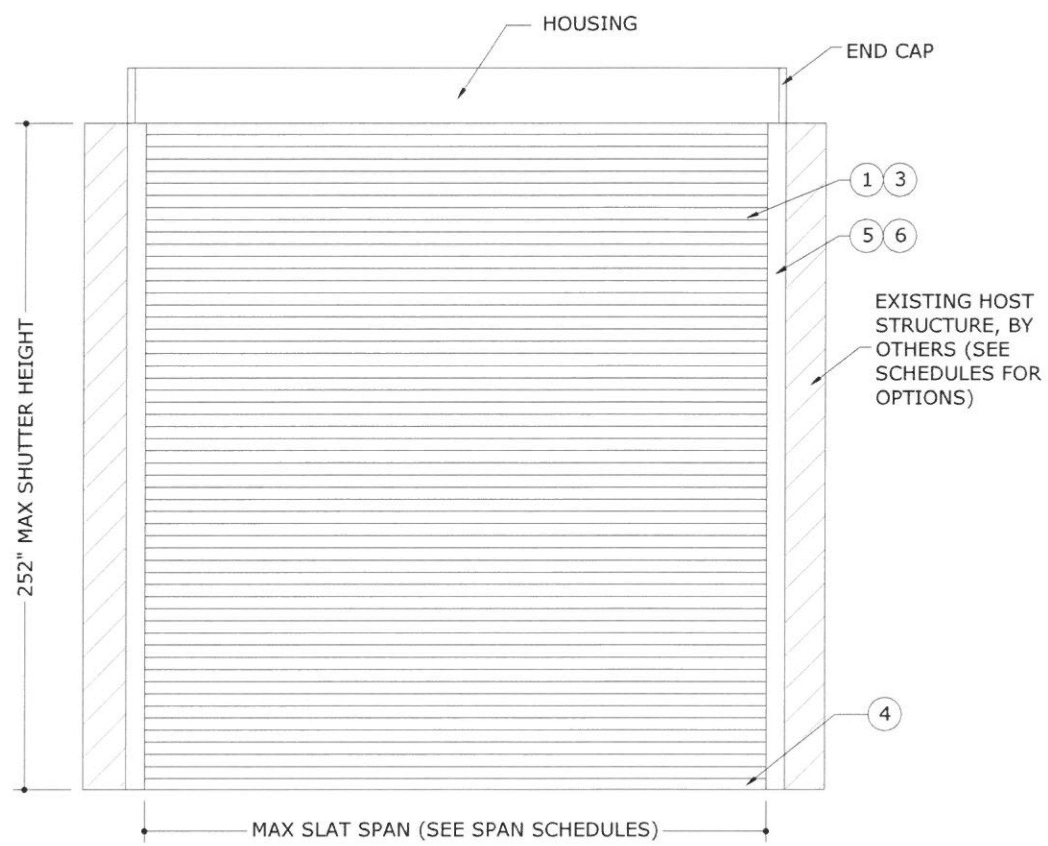
40mm SLAT BERTHA ROLL-UP HURRICANE SHUTTER

END RETENTION (ER) AND NON-END RETENTION (NER)



1/1 TYPICAL END RETENTION ROLL-UP SHUTTER

N.T.S. EXTERIOR ELEV

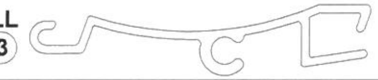
SEE REMAINING SHEETS FOR COMPLETE ELEVATION OPTIONS

VISIT ECALC.IO/197536

FOR ENGINEER CERTIFIED ORIGINALS & MORE INFORMATION ABOUT THIS DOCUMENT OR SCAN THE QR CODE TO THE RIGHT >

VISIT ENGINEERINGEXPRESS.COM/EASTERN FOR ADDITIONAL PLANS, REPORTS & RESOURCES

SINGLE WALL ER SLATS (3)



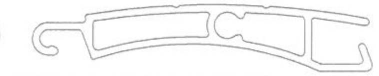
SPAN SCHEDULE — OPEN SLATS

SLAT SPAN	ALLOWABLE DESIGN PRESSURE
82.0"	± 80.0 PSF
85.0"	± 75.8 PSF
90.0"	± 69.7 PSF
95.0"	± 64.5 PSF
100.0"	± 60.0 PSF

GLASS SEPARATION SCHEDULE — OPEN SLATS

SLAT SPAN	INSTALLATIONS ≤ 30' ABOVE GRADE	INSTALLATIONS > 30' ABOVE GRADE
82.0"	6.2"	6.2"
85.0"	8.2"	6.3"
90.0"	8.2"	6.5"
95.0"	8.2"	6.7"
100.0"	8.2"	6.9"

DOUBLE WALL ER SLATS (1)



SPAN SCHEDULE — CLOSED SLATS

SLAT SPAN	ALLOWABLE DESIGN PRESSURE
82.0"	± 120.0 PSF
85.0"	± 116.3 PSF
90.0"	± 110.9 PSF
96.0"	± 105.4 PSF
100.0"	± 102.2 PSF
105.0"	± 98.6 PSF
110.0"	± 95.4 PSF
115.0"	± 92.5 PSF
120.0"	± 89.9 PSF
125.0"	± 87.5 PSF
130.0"	± 85.3 PSF
135.0"	± 83.3 PSF
140.0"	± 81.4 PSF
144.0"	± 80.0 PSF
150.0"	± 75.6 PSF
155.0"	± 72.0 PSF
160.0"	± 68.3 PSF
165.0"	± 64.7 PSF
170.0"	± 61.0 PSF
175.0"	± 57.4 PSF
180.0"	± 53.8 PSF
185.0"	± 50.1 PSF
190.0"	± 46.5 PSF
192.0"	UP TO ± 45.0 PSF

GLASS SEPARATION SCHEDULE — CLOSED SLATS

SLAT SPAN	INSTALLATIONS ≤ 30' ABOVE GRADE	INSTALLATIONS > 30' ABOVE GRADE
82.0"	7.8"	5.7"
85.0"	11.2"	5.8"
90.0"	11.2"	6.0"
96.0"	11.2"	6.2"
100.0"	10.5"	6.3"
105.0"	10.5"	6.5"
110.0"	10.5"	6.7"
115.0"	10.5"	6.9"
120.0"	10.5"	7.0"
125.0"	10.5"	7.2"
130.0"	10.5"	7.4"
135.0"	10.5"	7.6"
140.0"	10.5"	7.7"
144.0"	10.5"	7.9"
150.0"	10.1"	6.6"
155.0"	10.1"	6.7"
160.0"	10.1"	6.8"
165.0"	10.1"	6.9"
170.0"	10.1"	7.0"
175.0"	10.1"	7.1"
180.0"	10.1"	7.2"
185.0"	10.1"	7.3"
190.0"	10.1"	7.4"
192.0"	10.1"	7.4"

SPAN SCHEDULE NOTES (OPEN & CLOSED SLATS):

- SLAT SPAN IS DEFINED AS THE DISTANCE BETWEEN RAILS FOR SINGLE SPAN ASSEMBLIES.
- LINEAR INTERPOLATION BETWEEN SHUTTER SPANS IS NOT PERMITTED. FOR SPANS BETWEEN THOSE INDICATED ABOVE, THE DESIGN PRESSURES FOR THE NEXT HIGHER SPAN SHALL BE USED.
- FOR INSTALLATIONS TO WOOD FRAMING HOST, SEE SPAN CHARTS TO WOOD FRAMING (SHEET 7)

GLASS SEPARATION NOTES (OPEN & CLOSED SLATS):

- SLAT SPAN IS DEFINED AS THE DISTANCE BETWEEN RAILS FOR SINGLE SPAN ASSEMBLIES
- SEPARATION FROM GLAZING IS REQUIRED **ONLY** IN ASTM ESSENTIAL FACILITIES AND WIND ZONE 4.
- LINEAR INTERPOLATION BETWEEN SHUTTER SPANS IS NOT PERMITTED. FOR SPANS BETWEEN THOSE INDICATED ABOVE, THE SEPARATION FROM GLASS FOR THE NEXT HIGHER SPAN SHALL BE USED.

GENERAL NOTES

1. THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE SIXTH EDITION (2017), THE INTERNATIONAL BUILDING CODE (IBC) AND THE INTERNATIONAL RESIDENTIAL CODE (IRC) FOR USE INSIDE AND OUTSIDE OUTSIDE THE HIGH VELOCITY HURRICANE ZONE, PER ASTM E330, E1886, AND E1996 AND TAS 201, 202 & 203 STANDARDS. SEE PRODUCT APPROVAL EVALUATION FOR ADDITIONAL INFORMATION.
2. NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM. WIND LOAD DURATION FACTOR Cd=1.6 HAS BEEN USED FOR WOOD ANCHOR DESIGN.
3. POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED PER SEPARATE ENGINEERING IN ACCORDANCE WITH THE GOVERNING CODE. PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH ASCE 7 AND CHAPTER 1609 OF THE FLORIDA BUILDING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE ASD DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.
4. DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.
5. THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
6. ROLL-UP MECHANISM AND HOOD ASSEMBLY ARE NOT PART OF THIS APPROVAL.
7. THIS DOCUMENT CONTAINS INFORMATION RELEVANT TO THE NECESSARY STRUCTURAL REQUIREMENTS OF THE SYSTEM INSTALLATION. COMPONENTS AND FASTENERS NOT REFERENCED WHICH ARE PART OF THE INTERNAL FABRICATION OF THE SPECIFIED SYSTEMS OR ASSEMBLIES SHALL BE PER MANUFACTURER PUBLISHED SPECIFICATIONS.
8. THE STRUCTURAL ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS BY THIS SYSTEM SHALL BE VERIFIED BY OTHERS.
9. ALL EXTRUSIONS SHALL BE MINIMUM 6063-T6 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE.
10. EACH SHUTTER ASSEMBLY SHALL BEAR A PERMANENT LABEL ON THE BOTTOM OF THE HOOD FACING THE EXTERIOR, OR ANYWHERE ELSE ALLOWED PER SECTION 1709.9.3 OF THE FBC 2017 WITH THE FOLLOWING MINIMUM INFORMATION:
    AMERICAN SHUTTER SYSTEMS ASSOC., INC.
    WEST PALM BEACH, FL
    MISSILE LEVEL D - ASTM E1886, E1996 & E330 - TAS 201, 202 & 203
    FLORIDA PRODUCT APPROVAL NUMBER
11. ALL BOLTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI. ALL ALUMINUM 3/16"Ø OR 1/4"Ø POP RIVETS SHALL BE 7075-T6 OR STRONGER.
12. ALL STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

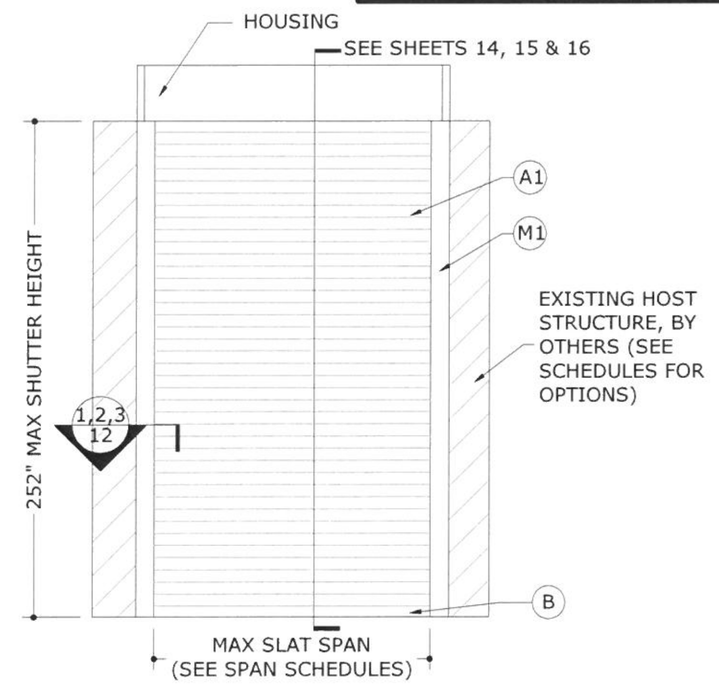
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536

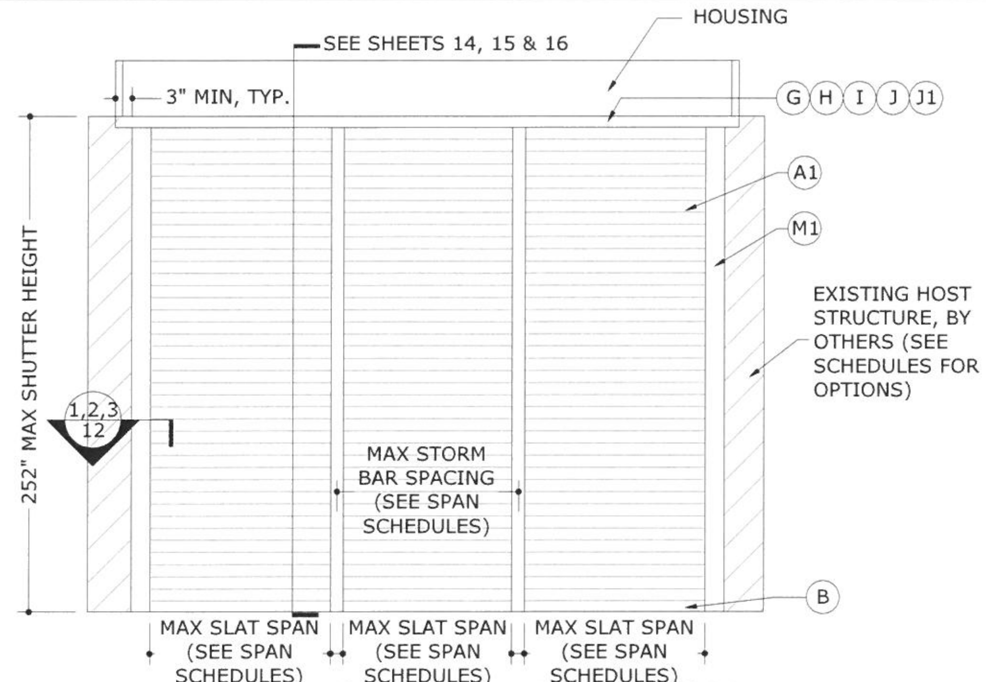
SCALE: NTS UNLESS NOTED

NON-END RETENTION (NER) OPTION



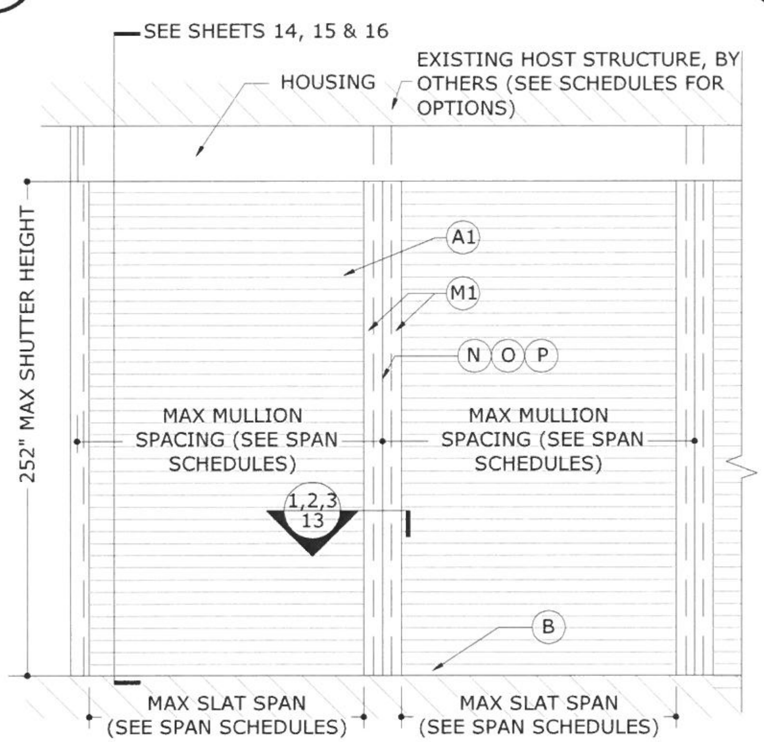
TYPICAL NON-END RETENTION SINGLE SPAN SHUTTER (WITHOUT STORM BARS)

1 / 2 N.T.S. EXTERIOR ELEV



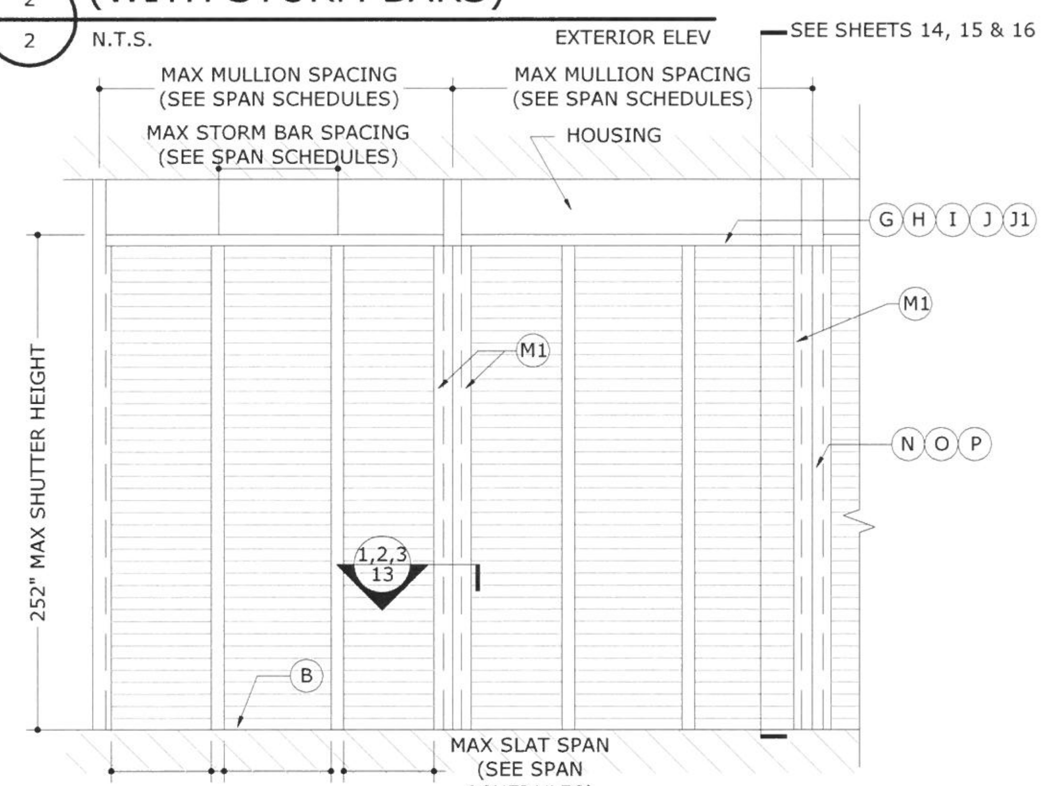
TYPICAL NON-END RETENTION SINGLE SPAN SHUTTER (WITH STORM BARS)

