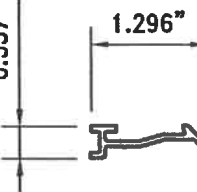
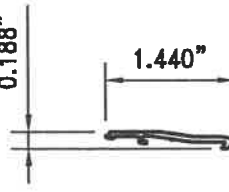
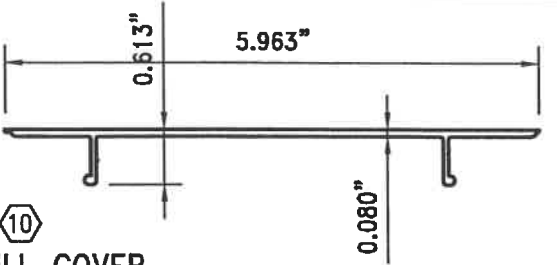
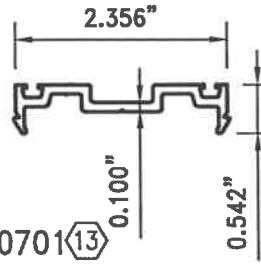
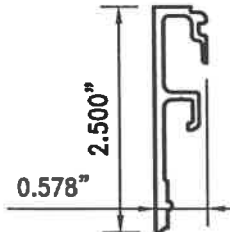
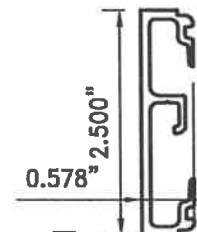
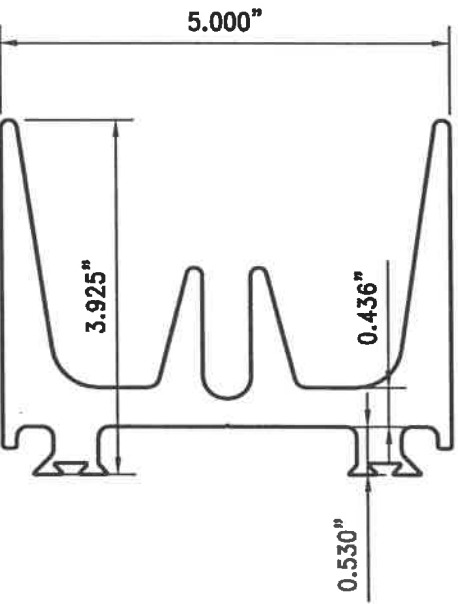
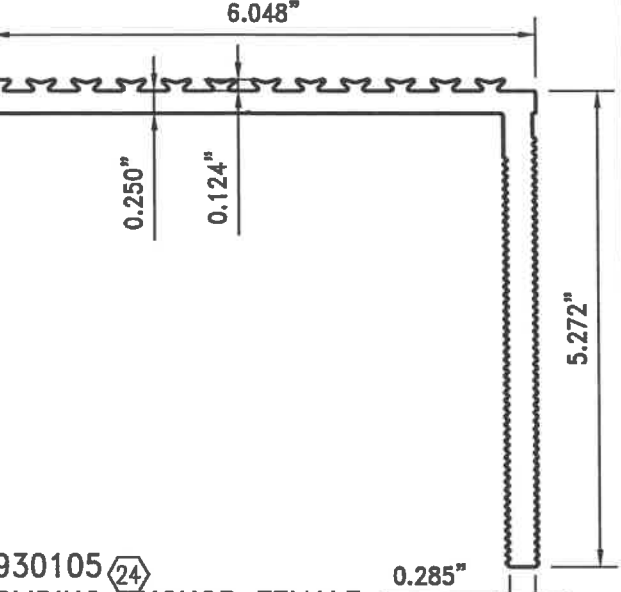
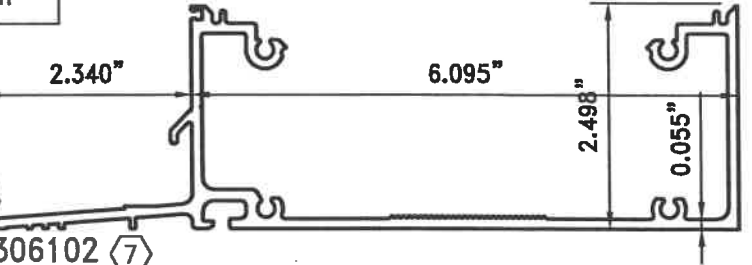
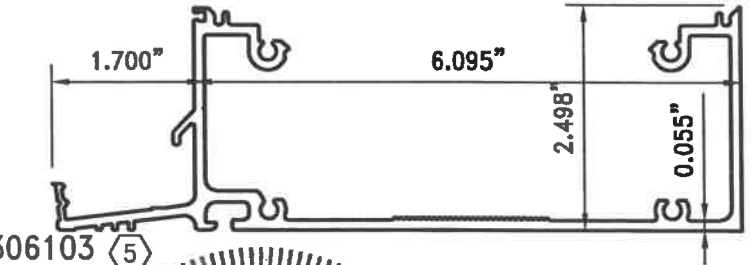
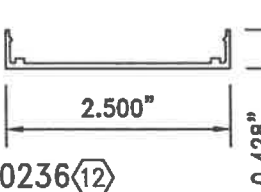
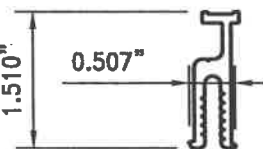
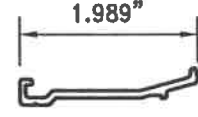
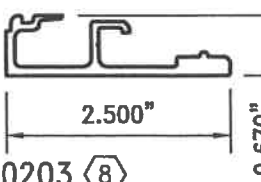
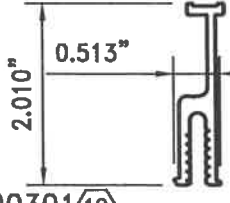
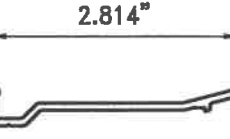
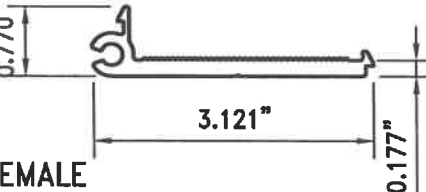
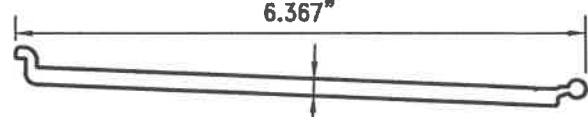
HI 7000 SMALL MISSILE

GLASS APPLICATIONS
SMALL MISSILE

DATE: 06/28/04	6	6/17/16	
1	11/18/08	7	03/05/19
2	3/10/09	8	02/25/21
3	3/16/09		
4	5/22/12		
5	10/03/14		

DWG. NO. HI7000SM

SHEET 07 OF 41

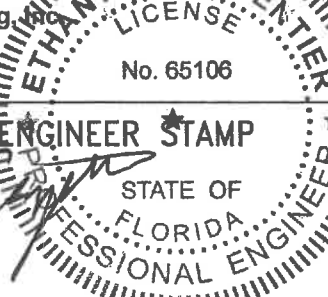
 <p>306001 ① FEMALE MULLION</p>	 <p>306002 ② MALE MULLION</p>	 <p>306004 ④ MONOLITHIC JAMB</p>	 <p>306003 ⑥ INSULATED JAMB</p>	 <p>300305 ⑭ MONO-PERIM.ADAPT.</p>	 <p>300304 ⑮ INS-PERIM. ADAPT.</p>	 <p>306101 ③ INTERMEDIATE HORIZONTAL</p>
				 <p>300310 ⑰ ANTI-BUCKLING CLIP</p>	 <p>300306 ⑱ ANTI-BUCKLING CLIP</p>	 <p>306401 ⑩ HEAD/SILL COVER</p>
 <p>300701 ⑬ PRESSURE BAR</p>	 <p>300202 ⑨ HD/SILL COVER</p>	 <p>300201 ⑪ HORIZ. COVER</p>	 <p>930104 ⑳ SLIDING ANCHOR MALE</p>	 <p>930105 ㉔ SLIDING ANCHOR FEMALE</p>	 <p>306102 ⑦ INSULATED HEAD/SILL</p>	 <p>306103 ⑤ MONO-HEAD/SILL</p>
 <p>300236 ⑫ VERTICAL COVER</p>	 <p>300308 ⑱ MONO-VERT. ADAPT.</p>	 <p>300303 ⑯ MONO-HORIZ.ADAPT.</p>				
 <p>300203 ⑧ JAMB COVER</p>	 <p>300301 ⑲ INS.-VERT. ADAPT.</p>	 <p>300302 ⑰ INS.-HORIZ.ADAPT.</p>	 <p>930102 ㉒ STRAP ANCHOR FEMALE</p>			
 <p>930106 ㉓ STRAP ANCHOR MALE</p>						

NOTES:
FOR STACK AND CORNER
COMPONENT PART
DRAWINGS SEE PAGE 09

**Larson Engineering**
3524 Labors 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
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

**ETHAN A. CHARPENTIER**
No. 65106
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

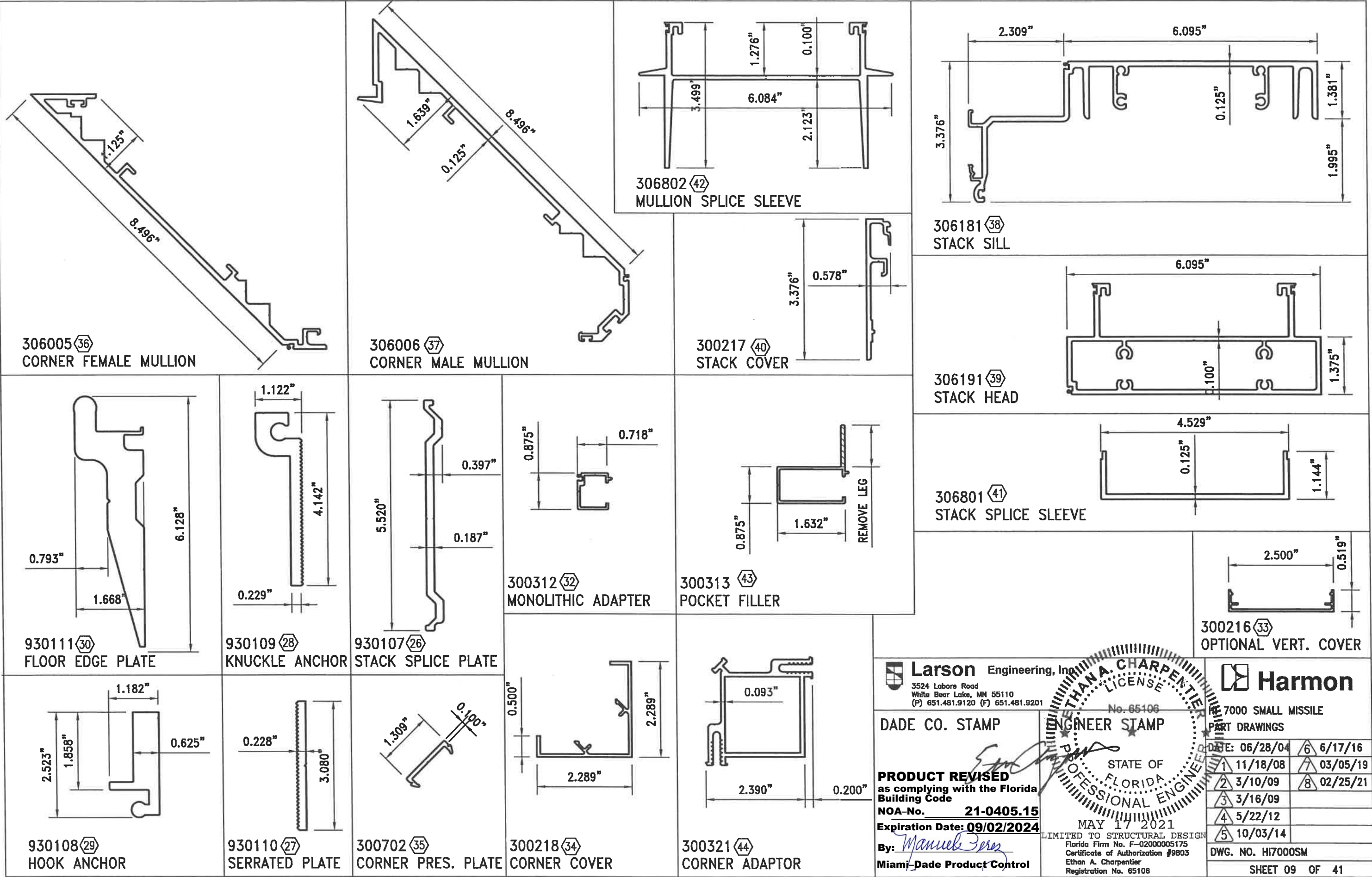
ENGINEER STAMP
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

**Harmon**
7000 SMALL MISSILE
PARTS DRAWINGS

DATE: 06/28/04
① 11/18/08
② 3/10/09
③ 3/16/09
④ 5/22/12
⑤ 10/03/14

⑥ 6/17/16
⑦ 03/05/19
⑧ 02/25/21

DWG. NO. H17000SM
SHEET 08 OF 41



SINGLE SPAN APPLICATION

REINFORCING
OPTIONS



		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
	"B"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3'-0"	10'-4"	13'-9"	16'-6"	17'-7"	18'-3"	19'-6"	20'-8"
		933	1243	1490	1587	1645	1758	1862
	4'-0"	8'-11"	11'-11"	14'-4"	15'-6"	16'-8"	18'-2"	19'-2"
		1077	1435	1721	1863	2002	2181	2310
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	5'-0"	8'-0"	10'-8"	12'-9"	13'-10"	14'-10"	17'-0"	18'-2"
		1204	1605	1924	2083	2238	2554	2731
	6'-0"	7'-3"	9'-9"	11'-8"	12'-8"	13'-7"	15'-6"	17'-4"
		1319	1758	2107	2282	2451	2798	3131
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	3'-0"	9'-7"	12'-9"	15'-3"	16'-7"	17'-6"	18'-9"	19'-10"
		1007	1343	1610	1743	1847	1973	2090
	4'-0"	8'-3"	11'-0"	13'-3"	14'-4"	15'-5"	17'-5"	18'-6"
		1163	1550	1859	2013	2162	2448	2593
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	5'-0"	7'-5"	9'-10"	11'-10"	12'-10"	13'-9"	15'-9"	17'-6"
		1301	1733	2078	2250	2417	2759	3065
	6'-0"	6'-9"	9'-0"	10'-10"	11'-8"	12'-7"	14'-4"	16'-1"
		1425	1899	2276	2465	2648	3022	3391
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3'-0"	8'-11"	11'-11"	14'-4"	15'-6"	16'-8"	18'-2"	19'-2"
		1077	1435	1721	1863	2002	2181	2310
	4'-0"	7'-9"	10'-4"	12'-4"	13'-5"	14'-5"	16'-5"	17'-10"
		1244	1657	1987	2152	2311	2638	2866
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	5'-0"	6'-11"	9'-3"	11'-1"	12'-0"	12'-10"	14'-8"	16'-6"
		1390	1853	2221	2405	2584	2949	3309
	6'-0"	6'-4"	8'-5"	10'-1"	10'-11"	11'-9"	13'-5"	15'-1"
		1523	2030	2433	2635	2830	3231	3625
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	3'-0"	8'-5"	11'-3"	13'-6"	14'-7"	15'-8"	17'-7"	18'-8"
		1142	1522	1825	1976	2123	2382	2523
	4'-0"	7'-3"	9'-9"	11'-8"	12'-8"	13'-7"	15'-6"	17'-4"
		1319	1758	2107	2282	2451	2798	3131
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	5'-0"	6'-6"	8'-8"	10'-5"	11'-4"	12'-2"	13'-10"	15'-7"
		1475	1965	2356	2551	2741	3128	3510
	6'-0"	5'-11"	7'-11"	9'-6"	10'-4"	11'-1"	12'-8"	14'-2"
		1615	2153	2581	2795	3002	3426	3845

REINFORCING
OPTIONS

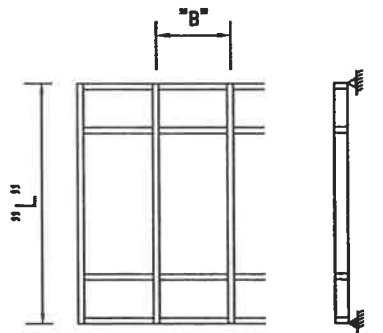


		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
	"B"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3'-0"	8'-0"	10'-8"	12'-9"	13'-10"	14'-10"	17'-0"	18'-2"
		1204	1605	1924	2083	2238	2554	2731
	4'-0"	6'-11"	9'-3"	11'-1"	12'-0"	12'-10"	14'-8"	16'-6"
		1390	1853	2221	2405	2584	2949	3309
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	5'-0"	6'-2"	8'-3"	9'-11"	10'-9"	11'-6"	13'-2"	14'-9"
		1554	2072	2483	2689	2889	3297	3700
	6'-0"	5'-8"	7'-6"	9'-0"	9'-9"	10'-6"	12'-0"	13'-6"
		1703	2269	2720	2946	3164	3612	4053
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	3'-0"	7'-7"	10'-2"	12'-2"	13'-2"	14'-2"	16'-2"	17'-9"
		1263	1683	2018	2185	2347	2679	2933
	4'-0"	6'-7"	8'-9"	10'-7"	11'-5"	12'-3"	14'-0"	15'-9"
		1458	1943	2330	2523	2710	3093	3471
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	5'-0"	5'-11"	7'-10"	9'-5"	10'-3"	11'-0"	12'-6"	14'-1"
		1630	2173	2605	2821	3030	3458	3881
	6'-0"	5'-4"	7'-2"	8'-7"	9'-4"	10'-0"	11'-5"	12'-10"
		1786	2380	2853	3090	3319	3788	4251
UP TO MAXIMUM 140 PSF POS. OR NEG. LOAD	3'-0"	7'-3"	9'-9"	11'-8"	12'-8"	13'-7"	15'-6"	17'-4"
		1319	1758	2107	2282	2451	2798	3131
	4'-0"	6'-4"	8'-5"	10'-1"	10'-11"	11'-9"	13'-5"	15'-1"
		1523	2030	2433	2635	2830	3231	3625
UP TO MAXIMUM 150 PSF POS. OR NEG. LOAD	5'-0"	5'-8"	7'-6"	9'-0"	9'-9"	10'-6"	12'-0"	13'-6"
		1703	2269	2720	2946	3164	3612	4053
	6'-0"	5'-2"	6'-10"	8'-3"	8'-11"	9'-7"	10'-11"	12'-3"
		1865	2486	2980	3227	3466	3956	4440
UP TO MAXIMUM 160 PSF POS. OR NEG. LOAD	3'-0"	7'-0"	9'-4"	11'-2"	12'-2"	13'-0"	14'-11"	16'-9"
		1373	1830	2193	2375	2551	2912	3268
	4'-0"	6'-1"	8'-1"	9'-8"	10'-6"	11'-3"	12'-11"	14'-6"
		1585	2113	2533	2743	2946	3362	3773
UP TO MAXIMUM 170 PSF POS. OR NEG. LOAD	5'-0"	5'-5"	7'-3"	8'-8"	9'-5"	10'-1"	11'-6"	12'-11"
		1772	2362	2831	3066	3294	3759	4219
	6'-0"	4'-11"	6'-7"	7'-11"	8'-7"	9'-2"	10'-6"	11'-6"
		1941	2587	3102	3359	3608	4118	4515

GENERAL NOTES:

- "L" = MAXIMUM MULLION SPAN
- "B" = C/L TO C/L SPACING
- $B = \frac{W1 + W2}{2}$
- 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 (REFER TO PAGE 13 FOR BUILDING CONDITION TYPES AND PAGES 19, 20, 21, 23 FOR REACTION DETAIL OPTIONS)

SINGLE SPAN



REINFORCING OPTIONS

<p>1</p> <p>COMBINED Ix = 12.941 in⁴</p> <p>NO REINFORCING</p>	<p>2</p> <p>COMBINED Ix = 22.993 in⁴</p> <p>1/4" x 5 1/2" STL BAR</p>	<p>3</p> <p>COMBINED Ix = 33.045 in⁴</p> <p>(2) 1/4" x 5 1/2" STL BARS</p>	<p>4</p> <p>COMBINED Ix = 38.751 in⁴</p> <p>C5x9</p>	<p>5</p> <p>COMBINED Ix = 44.714 in⁴</p> <p>C5x6.7 w/ 1/4" x 5 1/2" STL BAR</p>	<p>6</p> <p>COMBINED Ix = 58.254 in⁴</p> <p>1 1/2" x 5" STL BAR</p>	<p>7</p> <p>COMBINED Ix = 73.538 in⁴</p> <p>2" x 5" STL BAR</p>
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Larson Engineering, Inc.
3524 Labors 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
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106
ENGINEER STAMP
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106



Harmon
HI 7000 SMALL MISSILE
MULLION APPLICATIONS
LOAD TABLES SINGLE SPAN
DATE: 06/28/04 6/17/11
1 11/18/08 2 03/05/11
3 3/10/09 4 02/25/11
5 3/16/09
6 5/22/12
7 10/03/14
DWG. NO. HI7000SM
SHEET 10 OF 41

TWIN SPAN APPLICATION

REINFORCING
OPTIONS

1 2 3 4 5 6 7

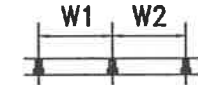
	"B"	Case 1 "L"/"R"	Case 2 "L"/"R"	Case 3 "L"/"R"	Case 4 "L"/"R"	Case 5 "L"/"R"	Case 6 "L"/"R"	Case 7 "L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3' 0"	12'-8"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	872	1006	1006	1006	1006	1006	1006
	RM	2781	3209	3209	3209	3209	3209	3209
	4' 0"	10'-11"	13'-6"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1007	1238	1342	1342	1342	1342	1342
	RM	3211	3946	4278	4278	4278	4278	4278
	5' 0"	9'-10"	12'-1"	14'-5"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1126	1384	1658	1677	1677	1677	1677
	RM	3590	4411	5288	5348	5348	5348	5348
	6' 0"	8'-11"	11'-0"	13'-2"	14'-7"	14'-7"	14'-7"	14'-7"
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	RE	1233	1516	1817	2012	2012	2012	2012
	RM	3932	4832	5793	6417	6417	6417	6417
	3' 0"	11'-9"	14'-5"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	942	1158	1174	1174	1174	1174	1174
	RM	3003	3691	3744	3744	3744	3744	3744
	4' 0"	10'-2"	12'-6"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1088	1337	1565	1565	1565	1565	1565
	RM	3468	4262	4991	4991	4991	4991	4991
	5' 0"	9'-1"	11'-2"	13'-4"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1216	1494	1791	1957	1957	1957	1957
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	RM	3877	4765	5712	6239	6239	6239	6239
	6' 0"	8'-3"	10'-2"	12'-2"	13'-10"	14'-2"	14'-7"	14'-7"
	RE	1332	1637	1962	2229	2283	2348	2348
	RM	4247	5219	6257	7106	7278	7487	7487
	3' 0"	10'-11"	13'-6"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1007	1238	1342	1342	1342	1342	1342
	RM	3211	3946	4278	4278	4278	4278	4278
	4' 0"	9'-6"	11'-8"	14'-0"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1163	1429	1713	1789	1789	1789	1789
	RM	3707	4556	5462	5704	5704	5704	5704
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	5' 0"	8'-6"	10'-5"	12'-6"	14'-3"	14'-7"	14'-7"	14'-7"
	RE	1300	1597	1915	2175	2228	2236	2236
	RM	4145	5094	6106	6935	7103	7130	7130
	6' 0"	7'-9"	9'-6"	11'-5"	13'-0"	13'-3"	14'-7"	14'-7"
	RE	1424	1750	2098	2382	2440	2683	2683
	RM	4540	5580	6689	7597	7781	8556	8556
	3' 0"	10'-4"	12'-8"	14'-7"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1068	1313	1509	1509	1509	1509	1509
	RM	3405	4185	4813	4813	4813	4813	4813
	4' 0"	8'-11"	11'-0"	13'-2"	14'-7"	14'-7"	14'-7"	14'-7"
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	RE	1233	1516	1817	2012	2012	2012	2012
	RM	3932	4832	5793	6417	6417	6417	6417
	5' 0"	8'-0"	9'-10"	11'-9"	13'-5"	13'-9"	14'-7"	14'-7"
	RE	1379	1694	2031	2307	2363	2515	2515
	RM	4396	5402	6477	7356	7534	8021	8021
	6' 0"	7'-3"	9'-0"	10'-9"	12'-3"	12'-6"	14'-7"	14'-7"
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	RE	1510	1856	2225	2527	2588	3018	3018
	RM	4816	5918	7095	8058	8253	9625	9625

REINFORCING
OPTIONS


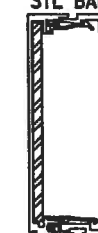
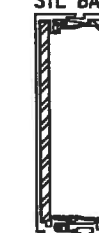
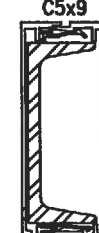
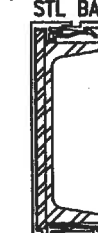


1 2 3 4 5 6 7

	"B"	Case 1 "L"/"R"	Case 2 "L"/"R"	Case 3 "L"/"R"	Case 4 "L"/"R"	Case 5 "L"/"R"	Case 6 "L"/"R"	Case 7 "L"/"R"
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3' 0"	9'-10"	12'-1"	14'-5"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1126	1384	1658	1677	1677	1677	1677
	RM	3590	4411	5288	5348	5348	5348	5348
	4' 0"	8'-6"	10'-5"	12'-6"	14'-3"	14'-7"	14'-7"	14'-7"
	RE	1300	1597	1915	2175	2228	2236	2236
	RM	4145	5094	6106	6935	7103	7130	7130
	5' 0"	7'-7"	9'-4"	11'-2"	12'-8"	13'-0"	14'-7"	14'-7"
	RE	1453	1786	2141	2432	2490	2795	2795
	RM	4634	5695	6827	7754	7941	8912	8912
	6' 0"	6'-11"	8'-6"	10'-2"	11'-7"	11'-11"	14'-3"	14'-7"
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	RE	1592	1956	2345	2664	2728	3266	3354
	RM	5076	6238	7478	8494	8699	10414	10695
	3' 0"	9'-4"	11'-6"	13'-9"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1181	1451	1739	1845	1845	1845	1845
	RM	3765	4626	5546	5882	5882	5882	5882
	4' 0"	8'-1"	9'-11"	11'-11"	13'-7"	13'-11"	14'-7"	14'-7"
	RE	1363	1675	2008	2281	2336	2460	2460
	RM	4347	5342	6404	7274	7449	7843	7843
	5' 0"	7'-3"	8'-11"	10'-8"	12'-1"	12'-5"	14'-7"	14'-7"
	RE	1524	1873	2245	2550	2612	3074	3074
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	RM	4860	5973	7160	8132	8329	9804	9804
	6' 0"	6'-7"	8'-1"	9'-9"	11'-1"	11'-4"	13'-7"	14'-5"
	RE	1670	2052	2460	2794	2861	3425	3634
	RM	5324	6543	7843	8908	9124	10922	11587
	3' 0"	8'-11"	11'-0"	13'-2"	14'-7"	14'-7"	14'-7"	14'-7"
	RE	1233	1516	1817	2012	2012	2012	2012
	RM	3932	4832	5793	6417	6417	6417	6417
	4' 0"	7'-9"	9'-6"	11'-5"	13'-0"	13'-3"	14'-7"	14'-7"
	RE	1424	1750	2098	2382	2440	2683	2683
	RM	4540	5580	6689	7597	7781	8556	8556
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	5' 0"	6'-11"	8'-6"	10'-2"	11'-7"	11'-11"	14'-3"	14'-7"
	RE	1592	1956	2345	2664	2728	3266	3354
	RM	5076	6238	7478	8494	8699	10414	10695
	6' 0"	6'-4"	7'-9"	9'-4"	10'-7"	10'-10"	13'-0"	13'-2"
	RE	1744	2143	2569	2918	2988	3577	3634
	RM	5561	6834	8192	9304	9529	11408	11587
	3' 0"	8'-7"	10'-7"	12'-8"	14'-5"	14'-7"	14'-7"	14'-7"
	RE	1284	1577	1891	2148	2180	2180	2180
	RM	4093	5029	6029	6848	6952	6952	6952
	4' 0"	7'-5"	9'-2"	11'-0"	12'-6"	12'-9"	14'-7"	14'-7"
UP TO MAXIMUM 140 PSF POS. OR NEG. LOAD	RE	1482	1821	2183	2480	2540	2907	2907
	RM	4726	5807	6962	7907	8098	9269	9269
	5' 0"	6'-8"	8'-2"	9'-10"	11'-2"	11'-5"	13'-8"	14'-7"
	RE	1657	2036	2441	2772	2839	3399	3633
	RM	5283	6493	7784	8840	9054	10839	11586
	6' 0"	6'-1"	7'-5"	8'-11"	10'-2"	10'-5"	12'-2"	12'-2"
UP TO MAXIMUM 150 PSF POS. OR NEG. LOAD	RE	1815	2231	2674	3037	3110	3634	3634
	RM	5788	7113	8527	9684	9918	11587	11587

GENERAL NOTES:

- "H" = MULLION LENGTH
- "L" = SPAN BETWEEN ANCHORS
- "B" = C/L TO C/L SPACING
- $B = \frac{W1 + W2}{2}$ 
- FOR TWIN 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
- RE= REACTION AT HEAD AND SILL (SEE PAGE 13)
- RM= REACTION AT MIDPOINT ANCHOR (SEE PAGE 13)

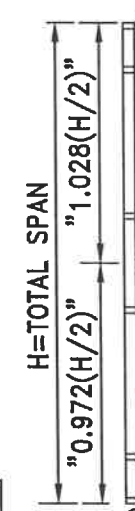
REINFORCING OPTIONS

1 COMBINED Ix = 12.941 in ⁴ NO REINFORCING 	2 COMBINED Ix = 22.993 in ⁴ 1/4" x 5 1/2" STL BAR 	3 COMBINED Ix = 33.045 in ⁴ (2) 1/4" x 5 1/2" STL BARS 
4 COMBINED Ix = 38.751 in ⁴ C5x9 	5 COMBINED Ix = 44.714 in ⁴ C5x6.7 w/ 1/4" x 5 1/2" STL BAR 	6 COMBINED Ix = 58.254 in ⁴ 1 1/2" x 5" STL BAR 
7 COMBINED Ix = 73.538 in ⁴ 2" x 5" STL BAR 		

TWIN SPAN

NO "TOTAL SPAN" SHALL BE
GREATER THAN 28'-4 3/4" (TESTED)TESTED LENGTHS ARE 165 3/4" (LOWER)
AND 175" (UPPER).
TOTAL LENGTH OF MULLION = (H)

$$(H) = \left(\frac{\text{CHART "L"}}{1.028} \right) 2$$









THESE LENGTHS
ARE BASED ON
THE TESTED
"TWIN-SPAN"
LENGTH RATIOS.CENTER ANCHOR
IS PERMITTED TO
BE LOCATED @
H/2 +/- 2.8% (H/2)

Larson Engineering
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DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon
HI 7000 SMALL MISSILE
MULLION APPLICATIONS
LOAD TABLES
DATE: 06/28/04  6/17/10
 11/18/08  3/05/19
 3/10/09  8/02/25/0
 3/16/09
 5/22/12
 10/03/14
DWG. NO. HI7000SM
SHEET 11 OF 41