2 / 2 N.T.S. EXTERIOR ELEV



TYPICAL NON-END RETENTION SINGLE SPAN SHUTTER (WITH MULLIONS)

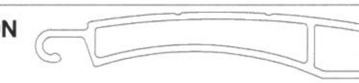
3 / 2 N.T.S. EXTERIOR ELEV



TYPICAL NON-END RETENTION SINGLE SPAN SHUTTER (WITH MULLIONS & STORM BARS)

4 / 2 N.T.S. EXTERIOR ELEV

NON-END RETENTION SLATS A1



SPAN SCHEDULE	
ALLOWABLE DESIGN PRESSURE	MAXIMUM SLAT SPAN
40.0 PSF	50 IN
45.0 PSF	48 IN
50.0 PSF	47 IN
55.0 PSF	45 IN
60.0 PSF	44 IN
65.0 PSF	42 IN
70.0 PSF	41 IN
75.0 PSF	39 IN
80.0 PSF	38 IN
85.0 PSF	37 IN
90.0 PSF	36 IN
95.0 PSF	35 IN
100.0 PSF	34 IN

GLASS SEPARATION SCHEDULE	
SLAT SPAN	MAXIMUM SLAT SPAN
UP TO 36 IN	2-1/4 IN
> 36 IN TO 48 IN	2-5/8 IN
> 48 IN TO 50 IN	2-3/4 IN

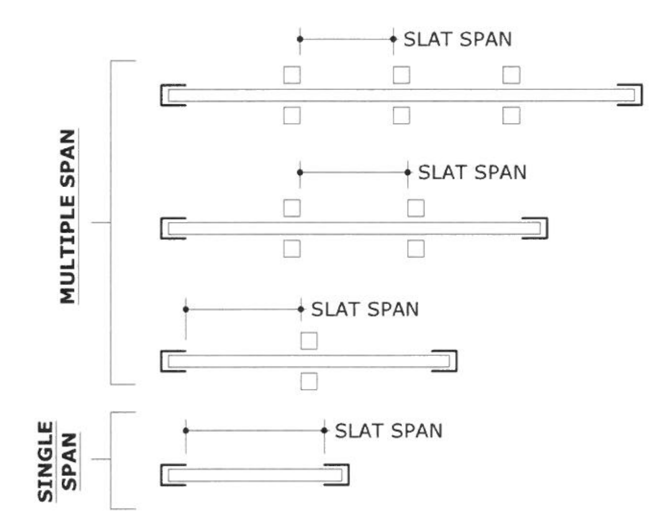
SPAN SCHEDULE NOTES (NON-END RETENTION):

- SLAT SPAN IS DEFINED AS THE DISTANCE BETWEEN RAILS FOR SINGLE SPAN ASSEMBLIES.
- LINEAR INTERPOLATION BETWEEN SHUTTER SPANS IS NOT PERMITTED. FOR SPANS BETWEEN THOSE INDICATED ABOVE, THE DESIGN PRESSURES FOR THE NEXT HIGHER SPAN SHALL BE USED.

GLASS SEPARATION NOTES (NON-END RETENTION):

- SLAT SPAN IS DEFINED AS SHOWN IN DIAGRAMS ON THIS SHEET
- SEPARATION FROM GLAZING IS REQUIRED **ONLY** IN ASTM ESSENTIAL FACILITIES AND WIND ZONE 4.
- LINEAR INTERPOLATION BETWEEN SHUTTER SPANS IS NOT PERMITTED. FOR SPANS BETWEEN THOSE INDICATED ABOVE, THE SEPARATION FROM GLASS FOR THE NEXT HIGHER SPAN SHALL BE USED.

SLAT SPAN DIAGRAMS



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
FRANK L. BENNARDO LICENSE No PE0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER
ENGINEERING EXPRESS
CORPORATE OFFICE: 160 SW 12th AVE, SUITE 106 DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

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PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
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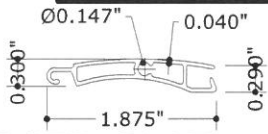
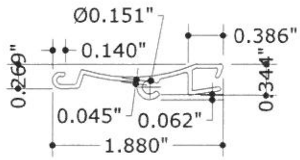
19-7536
SCALE: NTS UNLESS NOTED

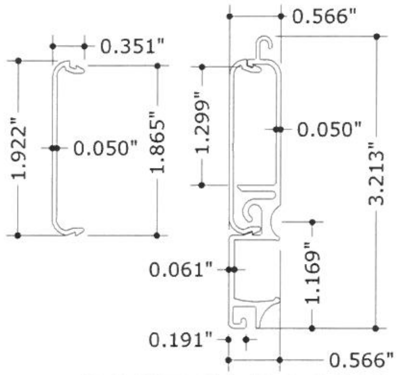
END RETENTION (ER) COMPONENTS

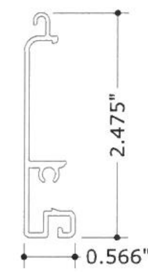


(1) CLOSED SLAT
N.T.S. 6063-T6 ALUM



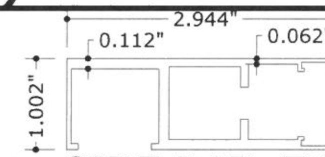
(3) SLAT W/ OPEN BACK W/ SCREW BOSS
N.T.S. 6063-T6 ALUM



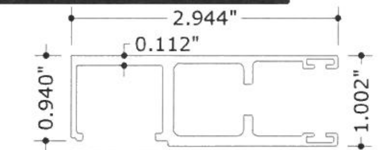


SHORT BASE SLAT

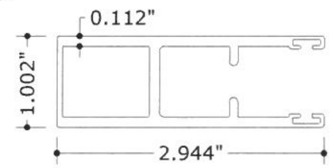
(4) BASE SLAT (ALL OPTIONS)
N.T.S. 6063-T6 ALUM



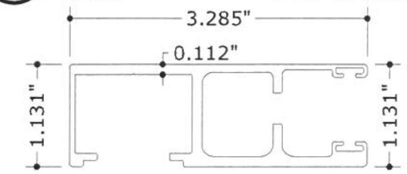
(5A) SIDE RAIL TYPE 1
N.T.S. 6063-T6 ALUM



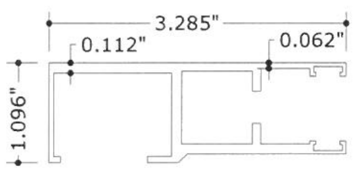
(5C) SIDE RAIL TYPE 1A
N.T.S. 6063-T6 ALUM



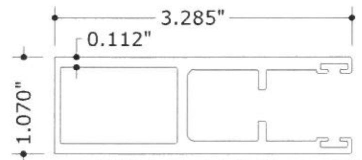
(5B) SIDE RAIL TYPE 1 (CLOSED FACE)
N.T.S. 6063-T6 ALUM



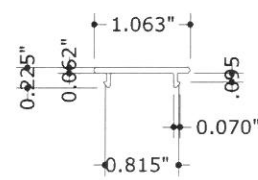
(5D) SIDE RAIL TYPE 2A
N.T.S. 6063-T6 ALUM



(6A) SIDE RAIL TYPE 2
N.T.S. 6063-T6 ALUM

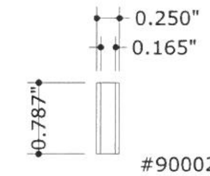


(6B) SIDE RAIL TYPE 2 (CLOSED FACE)
N.T.S. 6063-T6 ALUM

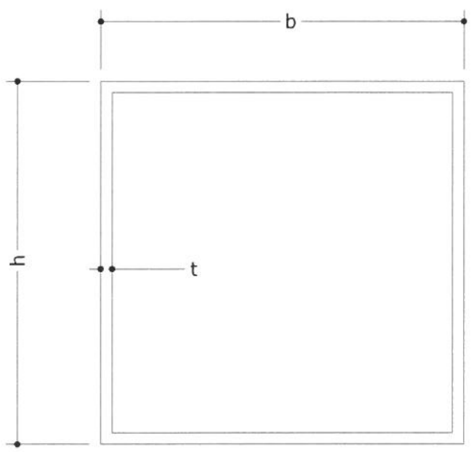


(7) SNAP CAP
N.T.S. 6063-T6 ALUM

(8) END CAP W/ MONOLITHIC SCREW SLEEVE (LEFT AND RIGHT SHOWN)
N.T.S. RIGID NYLON, 76-78 TYPE "O" SHORE HARDNESS

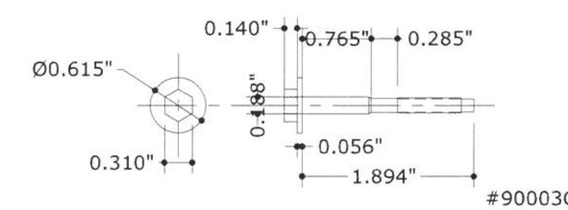


(9) EXTENDED SCREW SLEEVE W/O END CAP
N.T.S. RIGID NYLON, 76-78 TYPE "O" SHORE HARDNESS

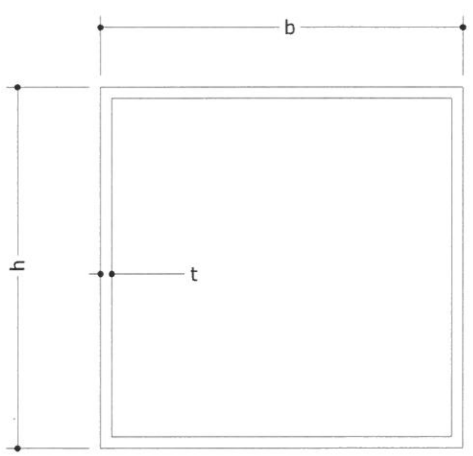


BUILD-OUT MOUNTED TUBES
N.T.S. 6063-T6

B.O TUBES		b	h	t
12	WOOD	3"	2" MAX.	0.125"
12A	CONC./ BLOCK	3"	4" MAX.	0.125"
15	CONC./ BLOCK	4"	4" MAX.	0.250"

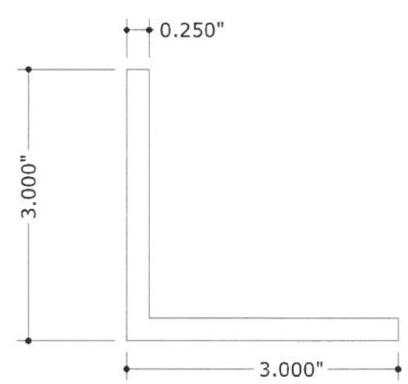


(11) SCREW AT EVERY OTHER SLAT, INCLUDING BASE SLAT FOR POURED CONCRETE, GROUTED BLOCK & WOOD INSTALLATIONS
N.T.S. #8-32 X 1.894" AISI 410 S.S. SCREW W/ 0.31" DIAM HV MARKED HEAD & T=0.064" X 0.620" DIAM MONOLITHIC WASHER W/ BERTHA H.V. DACROSHIELD COASTIN SYSTEM AS MANUFACTURED BY APPROVED COATING APPLICATORS REGISTERED WITH AMERICAN SHUTTER SYSTEM ASSOCIATION

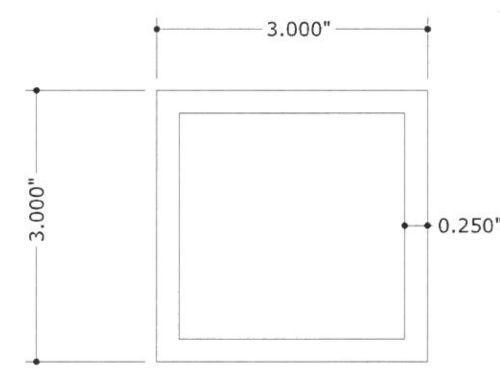


MULLIONS
N.T.S. 6061-T6 OR 6005-T5

MULLIONS	b	h	t
24	4"	6"	0.250"
25	4"	8"	0.250"

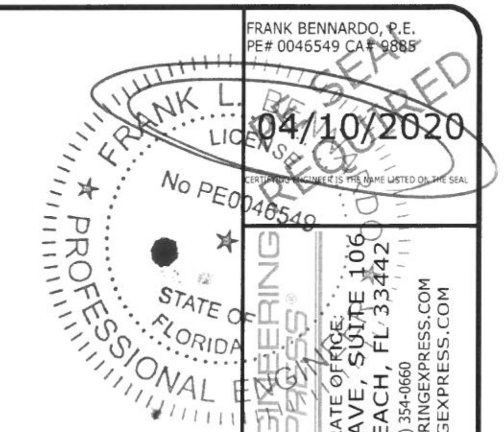


(13) TRAPPED ANGLE
N.T.S. 6063-T6 ALUM



(14) OPTIONAL TRAPPED MOUNTED TUBE TO (13)
N.T.S. 6063-T6 ALUM

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885



ENGINEERING EXPRESS®
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
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PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
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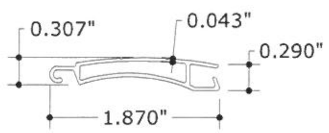
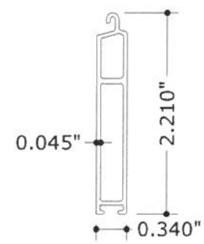
19-7536
SCALE: NTS UNLESS NOTED

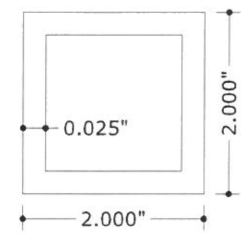
NON-END RETENTION (NER) COMPONENTS



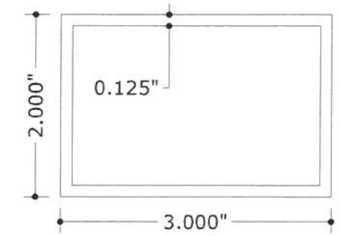
(A1) NER TYPE 2 SLAT
N.T.S. 6063-T6 ALUM



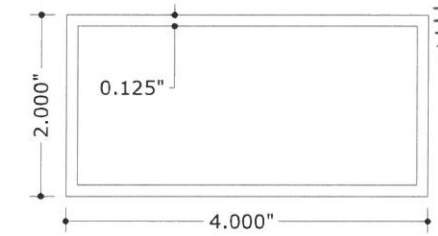
(B) NER BOTTOM SLAT
N.T.S. 6063-T6 ALUM



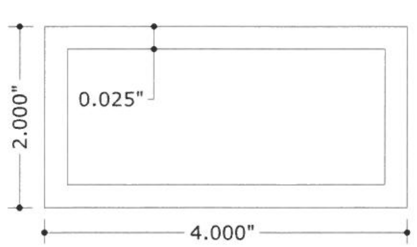
(C) NER TYPE 1 STORM BAR
N.T.S. 6063-T6 ALUM



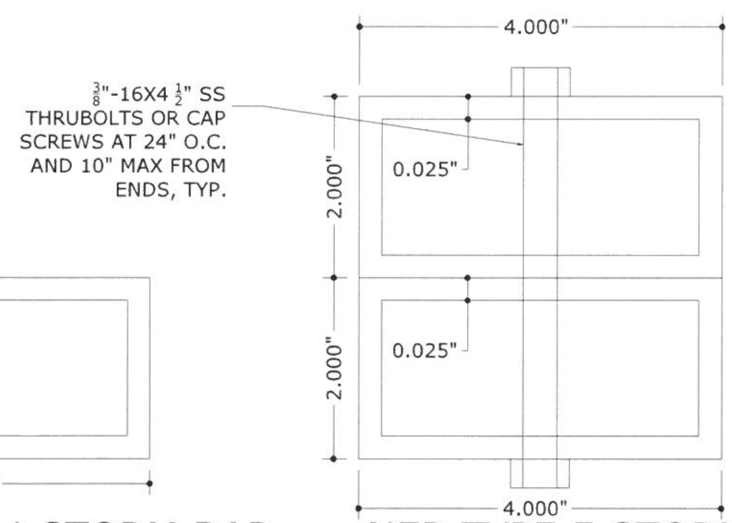
(D) NER TYPE 2 STORM BAR
N.T.S. 6063-T6 ALUM



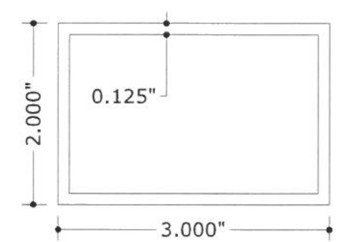
(E) NER TYPE 3 STORM BAR
N.T.S. 6063-T6 ALUM



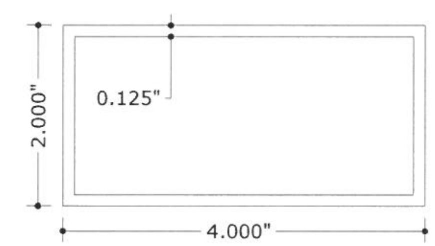
(F) NER TYPE 4 STORM BAR
N.T.S. 6063-T6 ALUM



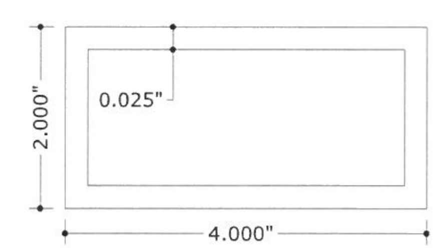
(F1) NER TYPE 5 STORM BAR
N.T.S. 6063-T6 ALUM



(G) NER HEADER TYPE 1
N.T.S. 6063-T6 ALUM



(H) NER HEADER TYPE 2
N.T.S. 6063-T6 ALUM



(I) NER HEADER TYPE 3
N.T.S. 6063-T6 ALUM

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
FRANK L. BENNARDO LICENSE No PE0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

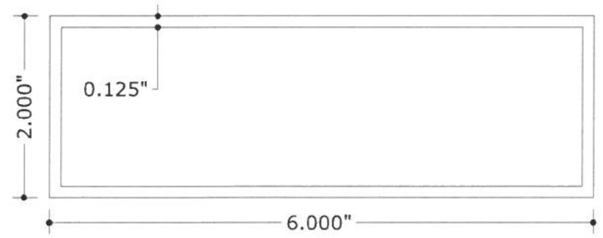
AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

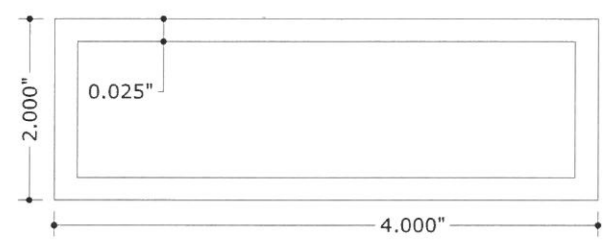
REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

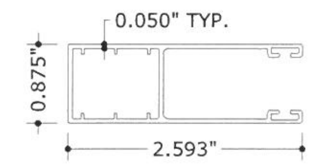
NON-END RETENTION (NER) COMPONENTS (CONT'D)



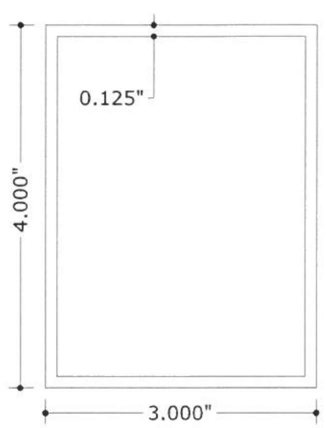
J NER HEADER TYPE 4
N.T.S. 6063-T6 ALUM



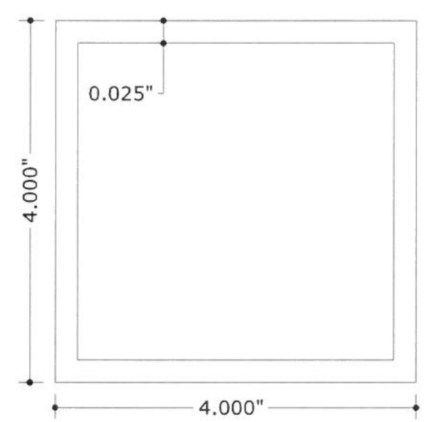
J1 NER HEADER TYPE 5
N.T.S. 6063-T6 ALUM



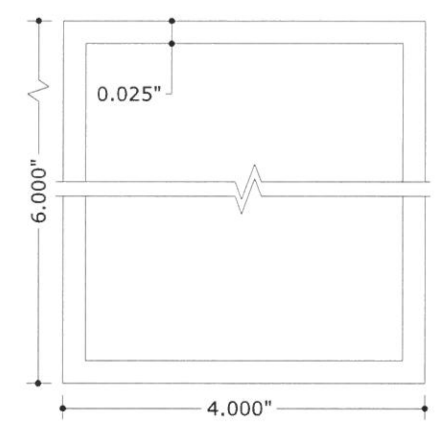
M1 NER TYPE 5 SIDE RAIL
N.T.S. 6063-T6 ALUM



N NER TYPE 1 MULLION
N.T.S. 6063-T6 ALUM



O NER TYPE 2 MULLION
N.T.S. 6063-T6 ALUM



P NER TYPE 3 MULLION
N.T.S. 6063-T6 ALUM

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

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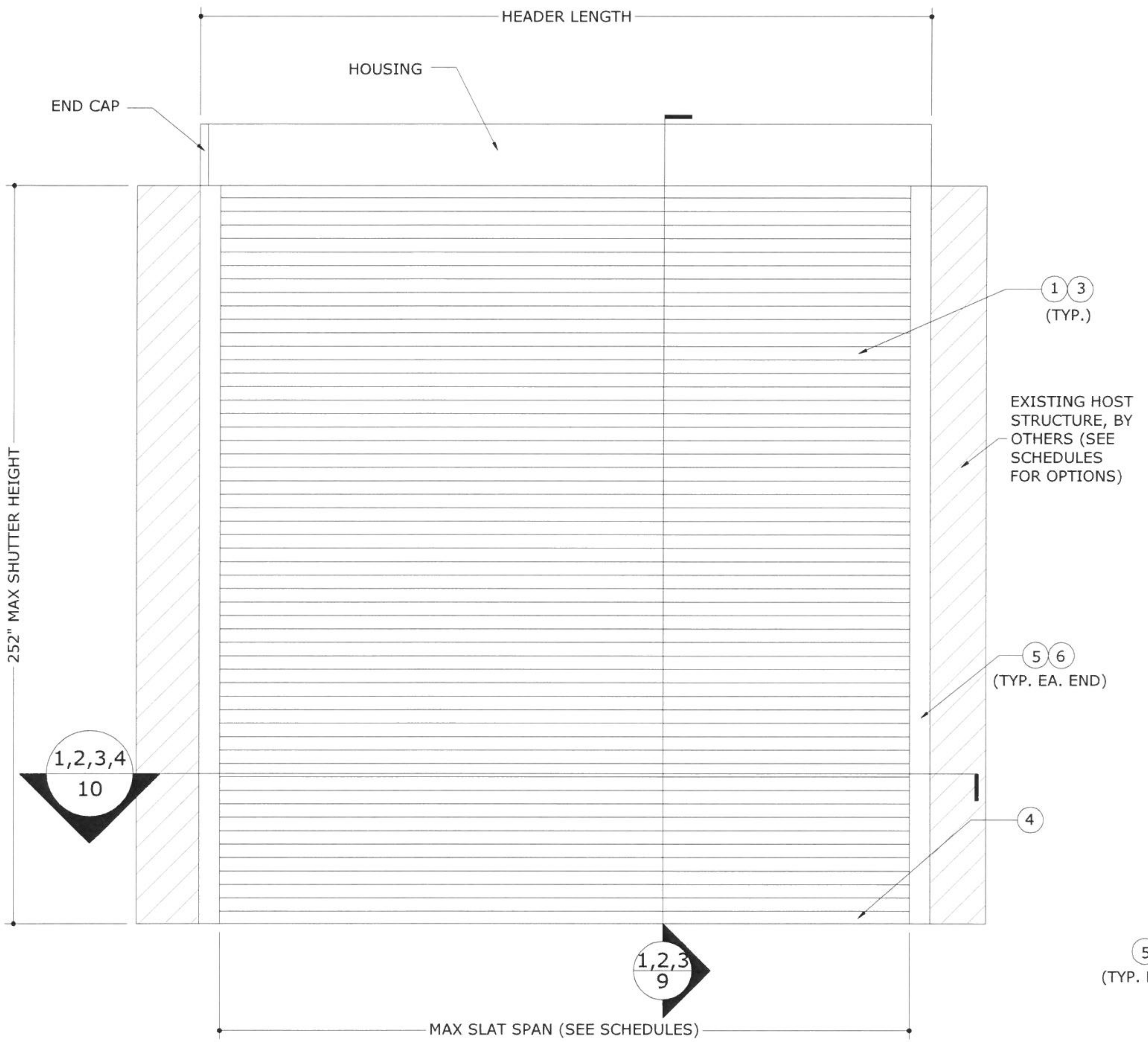
19-7536

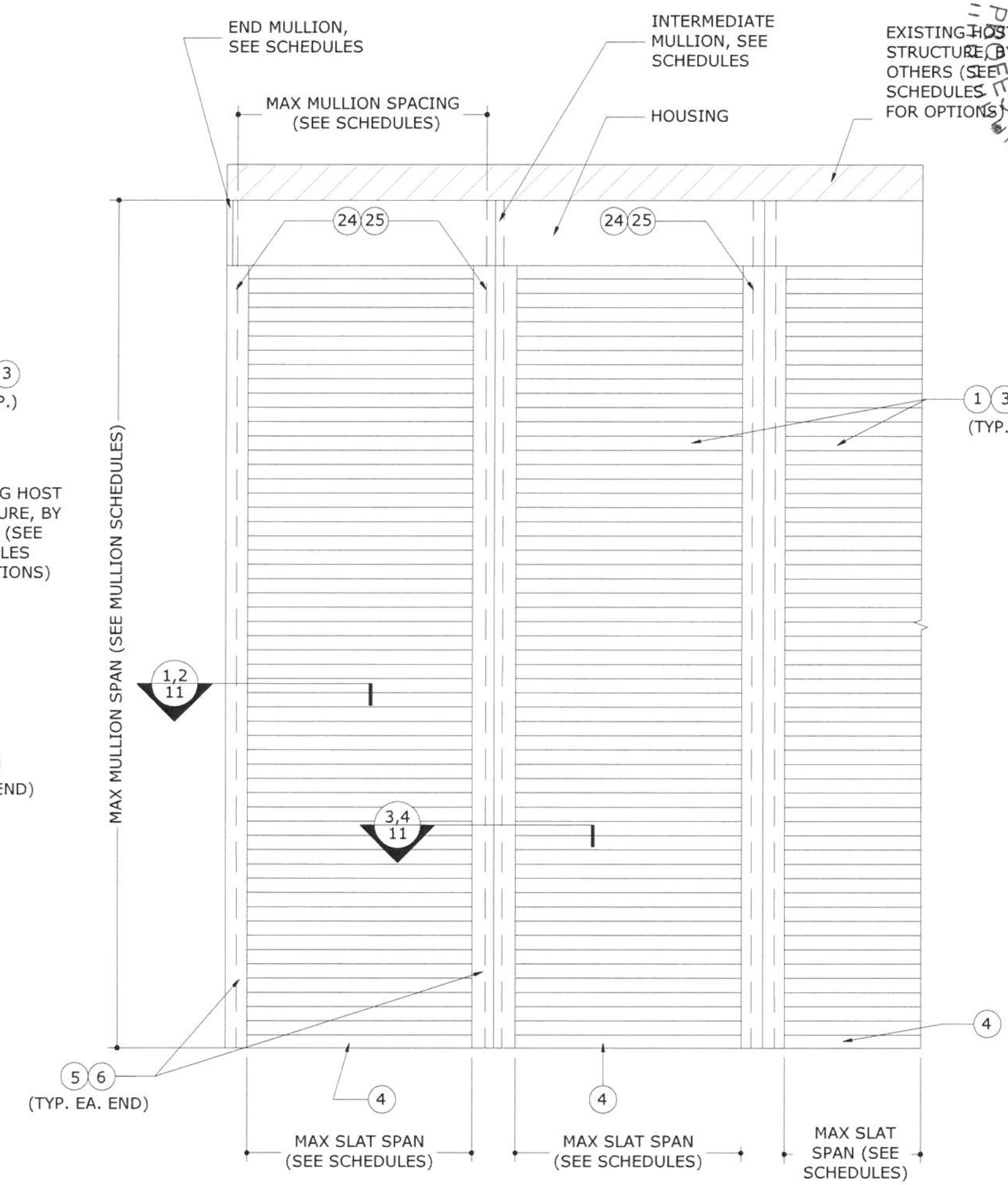
SCALE: NTS UNLESS NOTED

END RETENTION (ER)



TYPICAL SINGLE UNIT ELEVATION W/O MULLIONS

1/6 N.T.S. EXTERIOR ELEV



TYPICAL CONSECUTIVE SINGLE UNIT ELEVATION WITH MULLIONS

2/6 N.T.S. EXTERIOR ELEV

FRANK BENNARDO, P.E.
PE# 0046549, CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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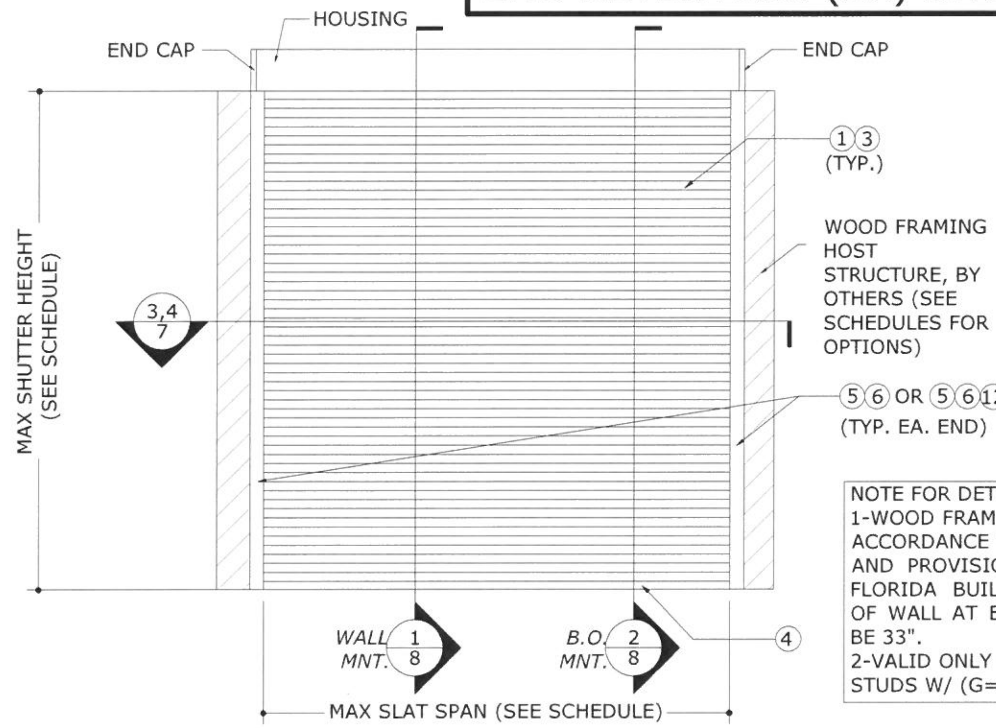
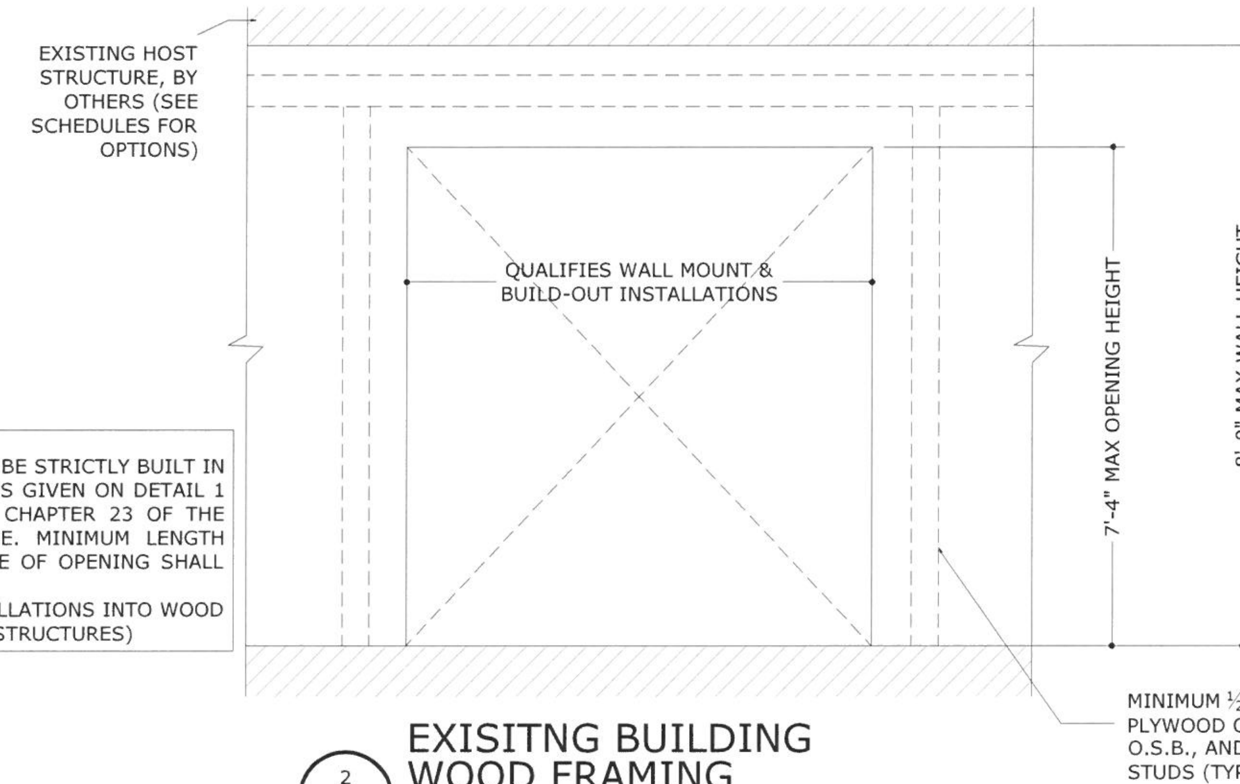
END RETENTION (ER) SHUTTER ATTACHMENT OPTION TO WOOD FRAMING

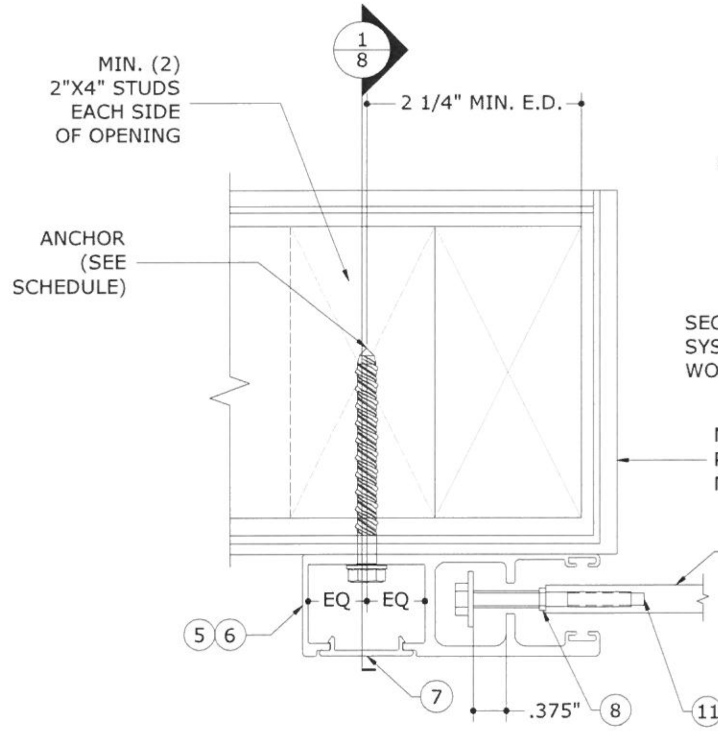


1 / 7 TYPICAL SINGLE UNIT ELEVATION TO WOOD FRAMING
N.T.S. EXTERIOR ELEV

NOTE FOR DETAIL 2:
1-WOOD FRAME WALL TO BE STRICTLY BUILT IN ACCORDANCE WITH SPECS GIVEN ON DETAIL 1 AND PROVISIONS FROM CHAPTER 23 OF THE FLORIDA BUILDING CODE. MINIMUM LENGTH OF WALL AT EITHER SIDE OF OPENING SHALL BE 33".
2-VALID ONLY FOR INSTALLATIONS INTO WOOD STUDS W/ (G=0.46 MIN. STRUCTURES)