TWIN SPAN w/ STACK RAIL APPLICATION


REINFORCING
OPTIONS

		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
	"B"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3' 0"	12'-5"	16'-5"	17'-11"	18'-8"	19'-4"	20'-8"	21'-11"
	RE	931	1224	1340	1394	1445	1544	1636
	RM	2635	3464	3793	3947	4090	4370	4629
	D	497	653	715	744	771	823	872
	4' 0"	10'-9"	14'-4"	16'-8"	17'-3"	17'-3"	17'-3"	17'-3"
	RE	1075	1433	1663	1716	1716	1716	1716
	RM	3043	4056	4706	4857	4857	4857	4857
	D	573	764	887	915	915	915	915
	5' 0"	9'-8"	12'-10"	13'-9"	13'-9"	13'-9"	13'-9"	13'-9"
	RE	1202	1602	1716	1716	1716	1716	1716
	RM	3402	4534	4857	4857	4857	4857	4857
	D	641	854	915	915	915	915	915
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	6' 0"	8'-9"	11'-6"	11'-6"	11'-6"	11'-6"	11'-6"	11'-6"
	RE	1317	1716	1716	1716	1716	1716	1716
	RM	3726	4857	4857	4857	4857	4857	4857
	D	702	915	915	915	915	915	915
	3' 0"	11'-6"	15'-4"	17'-3"	17'-11"	18'-7"	19'-11"	21'-1"
	RE	1006	1340	1504	1565	1622	1733	1836
	RM	2846	3794	4257	4430	4592	4906	5197
	D	460	613	688	716	742	792	839
	4' 0"	10'-0"	13'-4"	16'-0"	16'-8"	17'-3"	17'-3"	17'-3"
	RE	1161	1548	1855	1942	2002	2002	2002
	RM	3286	4380	5251	5497	5666	5666	5666
	D	531	708	848	888	915	915	915
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	5' 0"	8'-11"	11'-11"	13'-9"	13'-9"	13'-9"	13'-9"	13'-9"
	RE	1298	1730	2002	2002	2002	2002	2002
	RM	3674	4897	5666	5666	5666	5666	5666
	D	594	791	915	915	915	915	915
	6' 0"	8'-2"	10'-10"	11'-6"	11'-6"	11'-6"	11'-6"	11'-6"
	RE	1422	1895	2002	2002	2002	2002	2002
	RM	4025	5365	5666	5666	5666	5666	5666
	D	650	866	915	915	915	915	915
	3' 0"	10'-9"	14'-4"	16'-8"	17'-4"	18'-0"	19'-3"	20'-5"
	RE	1075	1433	1663	1730	1793	1916	2029
	RM	3043	4056	4706	4897	5075	5422	5744
	D	430	573	665	692	717	766	812
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	4' 0"	9'-4"	12'-5"	14'-11"	16'-2"	16'-9"	17'-3"	17'-3"
	RE	1241	1655	1983	2147	2225	2288	2288
	RM	3513	4683	5614	6076	6297	6475	6475
	D	497	662	793	859	890	915	915
	5' 0"	8'-4"	11'-2"	13'-4"	13'-9"	13'-9"	13'-9"	13'-9"
	RE	1388	1850	2217	2288	2288	2288	2288
	RM	3928	5236	6276	6475	6475	6475	6475
	D	555	740	887	915	915	915	915
	6' 0"	7'-7"	10'-2"	11'-6"	11'-6"	11'-6"	11'-6"	11'-6"
	RE	1520	2026	2288	2288	2288	2288	2288
	RM	4303	5735	6475	6475	6475	6475	6475
	D	608	811	915	915	915	915	915
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	3' 0"	10'-2"	13'-7"	16'-2"	16'-10"	17'-6"	18'-8"	19'-9"
	RE	1140	1520	1816	1890	1959	2093	2217
	RM	3227	4302	5140	5349	5544	5923	6274
	D	406	541	646	672	697	744	788
	4' 0"	8'-9"	11'-9"	14'-1"	15'-3"	16'-3"	17'-3"	17'-3"
	RE	1317	1755	2104	2278	2430	2574	2574
	RM	3726	4967	5954	6448	6879	7285	7285
	D	468	624	748	810	864	915	915
	5' 0"	7'-10"	10'-6"	12'-7"	13'-8"	13'-9"	13'-9"	13'-9"
	RE	1472	1962	2352	2547	2574	2574	2574
	RM	4166	5553	6657	7209	7285	7285	7285
	D	524	698	836	906	915	915	915
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	6' 0"	7'-2"	9'-7"	11'-6"	11'-6"	11'-6"	11'-6"	11'-6"
	RE	1612	2149	2574	2574	2574	2574	2574
	RM	4564	6083	7285	7285	7285	7285	7285
	D	573	764	915	915	915	915	915


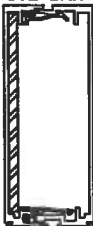


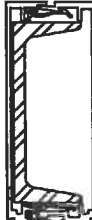
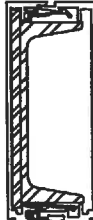


REINFORCING
OPTIONS

		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7
	"B"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"	"L"/"R"
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3' 0"	9'-8"	12'-10"	15'-5"	16'-5"	17'-0"	18'-2"	19'-3"
	RE	1202	1602	1920	2045	2120	2265	2399
	RM	3402	4534	5436	5789	6000	6410	6790
	D	385	513	615	655	678	725	768
	4' 0"	8'-4"	11'-2"	13'-4"	14'-5"	15'-6"	16'-11"	17'-3"
	RE	1388	1850	2217	2401	2579	2810	2860
	RM	3928	5236	6276	6797	7301	7953	8094
	D	444	592	710	768	825	899	915
	5' 0"	7'-5"	9'-11"	11'-11"	12'-11"	13'-9"	13'-9"	13'-9"
	RE	1552	2068	2479	2685	2860	2860	2860
	RM	4391	5853	7017	7599	8094	8094	8094
	D	497	662	793	859	915	915	915
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	6' 0"	6'-10"	9'-1"	10'-11"	11'-6"	11'-6"	11'-6"	11'-6"
	RE	1700	2265	2716	2860	2860	2860	2860
	RM	4811	6412	7687	8094	8094	8094	8094
	D	544	725	869	915	915	915	915
	3' 0"	9'-2"	12'-3"	14'-8"	15'-11"	16'-7"	17'-9"	18'-10"
	RE	1261	1680	2014	2181	2277	2432	2577
	RM	3568	4755	5701	6173	6444	6885	7293
	D	367	489	586	635	662	708	750
	4' 0"	7'-11"	10'-7"	12'-9"	13'-9"	14'-10"	16'-6"	17'-3"
	RE	1456	1940	2326	2518	2705	3018	3145
	RM	4120	5491	6583	7128	7657	8543	8904
	D	424	565	677	733	787	878	915
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	5' 0"	7'-1"	9'-6"	11'-4"	12'-4"	13'-3"	13'-9"	13'-9"
	RE	1627	2169	2600	2816	3024	3145	3145
	RM	4606	6139	7360	7970	8561	8904	8904
	D	474	631	756	819	880	915	915
	6' 0"	6'-6"	8'-8"	10'-5"	11'-3"	11'-6"	11'-6"	11'-6"
	RE	1783	2376	2848	3084	3145	3145	3145
	RM	5045	6725	8062	8730	8904	8904	8904
	D	519	691	829	897	915	915	915
	3' 0"	8'-9"	11'-9"	14'-1"	15'-3"	16'-3"	17'-5"	18'-5"
	RE	1317	1755	2104	2278	2430	2596	2750
	RM	3726	4967	5954	6448	6879	7349	7785
	D	351	468	561	608	648	692	734
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	4' 0"	7'-7"	10'-2"	12'-2"	13'-2"	14'-2"	16'-2"	17'-2"
	RE	1520	2026	2429	2630	2825	3221	3413
	RM	4303	5735	6875	7445	7998	9119	9660
	D	406	541	648	702	754	859	910
	5' 0"	6'-10"	9'-1"	10'-11"	11'-10"	12'-8"	13'-9"	13'-9"
	RE	1700	2265	2716	2941	3159	3431	3431
	RM	4811	6412	7687	8324	8942	9713	9713
	D	453	604	724	784	842	915	915
	6' 0"	6'-2"	8'-3"	9'-11"	10'-9"	11'-6"	11'-6"	11'-6"
	RE	1862	2482	2975	3221	3431	3431	3431
	RM	5270	7024	8420	9119	9713	9713	9713
	D	497	662	793	859	915	915	915
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	3' 0"	8'-5"	11'-3"	13'-6"	14'-8"	15'-9"	17'-0"	18'-1"
	RE	1370	1826	2190	2371	2547	2757	2920
	RM	3879	5170	6197	6711	7209	7804	8267
	D	338	450	539	584	627	679	719
	4' 0"	7'-4"	9'-9"	11'-8"	12'-8"	13'-7"	15'-7"	16'-9"
	RE	1582	2109	2528	2738	2941	3357	3624
	RM	4478	5969	7156	7749	8324	9501	10257
	D	390	519	622	674	724	826	892
	5' 0"	6'-6"	8'-9"	10'-6"	11'-4"	12'-2"	13'-9"	13'-9"
	RE	1769	2358	2827	3061	3288	3717	3717
	RM	5007	6674	8001	8664	9307	10522	10522
	D	436	581	696	754	809	915	915
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	6' 0"	5'-11"	7'-11"	9'-7"	10'-4"	11'-1"	11'-6"	11'-6"
	RE	1938	2583	3096	3353	3602	3717	3717
	RM	5485	7311	8764	9491	10195	10522	10522
	D	477	636	762	825	887	915	915

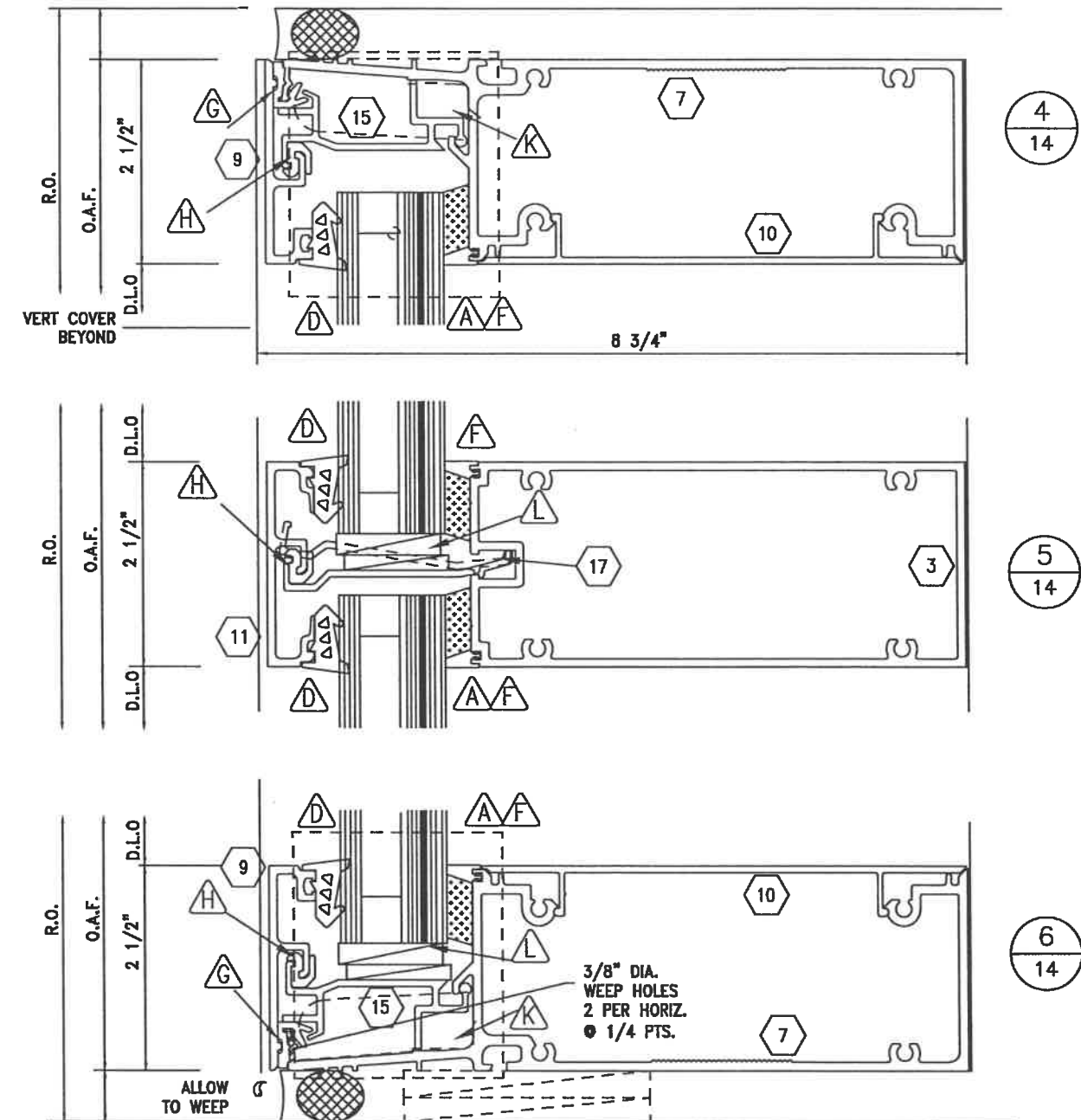
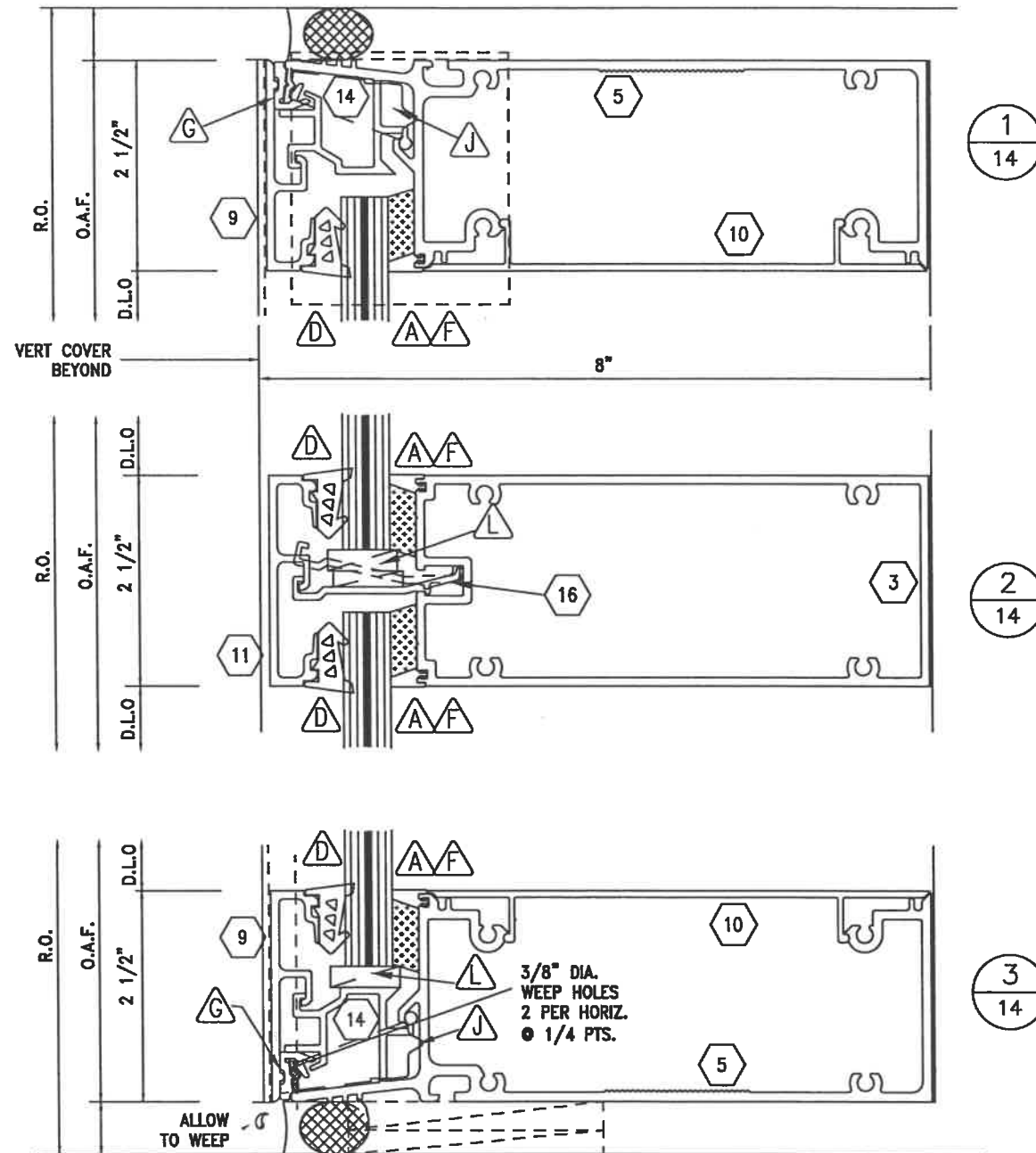
GENERAL NOTES:

- "L" = DISTANCE BETWEEN ANCHORS
- "B" = C/L TO C/L SPACING
- "B" = $\frac{W1 + W2}{2}$ 
- FOR TWIN 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
- RE= REACTION AT HEAD AND SILL (SEE PAGE 13)
- RM= REACTION AT MIDPOINT ANCHOR (SEE PAGE 13)
- D= DEADLOAD REACTION (SEE PAGE 13)

REINFORCING OPTIONS

<div>1</div> <div>COMBINED $I_x = 12.941 \text{ in}^4$</div> <div>NO REINFORCING</div> <div></div>	<div>2</div> <div>COMBINED $I_x = 22.993 \text{ in}^4$</div> <div>$1/4" \times 5 \ 1/2"$ STL BAR</div> <div></div>	<div>3</div> <div>COMBINED $I_x = 33.045 \text{ in}^4$</div> <div>(2) $1/4" \times 5 \ 1/2"$ STL BARS</div> <div></div>	<div>RE</div> <div></div>
<div>4</div> <div>COMBINED $I_x = 38.751 \text{ in}^4$</div> <div>C5x9</div> <div></div>	<div>5</div> <div>COMBINED $I_x = 44.714 \text{ in}^4$</div> <div>C5x6.7 w/ $1/4" \times 5 \ 1/2"$ STL BAR</div> <div></div>	<div>6</div> <div>COMBINED $I_x = 58.254 \text{ in}^4$</div> <div>$1 \ 1/2" \times 5"$ STL BAR</div> <div></div>	<div>7</div> <div>COMBINED $I_x = 73.538 \text{ in}^4$</div> <div>$2" \times 5"$ STL BAR</div> <div></div>

ANCHOR TYPE SUBSTRATE	STRAP ANCHOR	THRU-FRAME ANCHOR	STEEL ANGLES IN VERTICAL	ALUMIMUN LUGS IN VERTICAL	TWIN SPAN MID-SPAN ANCHOR	TWIN-SPAN w/ STACK HORIZ. INTER. ANCHOR	JAMB ANCHOR
WOOD							
CONC.							MAXIMUM END REACTION (1) STRAP-5" LONG = 1870# SEE DETAIL 1/22
STEEL							
METAL STUD							
	MAXIMUM END REACTION (2) STRAPS-8" LONG = 2,715# SEE SHEET 19 FOR DETAILS	MAXIMUM END REACTION = 1,345# SEE SHEET 19 FOR DETAILS	MAXIMUM END REACTION (2) ANGLES = 4,520# TYP. ANGLES w/ (2) FASTENERS REIN. ANGLES w/ (1) FASTENER SEE SHEET 20 FOR DETAILS	MAXIMUM END REACTION = 2,715# (PER TEST ELEV. 12) SEE SHEET 20 FOR DETAILS	MAXIMUM WL REACTION = 8,890# SEE SHEET 21 FOR DETAILS	MAXIMUM WL REACTION 13 1/2" LONG = 10,500# 8" LONG = 5,890# SEE SHEET 21 FOR DETAILS	
GENERAL NOTES: - SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING WITH CURRENT FBC - ACTUAL LENGTH AND NUMBER & SIZE OF HOLES TO BE DETERMINED BY PROJECT SPECIFIC PERIMETER CONDITIONS AND TYPES OF FASTENERS USED.			CORNER ANCHORS - SILL / HEAD REACTION= 				



GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 13
- 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

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NOA-No. **21-0405.15**

Expiration Date: **09/02/2024**

By: *Manuel Perez*
Miami-Dade Product Control

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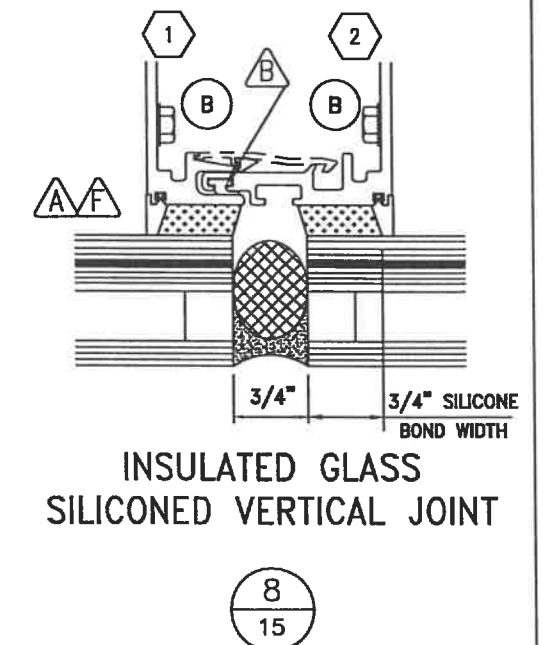
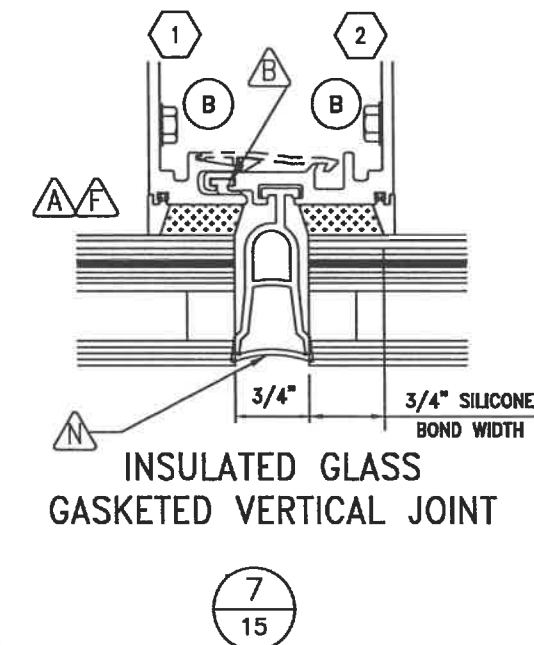
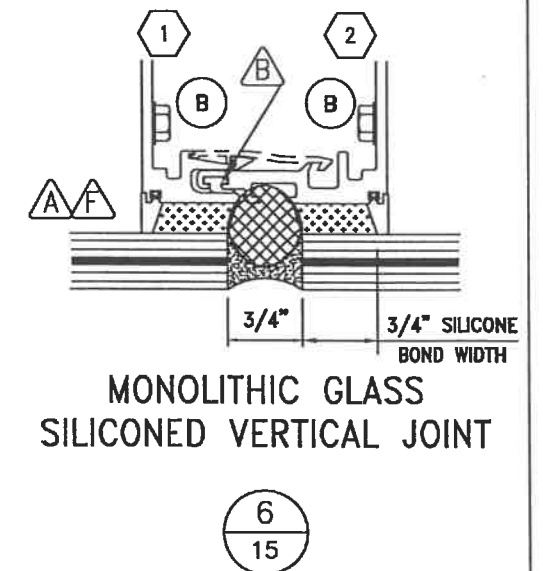
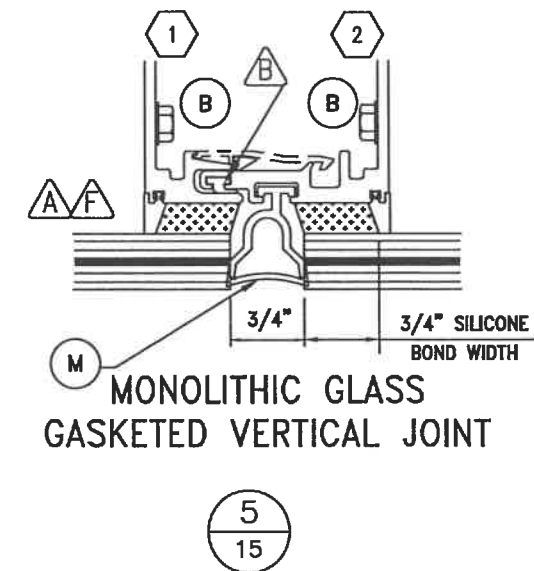
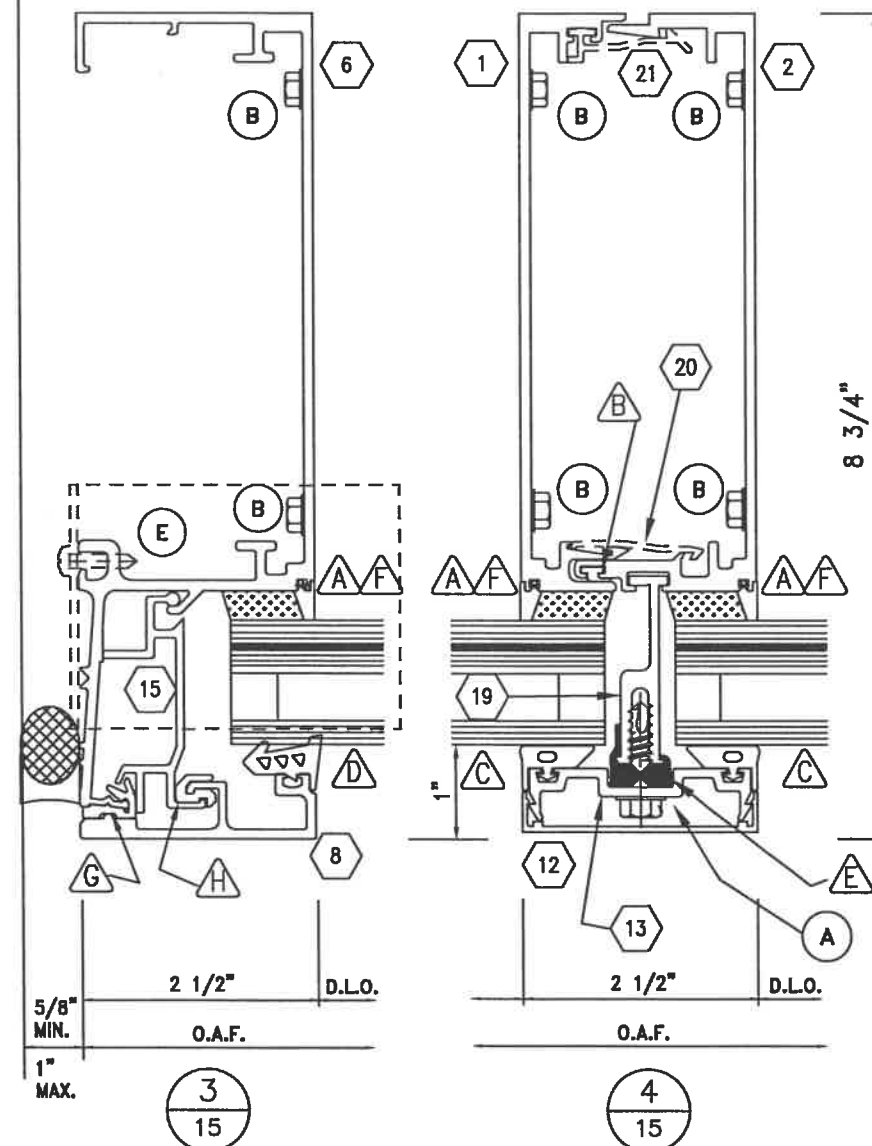
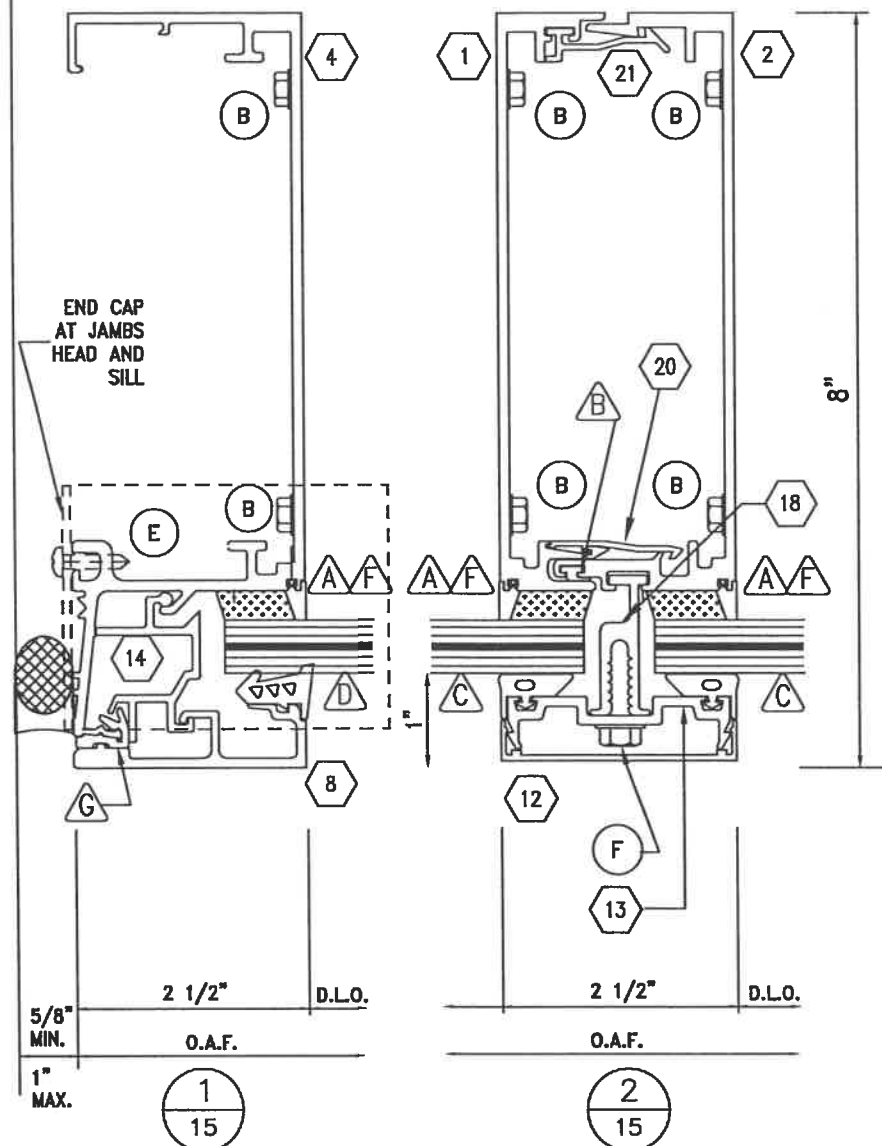
Harmon

HI 7000 SMALL MISSILE
HORIZONTAL DETAILS

DATE: 06/28/04	6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 14 OF 41



SILICONE OR GASKET GLASS JOINT DESIGN:

SILICONE OF GASKET GLASS JOINT DESIGN TESTED TO 90 PSF.

DETERMINE THE DESIGNED WINDLOAD AND THE SMALLEST LEG OF THE LARGEST LITE OF GLASS FOR THE PROJECT.

FOLLOW THE CHART FOR THE 3/4\"/>

IF YOUR SIZE AND WINDLOAD ARE NOT APPROVED, CONSULT THE ARCHITECT OR ENGINEER OF OPTIONS.