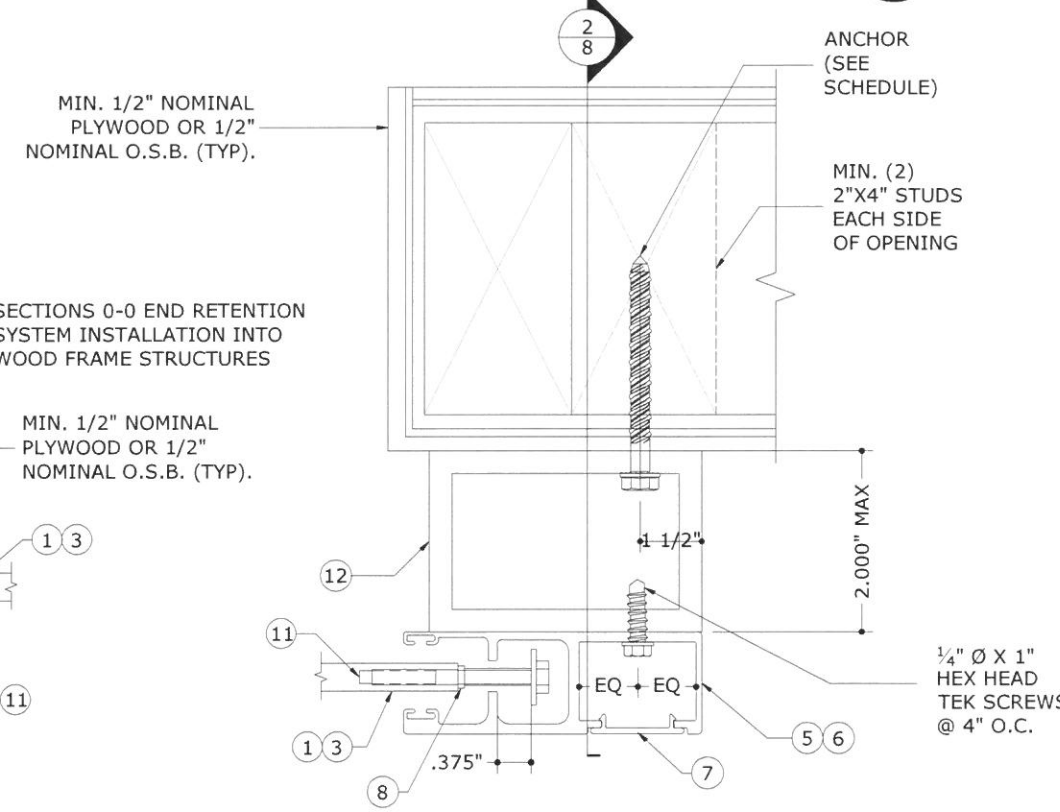


2 / 7 EXISITNG BUILDING WOOD FRAMING
N.T.S. EXTERIOR ELEV



SECTIONS 0-0 END RETENTION SYSTEM INSTALLATION INTO WOOD FRAME STRUCTURES

3 / 7 WALL MOUNT
N.T.S. EXTERIOR ELEV



4 / 7 BUILD-OUT MOUNT
N.T.S. EXTERIOR ELEV

SLAT SPAN SCHEDULE TO WOOD FRAMING

MAX A.S.D. DESIGN PRESSURE (PSF)	MAX. SLAT #1 SPAN (CLOSED)	MAX. SLAT #3 SPAN (OPEN)
+/- 30.0	144"	100"
+/- 40.0	120"	100"
+/- 45.0	108"	100"
+/- 55.0	96"	100"

WOOD FRAMING SPAN SCHEDULE NOTES (OPEN & CLOSED SLATS):

- SLAT SPAN IS DEFINED AS THE DISTANCE BETWEEN RAILS FOR SINGLE SPAN ASSEMBLIES.
- LINEAR INTERPOLATION BETWEEN SHUTTER SPANS IS NOT PERMITTED. FOR SPANS BETWEEN THOSE INDICATED ABOVE, THE DESIGN PRESSURES FOR THE NEXT HIGHER SPAN SHALL BE USED.
- GLASS SEPARATION (IF REQUIRED BY LOCAL JURISDICTION) SHALL BE DETERMINED FROM THE GLASS SEPARATIONS SCHEDULES ON SHEET 1, OTHERWISE USE GLASS SEPARATION = 1.0" MIN..

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
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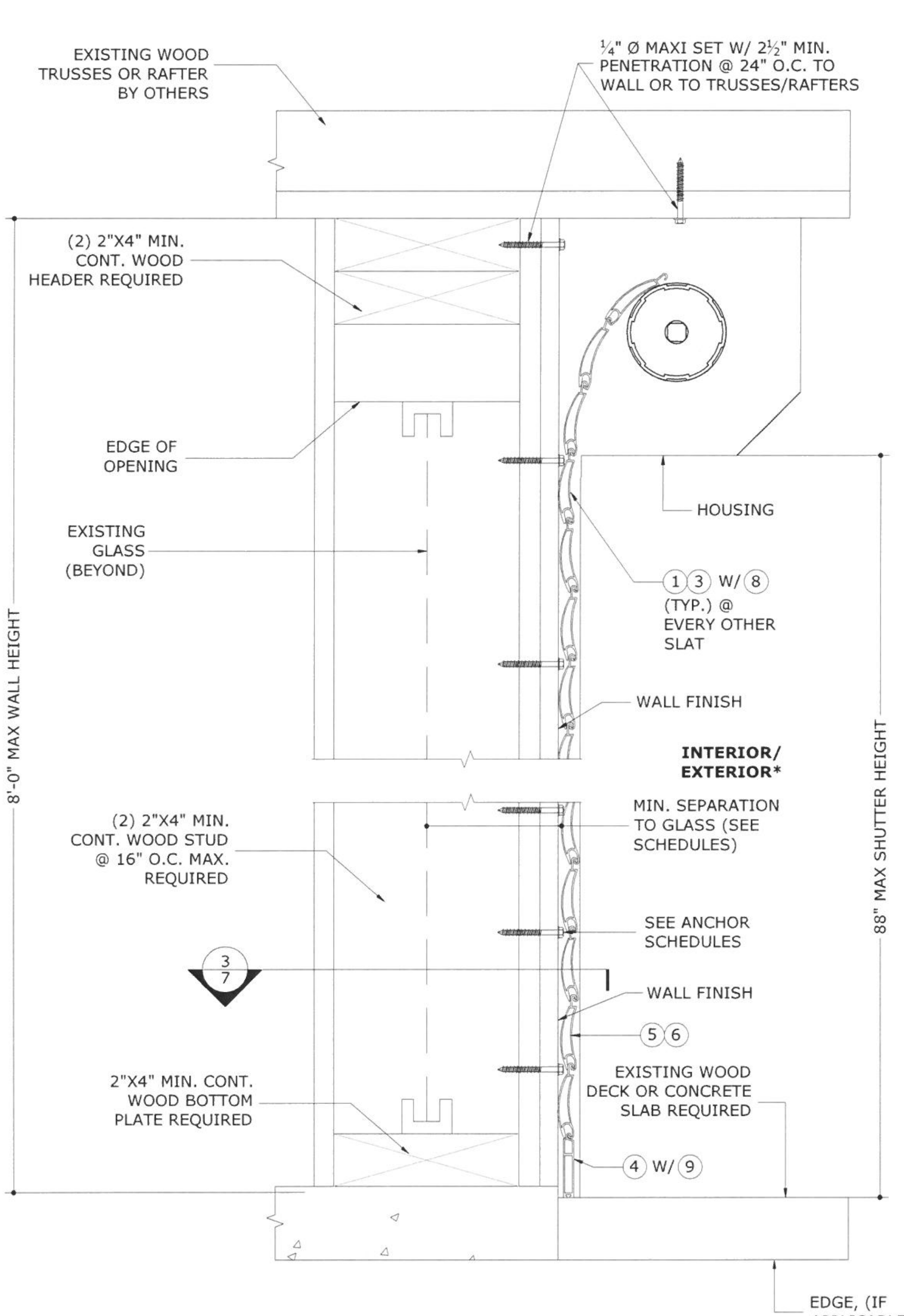
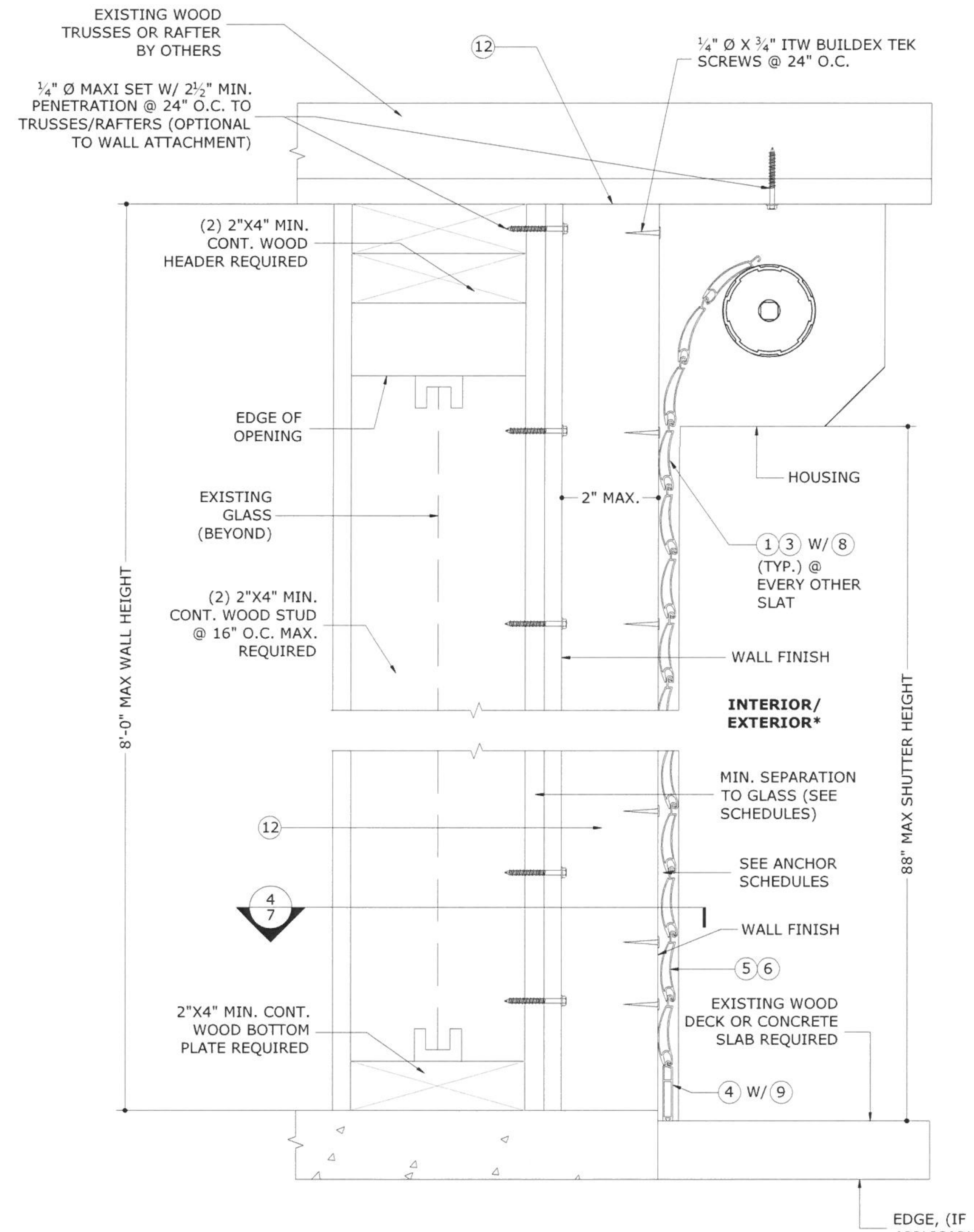
END RETENTION (ER) SHUTTER ATTACHMENT OPTION TO WOOD FRAMING



1
8
WALL MOUNT
N.T.S. SECTION VIEW



2
8
BUILD-OUT MOUNT
N.T.S. SECTION VIEW

* WHEN REVERSE MOUNTED ADD 1" OF GLASS SEPARATION PER "GLASS SEPARATION SCHEDULE" ON SHEET 1

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FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020

ENGINEERING EXPRESS®
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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(561) 841-5480

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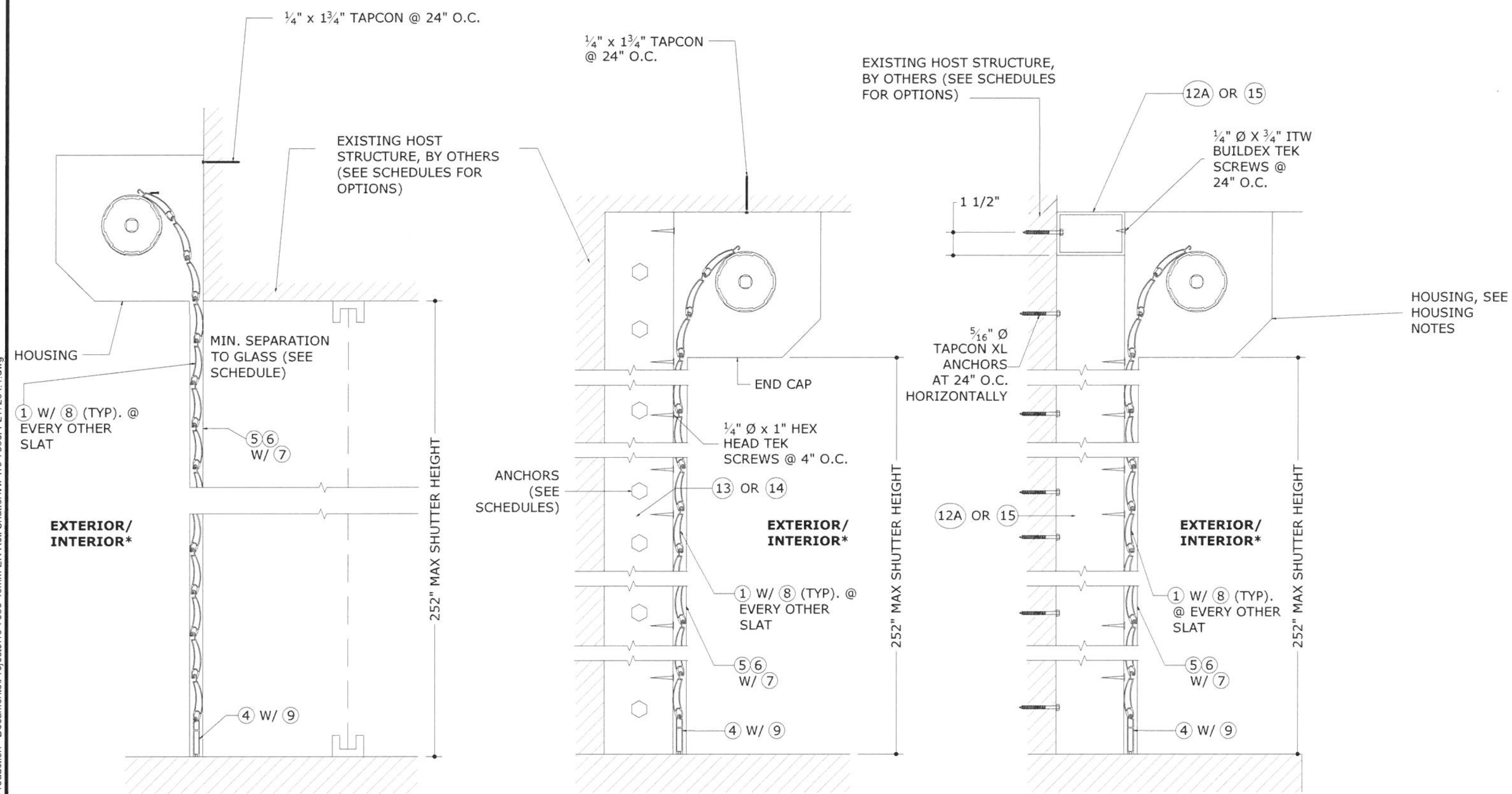
SCALE: NTS UNLESS NOTED

END RETENTION (ER) SHUTTER ATTACHMENT OPTION TO CONCRETE, CMU, ALUMINUM OR WOOD



* WHEN REVERSE MOUNTED ADD 1" OF GLASS SEPARATION PER "GLASS SEPARATION SCHEDULE" ON SHEET 1

1/9 WALL MOUNT — N.T.S. — SECTION VIEW

2/9 INSIDE/TRAPPED MOUNT — N.T.S. — SECTION VIEW

3/9 BUILD-OUT MOUNT — N.T.S. — SECTION VIEW

HOUSING NOTES:
1. HOUSING (0.040" THICK ALUM, 3105-H14 MIN)
2. END CAP (CAST ALUM, SHALL BE CAPABLE OF SUPPORTING SLAT AND LIFT MECHANISM WEIGHT)
3. 3/16" ALUM POP RIVETS (6 TOTAL PER SIDE CAP, 2 AT TO, 2 AT REAR, 2 AT BOTTOM)
4. HOOD HAS BEEN TESTED FOR IMPACT / CYCLING AND MAY BE INSTALLED WITHIN OPENING

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FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
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4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

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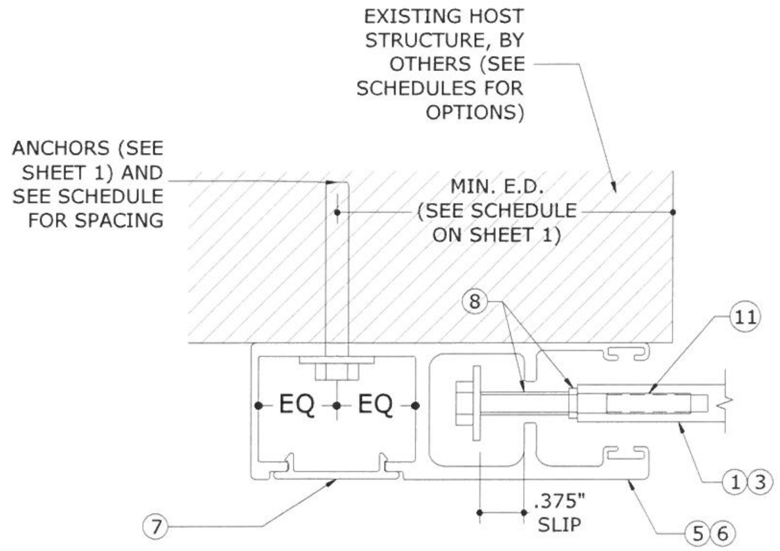
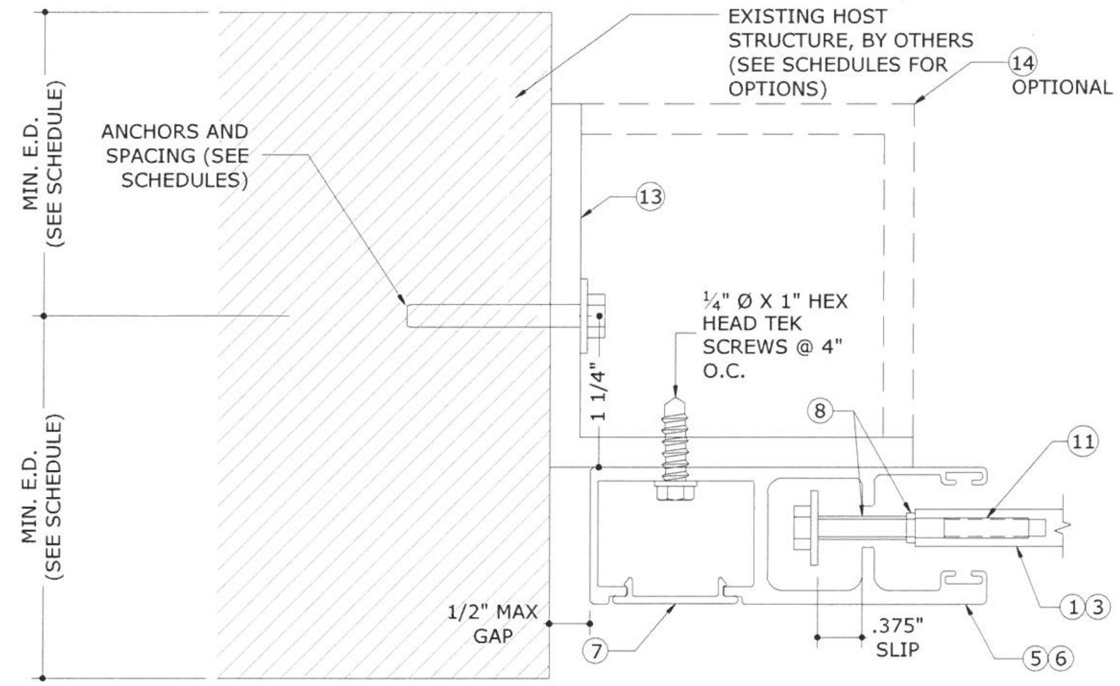
19-7536

SCALE: NTS UNLESS NOTED

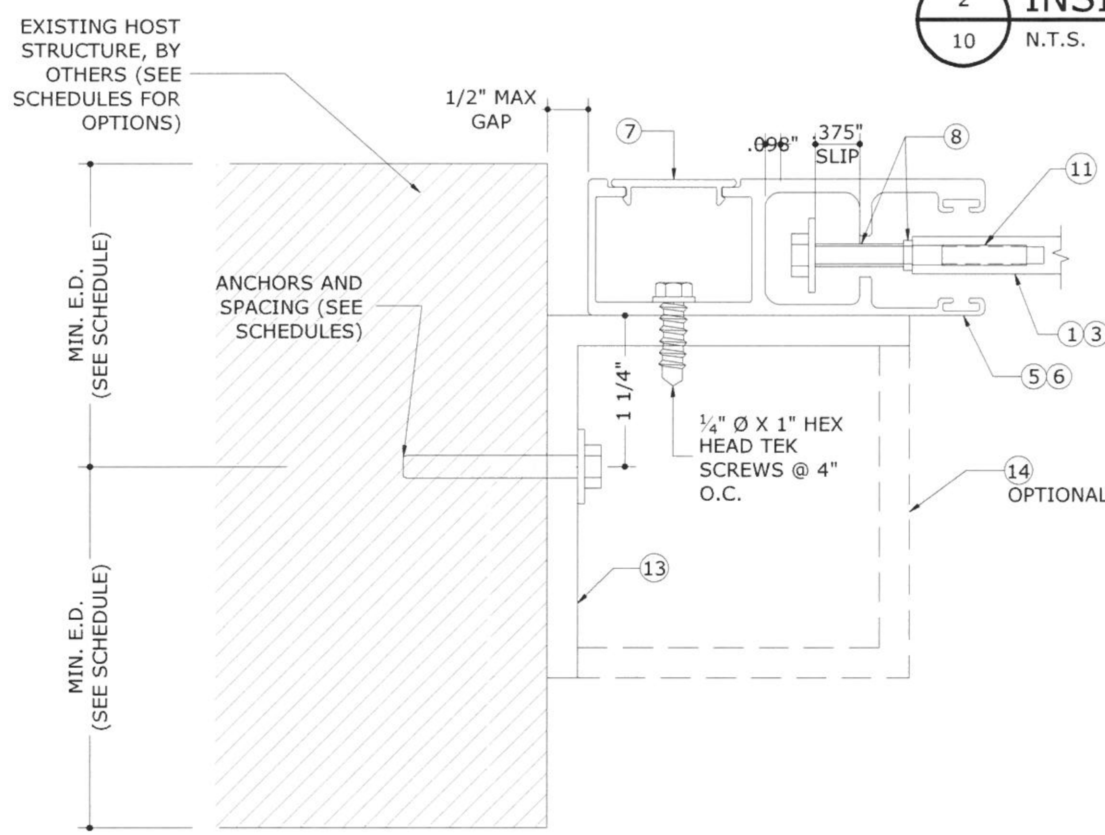
END RETENTION (ER)SHUTTER ATTACHMENT OPTION TO CONCRETE, CMU, STEEL, ALUMINUM OR WOOD



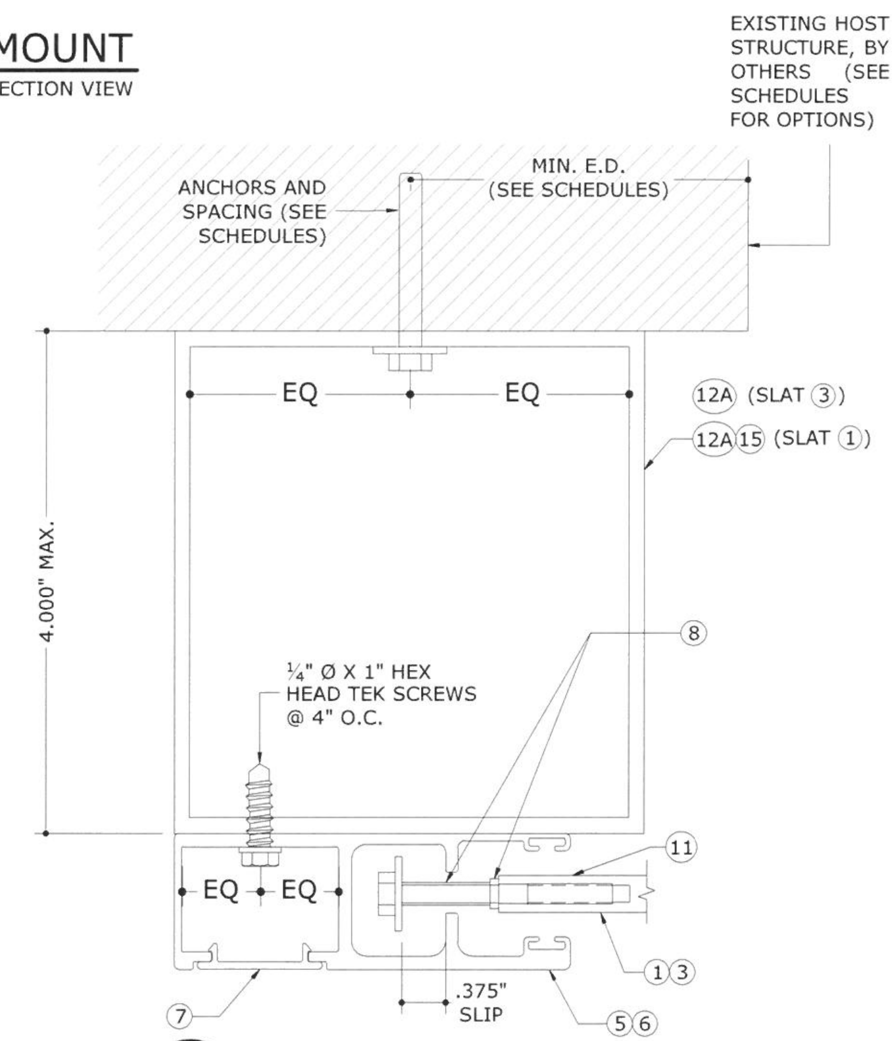
1 / 10 WALL MOUNT
N.T.S. SECTION VIEW



2 / 10 INSIDE/TRAPPED MOUNT
N.T.S. SECTION VIEW



3 / 10 INSIDE/TRAPPED MOUNT (REVERSED)
N.T.S. SECTION VIEW



4 / 10 BUILD-OUT MOUNT
N.T.S. SECTION VIEW

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

04/10/2020

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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West Palm Beach, FL 33407
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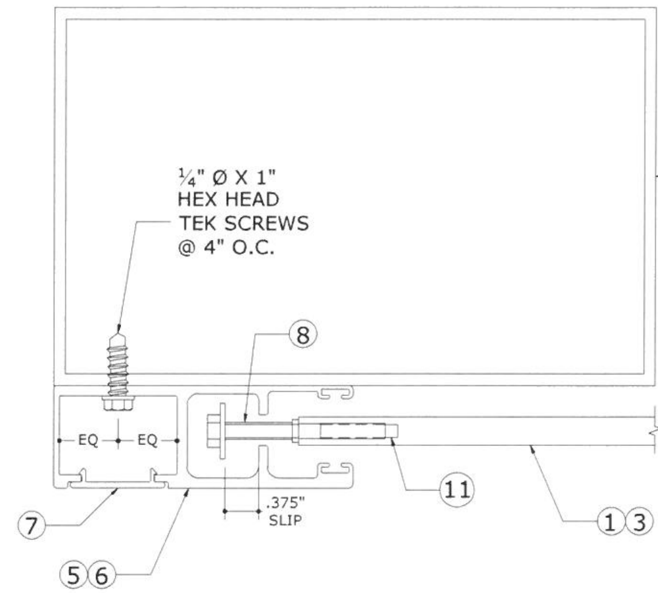
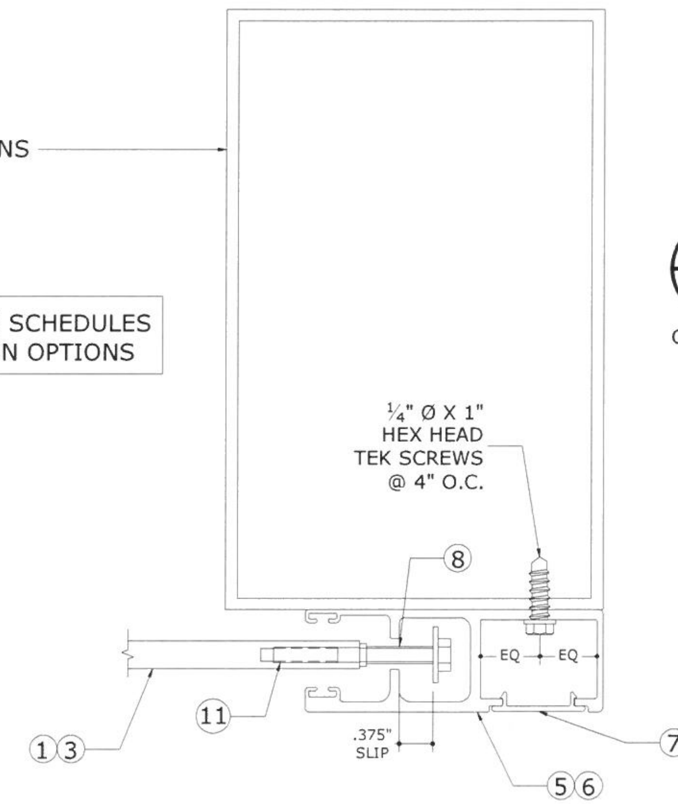
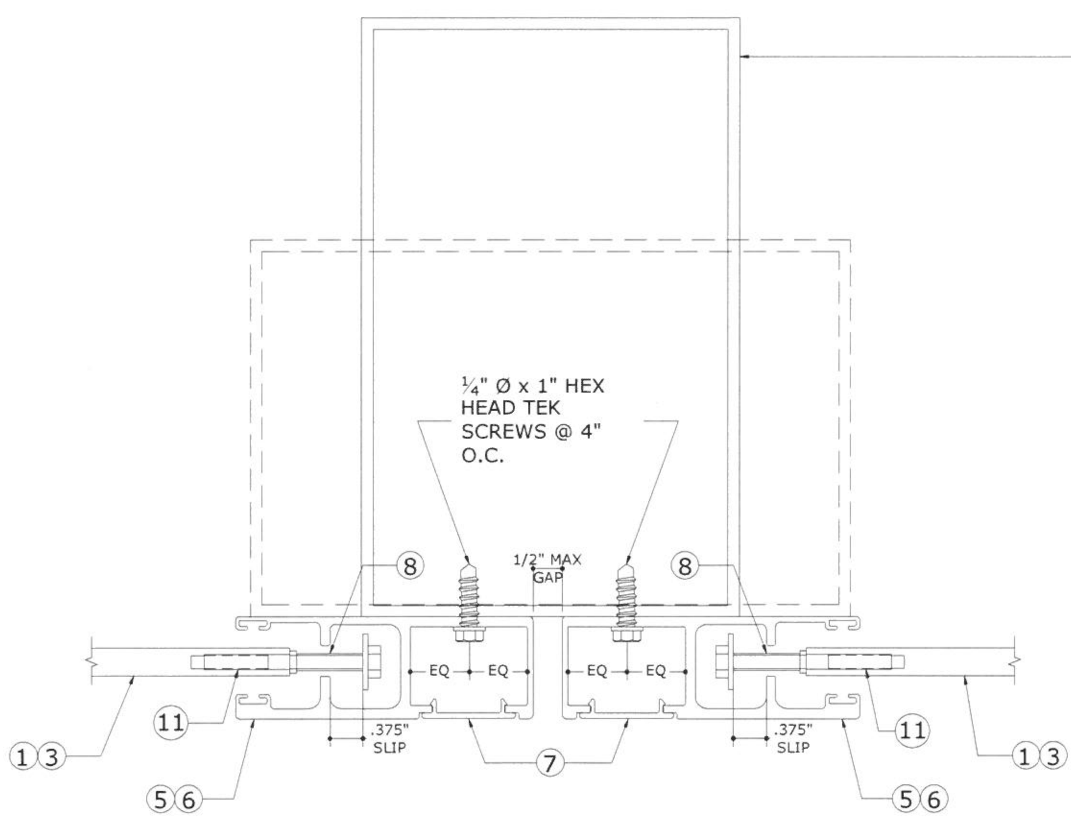
END RETENTION (ER) SHUTTER ATTACHMENT OPTION TO ALUMINUM MULLIONS



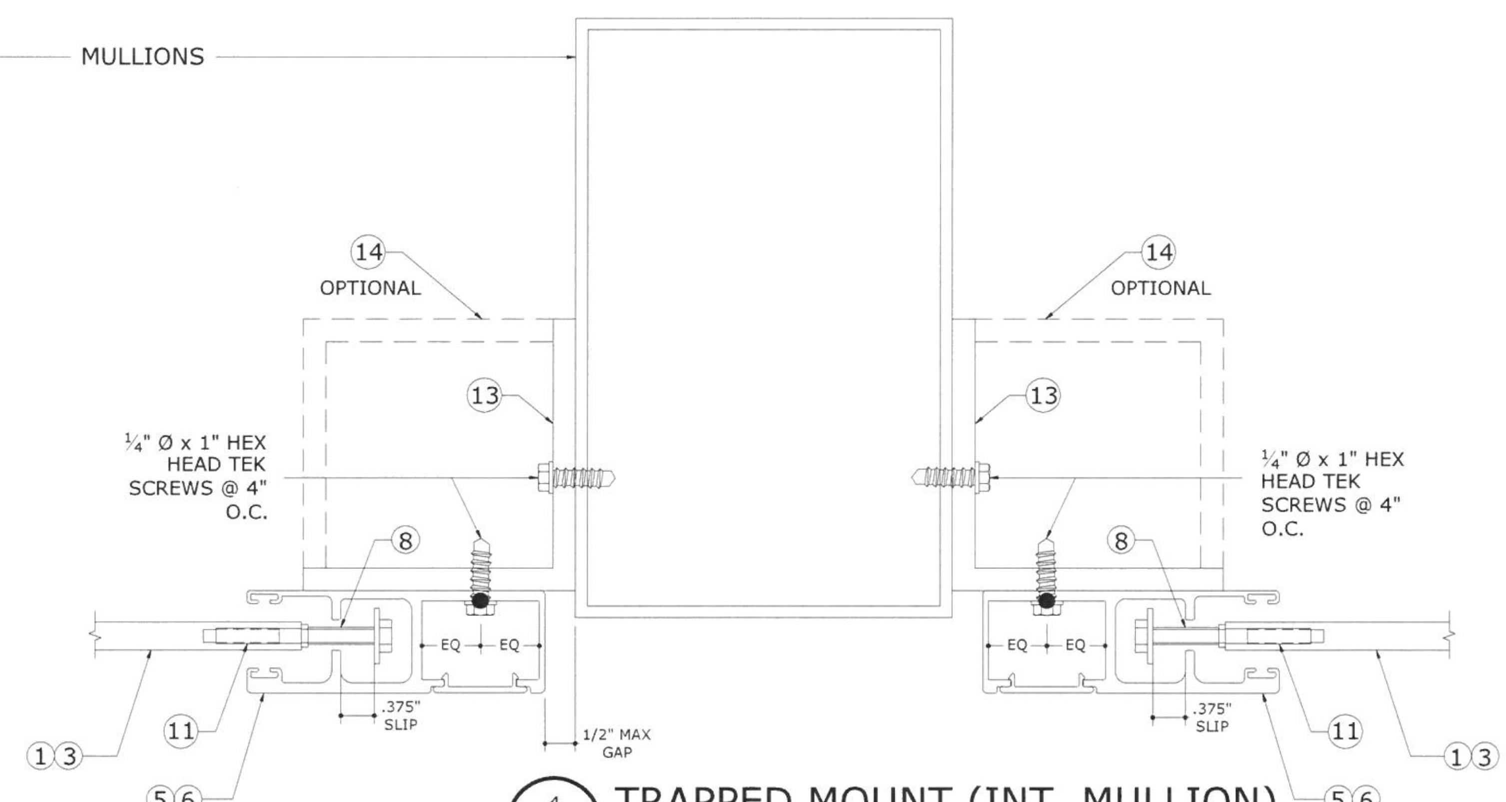
1/11 FACE MOUNT (END MULLION)
N.T.S. SECTION VIEW