3/4\"/>

Smallest leg of largest lite of glass										
Windload:	24"	30"	36"	42"	48"	54"	60"	66"	72"	
20 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	
30 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	
40 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	
50 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	
60 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	
70 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	Not Apvd	Not Apvd	
80 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	Not Apvd	Not Apvd	Not Apvd	
90 PSF	3/4" OK	3/4" OK	3/4" OK	3/4" OK	3/4" OK	Not Apvd	Not Apvd	Not Apvd	Not Apvd	

GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 13
- 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) 651.481.9202

DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Ferrer*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

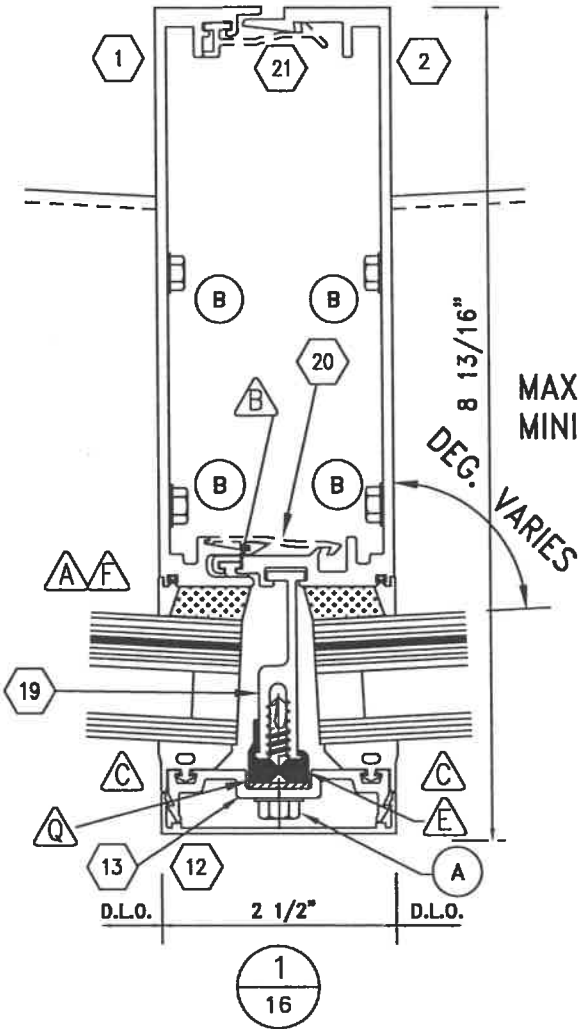
HI 7000 SMALL MISSILE
VERTICAL DETAILS

DATE: 06/28/04	6	6/17/16
1 11/18/08	7	03/05/19
2 3/10/09	8	02/25/21
3 3/16/09		
4 5/22/12		
5 10/03/14		

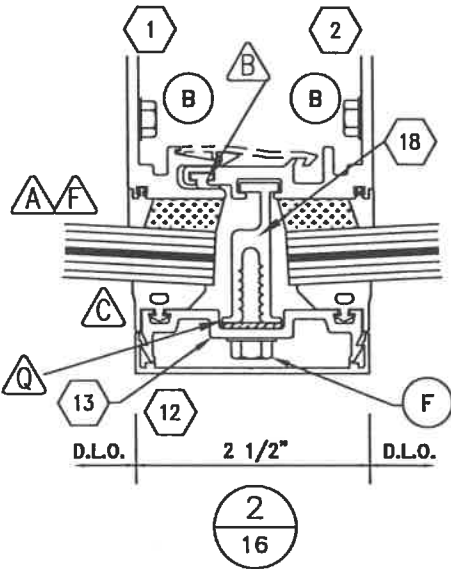
DWG. NO. HI7000SM

SHEET 15 OF 41

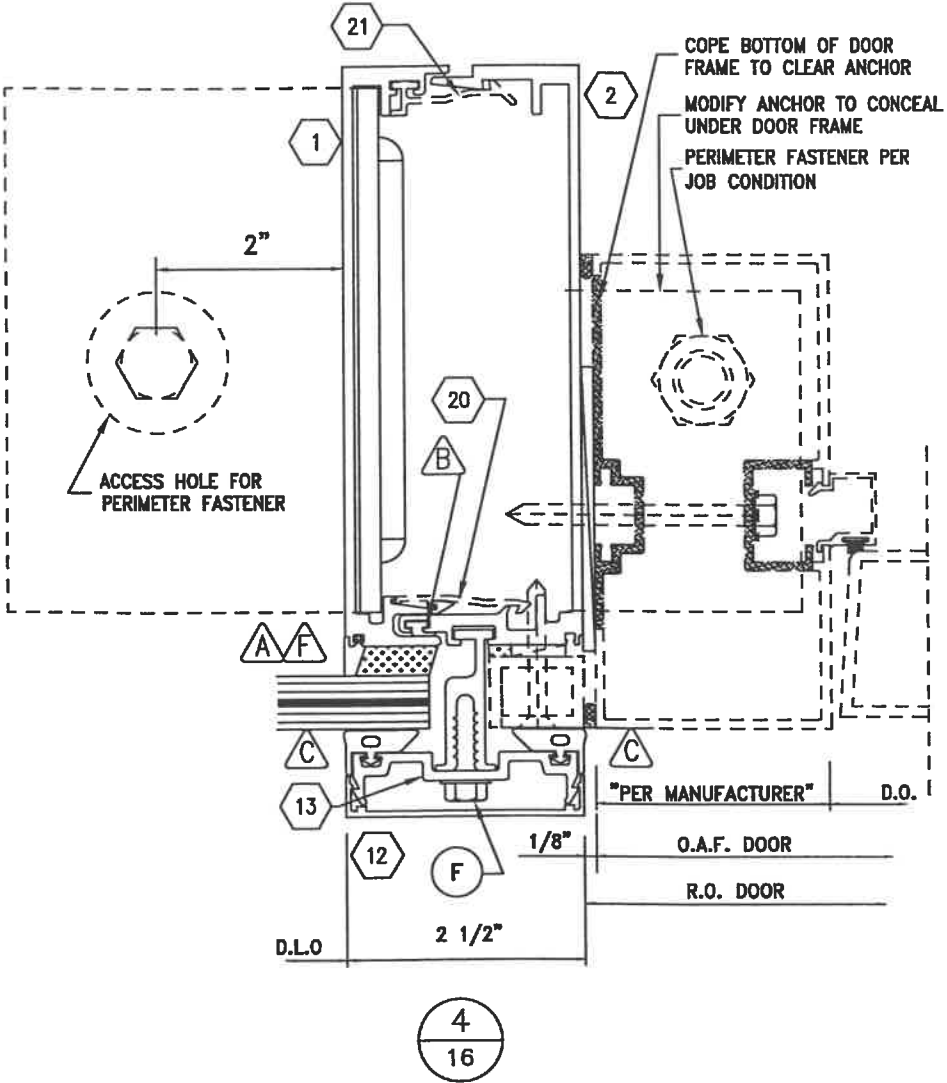
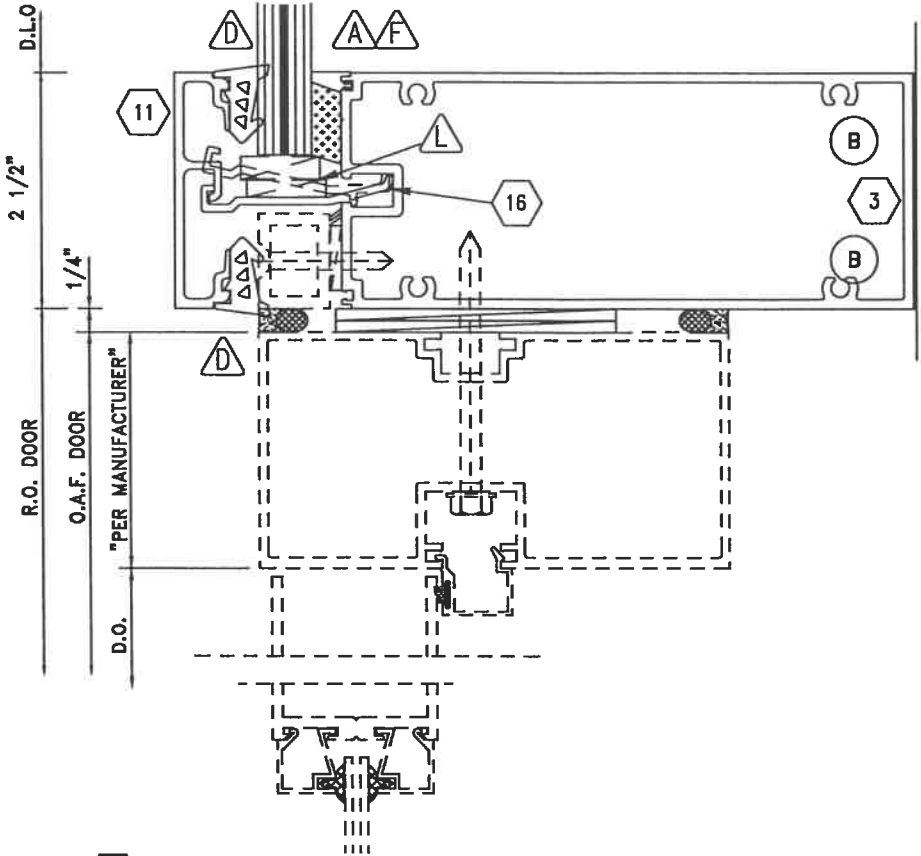
NOTE: SHALLOW HORIZONTALS MAY BE DESIRED TO AVOID EXPOSED EDGES AT VERTICALS DUE TO MITRE.
MAX. 90 P S F WITH THE SHORT HORIZ.



SEGMENTED MULLION
INSULATED GLASS



SEGMENTED MULLION
MONOLITHIC GLASS



GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 13
- FOR PART IDENTIFICATION REFER TO SHEET 2

- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

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

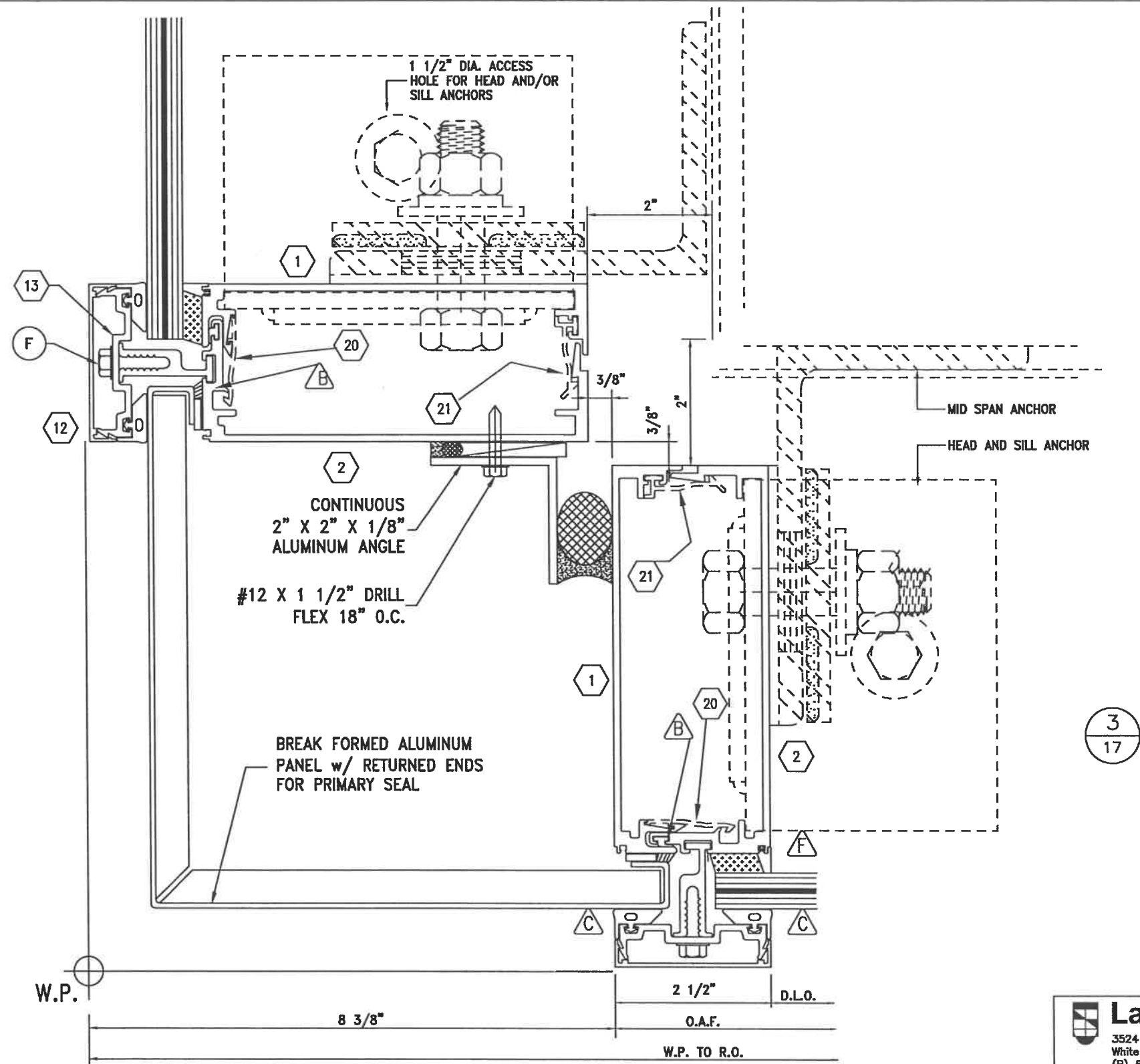
Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201

DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida Building Code
NOA-No. 21-0405.15
Expiration Date: 09/02/2024
By: Manuel Perez
Miami-Dade Product Control

ENGINEER STAMP
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon
7000 SMALL MISSILE
SEGMENTED MULLION & DOOR DETAILS
DATE: 06/28/04
1 11/18/08
2 3/10/09
3 3/16/09
4 5/22/12
5 10/03/14
6 6/17/16
7 03/05/19
8 02/25/21
DWG. NO. HI7000SM
SHEET 16 OF 41



GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

Larson Engineering, Inc.
3524 Labare Road
White Bear Lake, MN 55110
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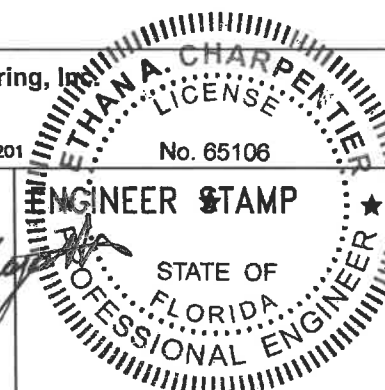
DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code

NOA-No. **21-0405.15**

Expiration Date: **09/02/2024**

By: *Manuel Perez*
Miami-Dade Product Control



MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

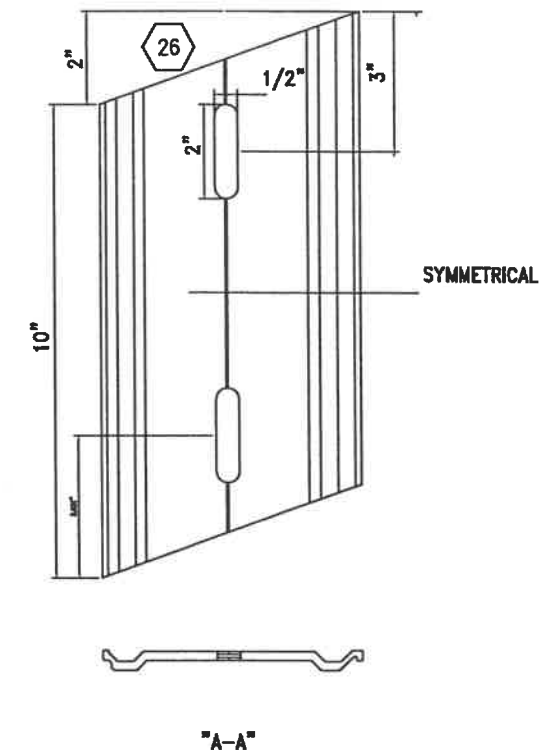
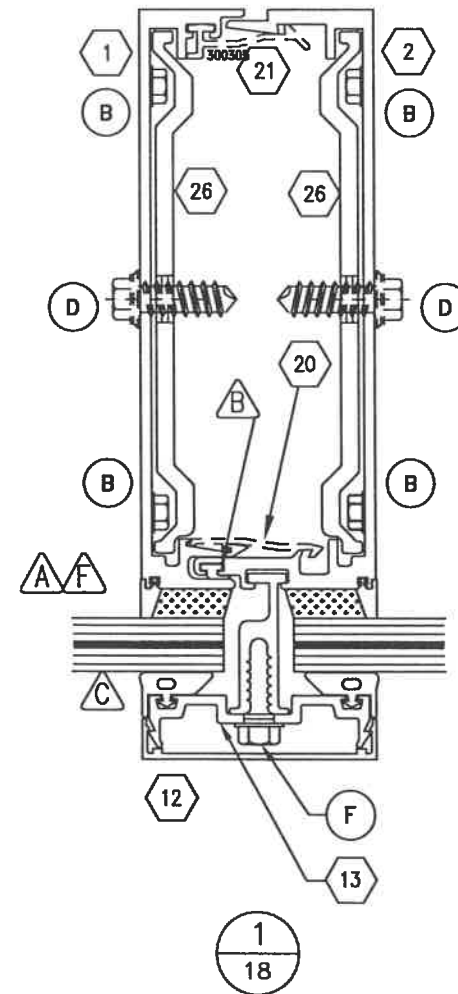
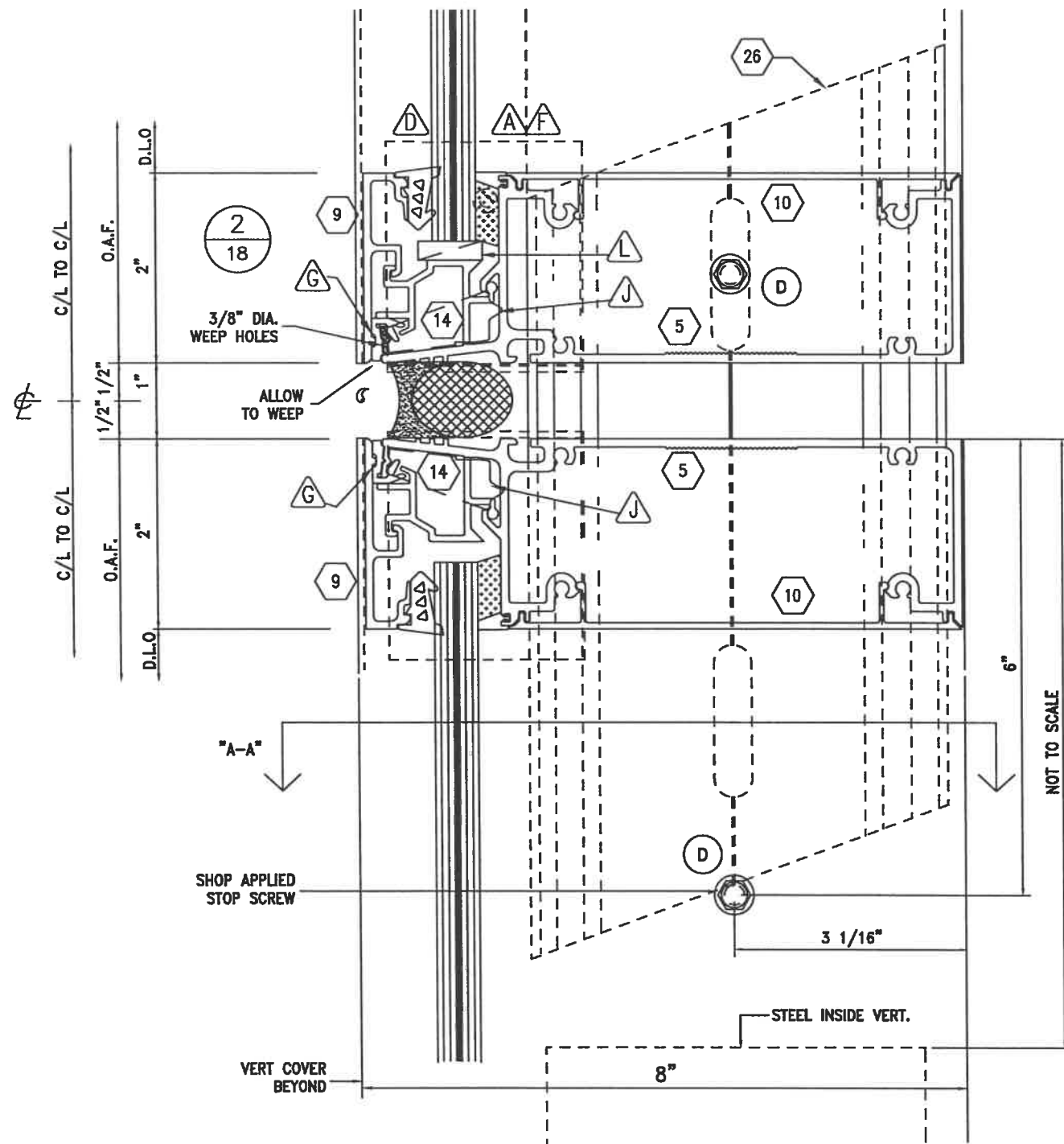
Harmon

HI 7000 SMALL MISSILE
90° OUTSIDE CORNER DETAIL

DATE: 06/28/04	6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 17 OF 41



GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
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DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106
ENGINEER STAMP
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

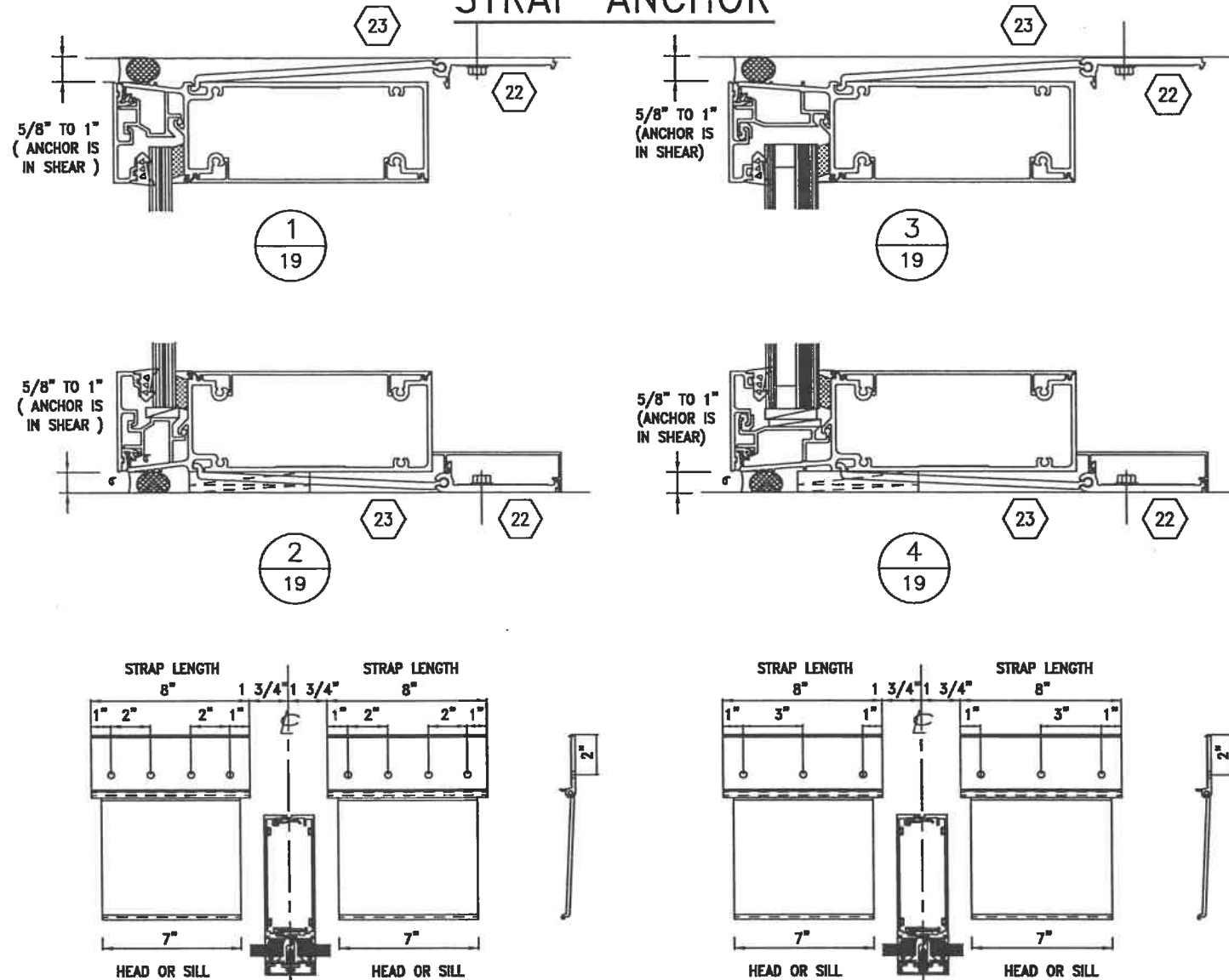
HI 7000 SMALL MISSILE
MULLION SPLICE DETAIL

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 18 OF 41

STRAP ANCHOR



TESTED CONDITIONS SHOWN ABOVE.

- (2) 8" STRAPS TESTED TO 2715# END REACTION
- (1) 8" STRAP TESTED TO 1,345# END REACTION
- ANCHORS MAY BE MADE LONGER TO ACCOMMODATE FASTENERS BASED ON PERIMETER CONDITIONS.
- A MINIMUM OF TWO (2) FASTENERS SHALL ALWAYS BE USED.

ANCHOR FASTENER REQUIREMENTS

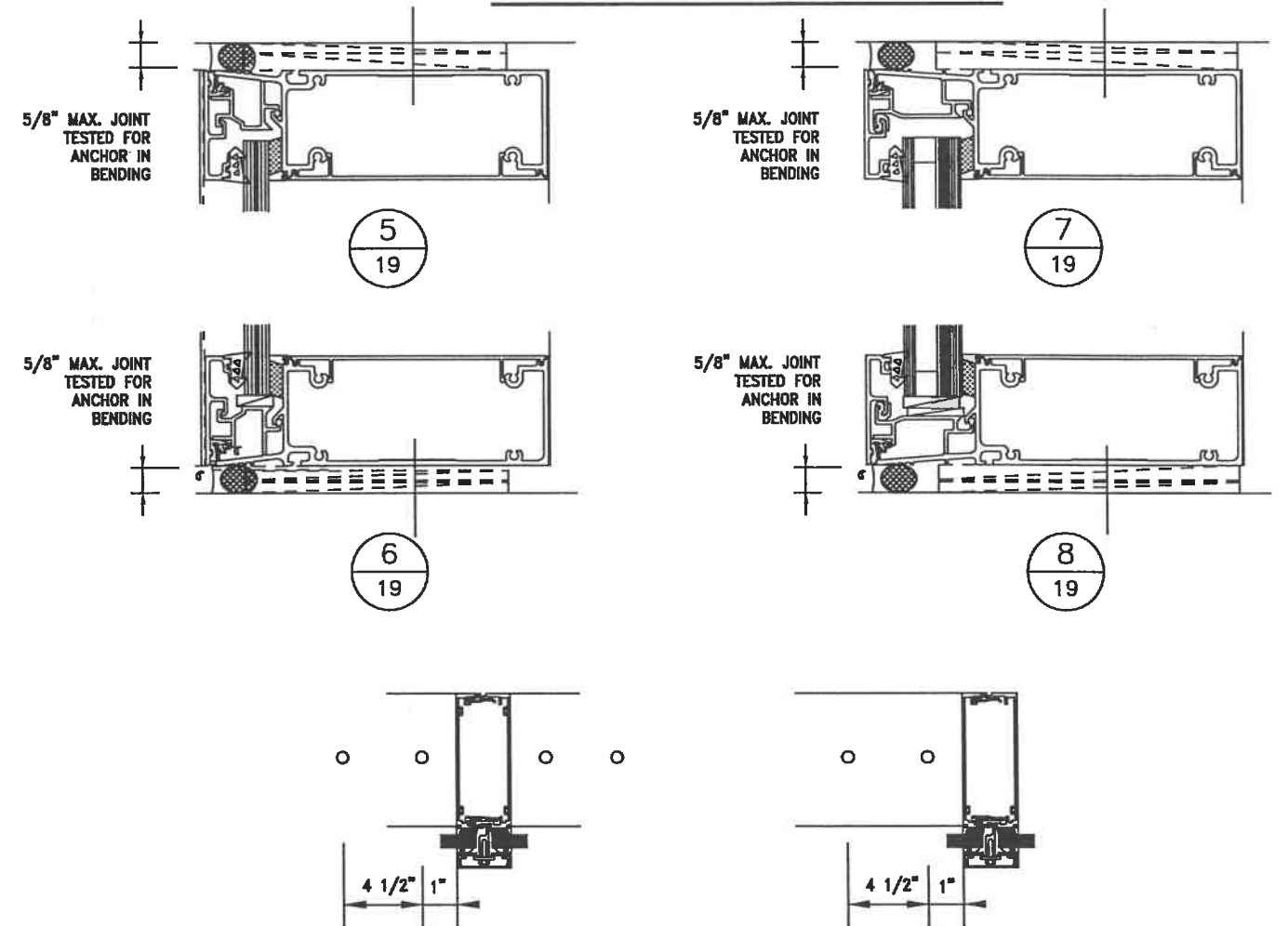
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1,305 #	3/8"x3 1/2" LAG BOLT	3	3"	1 1/2"
CONCRETE	2910 #	3/8" DIA POWERS	2	3"	4 1/2"
STEEL	2,715 #	#14 DRIL-FLEX	3	N/A	1"
METAL STUD	2,230 #	#14 DRIL-FLEX	4	N/A	1"

GENERAL NOTES:

- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING WITH CURRENT 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 SCREWS SHALL BE ELCO "DRIL-FLEX" WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS TO BE POWERS "WEDGE BOLTS".

THRU-FRAME ANCHOR



TESTED CONDITIONS SHOWN ABOVE.

- (4) FASTENERS, (2) EITHER SIDE @ INTERMEDIATE VERTICAL TESTED TO 1,345# END REACTION
- (1) FASTENER ON SAME SIDE @ JAMBS TESTED TO 1185# END REACTION
- FASTENER SPACING AND QUANTITY MAY CHANGE BASED ON PERIMETER CONDITIONS.
- A MINIMUM OF TWO (2) FASTENERS SHALL ALWAYS BE USED (EXCEPT AT JAMBS).

ANCHOR FASTENER REQUIREMENTS

SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1,345 #	3/8" DIA LAG BOLT	4	3"	1 1/2"
CONCRETE	1,345 #	3/8" DIA.	4	3"	2 11/16"
STEEL	1,345 #	3/8" DIA	4	N/A	1"
METAL STUD	1,185 #	11/16" DIA DRIL-FLEX	4	N/A	1"

Larson Engineering, Inc.
3524 Labore Road
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DADE CO. STAMP

PRODUCT REVISED
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Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

Ethan A. Charpentier
LICENSE
No. 65106
ENGINEER-STAR
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

HI 7000 SMALL MISSILE

ANCHOR APPLICATIONS

STRAP & THRU-FRAME

DATE: 06/28/04 6/17/16

1 11/18/08 7 03/05/19

2 3/10/09 8 02/25/21

3 3/16/09

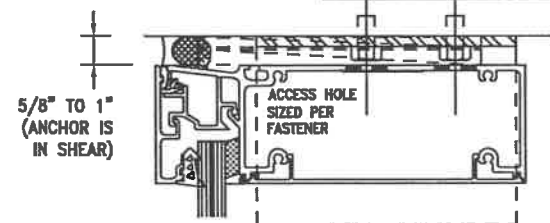
4 5/22/12

5 10/03/14

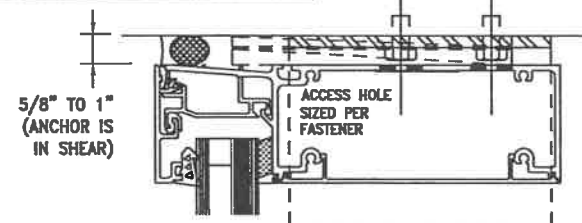
DWG. NO. HI7000SM

SHEET 19 OF 41

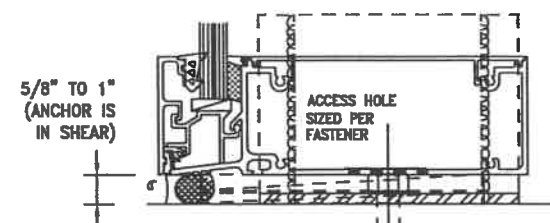
STEEL ANGLES IN VERTICALS



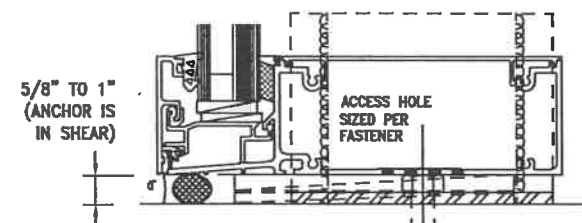
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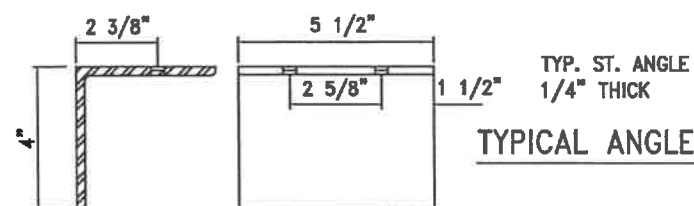
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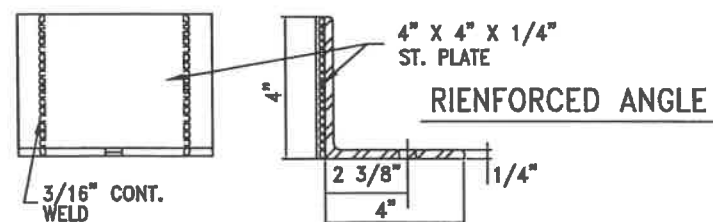
2
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4
20



TYP. ST. ANGLE
1/4\"



REINFORCED ANGLE

ANCHOR FASTENER REQUIREMENTS FOR TYP. ANGLE					
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1,175 #	3/8" DIA LAG	4	3"	1 1/2"
CONCRETE	N/A	N/A	N/A	N/A	N/A
STEEL	4,520 #	3/8" DIA	4	N/A	1"
METAL STUD	860 #	#14 DRIL-FLEX	4	N/A	1"

ANCHOR FASTENER REQUIREMENTS FOR REIN. ANGLE					
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	575 #	3/8" DIA LAG	2	3"	1 1/2"
CONCRETE	4,520 #	5/8" DIA	2	4"	4 13/16"
STEEL	3,470 #	3/8" DIA	2	N/A	1"
METAL STUD	595 #	#14 DRIL-FLEX	2	N/A	1"

TESTED CONDITIONS SHOWN ABOVE

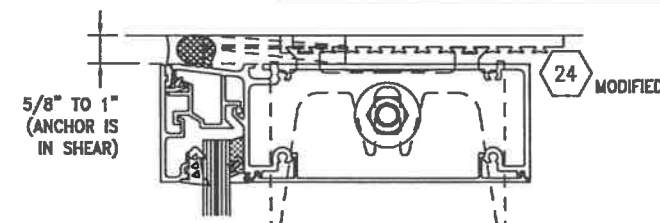
- TYPICAL ANCHOR USED w/ (2) FASTENERS
- REINFORCED ANGLE USED w/ (1) FASTENER. REINFORCING PLATE ADDED TO PREVENT TWIST IMPOSED BY ONLY (1) FASTENER
- ANCHORS OCCUR ON EACH SIDE OF VERTICAL, (1) @ JAMB

GENERAL NOTES:

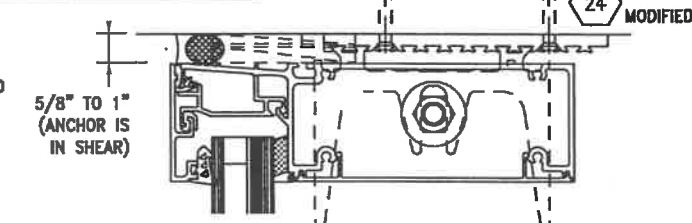
- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING WITH CURRENT FBC
- ACTUAL LENGTH AND NUMBER & SIZE OF HOLES TO BE DETERMINED BY PROJECT SPECIFIC PERIMETER CONDITIONS AND TYPES OF FASTENERS USED.
- CONCRETE STRENGTH MUST BE A MINIMUM OF $F_c=4,500$ PSI
-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

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

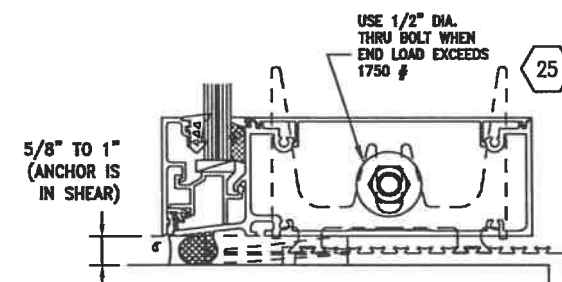
ALUMINUM LUG IN VERTICALS



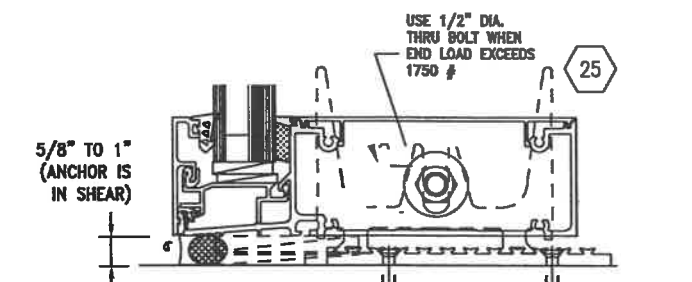
5
20



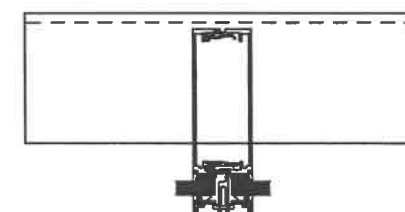
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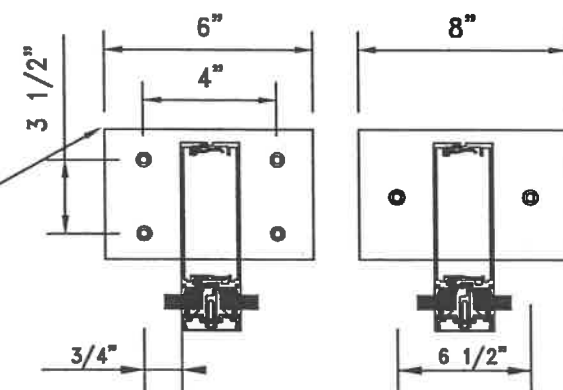
6
20



8
20



DOWNTURNED LEG REMOVED
TO ATTACH TO FLAT SURFACE



TESTED CONDITIONS SHOWN ABOVE

- LUG ANCHOR NOT TESTED AT A HEAD CONDITION
- WHEN TYPICAL ANCHOR IS USED QUANTITY AND SPACING OF FASTENERS IN DOWN-TURNED LEG TO BE DETERMINED BY PERIMETER CONDITIONS.
- MODIFIED ANCHOR USE w/ (4) FASTENERS IN TOP LEG AS SHOWN

ANCHOR FASTENER REQUIREMENTS					
SUBSTRATE	REACTION	FASTENER TYPE	QTY.	MIN. EMBED.	MIN. EDGE DIST.
WOOD	1,110 #	3/8" DIA LAG	4	3"	1 1/2"
CONCRETE	2,715 #	1/2" DIA	2	4 1/8"	3 1/8"
STEEL	2,715 #	#14 DRIL-FLEX	4	N/A	1"
METAL STUD	1,340 #	#14 DRIL-FLEX	4	N/A	1"

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9200

DADE CO. STAMP

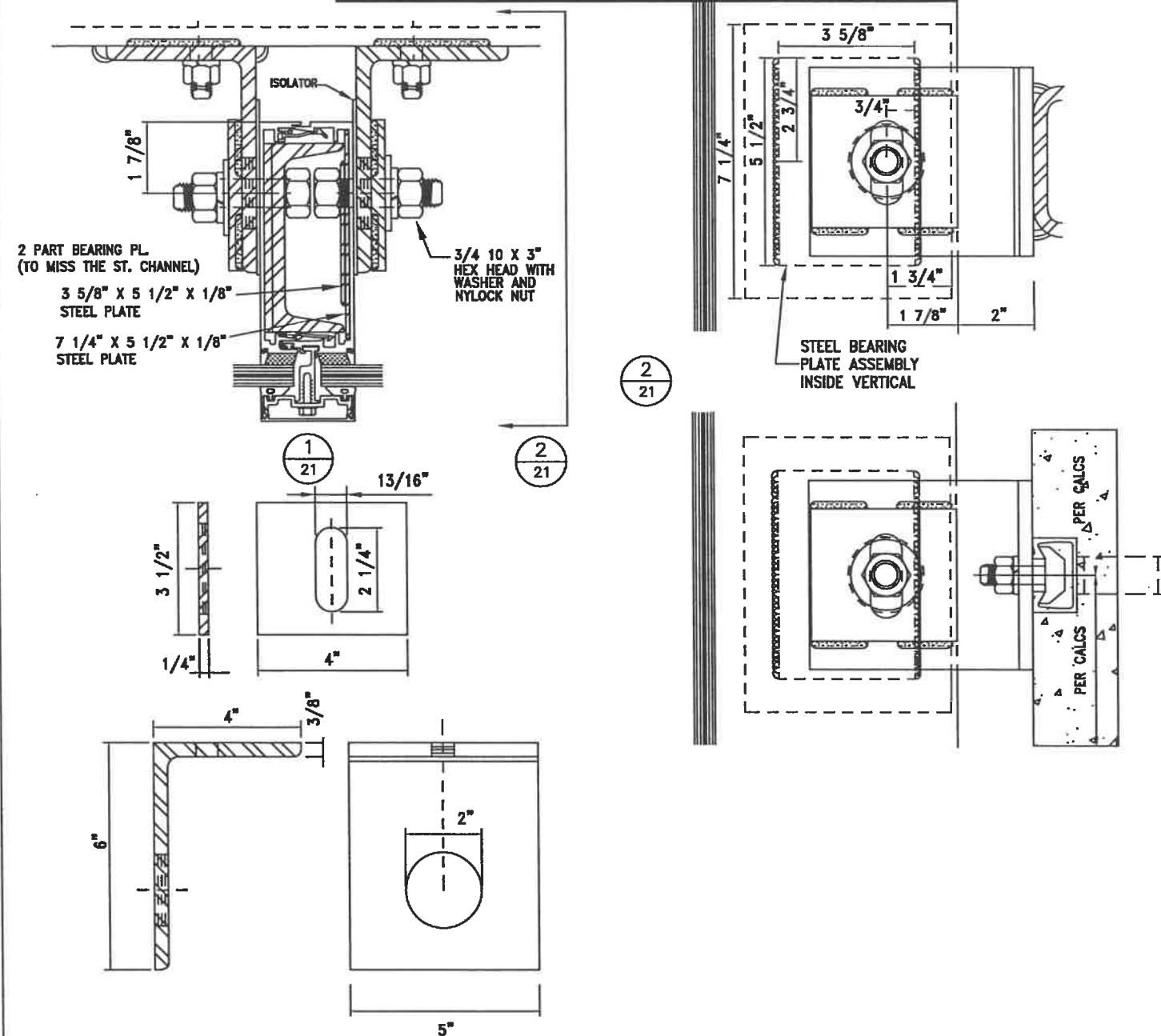
PRODUCT REVISED
as complying with the Florida
Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

Ethana A. Charpentier
LICENSE
No. 65106
ENGINEER STAMP
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

HI 7000 SMALL MISSILE
ANCHOR APPLICATIONS
STEEL ANGLES & ALUMINUM LUGS
DATE: 06/28/04 6/17/16
1 11/18/08 7 03/05/19
2 3/10/09 8 02/25/21
3 3/16/09
4 5/22/12
5 10/03/14
DWG. NO. HI7000SM
SHEET 20 OF 41

TWIN SPAN MIDPOINT ANCHOR



TESTED CONDITION SHOWN ABOVE.

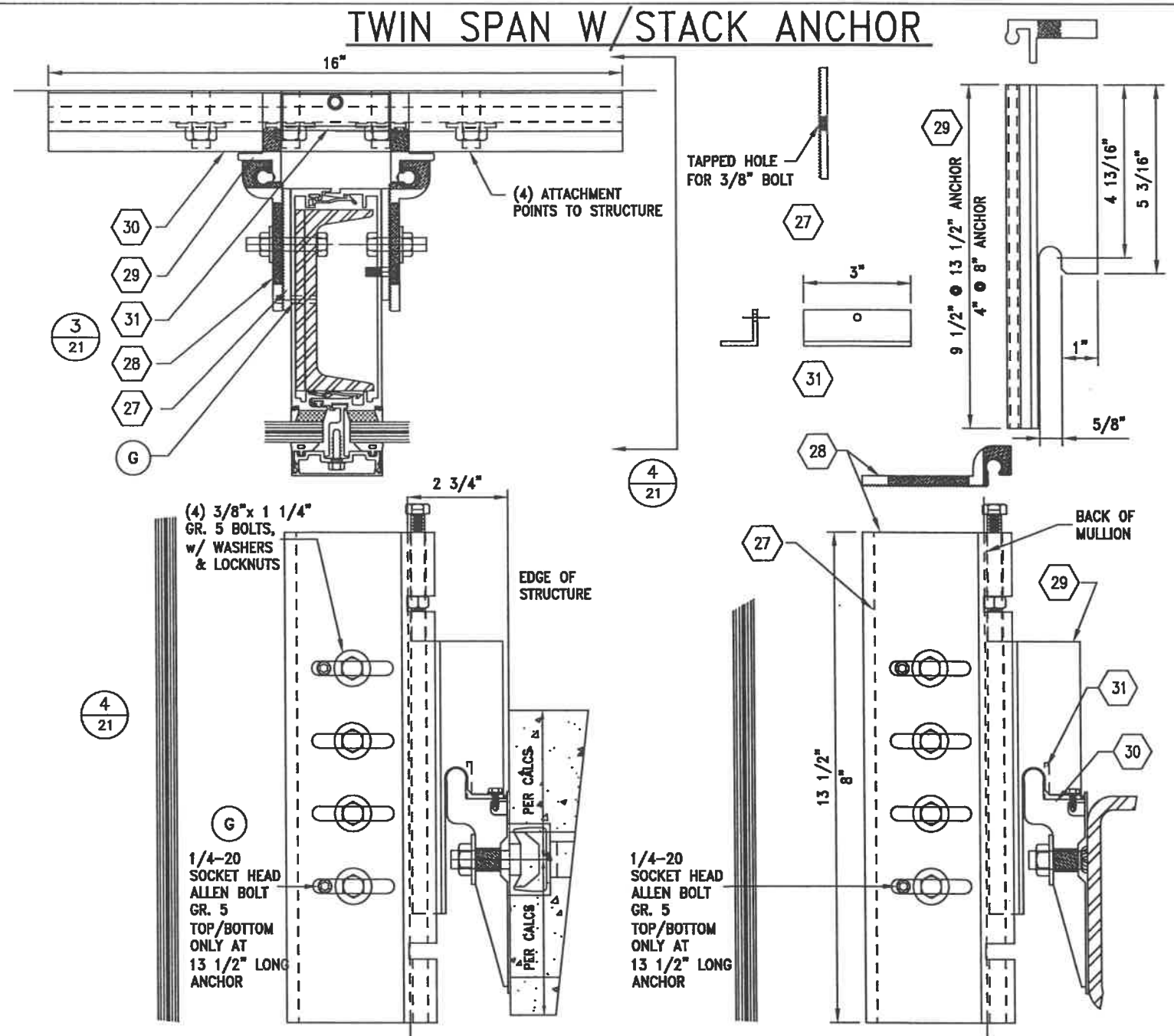
- ANCHOR ACCOMODATED 8,890 # WL REACTION
- ANCHORS MAY BE MADE LONGER TO ACCOMMODATE MORE FASTENERS BASED ON PERIMETER CONDITIONS.
- WELD SIZES TO BE DETERMINED ON A PER JOB BASIS.

GENERAL NOTES:

- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM, BASED ON MOCKUP CALCULATIONS COMPLYING WITH CURRENT 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 SCREWS SHALL BE ELCO "DRIL-FLEX" WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS TO BE POWERS "WEDGE BOLTS".

TWIN SPAN W/STACK ANCHOR



TESTED CONDITION SHOWN ABOVE.

- ANCHOR ACCOMODATED 10,500# WL REACTION, 1,000# DL REACTION FOR 13 1/2" LONG ANCHOR
- ANCHORS MAY BE MADE LONGER TO ACCOMMODATE MORE FASTENERS BASED ON PERIMETER CONDITIONS.
- 8" ANCHOR ACCOMODATED 10,500# WL REACTION, WHEN USED AS WINDLOAD ONLY
- 8" ANCHOR ACCOMODATED 4,400# WL WITH 1,000# DEADLOAD APPLIED

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

NOA-No. **21-0405.15**

Expiration Date: **09/02/2024**

By: *Manuel Perez*

Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65108
ENGINEER STAMP
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-0200005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65108

Harmon

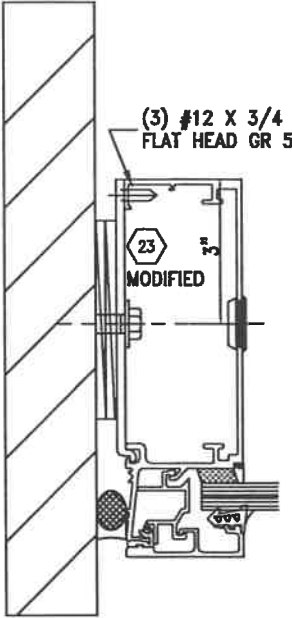
HI 7000 SMALL MISSILE
MATERIAL LISTS

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

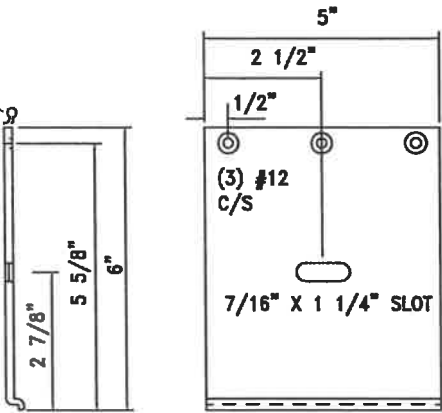
SHEET 21 OF 41

JAMB ANCHOR



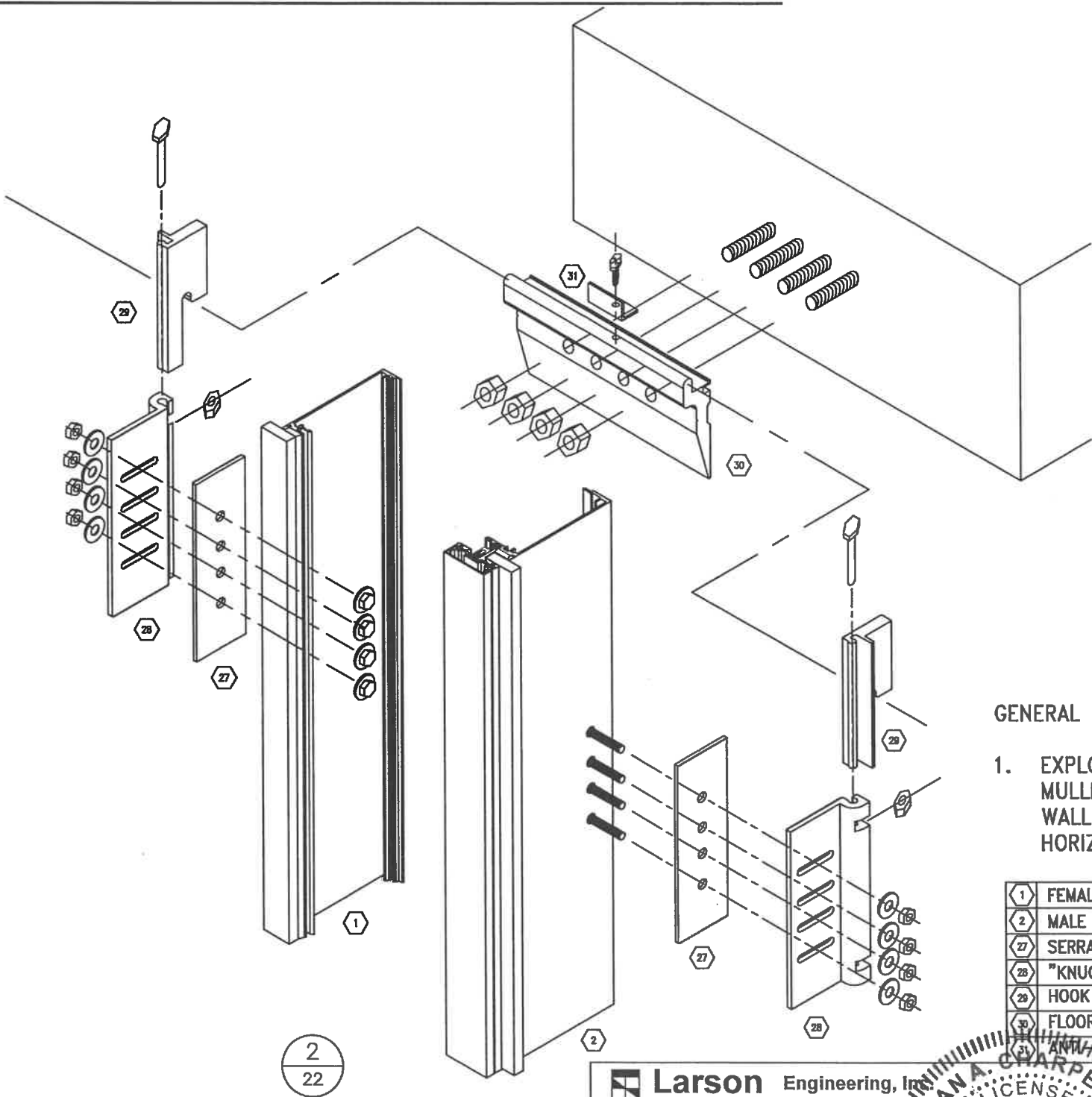
1
22

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



TESTED CONDITIONS SHOWN ABOVE.
- (1) 5" MODIFIED STRAP TESTED TO 1870# END REACTION
- ANCHORS MAY BE MADE LONGER TO ACCOMMADATE
MORE FASTENERS BASED ON JOB SPECIFIC PERIMETER
CONDITIONS.

EXPLODED VIEW OF TYP. CURTAIN WALL ANCHOR



2
22

GENERAL NOTES:
1. EXPLODED VIEW OF TYPICAL
MULLION ANCHOR FOR CURTAIN
WALL APPLICATION WITH STACK
HORIZONTAL

1	FEMALE VERTICAL MULLION	306001
2	MALE VERTICAL MULLION	306002
27	SERRATED PLATE	930110
28	"KNUCKLE" ANCHOR	930109
29	HOOK ANCHOR	930108
30	FLOOR EDGE PLATE	930111
31	ANTI-WALK ANGLE	.

GENERAL NOTES:

- SIZES OF ANCHOR COMPONENTS LISTED ABOVE ARE A MINIMUM,
BASED ON MOCKUP CALCULATIONS COMPLYING WITH CURRENT 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 SCREWS SHALL BE ELCO "DRIL-FLEX"
WITH STALGUARD COATING.
- ALL CONCRETE ANCHORS TO BE POWERS "WEDGE BOLTS".

Larson Engineering, Inc.
3524 Labare Road
White Bear Lake, MN 55110
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DADE CO. STAMP

PRODUCT REVISED
as complying with the Florida
Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

Harmon
7000 SMALL MISSILE
ANCHOR APPLICATIONS
EXPLODED VIEW
DATE: 06/28/04
1 11/18/08
2 3/10/09
3 3/16/09
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MAY 17 2021
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Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon
7000 SMALL MISSILE
ANCHOR APPLICATIONS
EXPLODED VIEW
DATE: 06/28/04
1 11/18/08
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7 03/05/19
8 02/25/21
DWG. NO. H17000SM
SHEET 22 OF 41

JAMB MULLIONS SINGLE SPAN

REINFORCING
OPTIONS

8 9 10 11

	"B"	Case 8 "L"/"R"	Case 9 "L"/"R"	Case 10 "L"/"R"	Case 11 "L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3'-0"	13'-7" 656	16'-5" 793	18'-3" 879	20'-1" 967
	4'-0"	11'-10" 751	15'-4" 972	17'-0" 1077	18'-9" 1185
	5'-0"	10'-8" 836	14'-3" 1118	16'-2" 1264	17'-9" 1391
	6'-0"	9'-9" 912	13'-1" 1220	15'-5" 1442	17'-0" 1587
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	3'-0"	12'-7" 708	15'-10" 890	17'-6" 987	19'-3" 1086
	4'-0"	11'-0" 811	14'-8" 1085	16'-4" 1209	18'-0" 1331
	5'-0"	9'-10" 902	13'-2" 1207	15'-6" 1419	17'-1" 1561
	6'-0"	9'-0" 985	12'-1" 1318	14'-10" 1618	16'-4" 1781
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	3'-0"	11'-9" 757	15'-3" 984	16'-11" 1091	18'-8" 1200
	4'-0"	10'-3" 867	13'-9" 1160	15'-10" 1337	17'-5" 1471
	5'-0"	9'-3" 965	12'-4" 1291	15'-0" 1568	16'-6" 1726
	6'-0"	8'-5" 1053	11'-4" 1409	13'-11" 1732	15'-10" 1969
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	3'-0"	11'-1" 803	14'-10" 1074	16'-5" 1191	18'-1" 1311
	4'-0"	9'-8" 920	12'-11" 1230	15'-4" 1460	16'-11" 1607
	5'-0"	8'-8" 1023	11'-8" 1369	14'-4" 1683	16'-0" 1885
	6'-0"	7'-11" 1117	10'-8" 1494	13'-1" 1837	15'-4" 2150
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3'-0"	10'-6" 847	14'-1" 1133	16'-0" 1289	17'-8" 1419
	4'-0"	9'-2" 970	12'-3" 1297	15'-0" 1580	16'-6" 1739
	5'-0"	8'-3" 1079	11'-0" 1443	13'-7" 1774	15'-7" 2040
	6'-0"	7'-6" 1177	10'-1" 1575	12'-5" 1936	14'-11" 2327
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	3'-0"	10'-0" 888	13'-5" 1188	15'-8" 1385	17'-3" 1524
	4'-0"	8'-9" 1017	11'-8" 1360	14'-5" 1672	16'-1" 1868
	5'-0"	7'-10" 1131	10'-6" 1513	12'-11" 1860	15'-3" 2191
	6'-0"	7'-2" 1235	9'-8" 1652	11'-10" 2031	13'-9" 2355
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	3'-0"	9'-7" 927	12'-10" 1241	15'-4" 1478	16'-10" 1626
	4'-0"	8'-4" 1062	11'-2" 1421	13'-9" 1746	15'-9" 1993
	5'-0"	7'-6" 1181	10'-1" 1581	12'-5" 1943	14'-11" 2339
	6'-0"	6'-11" 1290	9'-3" 1726	11'-4" 2121	12'-7" 2355
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	3'-0"	9'-3" 965	12'-4" 1291	15'-0" 1569	16'-5" 1727
	4'-0"	8'-0" 1105	10'-9" 1479	13'-3" 1818	15'-5" 2117
	5'-0"	7'-3" 1230	9'-8" 1645	11'-11" 2022	13'-10" 2355
	6'-0"	6'-7" 1342	8'-10" 1796	10'-11" 2208	11'-8" 2355

JAMB MULLIONS TWIN SPAN

REINFORCING
OPTIONS

8 9 10 11

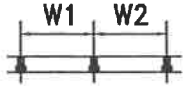
	"B"	Case 8 "L"/"R"	Case 9 "L"/"R"	Case 10 "L"/"R"	Case 11 "L"/"R"
UP TO MAXIMUM 60 PSF POS. OR NEG. LOAD	3'-0"	14'-7" 538	14'-7" 538	14'-7" 538	14'-7" 538
	4'-0"	13'-7" 658	14'-7" 706	14'-7" 706	14'-7" 706
	5'-0"	12'-3" 732	14'-7" 874	14'-7" 874	14'-7" 874
	6'-0"	11'-2" 799	14'-7" 1041	14'-7" 1041	14'-7" 1041
UP TO MAXIMUM 70 PSF POS. OR NEG. LOAD	3'-0"	14'-5" 620	14'-7" 628	14'-7" 628	14'-7" 628
	4'-0"	12'-7" 710	14'-7" 824	14'-7" 824	14'-7" 824
	5'-0"	11'-4" 790	14'-7" 1019	14'-7" 1019	14'-7" 1019
	6'-0"	10'-4" 863	13'-11" 1154	14'-7" 1215	14'-7" 1215
UP TO MAXIMUM 80 PSF POS. OR NEG. LOAD	3'-0"	13'-6" 663	14'-7" 718	14'-7" 718	14'-7" 718
	4'-0"	11'-9" 759	14'-7" 941	14'-7" 941	14'-7" 941
	5'-0"	10'-7" 845	14'-2" 1130	14'-7" 1165	14'-7" 1165
	6'-0"	9'-8" 922	13'-0" 1234	14'-7" 1388	14'-7" 1388
UP TO MAXIMUM 90 PSF POS. OR NEG. LOAD	3'-0"	12'-9" 703	14'-7" 807	14'-7" 807	14'-7" 807
	4'-0"	11'-1" 805	14'-7" 1059	14'-7" 1059	14'-7" 1059
	5'-0"	10'-0" 898	13'-4" 1198	14'-7" 1310	14'-7" 1310
	6'-0"	9'-2" 978	12'-3" 1308	14'-7" 1562	14'-7" 1562

REINFORCING
OPTIONS





8 9 10 11


	"B"	Case 8 "L"/"R"	Case 9 "L"/"R"	Case 10 "L"/"R"	Case 11 "L"/"R"
UP TO MAXIMUM 100 PSF POS. OR NEG. LOAD	3'-0"	12'-1" 741	14'-7" 897	14'-7" 897	14'-7" 897
	4'-0"	10'-6" 849	14'-1" 1136	14'-7" 1176	14'-7" 1176
	5'-0"	9'-6" 944	12'-8" 1263	14'-7" 1456	14'-7" 1456
	6'-0"	8'-8" 1031	11'-7" 1379	14'-3" 1695	14'-7" 1735
UP TO MAXIMUM 110 PSF POS. OR NEG. LOAD	3'-0"	11'-6" 777	14'-7" 987	14'-7" 987	14'-7" 987
	4'-0"	10'-0" 890	13'-5" 1191	14'-7" 1294	14'-7" 1294
	5'-0"	9'-0" 990	12'-1" 1325	14'-7" 1601	14'-7" 1601
	6'-0"	8'-3" 1081	11'-1" 1446	13'-7" 1778	14'-7" 1778
UP TO MAXIMUM 120 PSF POS. OR NEG. LOAD	3'-0"	11'-0" 812	14'-7" 1076	14'-7" 1076	14'-7" 1076
	4'-0"	9'-7" 930	12'-10" 1244	14'-7" 1412	14'-7" 1412
	5'-0"	8'-8" 1034	11'-7" 1384	14'-3" 1701	14'-7" 1747
	6'-0"	7'-11" 1129	10'-7" 1511	13'-0" 1857	14'-7" 1857
UP TO MAXIMUM 130 PSF POS. OR NEG. LOAD	3'-0"	10'-7" 845	14'-2" 1130	14'-7" 1166	14'-7" 1166
	4'-0"	9'-3" 968	12'-4" 1295	14'-7" 1529	14'-7" 1529
	5'-0"	8'-4" 1077	11'-1" 1440	13'-8" 1770	14'-7" 1770
	6'-0"	7'-7" 1175	10'-2" 1572	13'-8" 1857	14'-7" 1857


GENERAL NOTES:

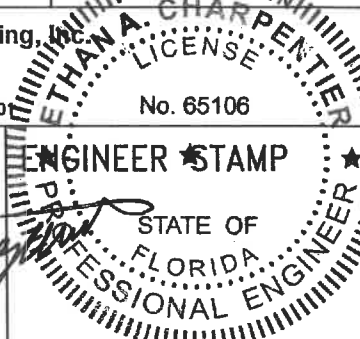
- JAMB MULLION SPAN TABLES ARE BASED ON MONOLITHIC PART 306004. THIS TABLE IS CONSERVATIVE FOR INSULATED PART 306003.
- SPANS ARE BASED ON 5/8" JOINT DIMENSION AND 95 1/4" MAXIMUM DLO HEIGHT.
- "L" = MAXIMUM MULLION SPAN
- "B" = C/L TO C/L SPACING
- "B" = $\frac{W1 + W2}{2}$ 
- FOR SINGLE SPAN MAXIMUM DEFL. = L/180 or 1"
- (WHEN STEEL RIENF. IS USED, LENGTH OF STEEL IS SPAN LENGTH MINUS 12")
- SPANS ARE LIMITED BY MAXIMUM TESTED END REACTIONS
- R= REACTION (REFER TO PAGE 13 FOR BUILDING CONDITION TYPES AND PAGES 19, 20, 21, 23 FOR REACTION DETAIL OPTIONS)


REINFORCING OPTIONS

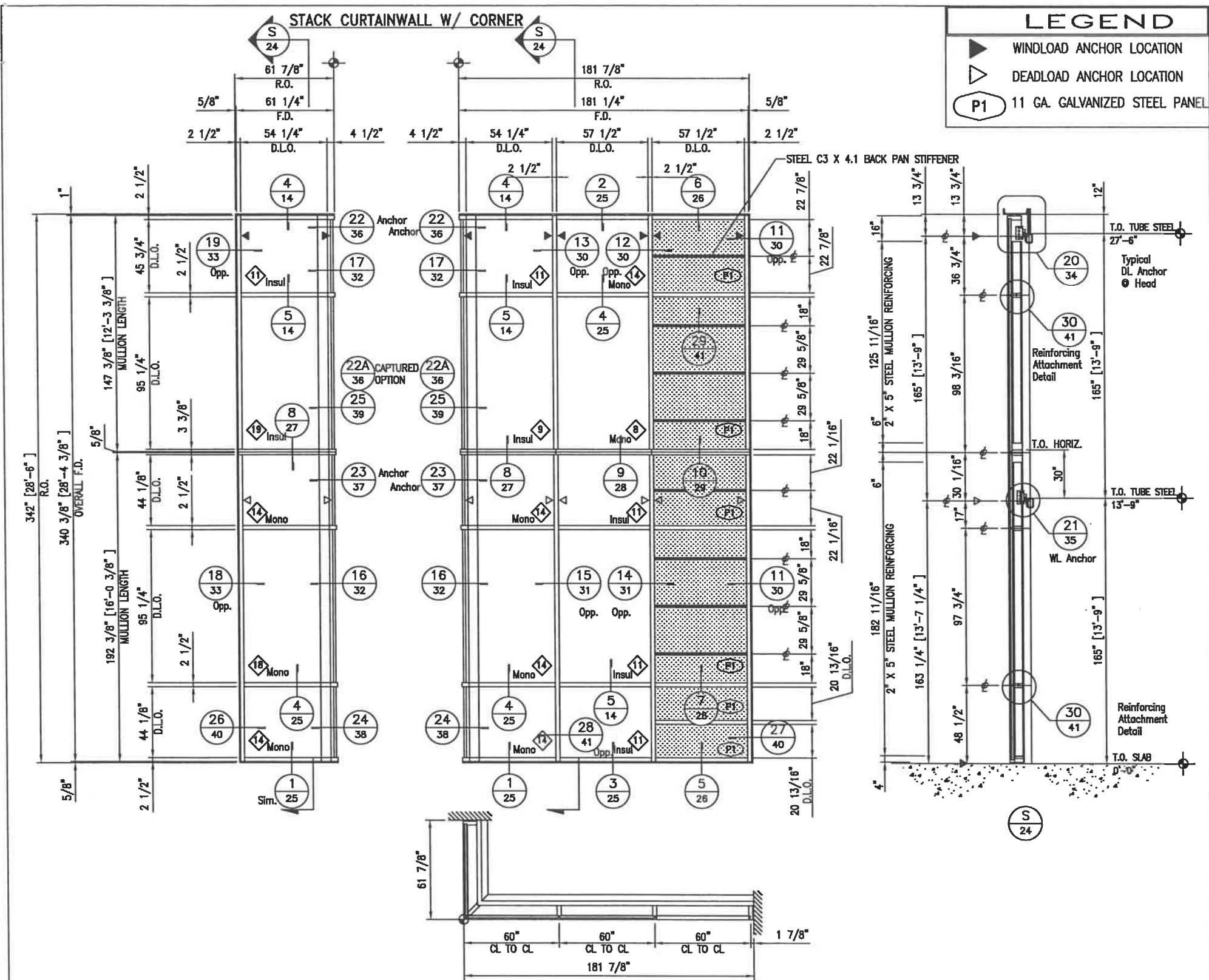
8	9	10	11
COMBINED Ix = 12.722 in ⁴	COMBINED Ix = 22.772 in ⁴ 1/4" X 5 1/2"	COMBINED Ix = 34.443 in ⁴ C5x6.7	COMBINED Ix = 50.482 in ⁴ 1 1/4" X 5"
			

**Larson Engineering, Inc.**
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White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9200

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PRODUCT REVISED
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Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

**ENGINEER STAMP**
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

**Harmon**
HI 7000 SMALL MISSILE
ANCHOR APPLICATIONS
JAMBS
DATE: 06/28/04 **6** 6/17/16
1 11/18/08 **7** 03/05/19
2 3/10/09 **8** 02/25/21
3 3/16/09
4 5/22/12
5 10/03/14
DWG. NO. HI7000SM
SHEET 23 OF 41



LEGEND

▶ WINDLOAD ANCHOR LOCATION
 ▽ DEADLOAD ANCHOR LOCATION
 (P1) 11 GA. GALVANIZED STEEL PANEL

HI-7000 OPTIONS

SYSTEM APPLICATION GUIDELINES:

- 1 SELECT GLASS FROM CHARTS ON SHEET 7. NOTE THE GLASS THICKNESS AND 4-SIDE CAPTURED VERSUS CAPTURED/SSG OPTIONS.
- 2 SELECT MULLION & REINFORCING AS REQUIRED FROM CHARTS ON SHEET 12 FOR TWIN SPAN w/ STACK HORIZONTAL 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 13. 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 13.