2/11 FACE MOUNT (END MULLION)
N.T.S. SECTION VIEW
ORIENTATION #2 FACE MOUNT END MULLION



3/11 FACE MOUNT (INT. MULLION)
N.T.S. SECTION VIEW



4/11 TRAPPED MOUNT (INT. MULLION)
N.T.S. SECTION VIEW

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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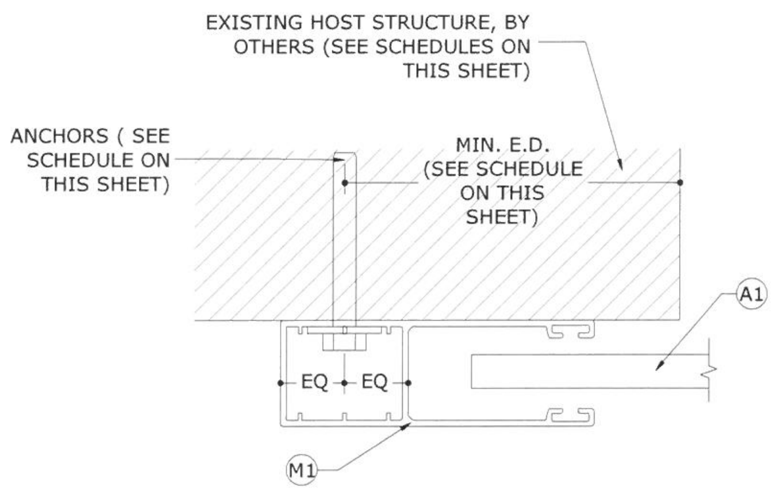
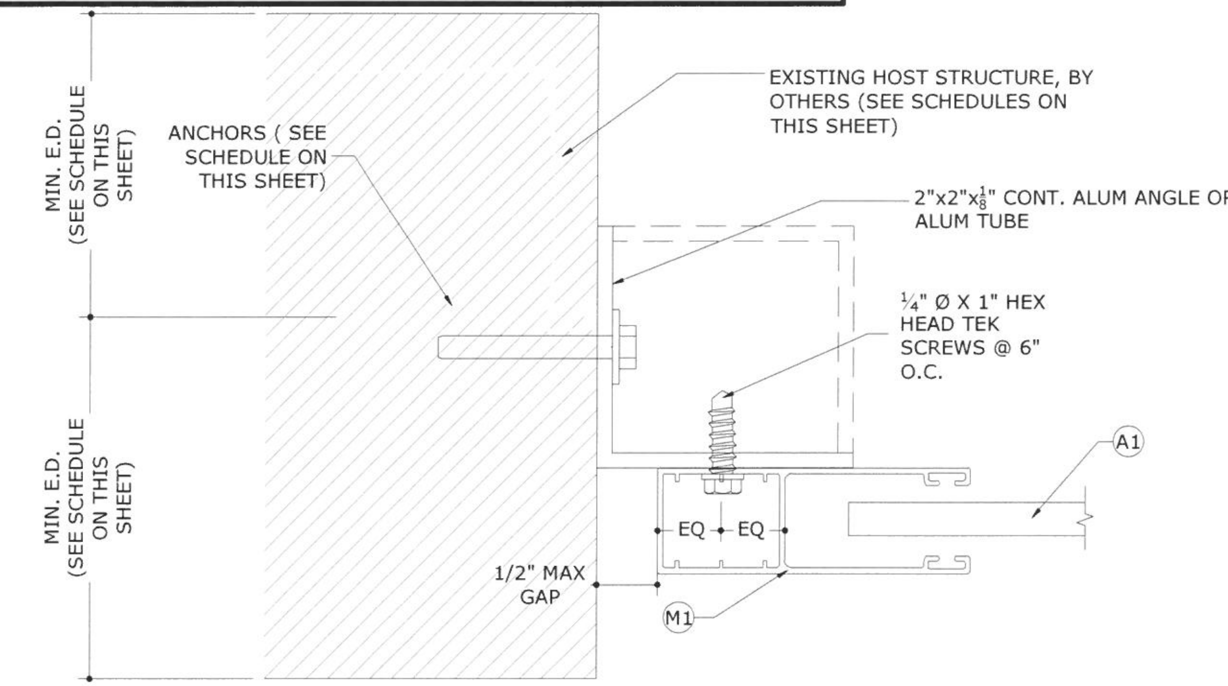
NON-END RETENTION (NER) SHUTTER ATTACHMENT TO HOST STRUCTURE



1/12 WALL MOUNT
N.T.S. SECTION VIEW



2/12 INSIDE/TRAPPED MOUNT
N.T.S. SECTION VIEW
*ATTACHMENT MAY BE REVERSED AS FIELD CONDITIONS DICTATE

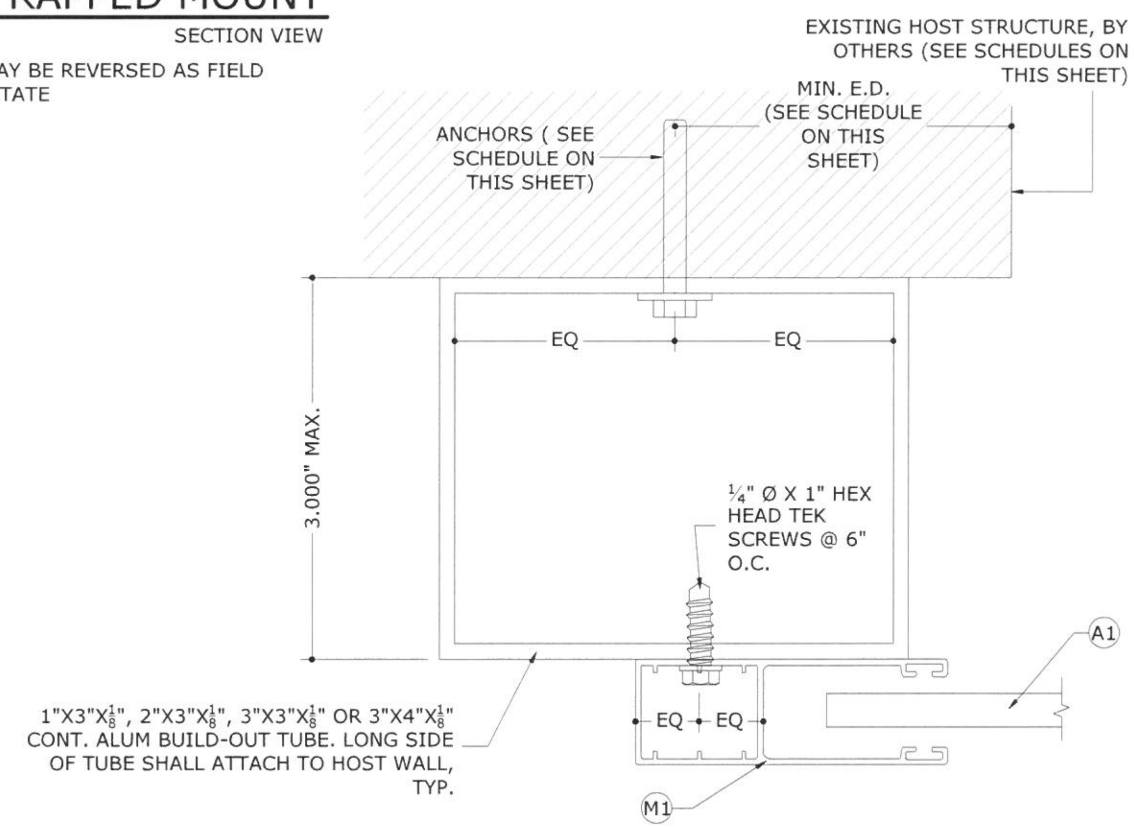
ANCHOR TYPE 1	**1/4" ITW TAPCON** TO CONC: 1-3/4" EMBED., 2-1/2" MIN E.D. TO GROUT-FILLED BLOCK: 1-3/4" EMBED., 2-1/2" MIN E.D. TO HOLLOW BLOCK: 1-1/4" EMBED., 2-1/2" MIN E.D. TO WOOD: 1-1/2" THREAD PENETRATION, 3/4" MIN E.D.
ANCHOR TYPE 2	**1/4" ELCO/DEWALT ULTRACON** TO CONC: 1-3/4" EMBED., 2-1/2" MIN E.D. TO GROUT-FILLED BLOCK: 1-3/4" EMBED., 2-1/2" MIN E.D. TO HOLLOW BLOCK: 1-1/4" EMBED., 2-1/2" MIN E.D. TO WOOD: 1-1/2" THREAD PENETRATION, 3/4" MIN E.D.
ANCHOR TYPE 3	**1/4" LAG OR WOOD SCREW** TO WOOD: 1-1/2" THREAD PENETRATION, 3/4" MIN E.D.

ANCHOR SPACING SCHEDULE (UP TO +/- 68PSF)

	ANCHOR TYPE		
HOST SUBSTRATE	1	2	3
3.0 KSI MIN. CONCRETE	6"	6"	N/A
GROUT-FILLED CMU BLOCK	6"	6"	N/A
HOLLOW CMU BLOCK	5"	5"	N/A
WOOD (G = 0.55 MIN.)	4-1/4"	4-1/4"	4-1/4"

ANCHOR SPACING SCHEDULE (> +/- 68PSF TO +/- 100PSF)

	ANCHOR TYPE		
HOST SUBSTRATE	1	2	3
3.0 KSI MIN. CONCRETE	6"	6"	N/A
GROUT-FILLED CMU BLOCK	5"	5"	N/A
HOLLOW CMU BLOCK	4"	4"	N/A
WOOD (G = 0.55 MIN.)	4-1/4"	4-1/4"	4-1/4"



3/12 BUILD-OUT MOUNT
N.T.S. SECTION VIEW

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
FRANK L. BENNARDO LICENSE No PE0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
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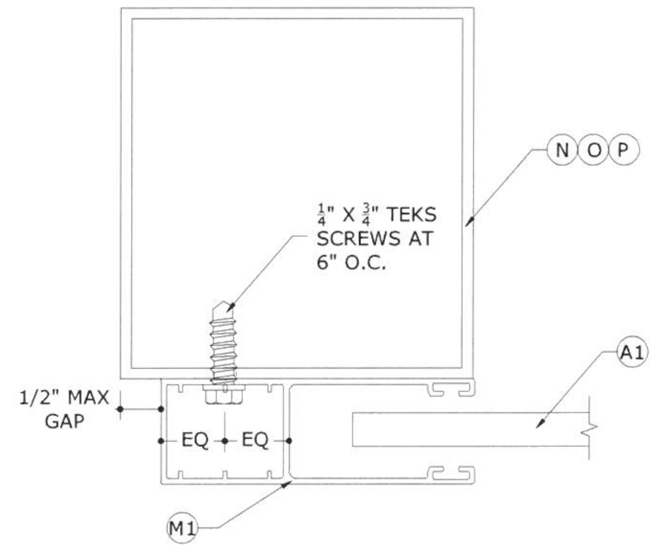
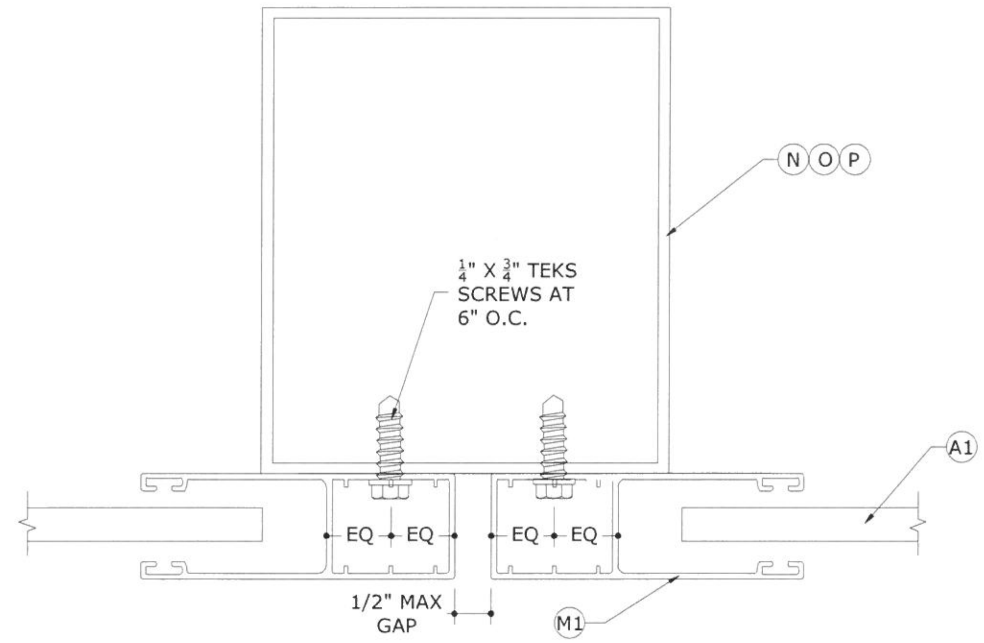
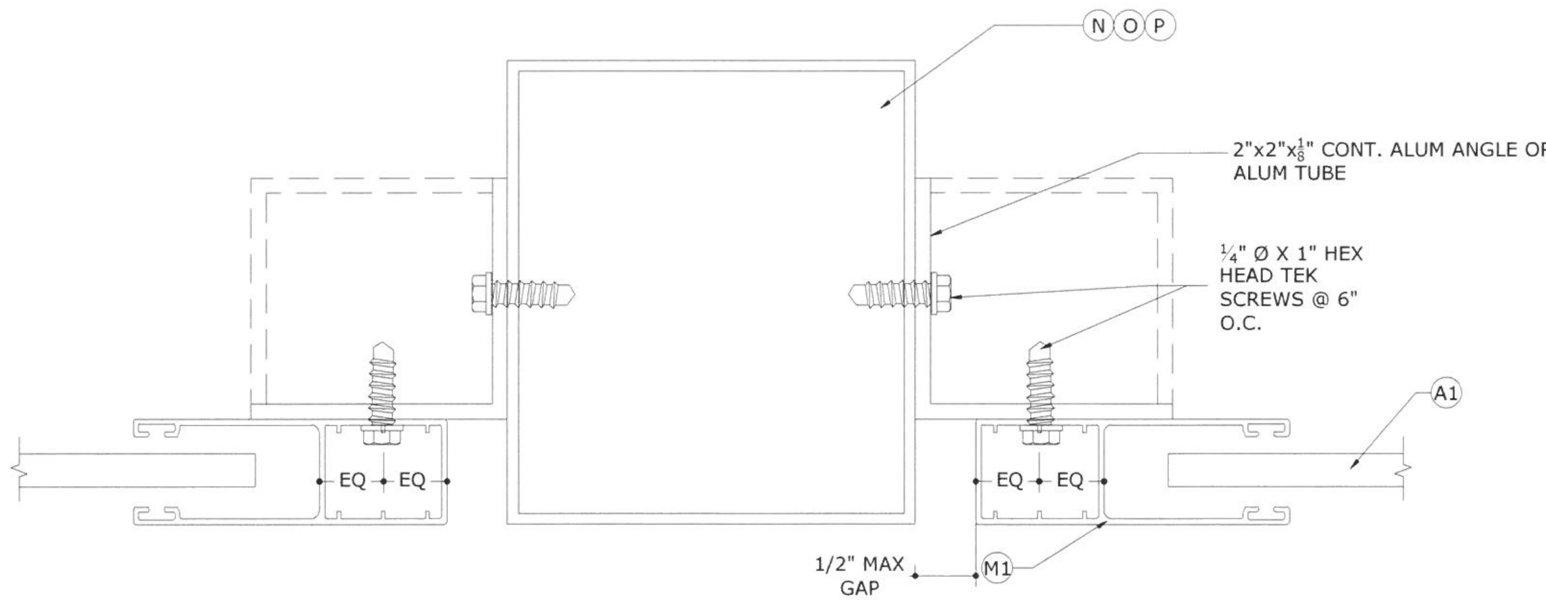


1/13 FACE MOUNT (END MULLION)
N.T.S. SECTION VIEW



2/13 FACE MOUNT (INT. MULLION)
N.T.S. SECTION VIEW



2/13 INSIDE/TRAPPED MOUNT
N.T.S. SECTION VIEW
*ATTACHMENT MAY BE REVERSED AS FIELD CONDITIONS DICTATE

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

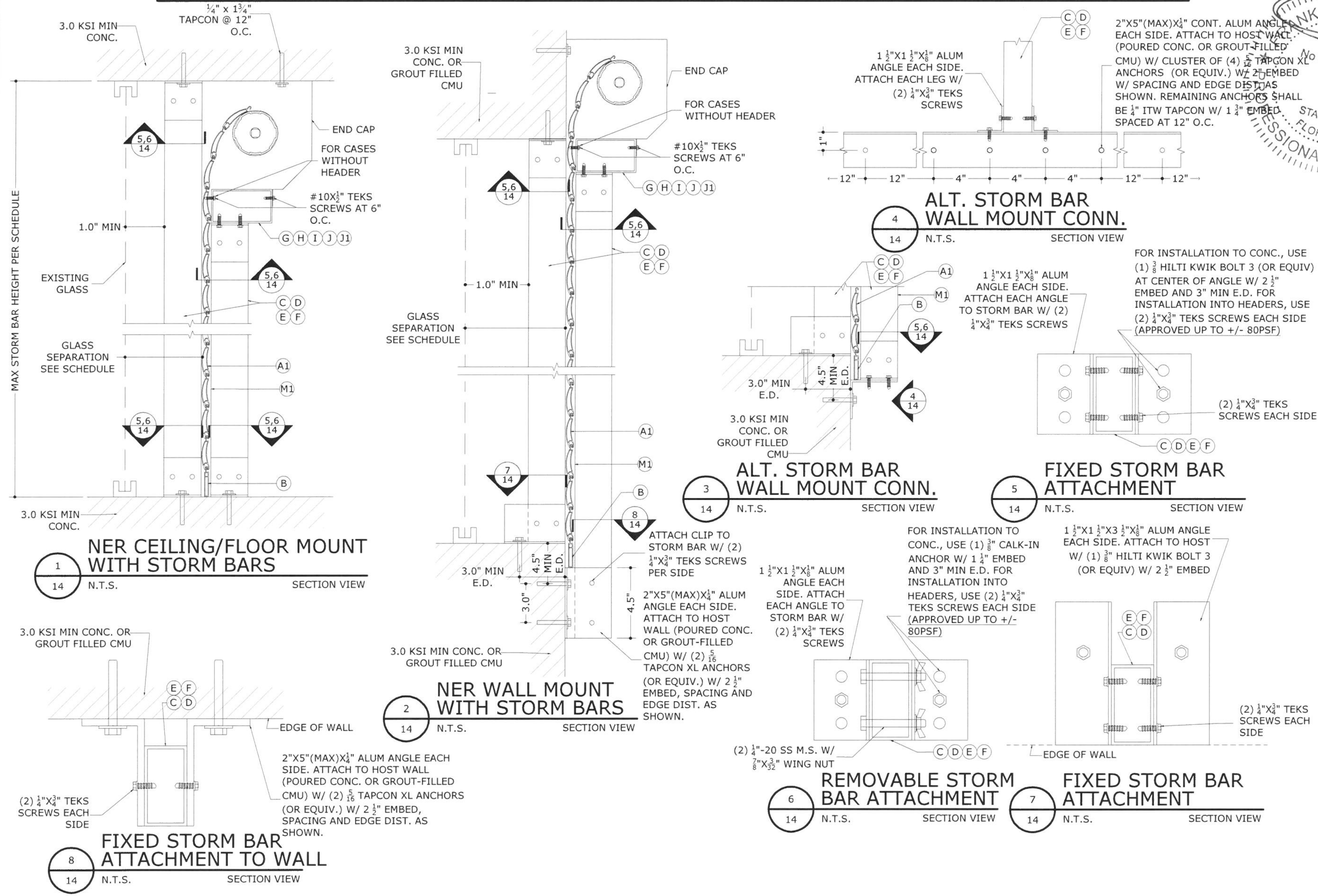
AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