CORNER APPLICATION

13'-9" SPAN (MAX.) ANCHOR TO ANCHOR
 5'-0" MODULE (MAX.)

SEE SHEET 32 FOR DETAILS
 SEE DETAIL 22A ON SHEET 36 FOR
 CAPTURED OPTION.

STACK APPLICATION

57 1/2" DLO MAXIMUM.
 MAXIMUM TESTED SHEAR
 IN STACK HORIZONTAL= 3,695 #

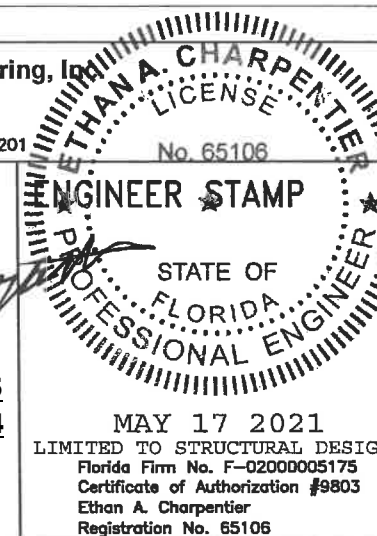
SEE SHEET 27 FOR DETAILS

GENERAL NOTES:

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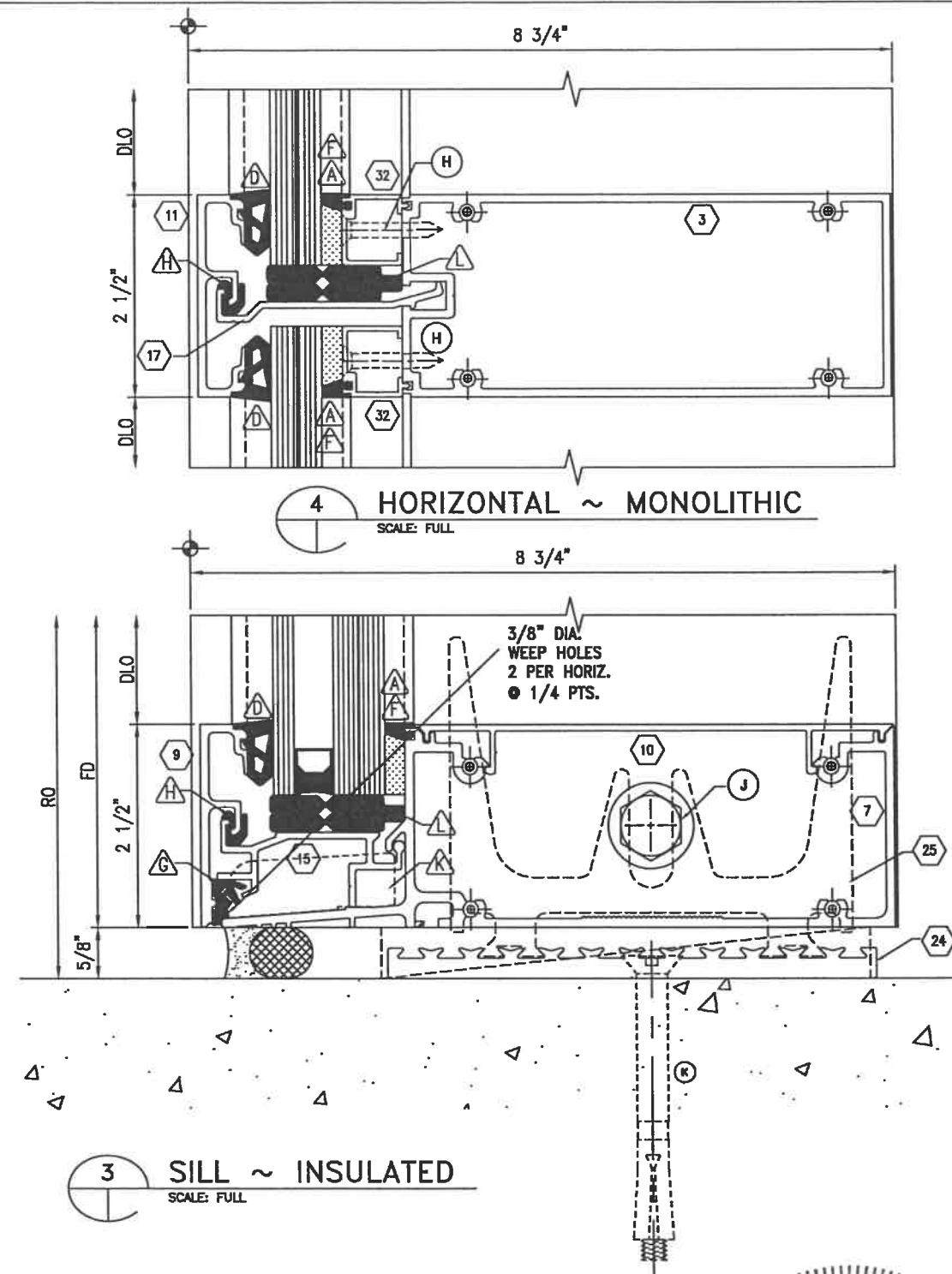
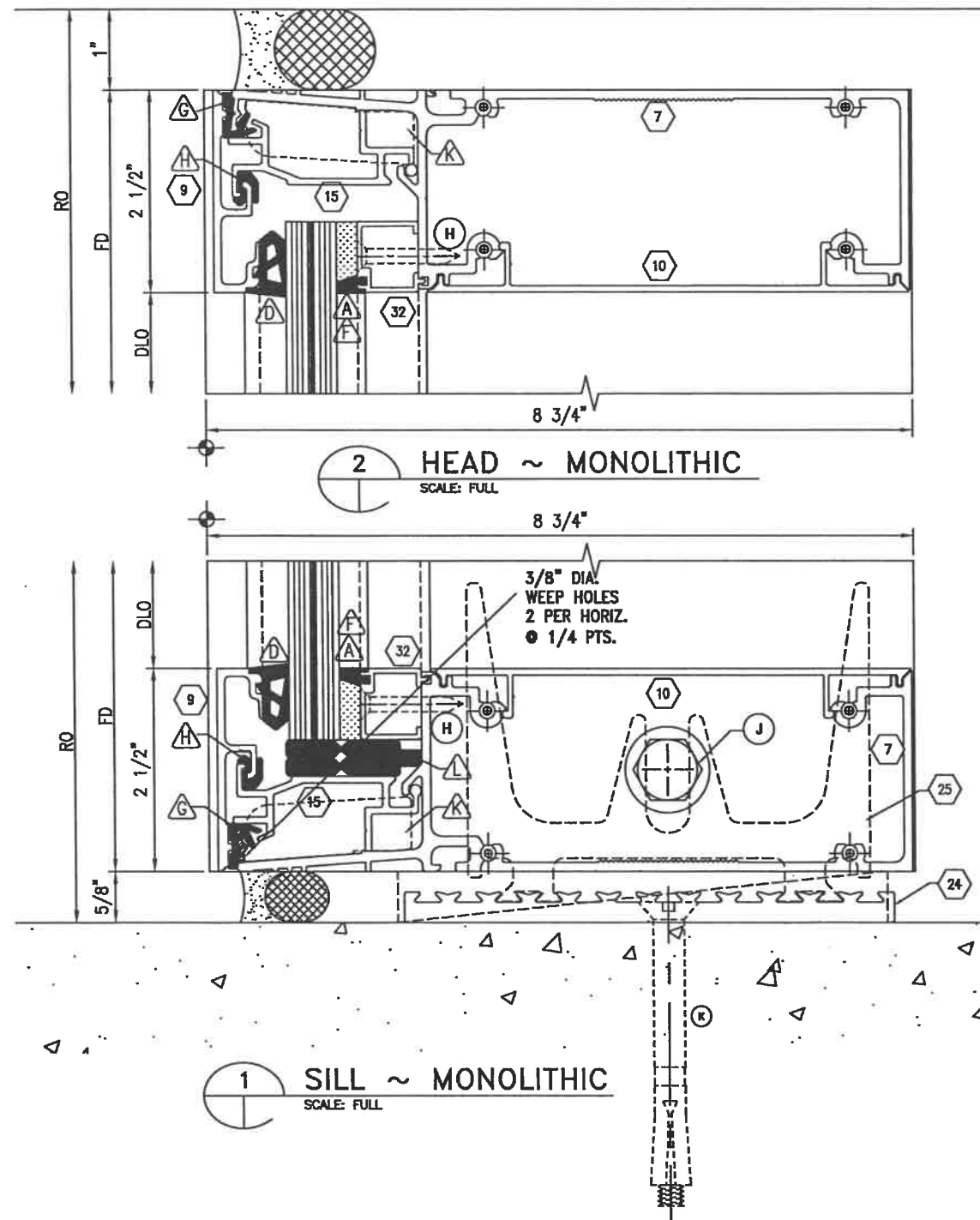
Harmon

HI 7000 SMALL MISSILE
 TWIN SPAN APPLICATION
 w/ STACK HORIZONTAL

DATE: 06/28/04	6/6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 24 OF 41



GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 20
- FOR PART IDENTIFICATION REFER TO SHEET 2

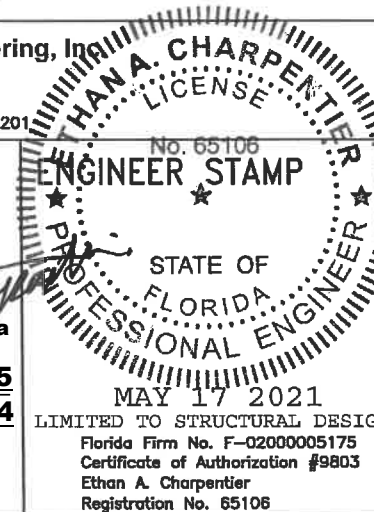
- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

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

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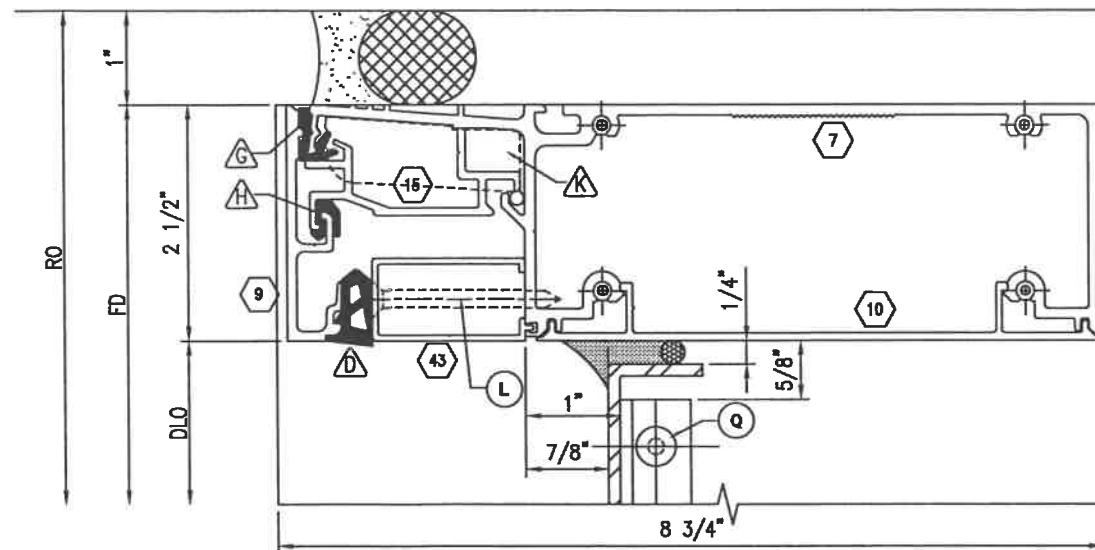
Harmon

HI 7000 SMALL MISSILE
HORIZONTAL DETAILS

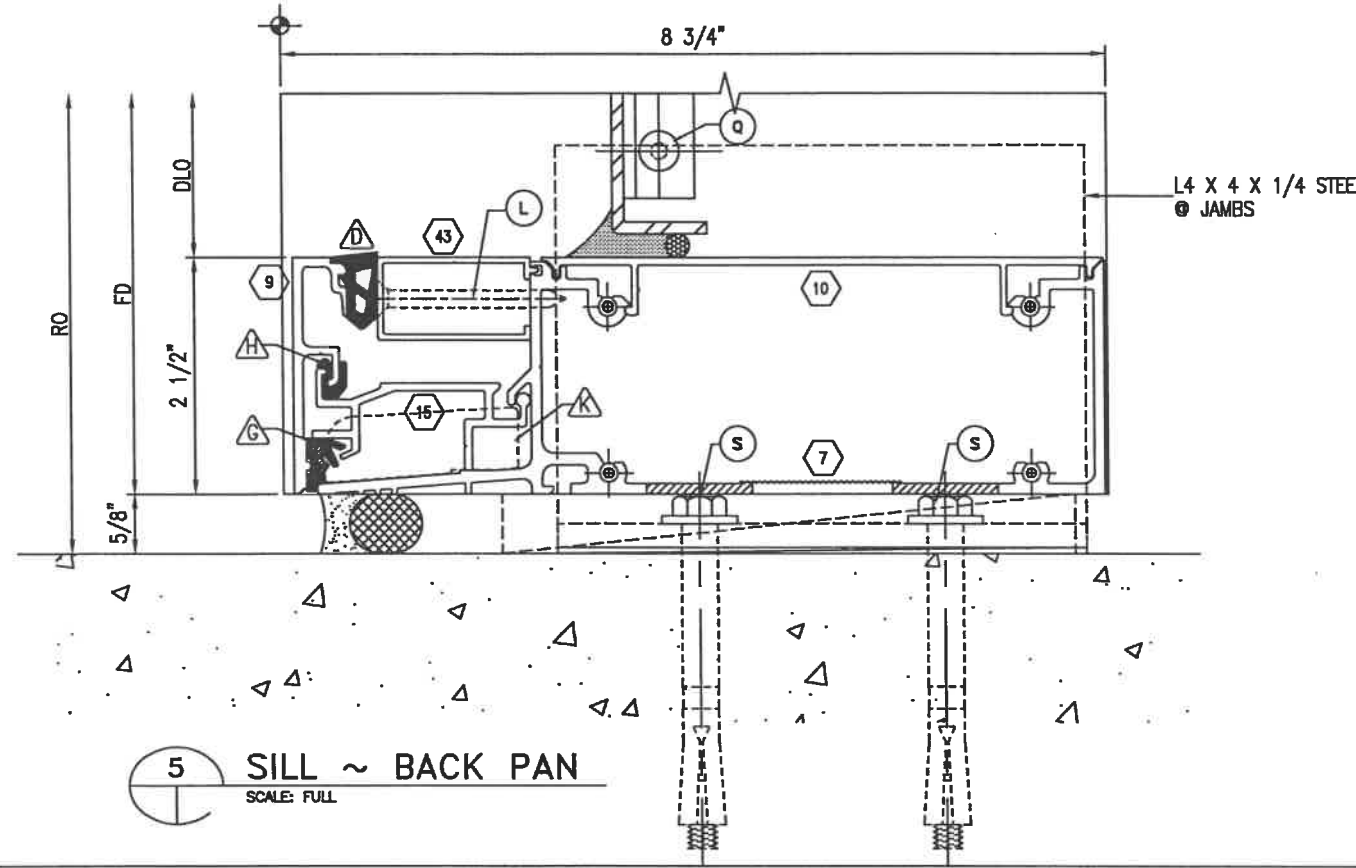
DATE: 06/28/04	6 6/17/16
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4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

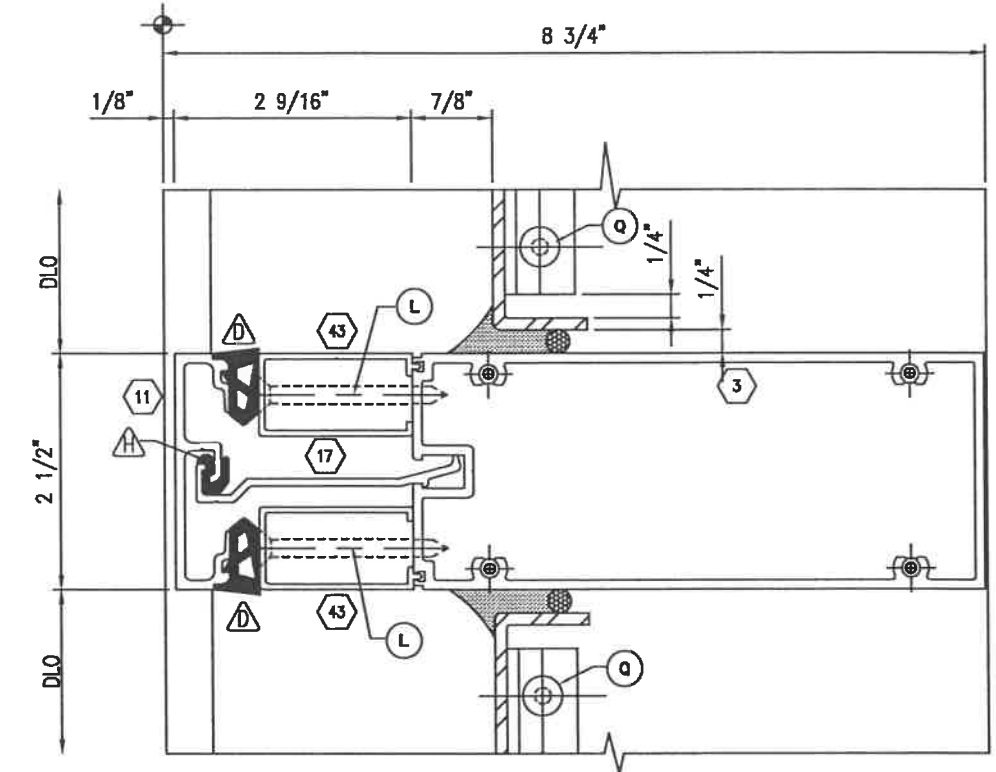
SHEET 25 OF 41



6 HEAD ~ BACK PAN
SCALE: FULL



5 SILL ~ BACK PAN
SCALE: FULL



7 HORIZONTAL ~ BACK PAN
SCALE: FULL

GENERAL NOTES:

- FOR ANCHOR DETAILS REFER TO SHEET 20
- 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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Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106

ENGINEER STAMP

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Harmon

HI 7000 SMALL MISSILE
HORIZONTAL DETAILS

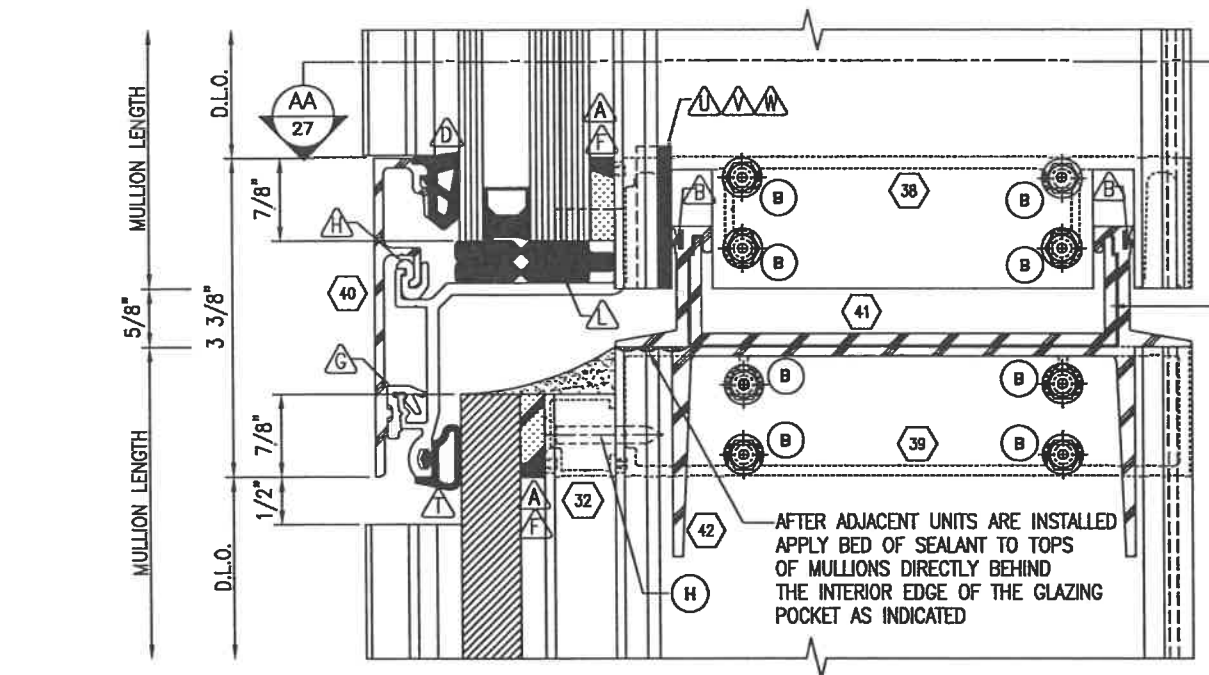
DATE: 06/28/04

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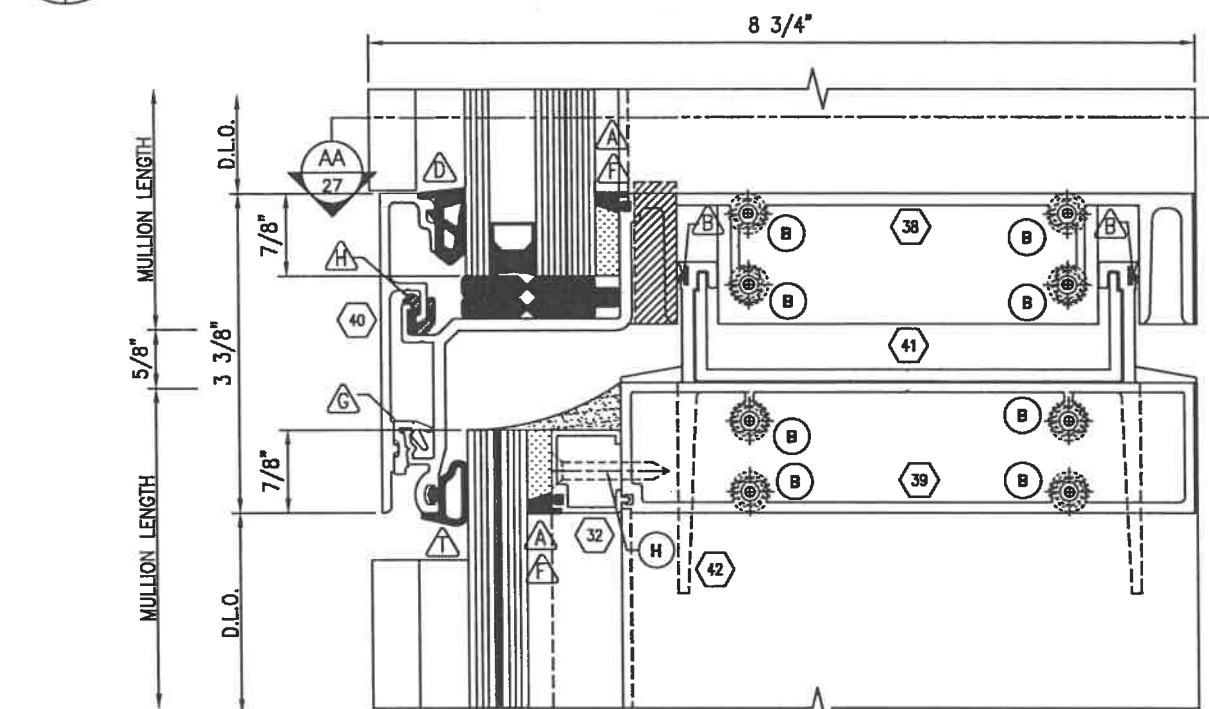
SHEET 26 OF 41



BB SECTION THROUGH STACK
SCALE: FULL

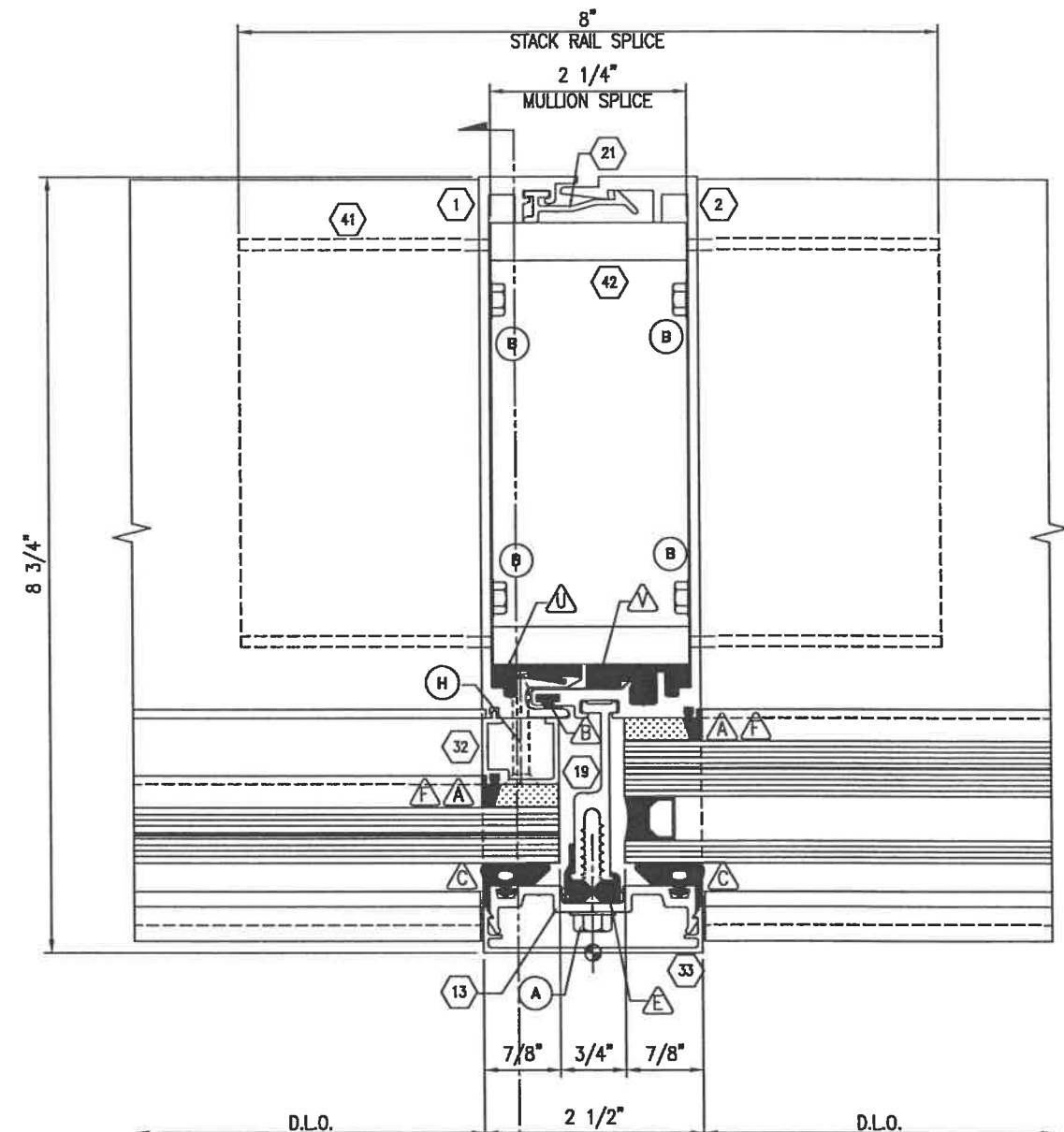
8" LONG STACK RAIL SPLICE
SLID INTO THE STACK RAIL ON FEMALE SIDE
OF UNIT AND TAPED INTO PLACE FOR SHIPPING.
SLIDE OVER TO CENTERLINE OF MULLION @ TIME
OF FRAME ASSEMBLY

AFTER ADJACENT UNITS ARE INSTALLED
APPLY BED OF SEALANT TO TOPS
OF MULLIONS DIRECTLY BEHIND
THE INTERIOR EDGE OF THE GLAZING
POCKET AS INDICATED



8 STACK HORIZONTAL
SCALE: FULL

MAXIMUM DLO WIDTH=57 1/2"
MAXIMUM SHEAR AT STACK=3,695#



AA MULLION @ STACK
SCALE: FULL

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

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White Bear Lake, MN 55110
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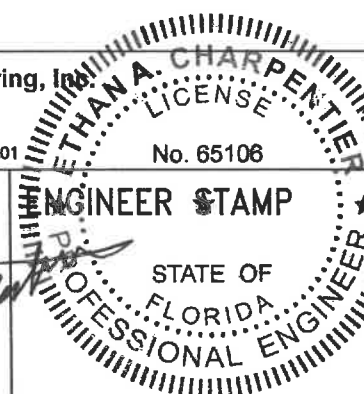
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Harmon