NON-END RETENTION (NER) SHUTTER ATTACHMENT OPTION TO HOST STRUCTURE



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04/10/2020 - 11:54am rickn

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

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CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
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REMARKS	DRWN	CHKD	DATE
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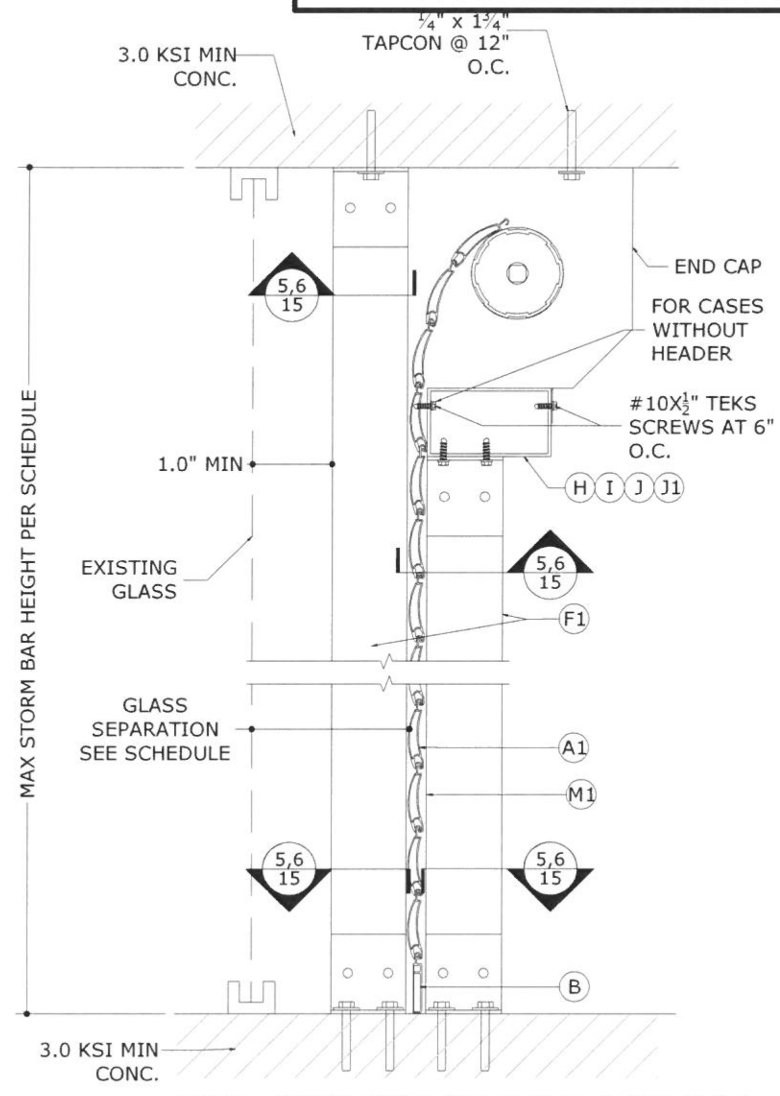
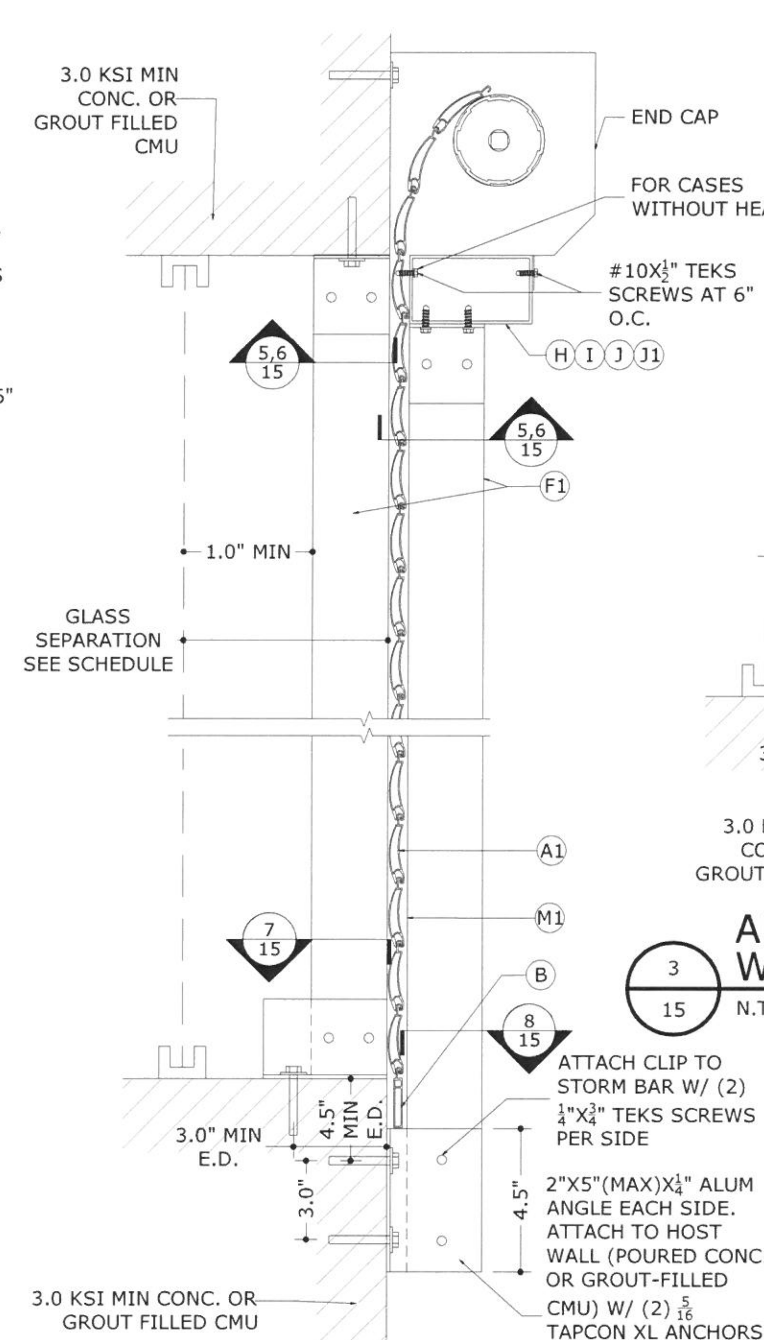
19-7536

SCALE: NTS UNLESS NOTED

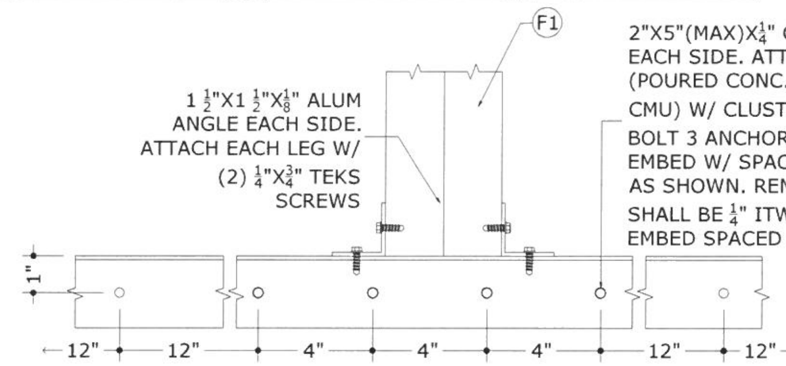
NON-END RETENTION (NER) SHUTTER ATTACHMENT OPTION TO HOST STRUCTURE (CONT'D)



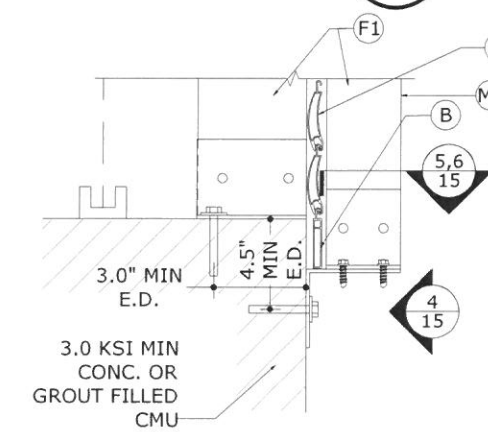
1 / 15 NER CEILING/FLOOR MOUNT WITH STORM BARS
N.T.S. SECTION VIEW



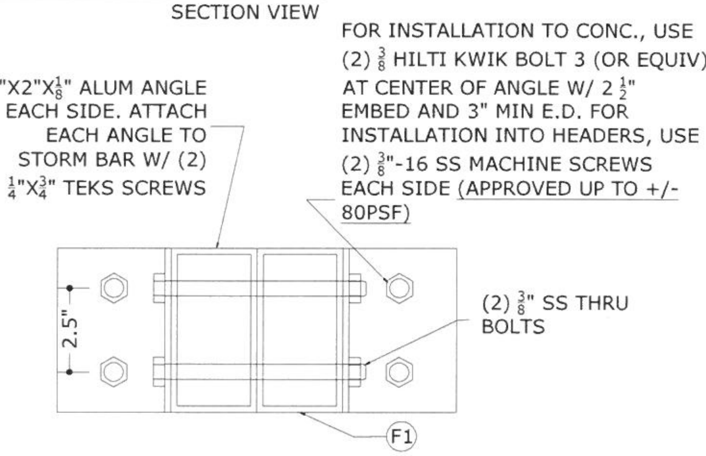
2 / 15 NER WALL MOUNT WITH STORM BARS
N.T.S. SECTION VIEW



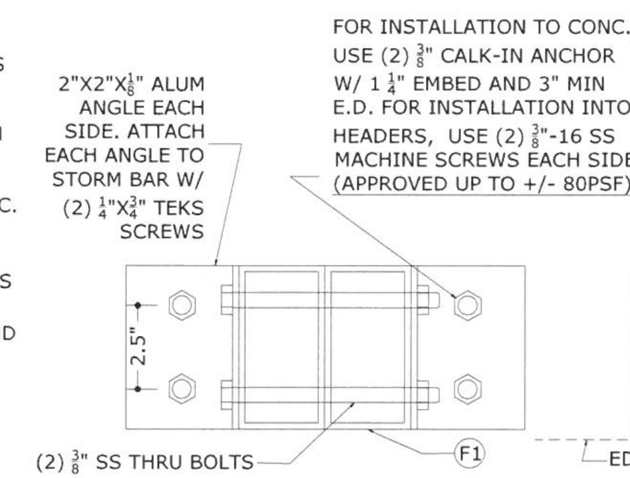
4 / 15 ALT. STORM BAR WALL MOUNT CONN.
N.T.S. SECTION VIEW



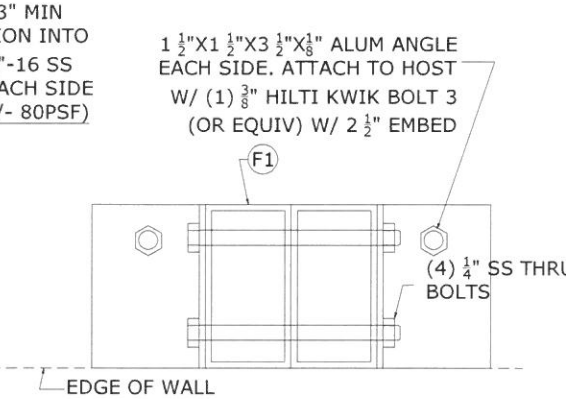
3 / 15 ALT. STORM BAR WALL MOUNT CONN.
N.T.S. SECTION VIEW



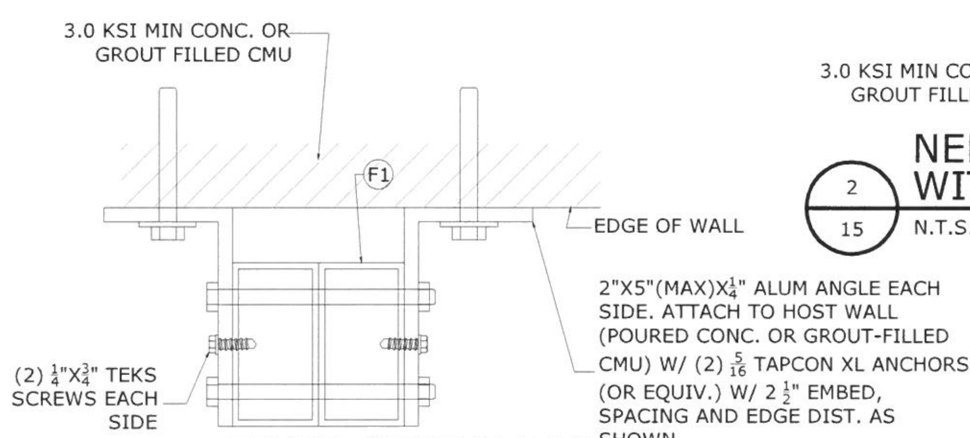
5 / 15 FIXED STORM BAR ATTACHMENT
N.T.S. SECTION VIEW



6 / 15 REMOVABLE STORM BAR ATTACHMENT
N.T.S. SECTION VIEW



7 / 15 FIXED STORM BAR ATTACHMENT
N.T.S. SECTION VIEW



8 / 15 FIXED STORM BAR ATTACHMENT TO WALL
N.T.S. SECTION VIEW

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PE# 0046549 CA# 9885

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CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
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West Palm Beach, FL 33407
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PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
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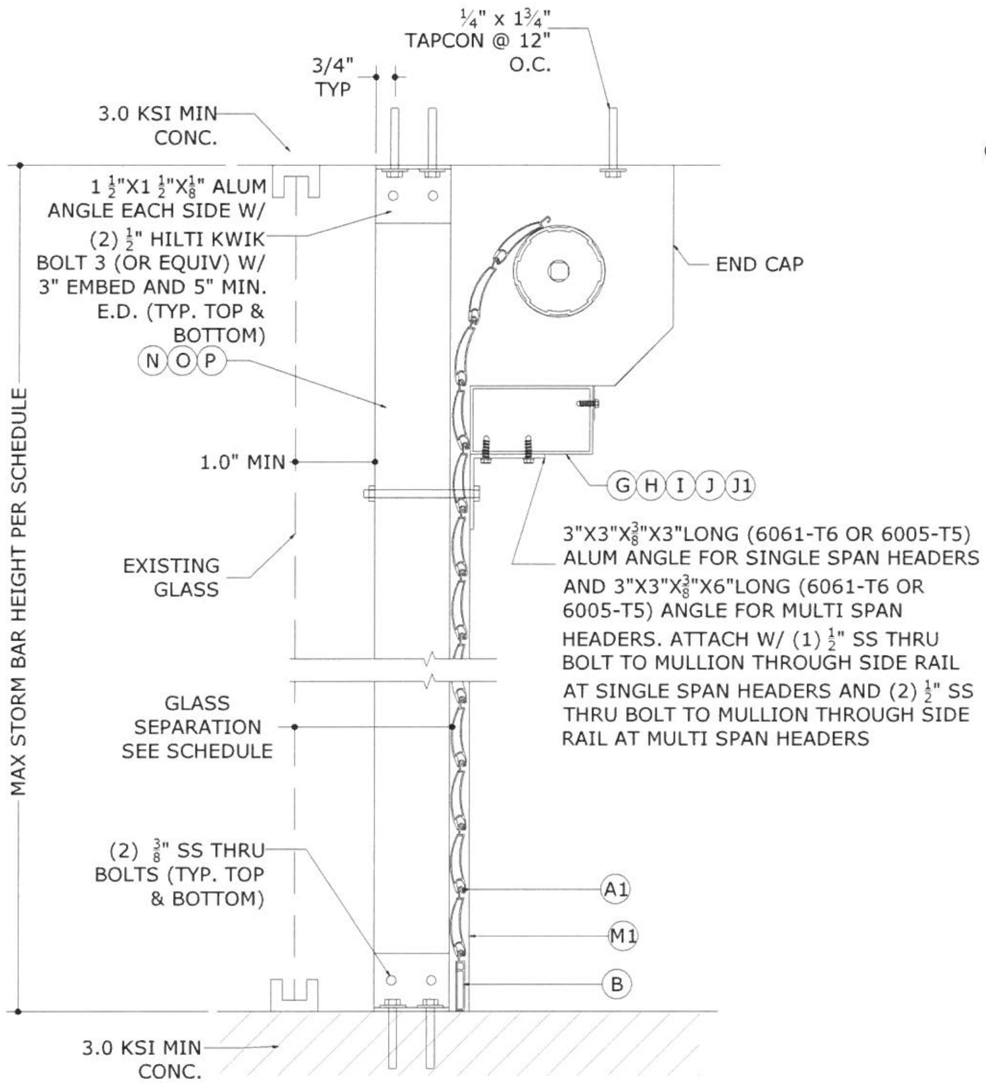
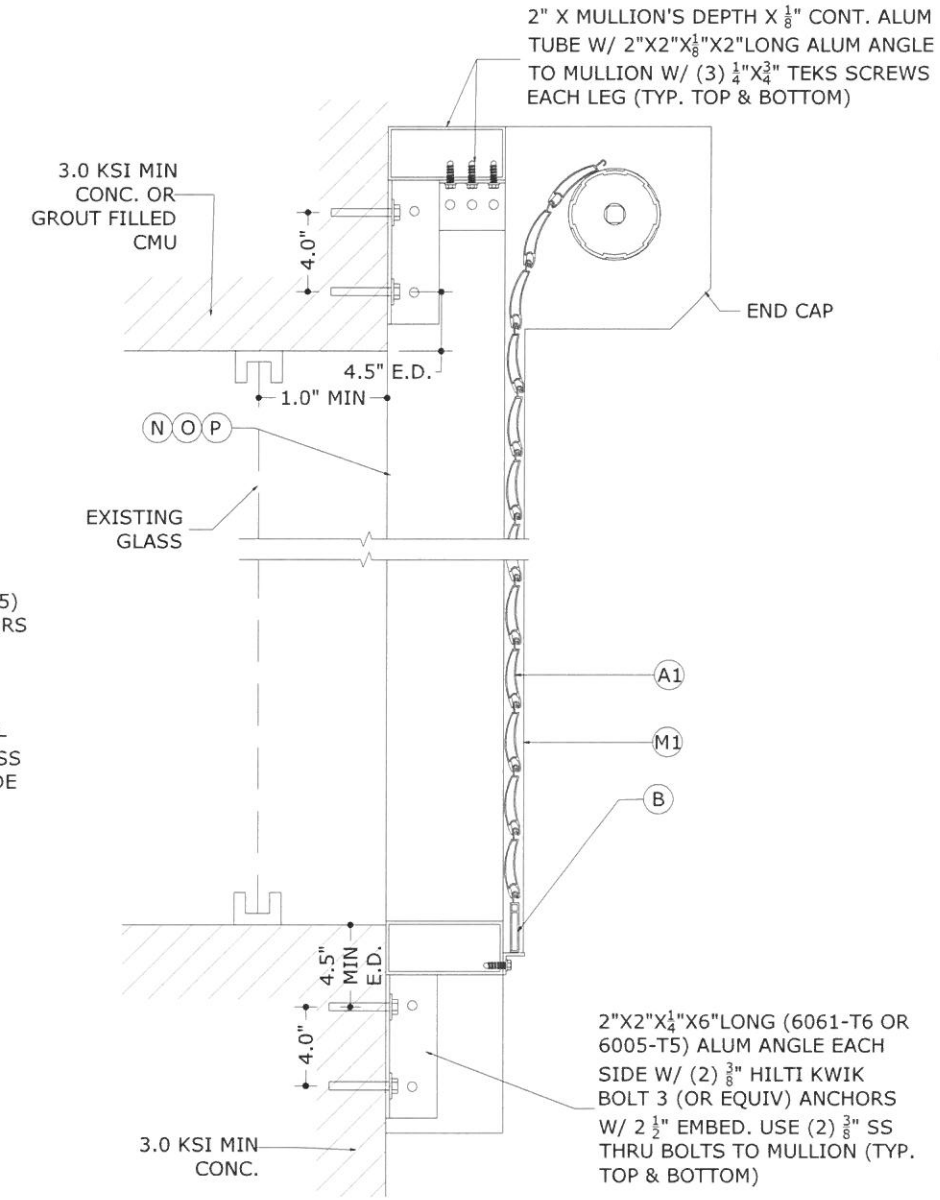
19-7536