HI 7000 SMALL MISSILE

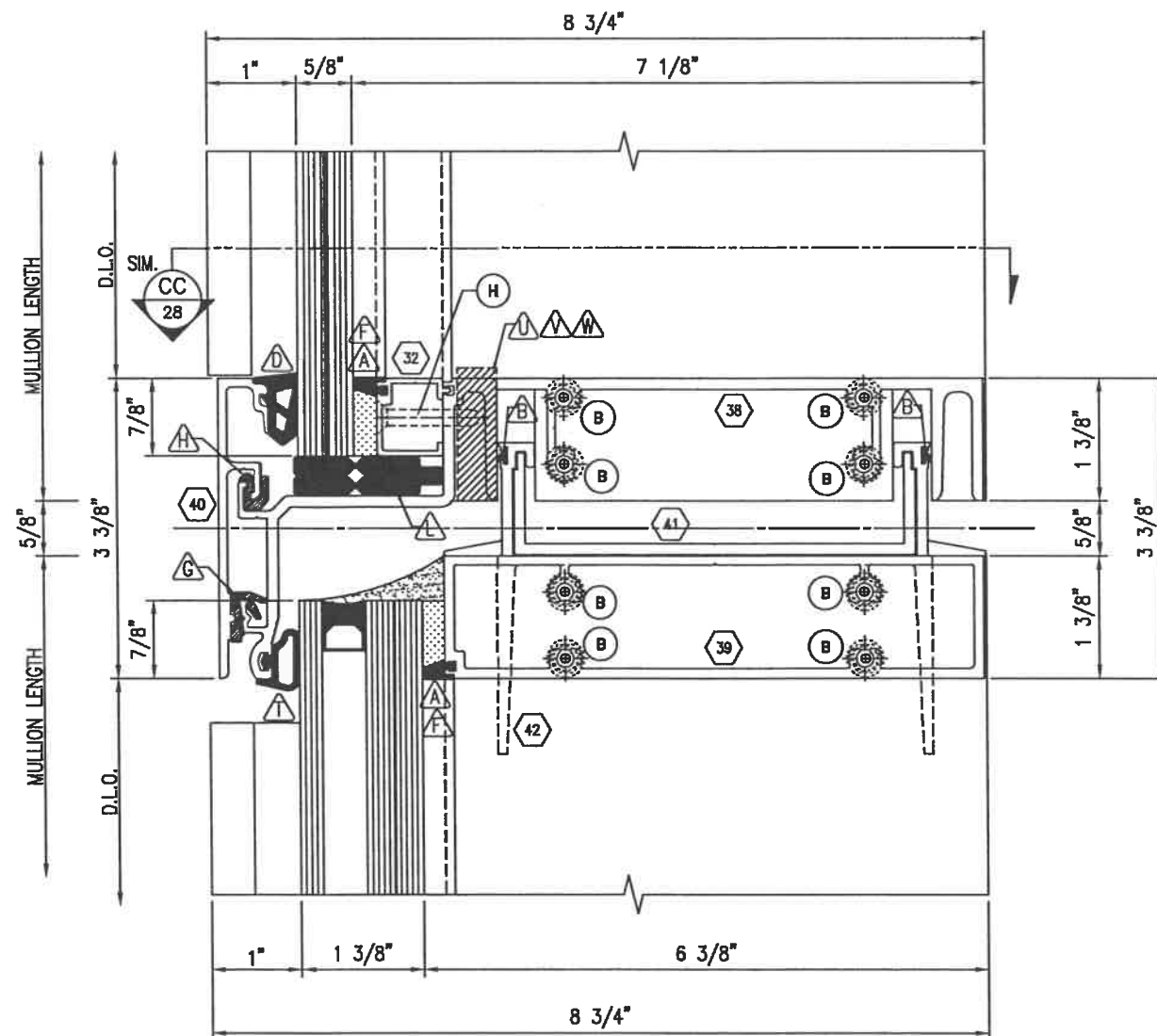
STACK HORIZONTAL DETAIL

SECTION CUTS

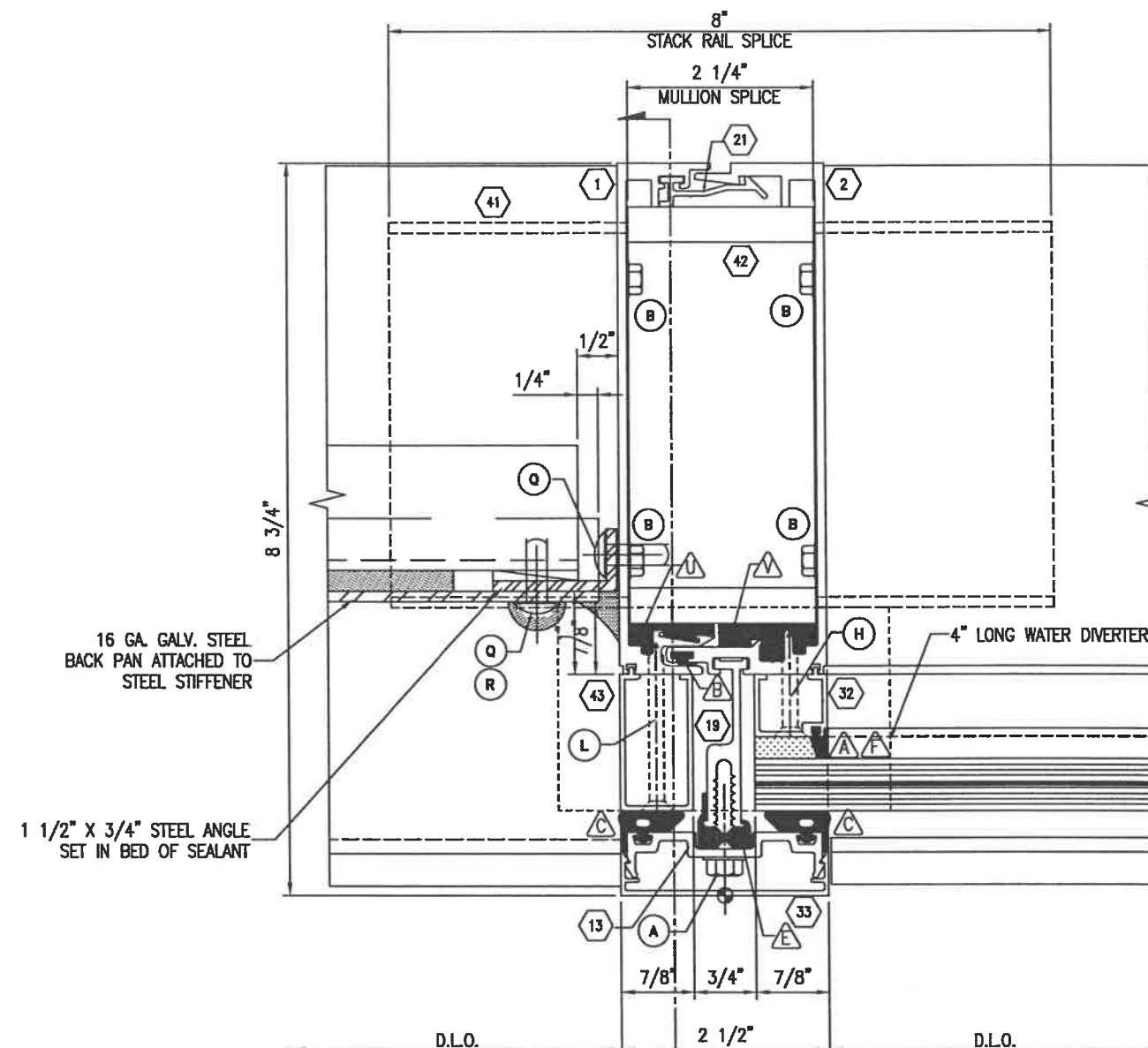
DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 27 OF 41



9 **STACK HORIZONTAL**
SCALE: FULL
MAXIMUM DLO WIDTH=57 1/2"
MAXIMUM SHEAR AT STACK=3,695#



CC **MULLION @ STACK**
SCALE: FULL

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

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By: *Manuel Perez*
Miami-Dade Product Control

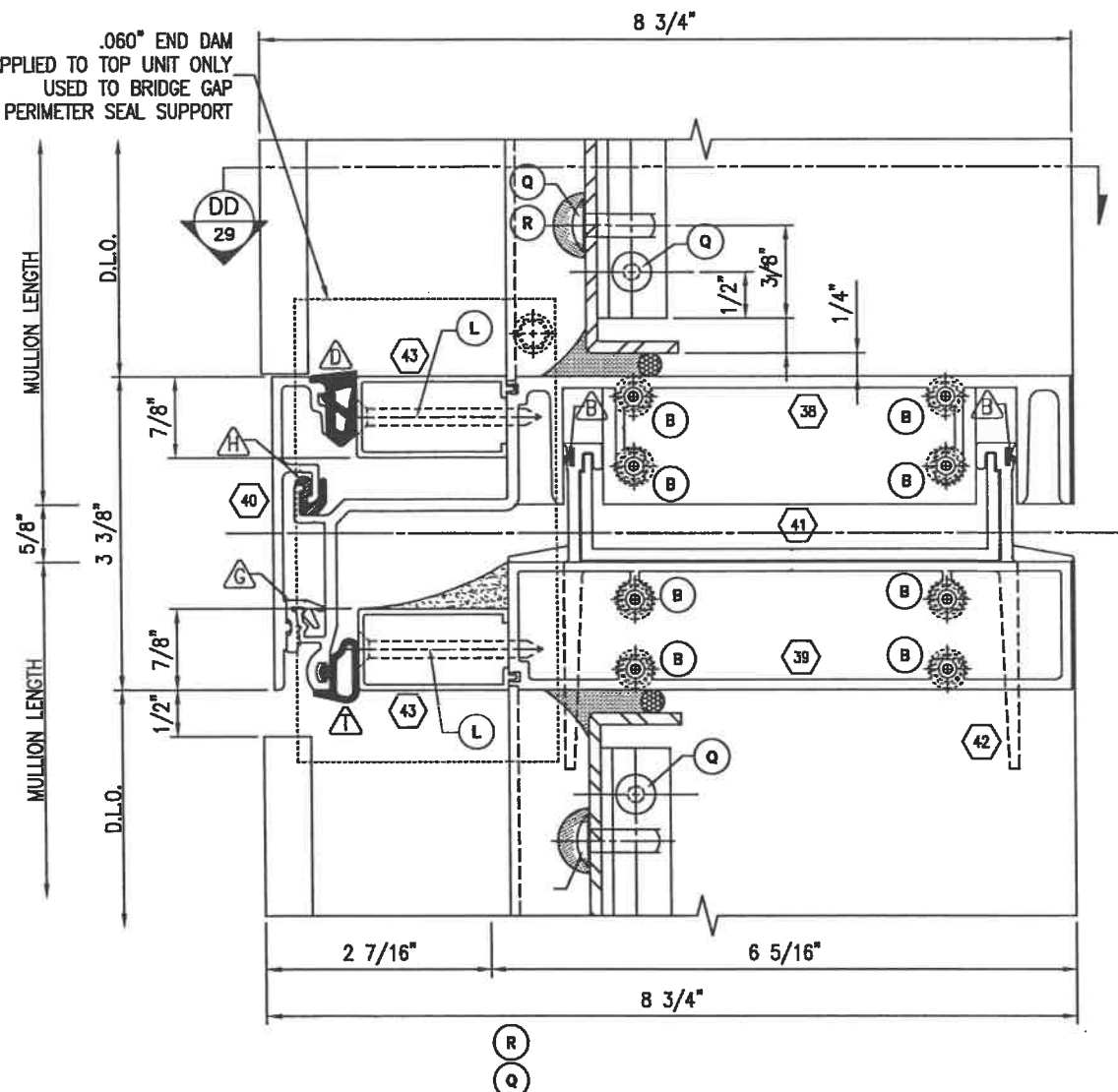
ETHAN A. CHARPENTIER
LICENSE
No. 65106
ENGINEER STAMP
STATE OF FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon
HI 7000 SMALL MISSILE
STACK HORIZONTAL DETAIL
& SECTION CUT

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM
SHEET 28 OF 41

.060" END DAM
SHOP APPLIED TO TOP UNIT ONLY
USED TO BRIDGE GAP
FOR PERIMETER SEAL SUPPORT



10 STACK HORIZONTAL ~ BACK PAN
SCALE: FULL

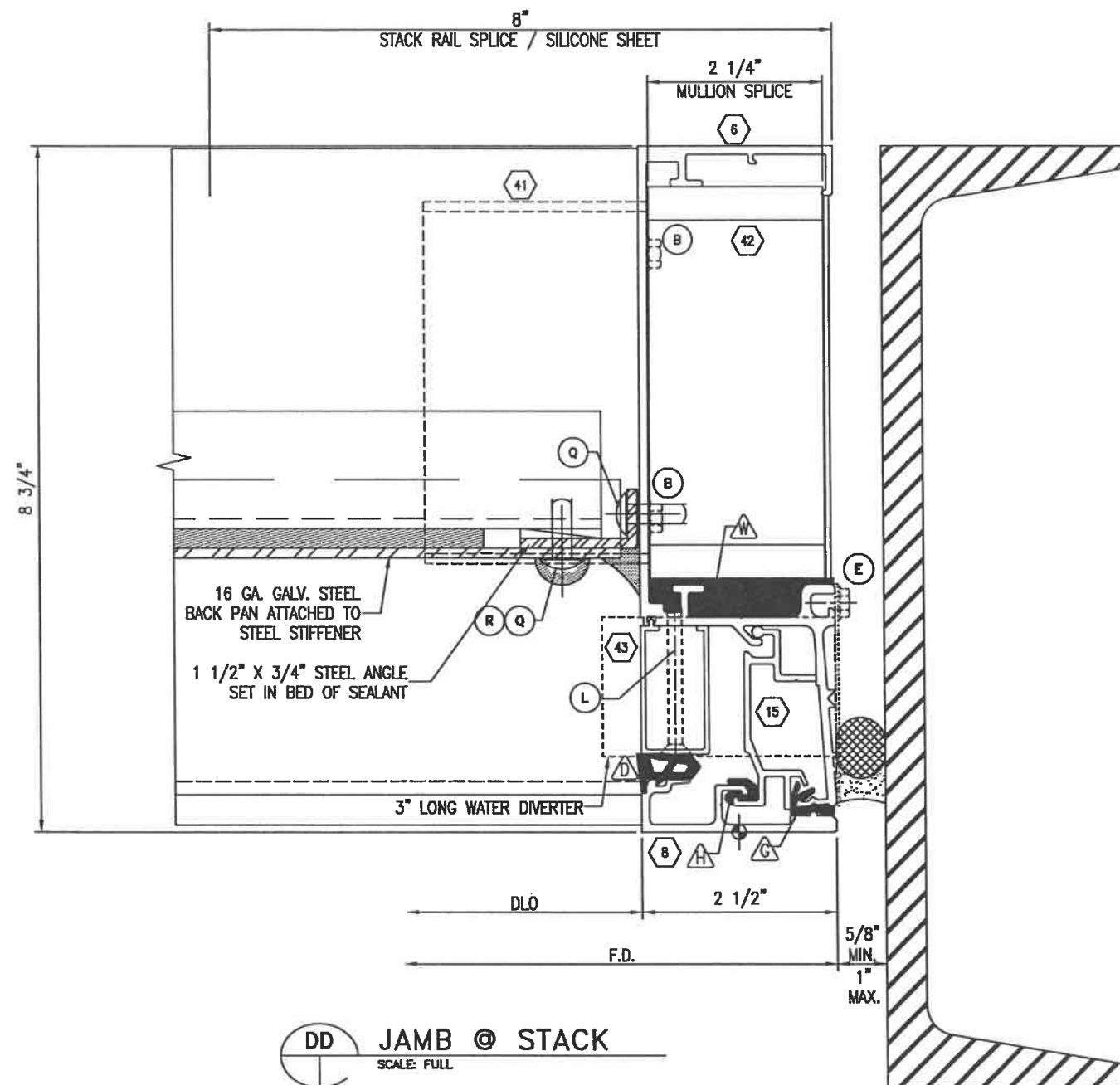
MAXIMUM DLO WIDTH=57 1/2"
MAXIMUM SHEAR AT STACK=3,695#

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS



DD JAMB @ STACK
SCALE: FULL

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
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

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MAY 17 2021
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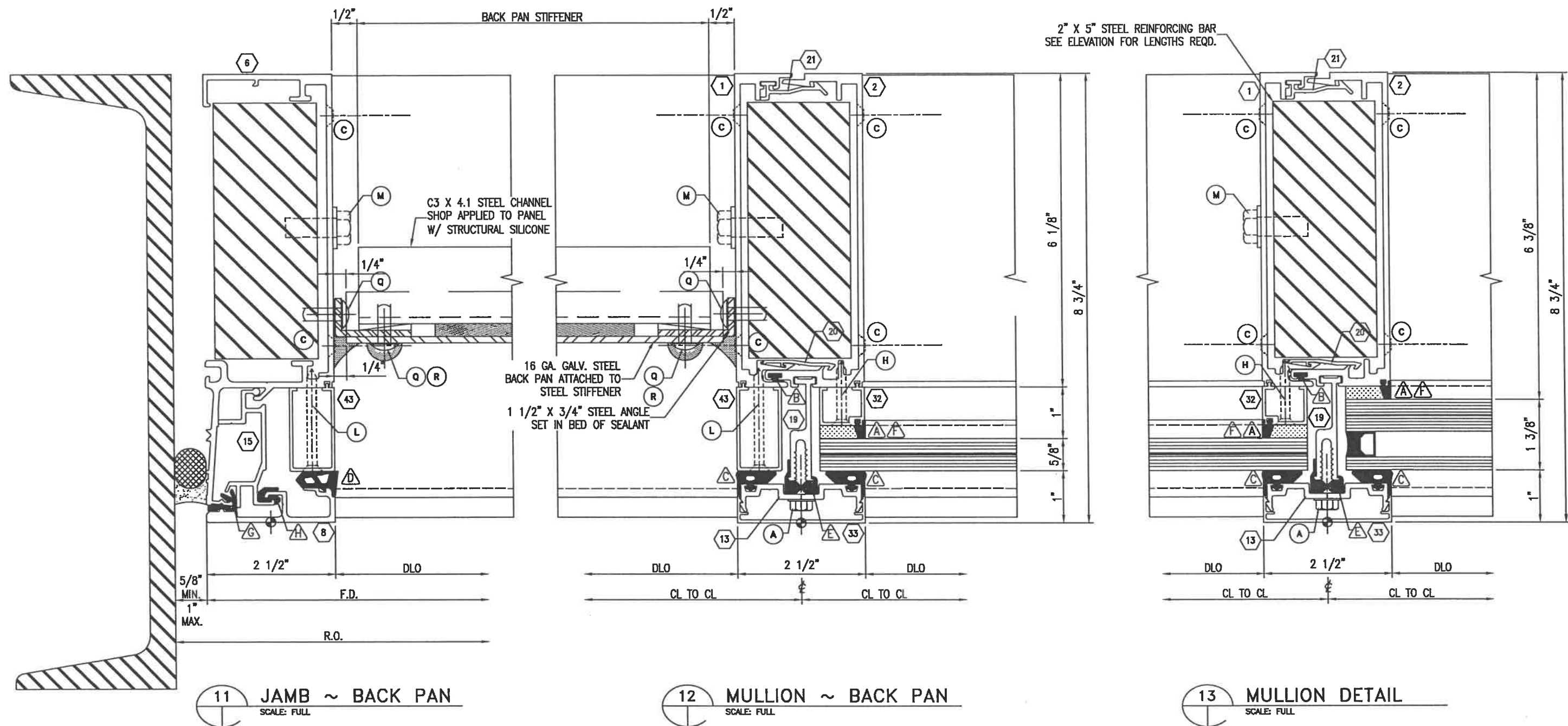
Harmon

HI 7000 SMALL MISSILE
STACK HORIZONTAL DETAIL
& SECTION CUT

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
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3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 29 OF 41



GENERAL NOTES:

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- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

Larson Engineering, Inc.
3524 Labore Road
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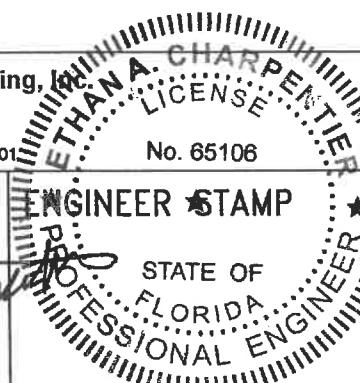
DADE CO. STAMP

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Expiration Date: **09/02/2024**

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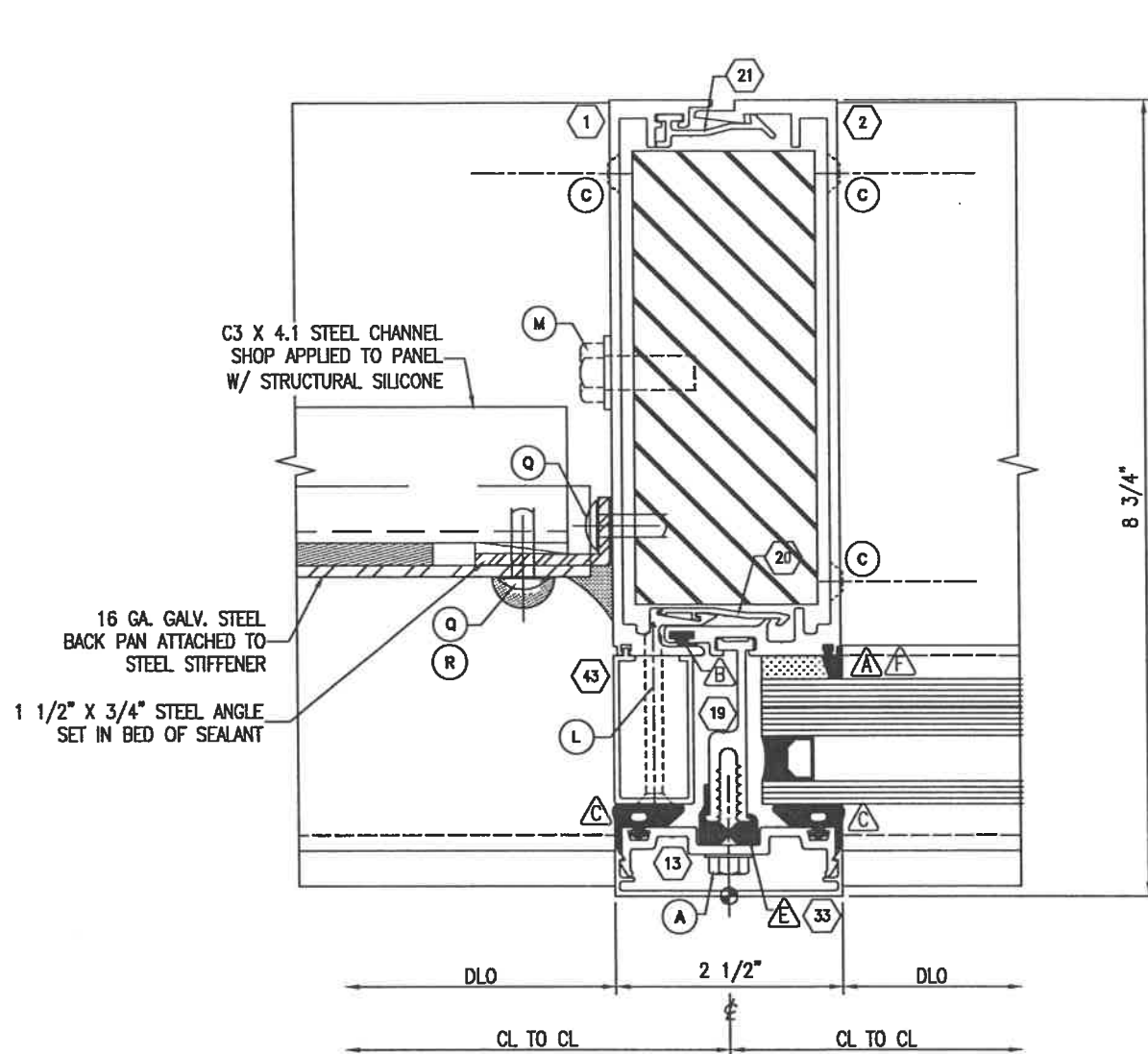
Harmon

HI 7000 SMALL MISSILE
VERTICAL DETAILS

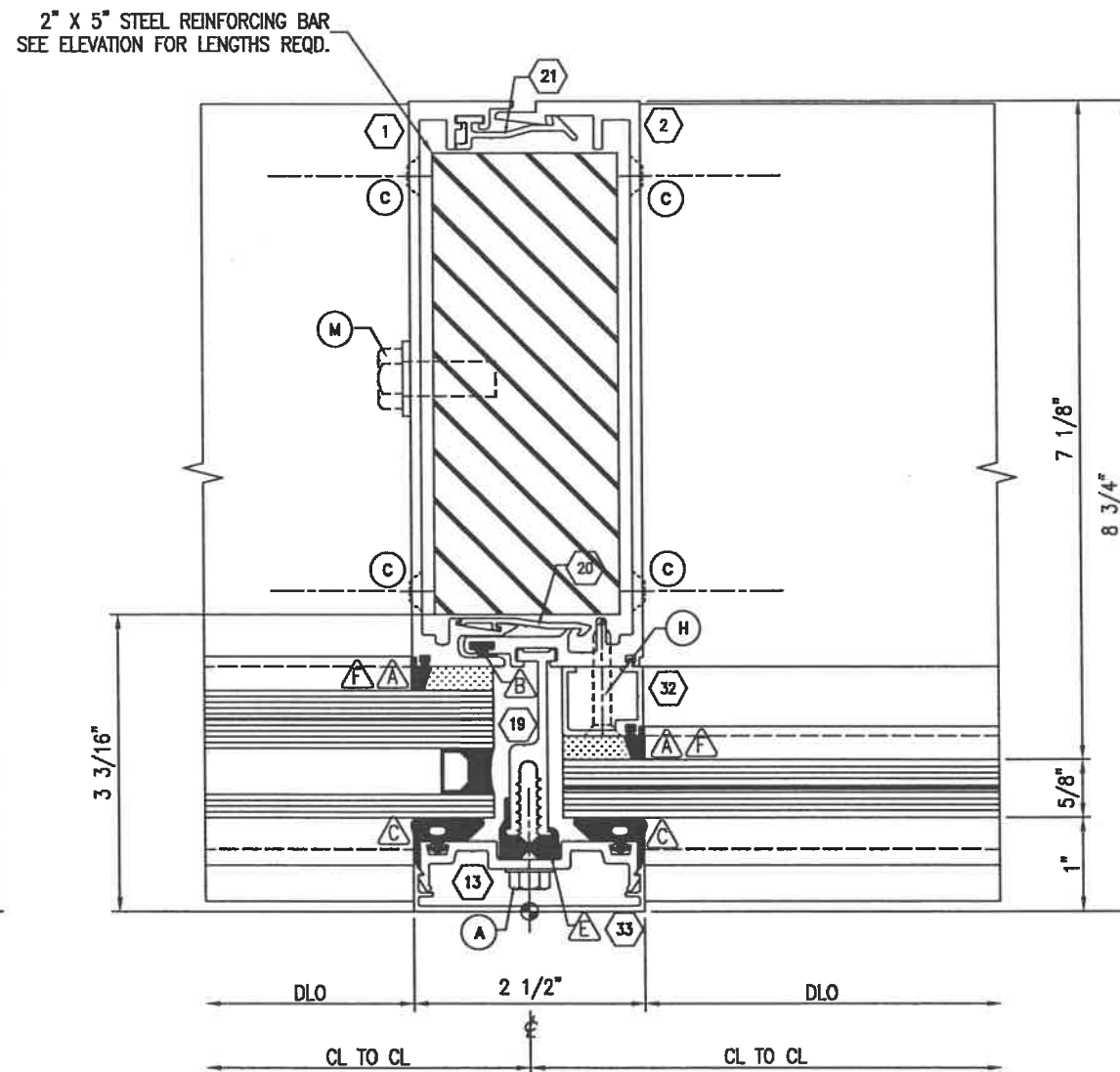
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1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 30 OF 41



14 MULLION ~ BACK PAN
SCALE: FULL



15 MULLION DETAIL
SCALE: FULL

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

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3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201

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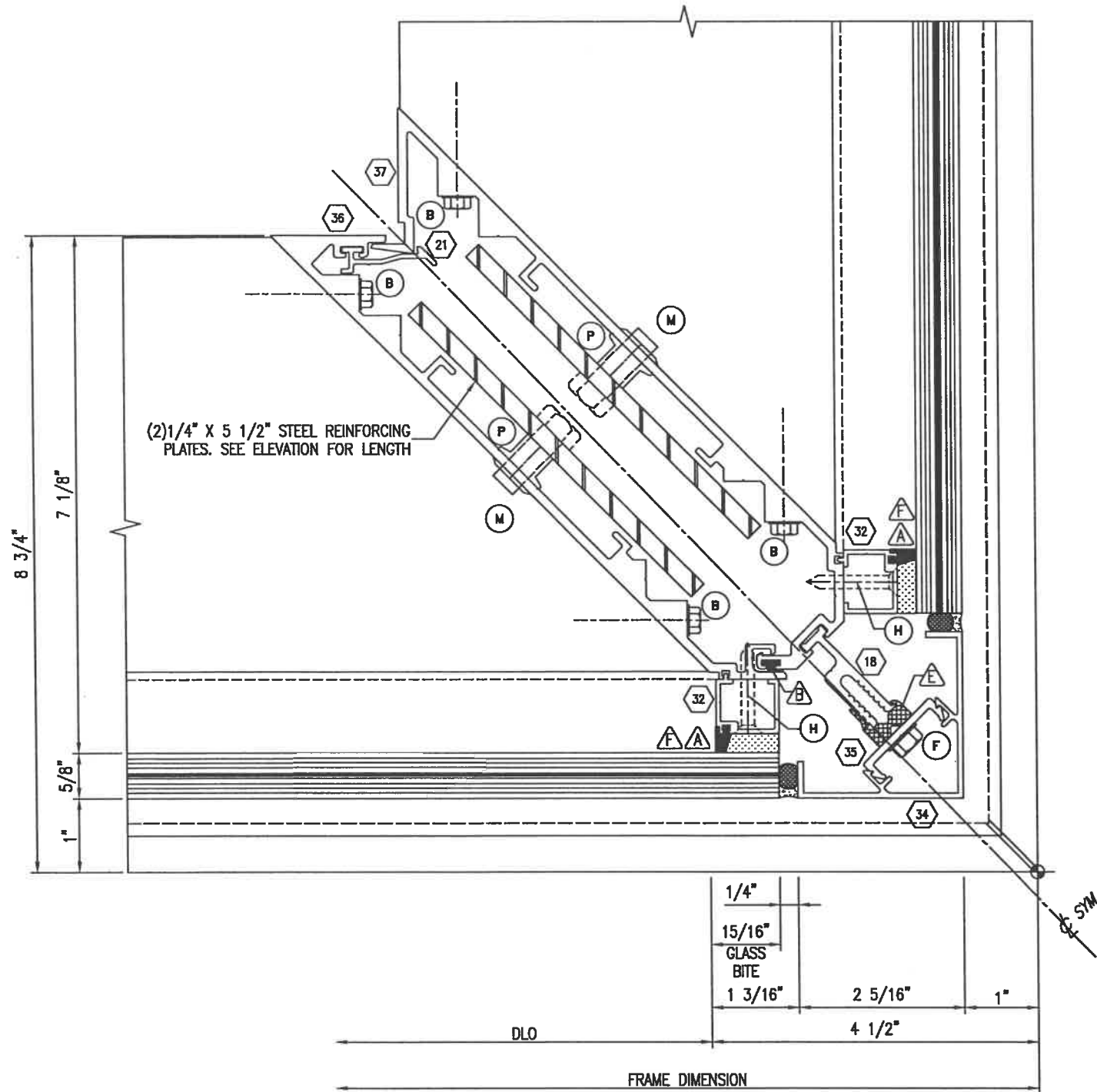
Harmon

HI 7000 SMALL MISSILE
VERTICAL DETAILS

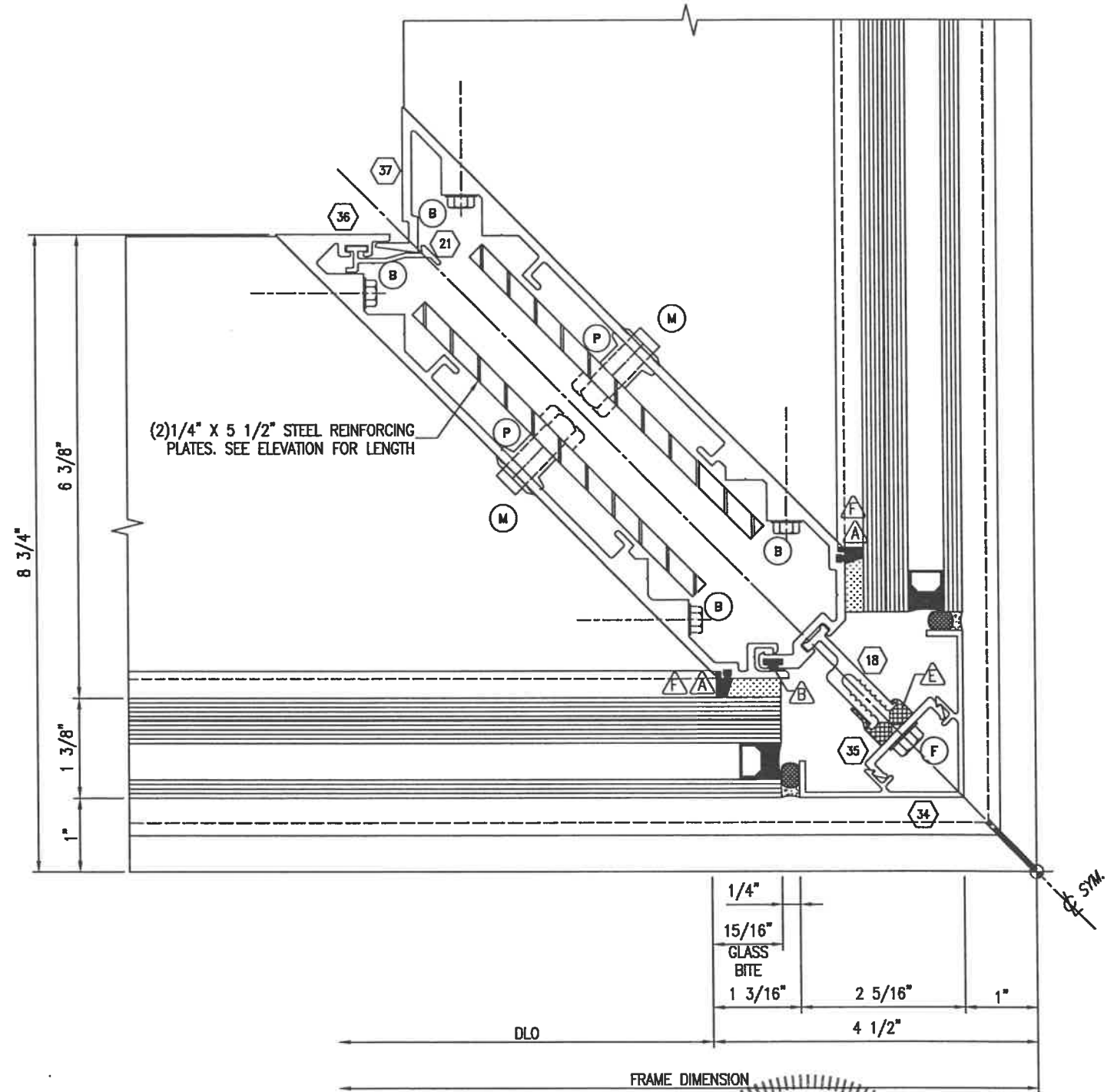
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2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 31 OF 41



16 OUTSIDE CORNER
SCALE: FULL



17 OUTSIDE CORNER
SCALE: FULL

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

Larson Engineering Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9228

DADE CO. STAMP

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NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**

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Miami-Dade Product Control

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STATE OF FLORIDA
PROFESSIONAL ENGINEER

MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

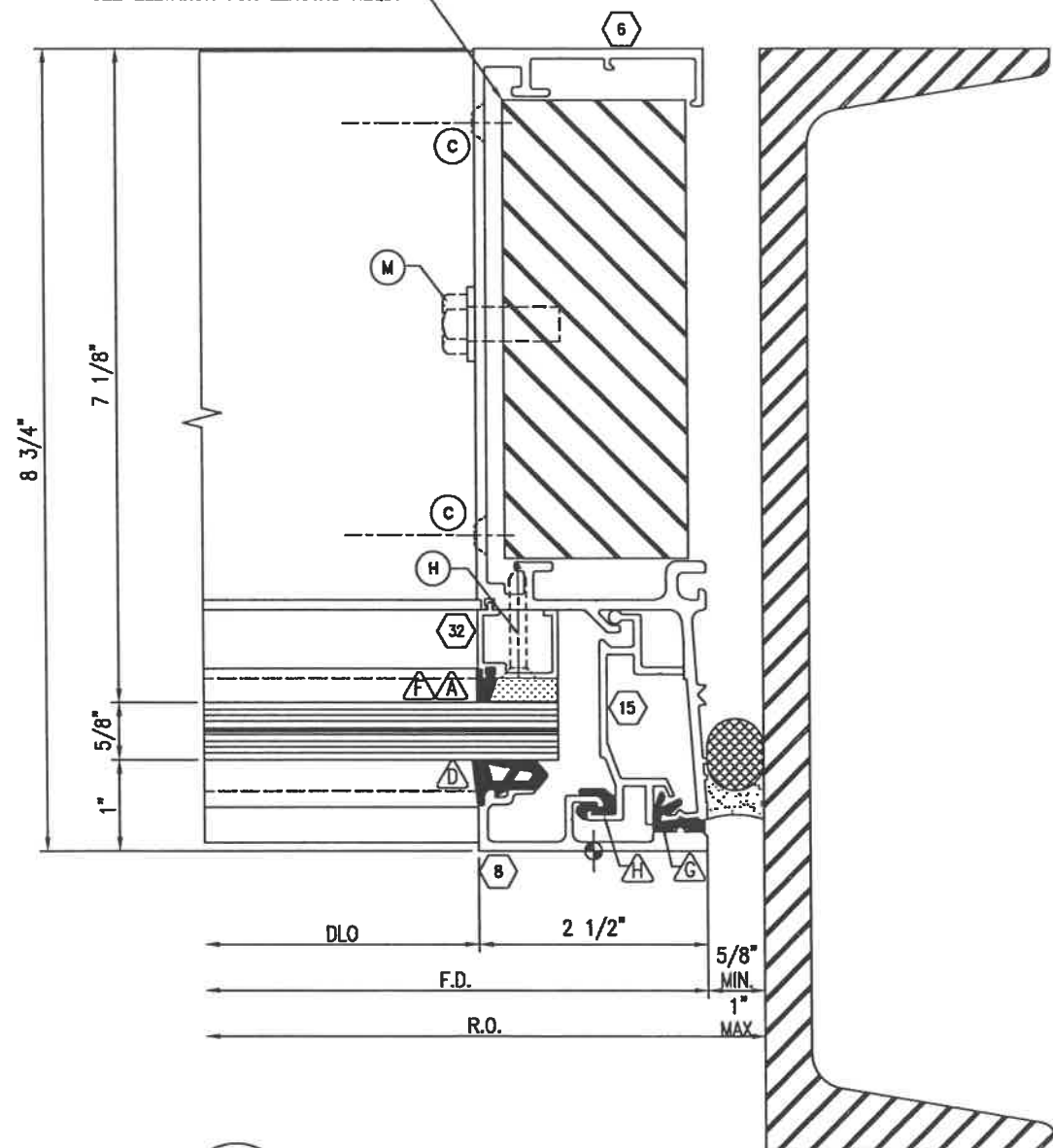
HI 7000 SMALL MISSILE
CORNER DETAILS

DATE: 06/28/04	6 6/17/16
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3 3/16/09	
4 5/22/12	
5 10/03/14	

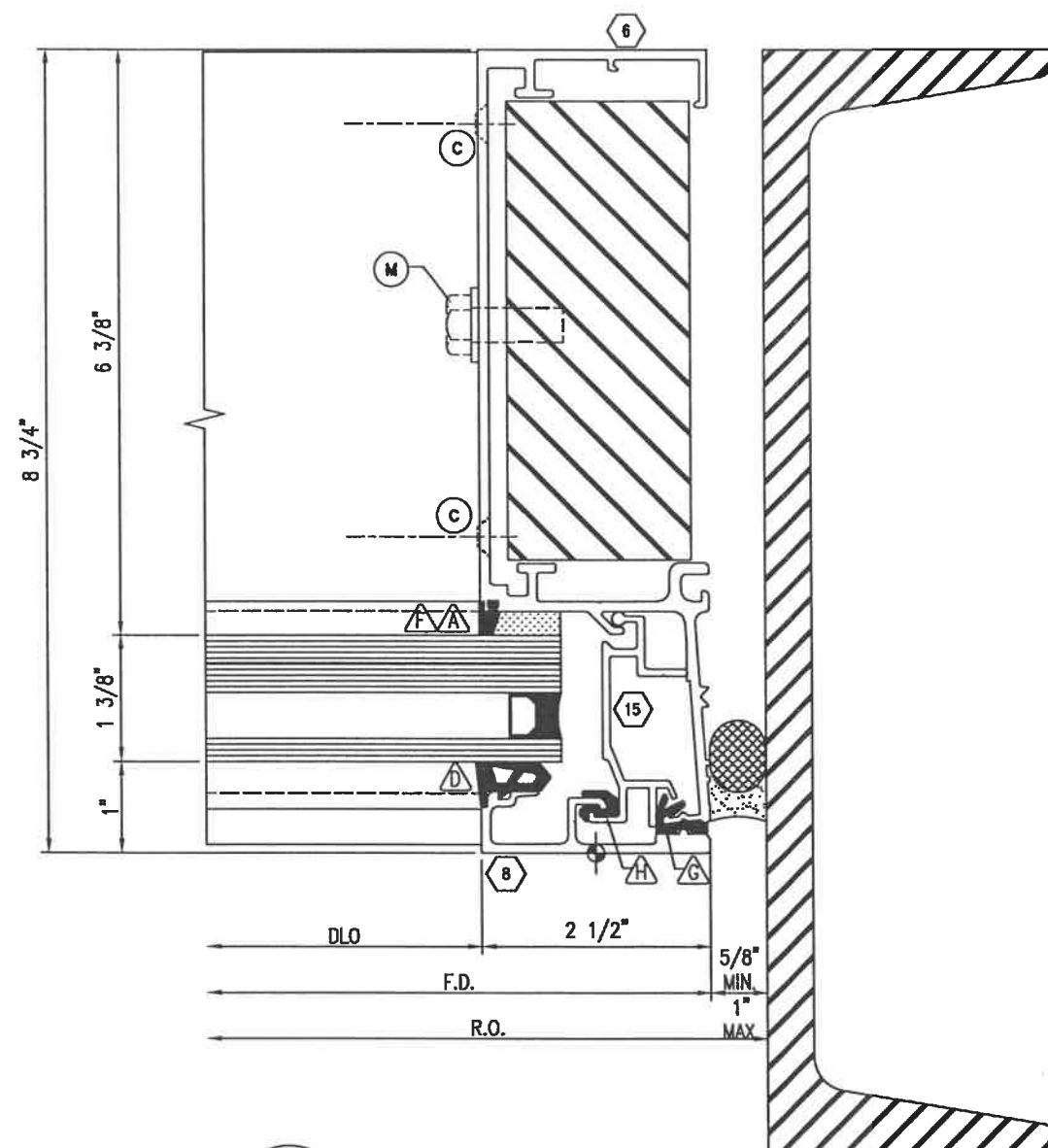
DWG. NO. HI7000SM

SHEET 32 OF 41

2" X 5" STEEL REINFORCING BAR
SEE ELEVATION FOR LENGTHS REQD.



18 JAMB ~ MONOLITHIC
SCALE: FULL



19 JAMB ~ INSULATED
SCALE: FULL

GENERAL NOTES:

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- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

Larson Engineering, Inc.
3524 Labore Road
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Miami-Dade Product Control

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PROFESSIONAL ENGINEER
MAY 17 2021
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Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

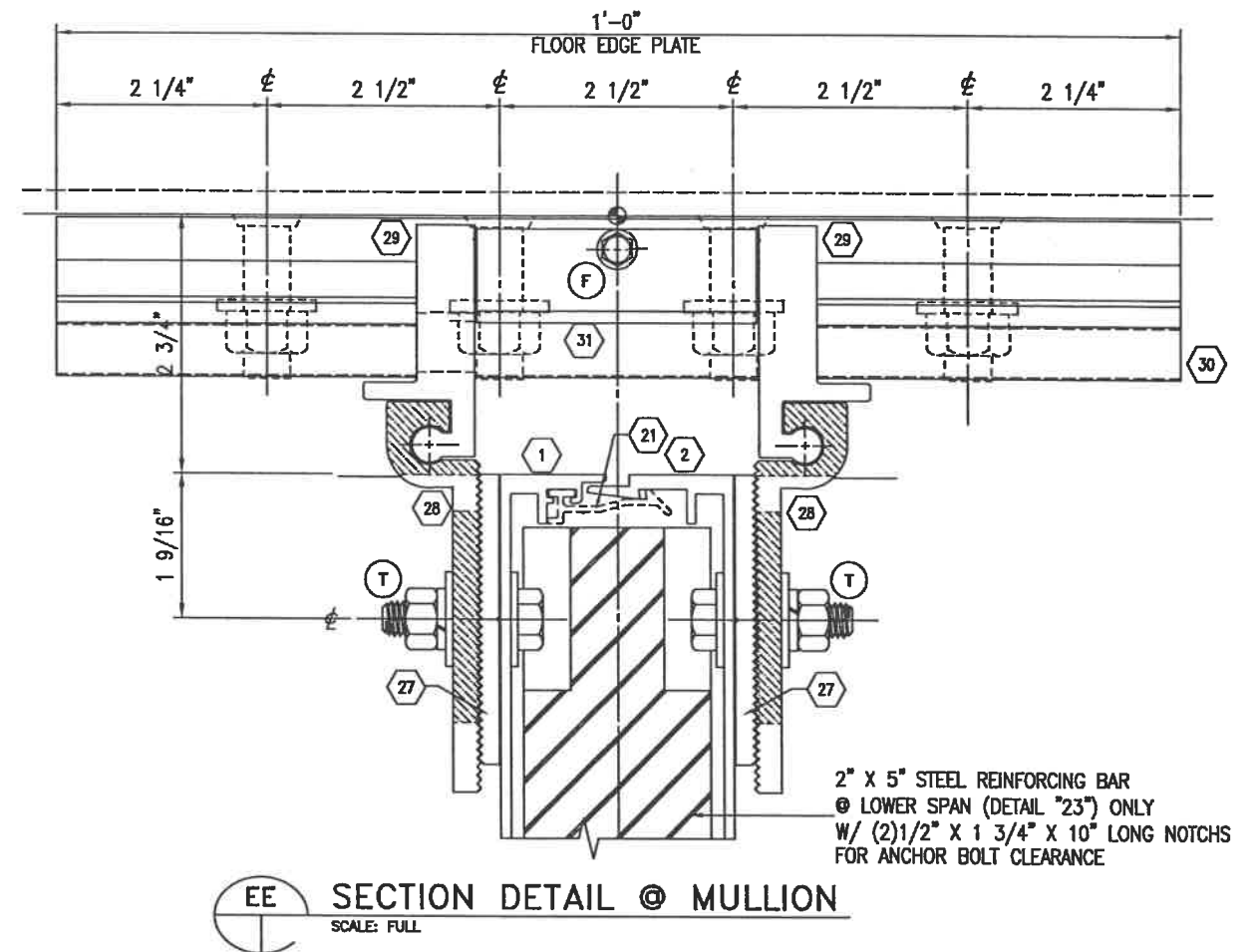
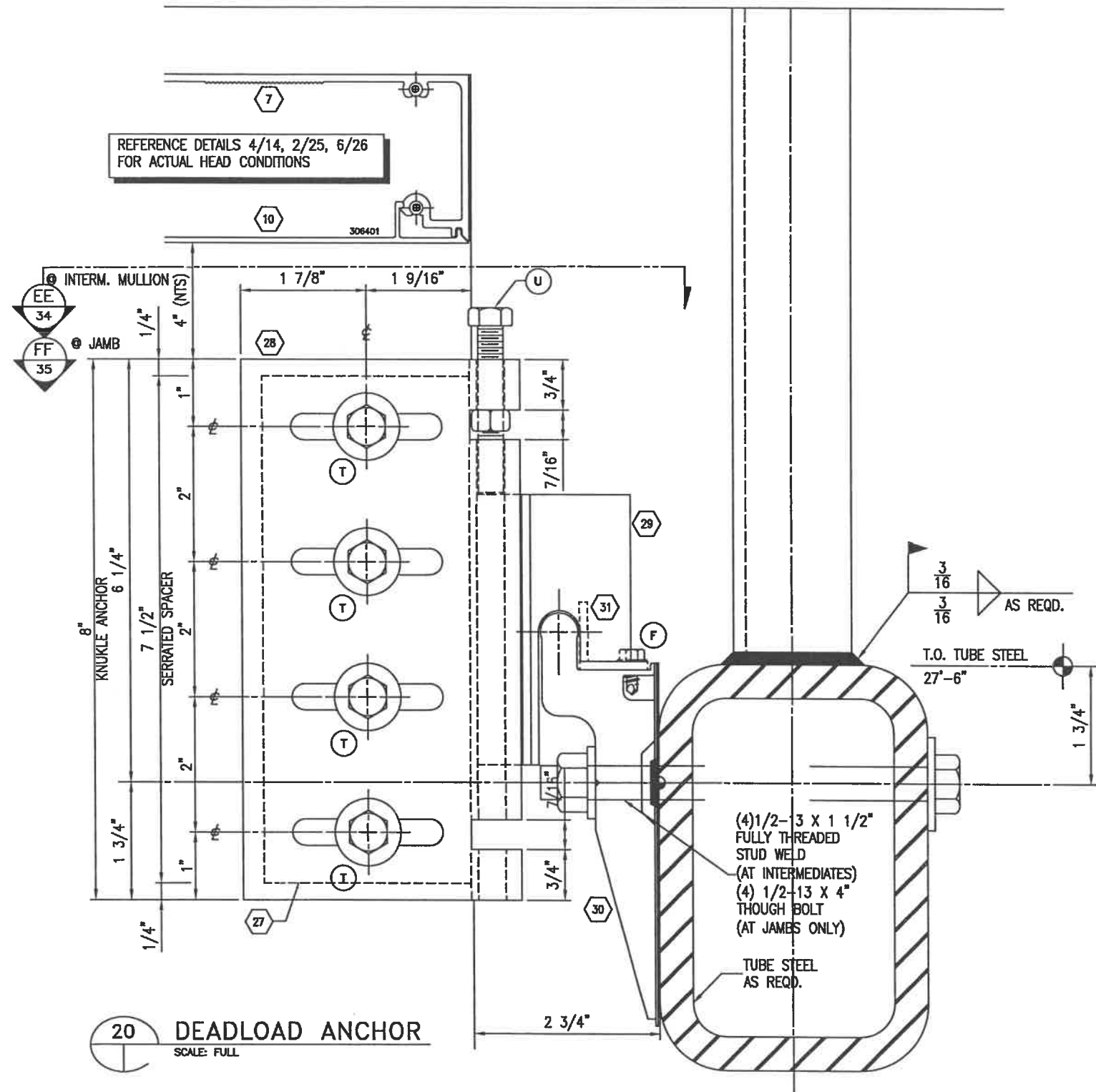
Harmon

HI 7000 SMALL MISSILE
VERTICAL DETAILS

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
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3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 33 OF 41



GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

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3524 Labore Road
White Bear Lake, MN 55110
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Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

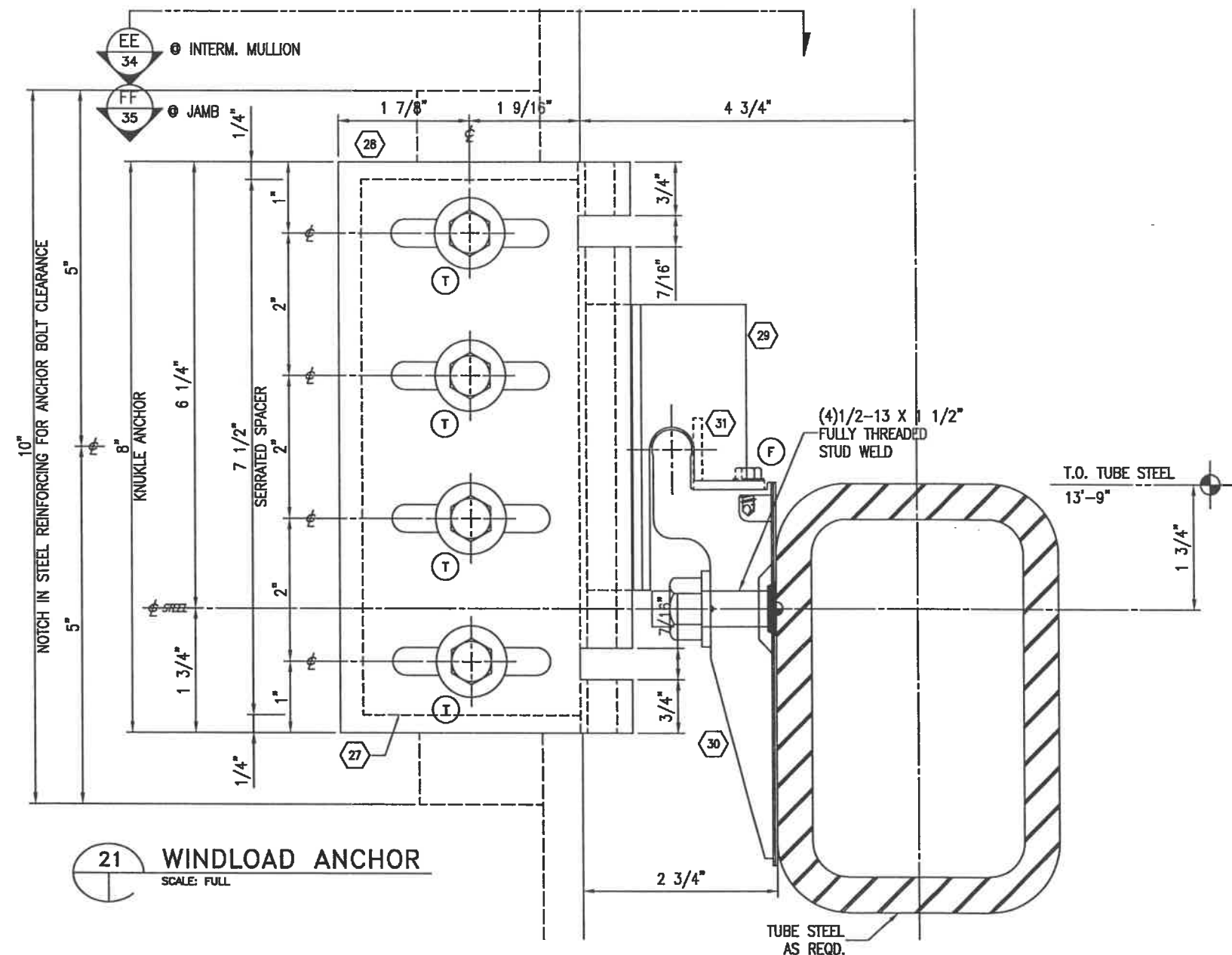
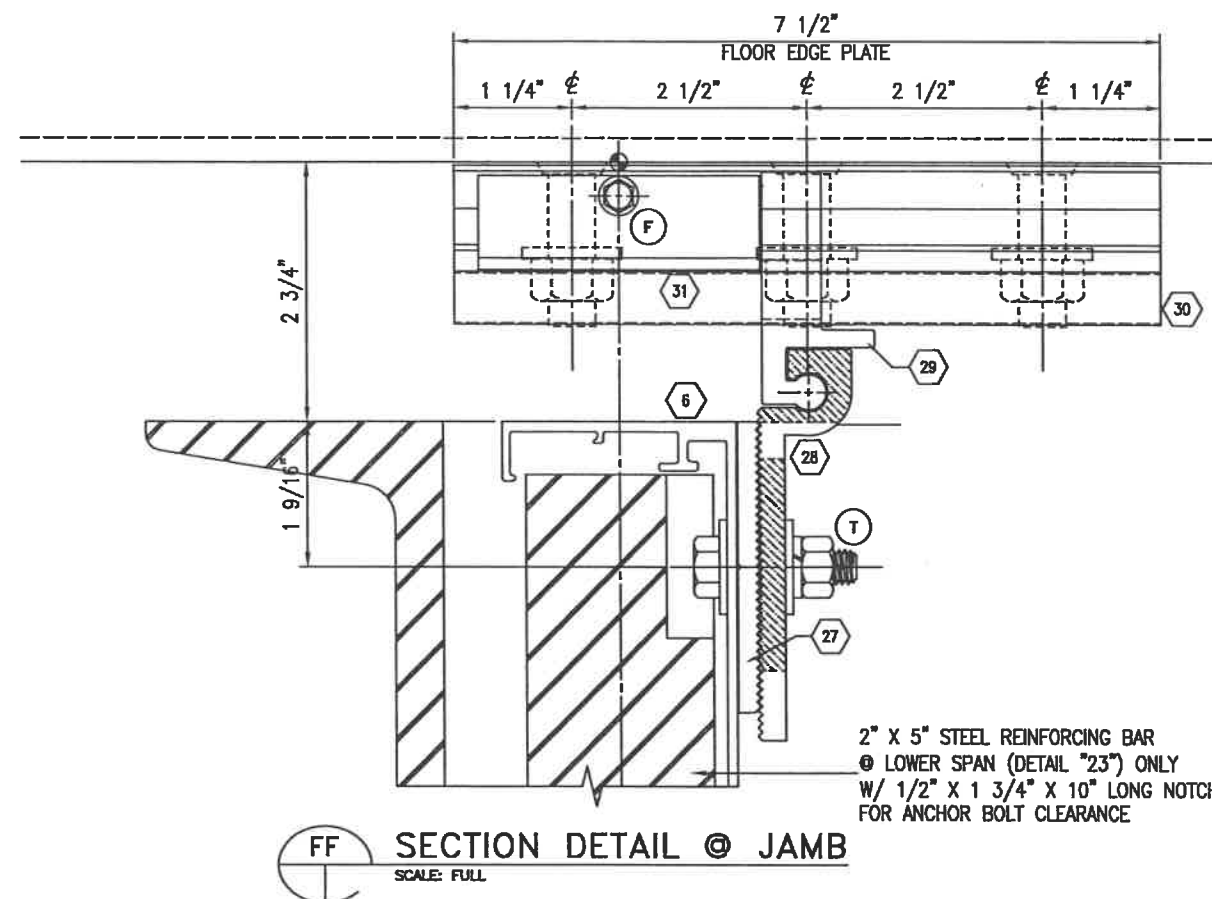
HI 7000 SMALL MISSILE

ANCHOR DETAIL AND
INTERMEDIATE ANCHOR SECTION

DATE: 06/28/04 6/17/16
1 11/18/08 03/05/19
2 3/10/09 02/25/21
3 3/16/09
4 5/22/12
5 10/03/14

DWG. NO. HI7000SM

SHEET 34 OF 41



GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

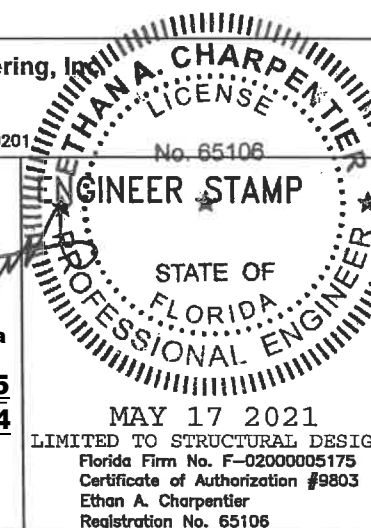
- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

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

DADE CO. STAMP

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Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control



Harmon

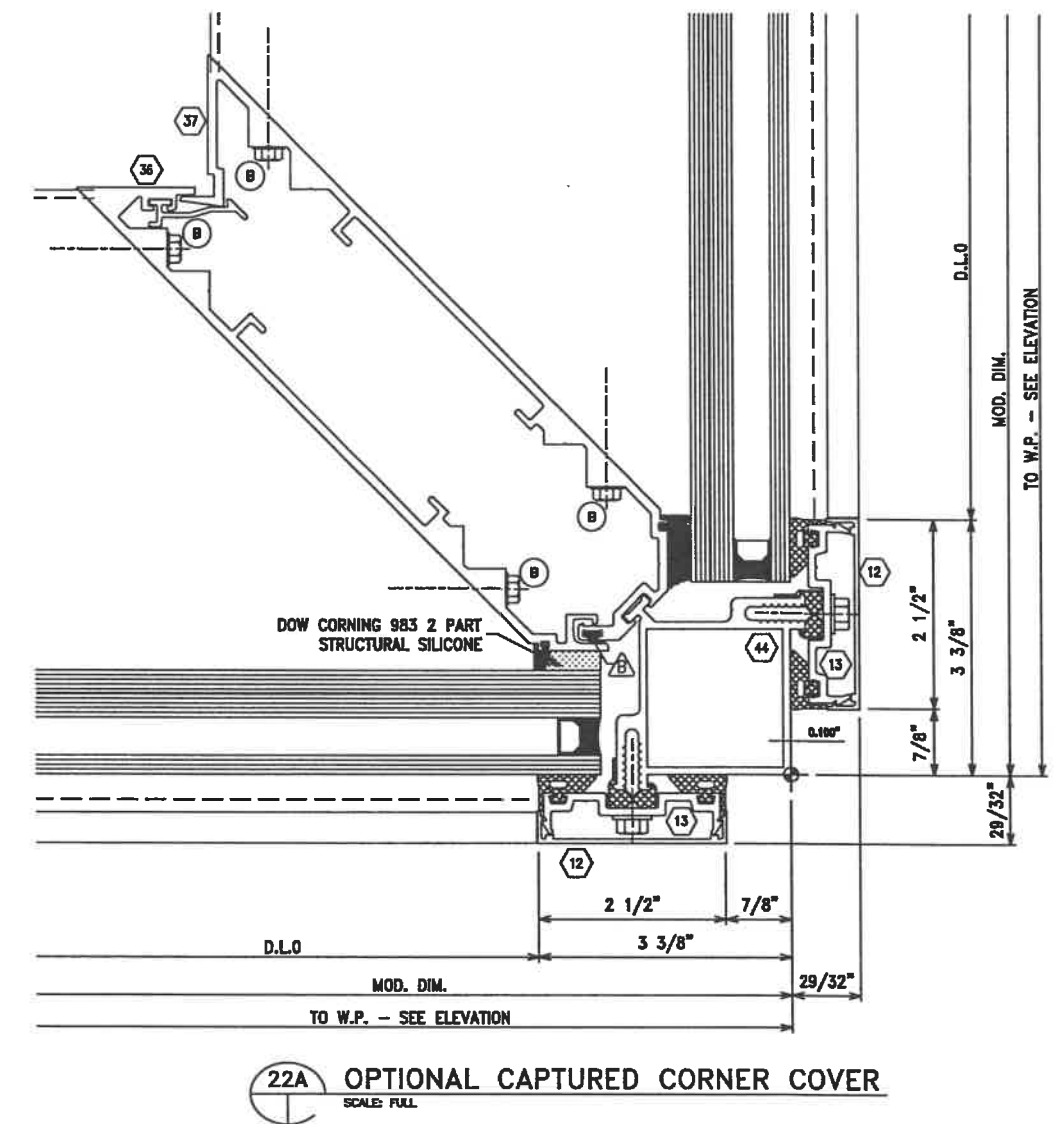
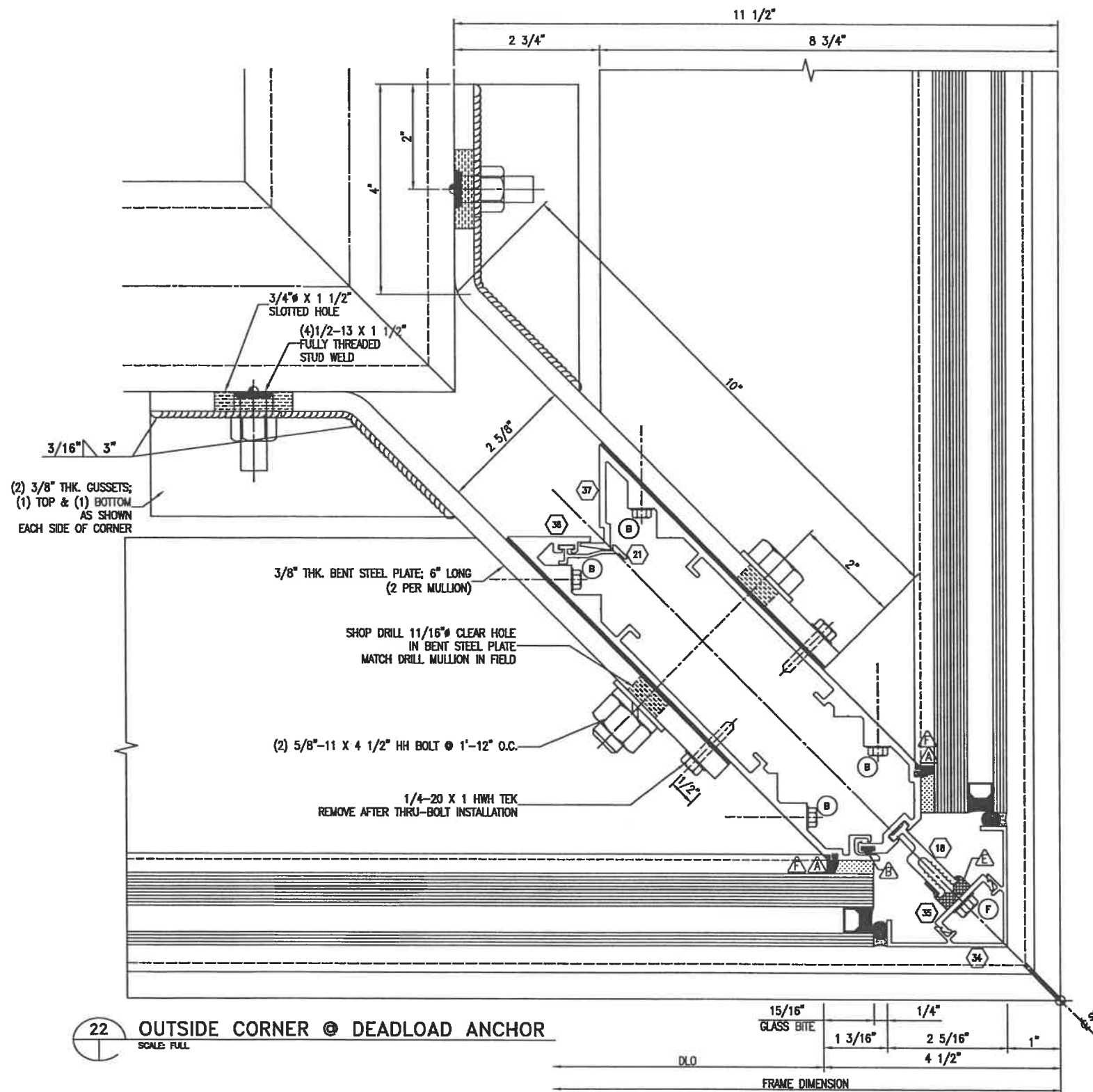
HI 7000 SMALL MISSILE

ANCHOR DETAIL AND
JAMB ANCHOR SECTION CUT

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 35 OF 41



GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

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

- FASTENERS
- △ GASKETS
- ◻ ALUMINUM EXTRUSIONS

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

DADE CO. STAMP

PRODUCT REVISED
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Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSE
No. 65106
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

Harmon

HI 7000 SMALL MISSILE

CORNER ANCHOR DETAIL

OPTIONAL CORNER COVER

DATE: 06/28/04 6/17/16

1 11/18/08 7 03/05/19

2 3/10/09 8 02/25/21

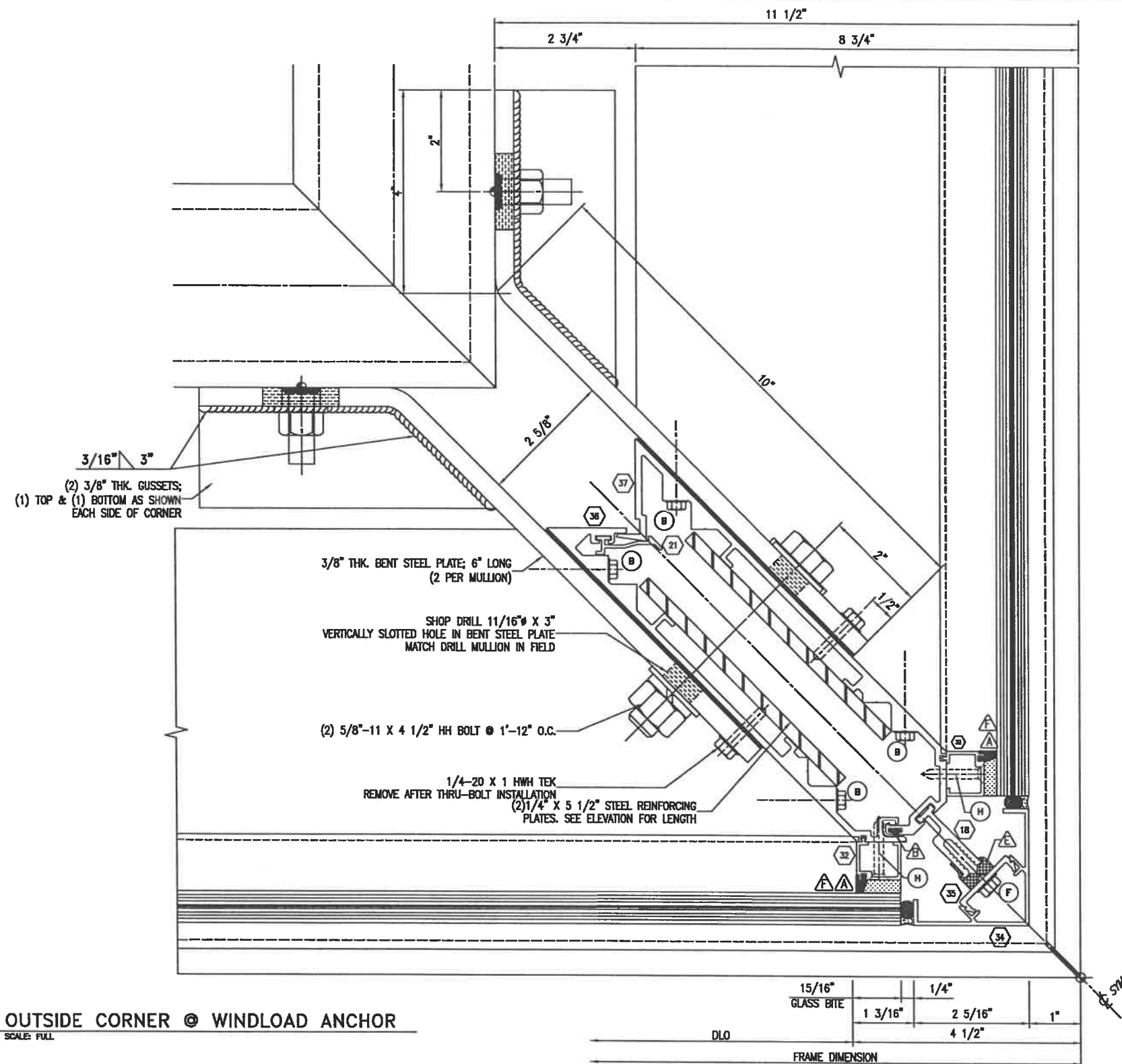
3 3/16/09

4 5/22/12

5 10/03/14

DWG. NO. HI7000SM

SHEET 36 OF 41



23 OUTSIDE CORNER @ WINDLOAD ANCHOR
SCALE: FULL

GENERAL NOTES:

- FOR PART IDENTIFICATION REFER TO SHEET 2

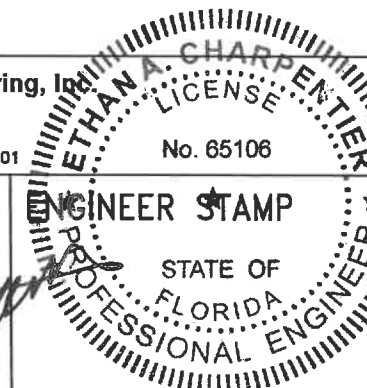
- FOR GLAZING DETAILS, GLASS BITE & GASKET CONFIGURATIONS SEE SHEET 3.

- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

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

DADE CO. STAMP

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Building Code
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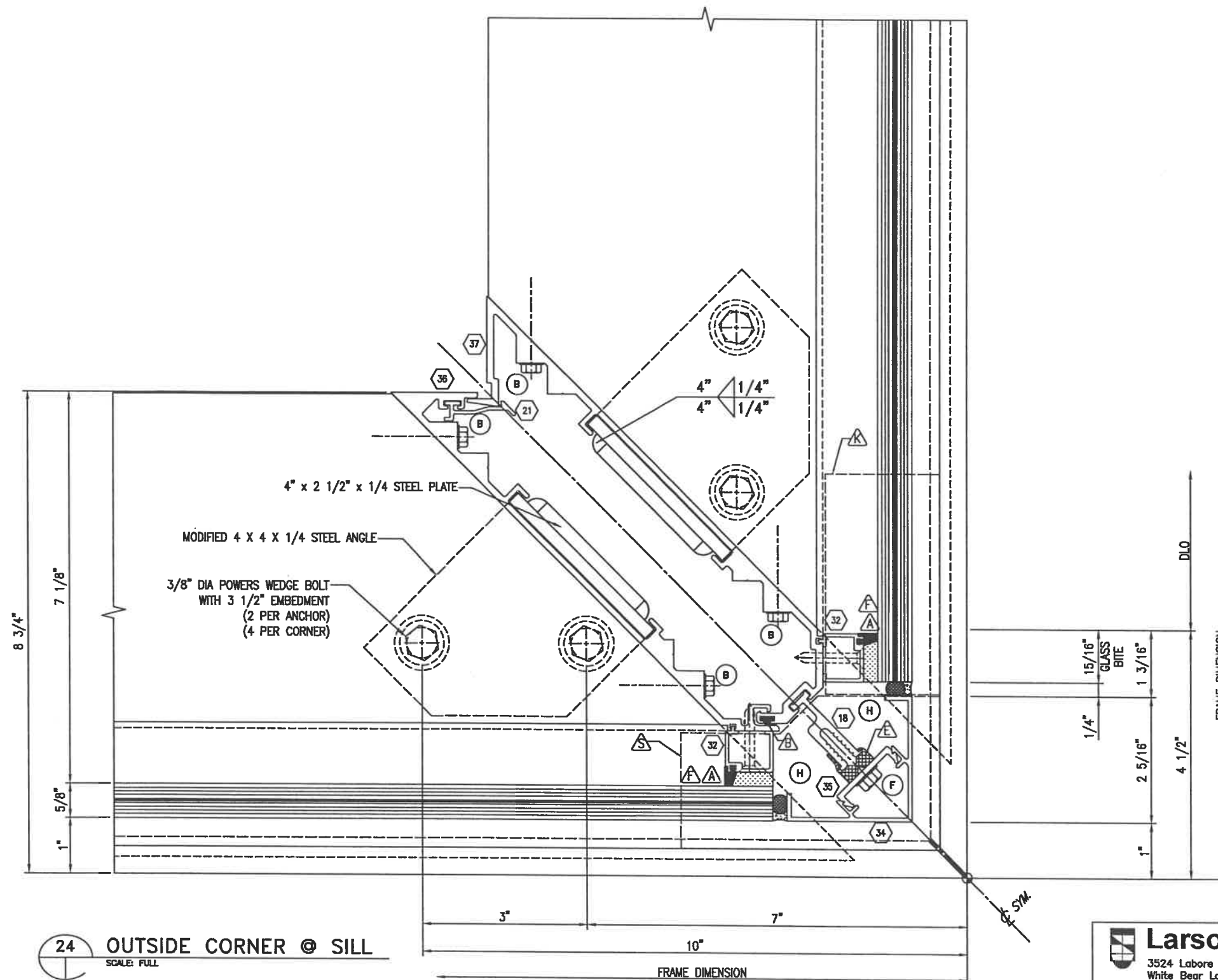
Harmon

7000 SMALL MISSILE
CORNER ANCHOR DETAIL

DATE: 06/28/04	6	6/17/16
1 11/18/08	7	03/05/19
2 3/10/09	8	02/25/21
3 3/16/09		
4 5/22/12		
5 10/03/14		

DWG. NO. H17000SM

SHEET 37 OF 41



24 OUTSIDE CORNER @ SILL
SCALE: FULL

GENERAL NOTES:

- 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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White Bear Lake, MN 55110
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Building Code
NOA-No. **21-0405.15**
Expiration Date: **09/02/2024**
By: *Manuel Perez*
Miami-Dade Product Control

ETHAN A. CHARPENTIER
LICENSED PROFESSIONAL ENGINEER
No. 65106
STATE OF FLORIDA
MAY 17 2021
LIMITED TO STRUCTURAL DESIGN
Florida Firm No. F-02000005175
Certificate of Authorization #9803
Ethan A. Charpentier
Registration No. 65106

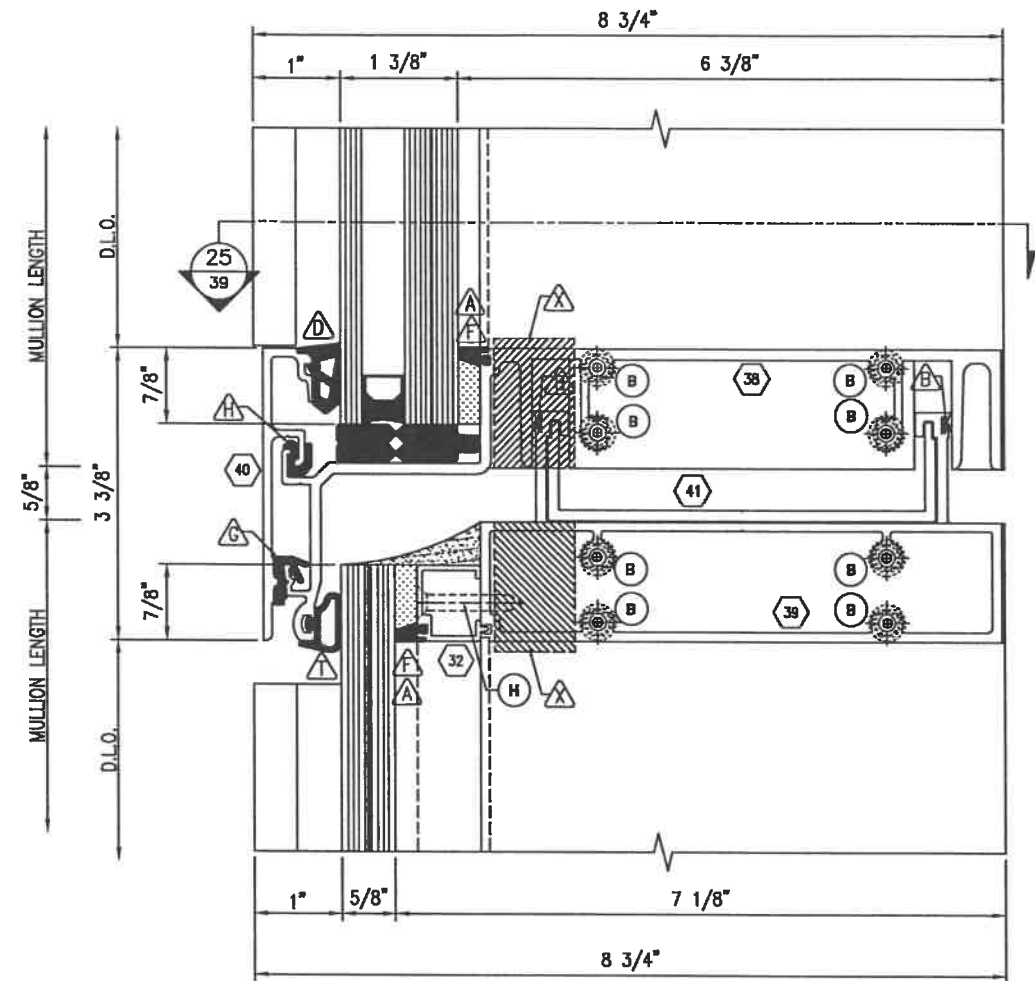
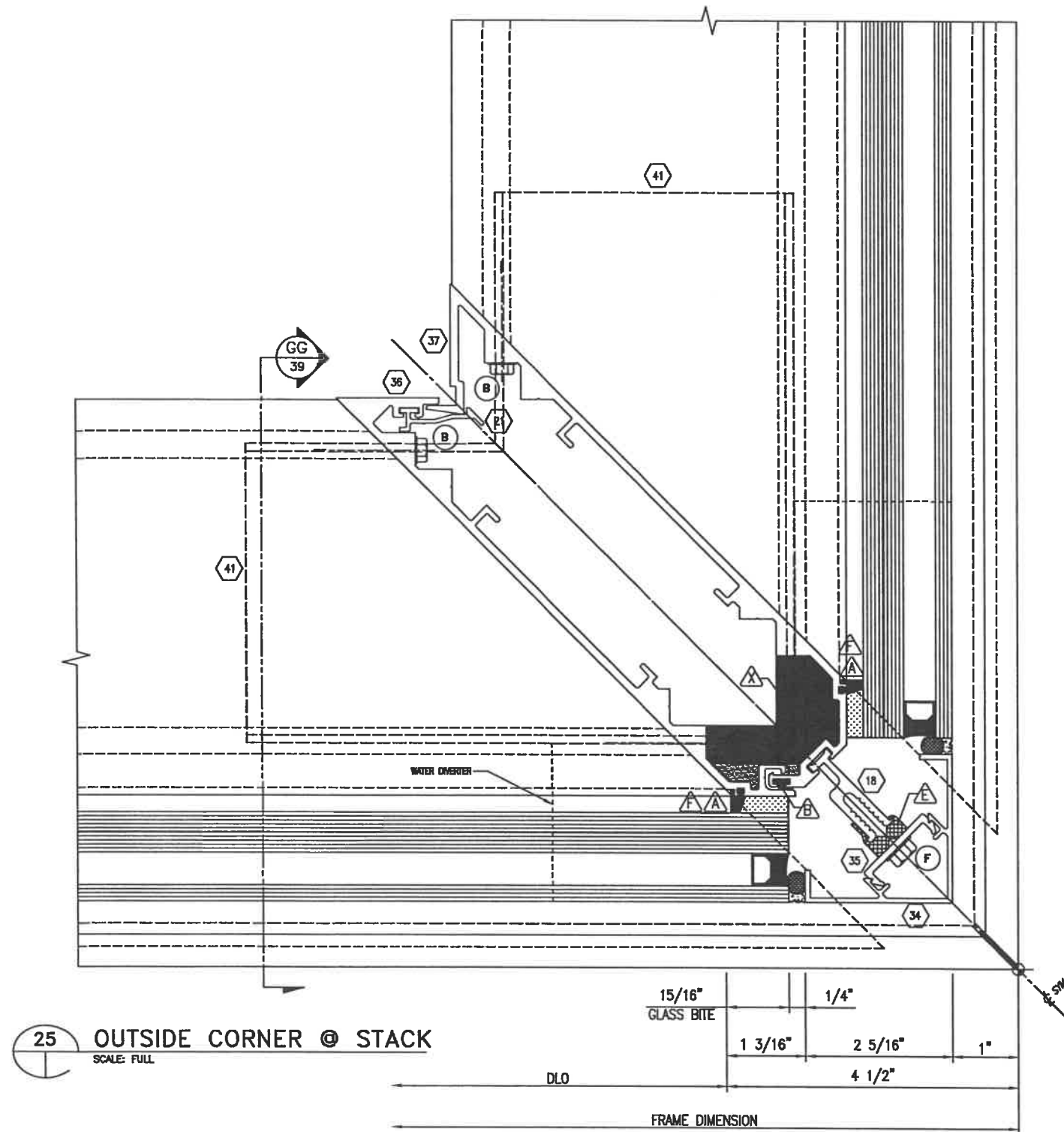
Harmon

7000 SMALL MISSILE
CORNER ANCHOR DETAIL

DATE: 06/28/04	6 6/17/16
1 11/18/08	7 03/05/19
2 3/10/09	8 02/25/21
3 3/16/09	
4 5/22/12	
5 10/03/14	

DWG. NO. HI7000SM

SHEET 38 OF 41



GG STACK HORIZONTAL @ CORNER
SCALE: FULL

GENERAL NOTES:

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- FASTENERS
- GASKETS
- ALUMINUM EXTRUSIONS

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ETHAN A. CHARPENTIER
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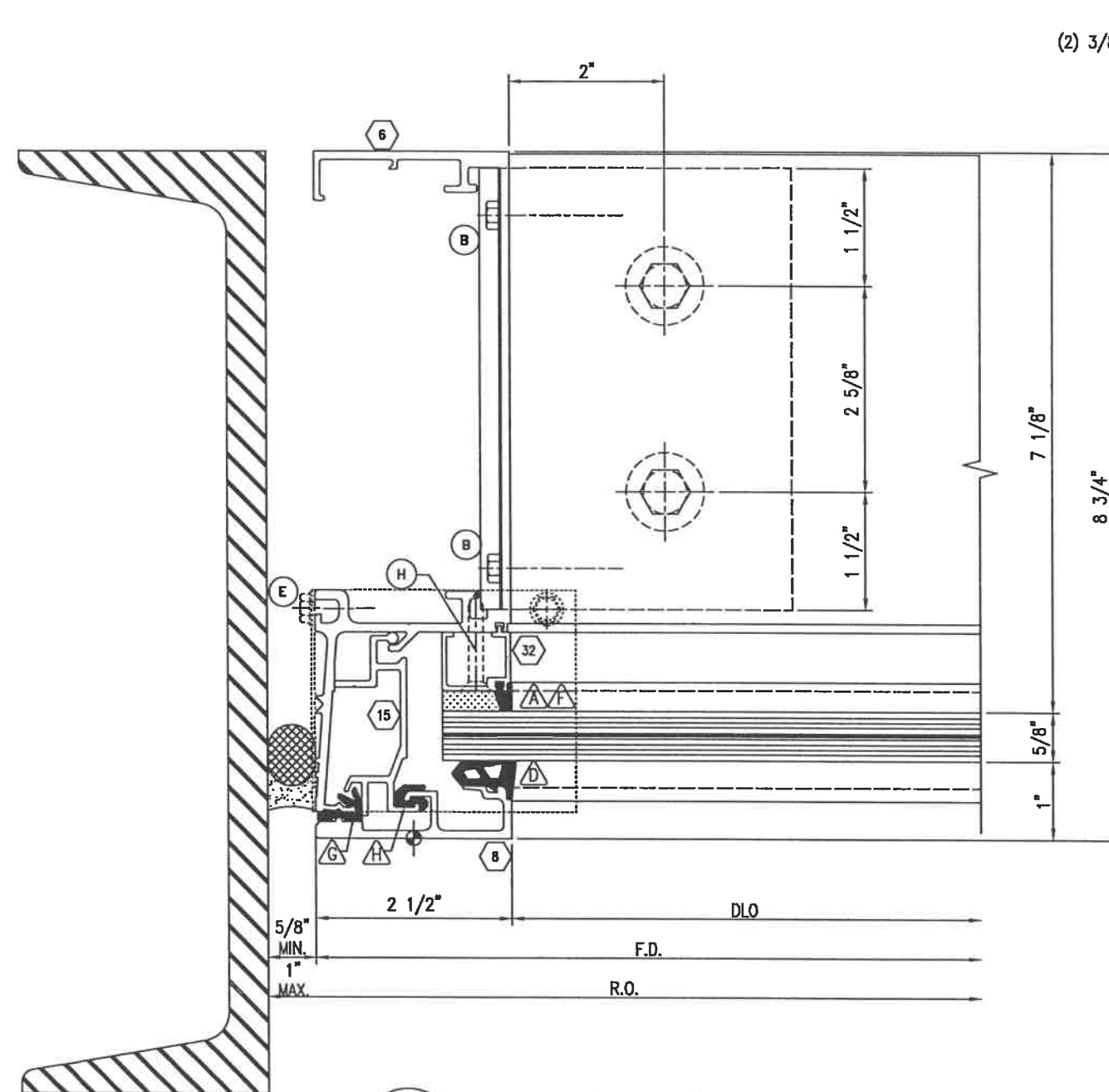
HI 7000 SMALL MISSILE

CORNER DETAIL AND
SECTION CUT AT STACK HORIZ.

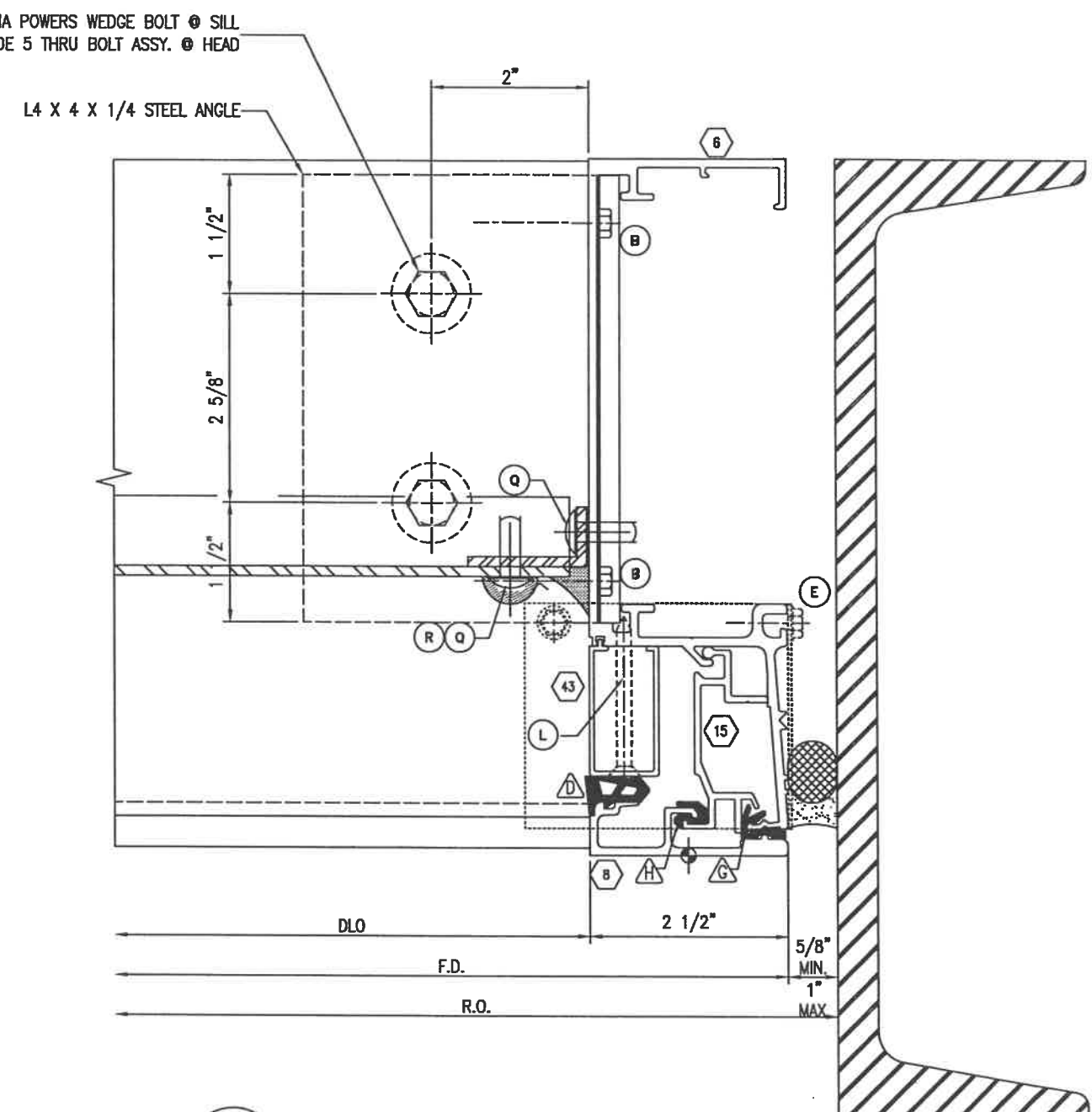
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 11/18/08 03/05/19
 3/10/09 02/25/21
 3/16/09
 5/22/12
 10/03/14

DWG. NO. HI7000SM

SHEET 39 OF 41



26 SILL ANCHOR @ JAMB
SCALE: FULL



27 SILL ANCHOR @ JAMB
SCALE: FULL

GENERAL NOTES:

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- △ GASKETS
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Ethan A. Charpentier
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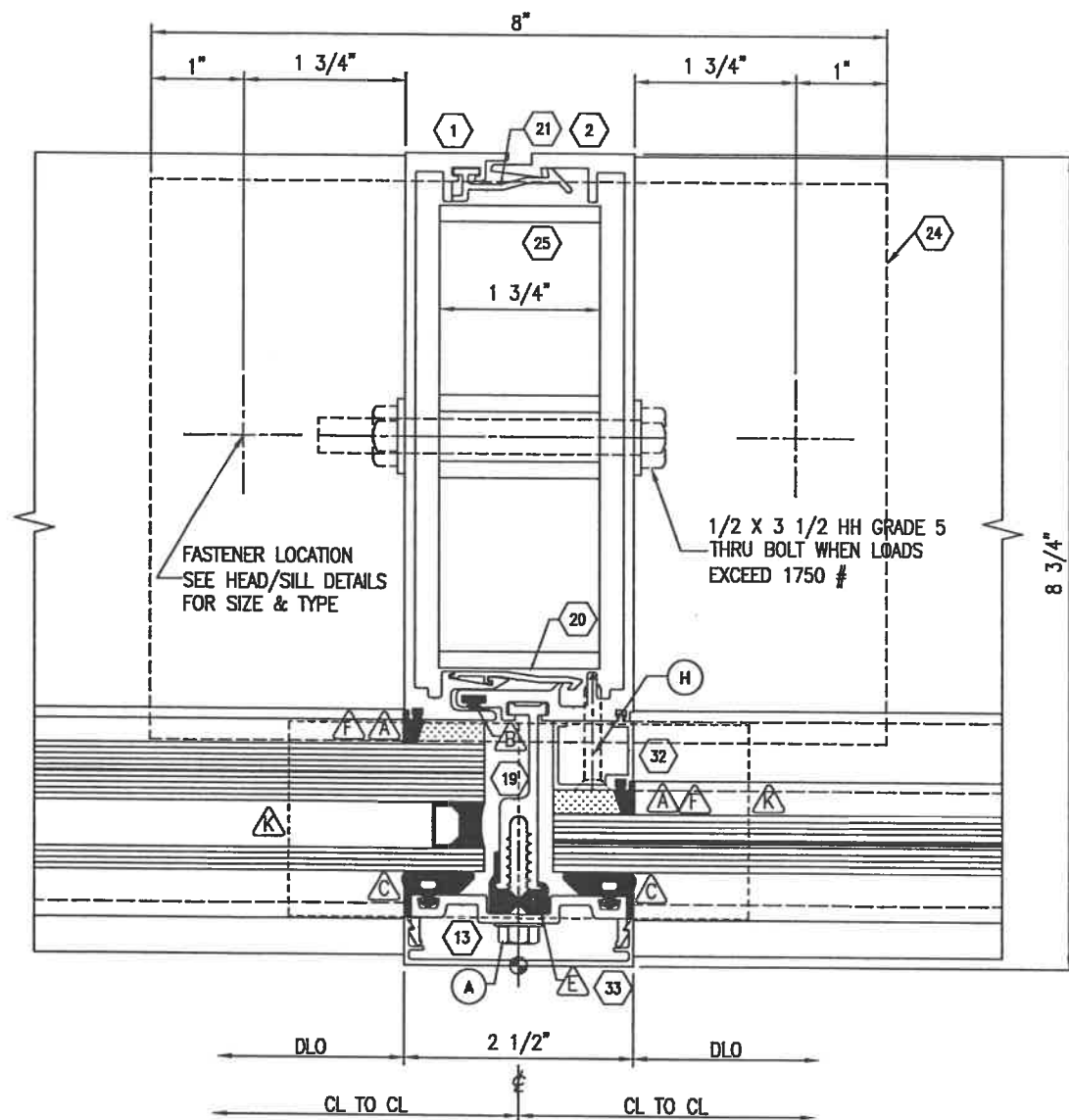
Harmon

HI 7000 SMALL MISSILE
VERTICAL DETAILS

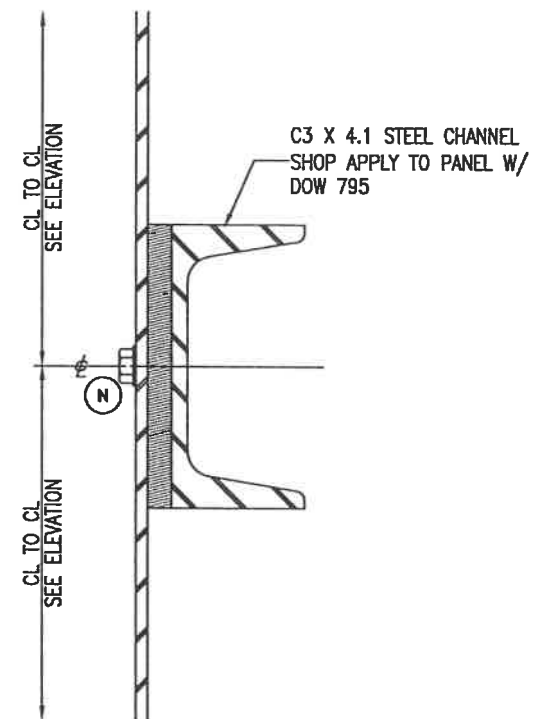
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5 10/03/14	

DWG. NO. HI7000SM

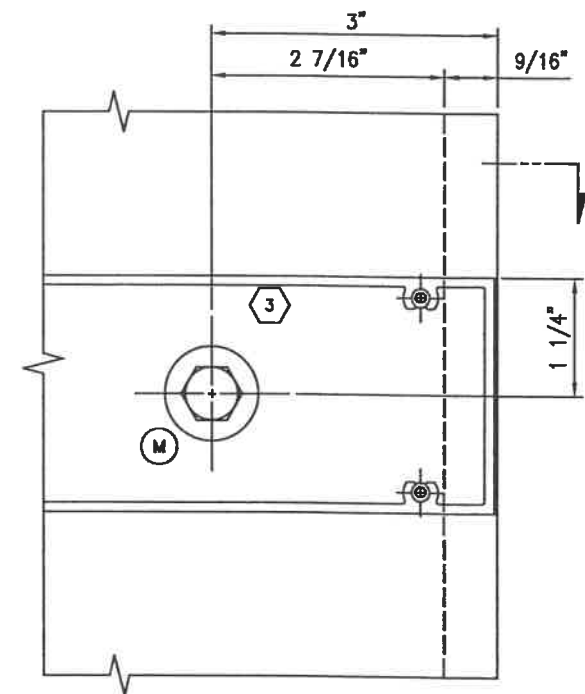
SHEET 40 OF 41



28 SILL ANCHOR @ MULLION
SCALE: FULL



29 BACK-PAN STIFFENER
SCALE: FULL



30 REINF. ATTACHMENT
SCALE: FULL

GENERAL NOTES:

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

- FASTENERS
- △ GASKETS
- ⬡ ALUMINUM EXTRUSIONS

Larson Engineering, Inc. 3524 Labore Road White Bear Lake, MN 55110 (P) 651.481.9120 (F) 651.481.9201		Harmon HI 7000 SMALL MISSILE SILL ANCHOR DETAIL, STIFFENER DETAIL & REINF. ATTACHMENT	
DADE CO. STAMP PRODUCT REVISED as complying with the Florida Building Code NOA-No. 21-0405.15 Expiration Date: 09/02/2024 By: <i>Manuel Perez</i> Miami-Dade Product Control		ENGINEER STAMP STATE OF FLORIDA PROFESSIONAL ENGINEER ETHAN A. CHARPENTIER No. 65106 MAY 17 2021 LIMITED TO STRUCTURAL DESIGN Florida Firm No. F-02000005175 Certificate of Authorization #9803 Ethan A. Charpentier Registration No. 65106	
DATE: 06/28/04		DATE: 06/17/16	
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3 3/16/09			
4 5/22/12			
5 10/03/14			
DWG. NO. HI7000SM			
SHEET 41 OF 41			