SCALE: NTS UNLESS NOTED

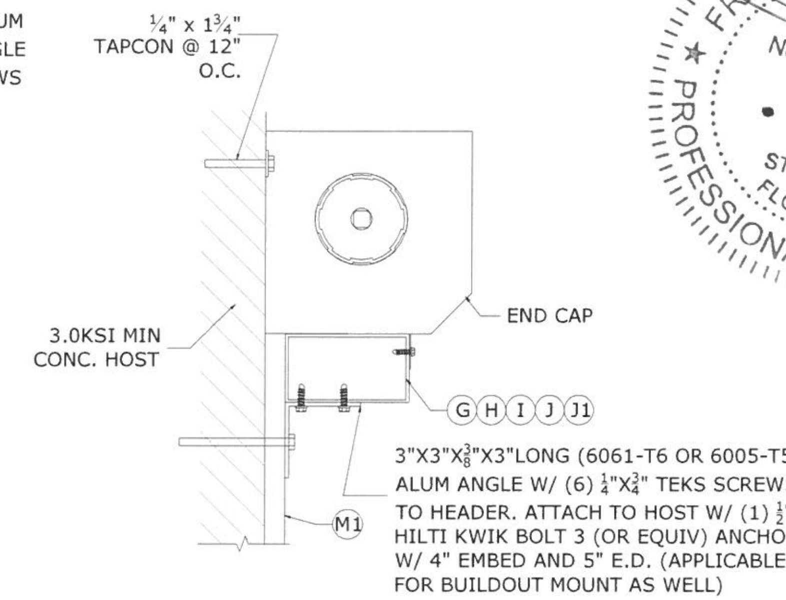
NON-END RETENTION (NER) SHUTTER ATTACHMENT OPTION TO HOST STRUCTURE (CONT'D)



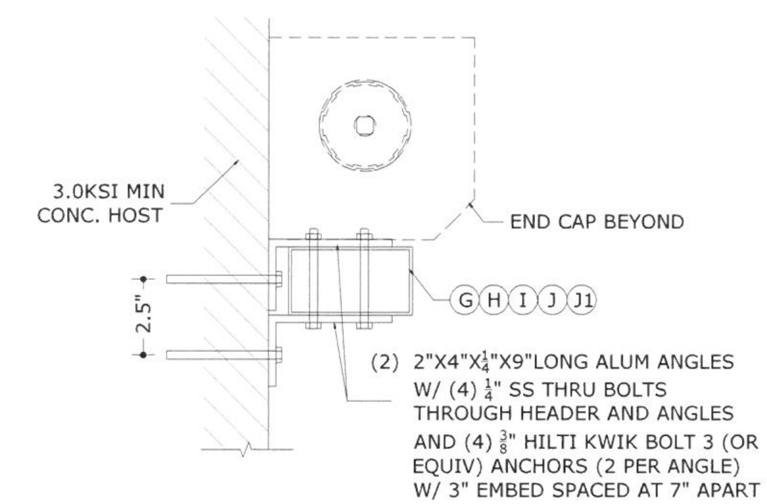
1/16 NER CEILING/FLOOR MOUNT WITH MULLIONS
N.T.S. SECTION VIEW



2/16 NER WALL MOUNT WITH MULLIONS
N.T.S. SECTION VIEW



2/16 NER WALL MOUNT ALTERNATE OPTION 1
N.T.S. SECTION VIEW
*FOR NON MULTI SPAN HEADERS



3/16 NER HEADER END MOUNT FOR MULTI SPAN HEADERS
N.T.S. SECTION VIEW

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PE# 0046549 CA# 9885
04/10/2020
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CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
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4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

NON-END RETENTION (NER) SHUTTER STORM BAR, HEADER & MULLION SCHEDULES

STORM BAR SPAN SCHEDULE

Maximm Design Pressure Rating	TYPE 1 STORM BAR (C) 2" x 2" x 1/4"			TYPE 2 STORM BAR (D) 2" x 3" x 1/8"			TYPE 3 STORM BAR (E) 2" x 4" x 1/8"			TYPE 4 STORM BAR (F) 2" x 4" x .250"			TYPE 5 STORM BAR (F1) (2) 2" x 4" x .250"		
	* STORM BAR SPACING			* STORM BAR SPACING			* STORM BAR SPACING			* STORM BAR SPACING			* STORM BAR SPACING		
	<36"	36" - 48"	48"- 62"	<36"	36" - 48"	48"- 62"	<36"	36" - 48"	48"- 62"	<36"	36" - 48"	48"- 62"	<36"	36" - 48"	48"- 62"
40 psf OR LESS	91"	85"	81"	96"	93"	83"	120"	114"	102"	142"	132"	125"	169"	157"	149"
45 psf	89"	83"	76"	96"	88"	79"	119"	107"	96"	138"	128"	121"	164"	153"	144"
50 psf	87"	81"	72"	96"	84"	75"	117"	102"	91"	134"	125"	118"	160"	149"	141"
55 psf	84"	77"	69"	92"	80"	66"	112"	97"	87"	131"	122"	115"	156"	145"	137"
60 psf	83"	74"	66"	88"	76"	68"	107"	93"	83"	128"	119"	110"	153"	142"	134"
65 psf	81"	71"	64"	85"	73"	65"	103"	89"	80"	126"	117"	106"	150"	139"	132"
70 psf	79"	68"	61"	82"	71"	63"	99"	86"	77"	124"	114"	102"	147"	137"	129"
75 psf	76"	66"	59"	79"	68"	61"	96"	83"	74"	121"	110"	99"	144"	134"	127"
80 psf	74"	64"	57"	76"	66"	59"	96"	81"	72"	119"	107"	95"	142"	132"	125"
85 psf	72"	62"	56"	74"	64"	57"	90"	78"	70"	118"	103"	93"	140"	130"	123"
90 psf	70"	60"	54"	72"	62"	56"	88"	76"	68"	116"	101"	90"	138"	128"	121"
95 psf	68"	59"	53"	70"	61"	54"	85"	74"	66"	113"	98"	88"	136"	127"	120"
100 psf	66"	57"	51"	68"	59"	53"	83"	72"	64"	110"	95"	85"	134"	125"	118"

NOTE: STORM BAR SPACING SHALL NOT EXCEED MAXIMUM SLAT SPAN PER SLAT SPAN SCHEDULE

HEADER SPAN SCHEDULE

Maximm A.S.D. Design Pressure Rating (p.s.f.)	TYPE 1 HEADER (G) 2" x 3" x 1/8"		TYPE 2 HEADER (H) 2" x 4" x 1/8"			TYPE 3 HEADER (I) 2" x 4" x 1/4"					TYPE 4 HEADER (J) 2" x 6" x 1/8""					TYPE 5 HEADER (J1) 2" x 6" x 1/4"				
	STORM BAR HEIGHT		STORM BAR HEIGHT			STORM BAR HEIGHT					STORM BAR HEIGHT					STORM BAR HEIGHT				
	<60"	60" - 84"	<60"	60" - 96"	96" - 120"	<72"	72" - 96"	96" - 120"	120" - 144"	144" - 168"	<72"	72" - 96"	96" - 120"	120" - 144"	144" - 168"	<72"	72" - 96"	96" - 120"	120" - 144"	144" - 168"
40 psf OR LESS	119"	100"	146"	116"	104"	178"	154"	138"	126"	117"	181"	157"	140"	128"	119"	292"	207"	185"	169"	156"
45 psf	112"	95"	138"	109"	98"	168"	146"	130"	119"	110"	171"	148"	132"	121"	112"	225"	195"	174"	159"	147"
50 psf	106"	90"	131"	104"	93"	160"	138"	124"	113"	104"	162"	140"	126"	115"	106"	213"	185"	165"	151"	140"
55 psf	101"	86"	125"	99"	88"	152"	132"	118"	108"	100"	155"	134"	120"	109"	101"	204"	176"	158"	144"	133"
60 psf	97"	82"	120"	95"	85"	146"	126"	113"	115"	95"	148"	128"	115"	105"	97"	195"	169"	151"	138"	128"
65 psf	93"	79"	115"	91"	81"	140"	121"	108"	99"	92"	142"	123"	110"	101"	93"	187"	162"	145"	132"	123"
70 psf	90"	76"	111"	88"	78"	135"	117"	104"	95"	88"	137"	119"	106"	97"	90"	180"	156"	140"	128"	118"
75 psf	87"	73"	107"	85"	76"	130"	113"	101"	92"	85"	132"	115"	103"	94"	87"	174"	151"	135"	123"	114"
80 psf	84"	71"	104"	82"	73"	136"	109"	98"	89"	83"	128"	111"	99"	91"	84"	169"	146"	131"	119"	110"
85 psf	81"	69"	101"	79"	71"	132"	106"	95"	87"	80"	124"	108"	96"	88"	81"	164"	142"	127"	116"	107"
90 psf	79"	67"	98"	77"	69"	119"	103"	92"	84"	78"	121"	105"	94"	85"	79"	159"	138"	123"	113"	104"
95 psf	77"	65"	95"	75"	67"	116"	100"	90"	82"	76"	118"	102"	91"	83"	77"	155"	134"	120"	110"	101"
100 psf	75"	63"	93"	73"	66"	113"	98"	87"	80"	74"	115"	89"	89"	81"	75"	151"	131"	117"	107"	99"

MULLION SPAN SCHEDULE

Maximm A.S.D. Design Pressure Rathing (p.s.f.)	TYPE 1 MULLION (N) 3" x 4" x 1/8"				TYPE 2 MULLION (O) 4" x 4" x 1/4"				TYPE 3 MULLION (P) 4" x 6" x 1/4"					
	MULLION SPACING				MULLION SPACING				MULLION SPACING					
	48"	48" - 60"	60" - 72"	72" - 96"	48"	48" - 60"	60" - 72"	72" - 96"	48"	48" - 60"	60" - 72"	72" - 96"	96" - 120"	120" - 144"
40 OR LESS	108"	100"	94"	98"	141"	131"	123"	129"	196"	182"	171"	178"	166"	156"
45 psf	104"	96"	91"	94"	136"	126"	119"	124"	188"	175"	164"	172"	159"	150"
50 psf	100"	93"	87"	91"	131"	122"	115"	120"	182"	169"	159"	166"	154"	145"
55 psf	97"	90"	85"	88"	127"	118"	111"	116"	176"	163"	154"	160"	149"	140"
60 psf	94"	87"	82"	86"	123"	115"	108"	113"	171"	159"	149"	156"	146"	136"
65 psf	92"	85"	80"	84"	120"	112"	105"	110"	167"	155"	146"	152"	141"	133"
70 psf	89"	83"	78"	82"	117"	109"	102"	107"	163"	151"	142"	148"	137"	129"
75 psf	87"	81"	76"	80"	115"	106"	100"	104"	159"	147"	139"	145"	134"	126"
80 psf	86"	79"	75"	78"	112"	104"	98"	102"	155"	144"	136"	142"	131"	124"
85 psf	84"	78"	73"	76"	110"	102"	96"	100"	152"	141"	133"	139"	129"	121"
90 psf	82"	76"	72"	75"	108"	100"	94"	98"	149"	139"	131"	136"	126"	119"
95 psf	81"	75"	70"	74"	106"	98"	93"	97"	147"	136"	128"	134"	124"	117"
100 psf	79"	74"	69"	72"	104"	97"	91"	95"	144"	134"	126"	131"	122"	115"

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PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
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19-7536

SCALE: NTS UNLESS NOTED

ANCHOR SCHEDULE: END RETENTION (ER) WALL MOUNT (SINGLE WALL SLATS)

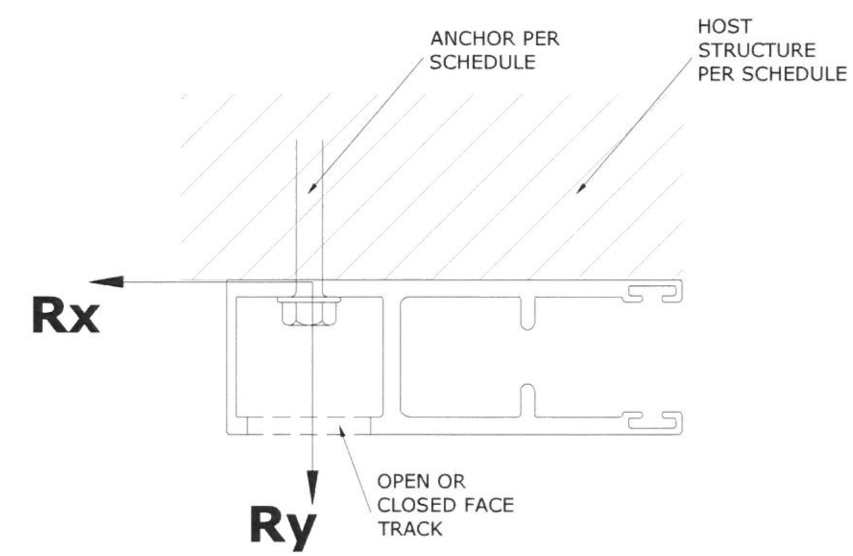
MAXIMUM SPACING (O.C.)

SLAT SPAN	DESIGN PRESSURE	Rx	Ry	1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
82"	+/- 40 PSF	351.0 LB/FT	136.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	4.5"	5.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	463.2 LB/FT	170.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.0"	3.5"	4.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	575.2 LB/FT	205.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	6.0"	6.0"	4.75"	3.25"	2.75"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 70 PSF	687.1 LB/FT	239.2 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	4.0"	2.75"	2.25"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 80 PSF	798.9 LB/FT	273.3 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
85"	+/- 40 PSF	382.8 LB/FT	141.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	4.25"	5.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 49 PSF	488.8 LB/FT	173.4 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	4.0"	3.25"	4.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 58 PSF	594.7 LB/FT	205.1 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	6.0"	6.0"	4.75"	3.25"	2.75"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 67 PSF	700.5 LB/FT	236.8 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	4.0"	2.75"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 76 PSF	806.1 LB/FT	268.5 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
90"	+/- 40 PSF	435.4 LB/FT	150.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.5"	3.75"	4.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 47 PSF	531.2 LB/FT	177.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	3.5"	3.0"	3.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 55 PSF	626.9 LB/FT	205.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	6.0"	6.0"	4.5"	3.0"	2.5"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 62 PSF	722.5 LB/FT	233.5 LB/FT	5.5"	6.0"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	4.0"	2.5"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 70 PSF	818.0 LB/FT	261.4 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
95"	+/- 40 PSF	487.7 LB/FT	158.3 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.75"	4.0"	3.25"	4.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 46 PSF	573.3 LB/FT	182.6 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	5.0"	3.25"	2.75"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 52 PSF	658.9 LB/FT	206.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.25"	3.0"	2.5"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 58 PSF	744.4 LB/FT	231.1 LB/FT	5.5"	6.0"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	3.75"	2.5"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 64 PSF	829.7 LB/FT	255.3 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	539.8 LB/FT	166.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	3.5"	3.0"	3.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 45 PSF	615.3 LB/FT	187.5 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	6.0"	6.0"	4.5"	3.0"	2.5"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	690.8 LB/FT	208.3 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.0"	2.75"	2.25"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 55 PSF	766.1 LB/FT	229.2 LB/FT	5.25"	5.75"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	3.75"	2.5"	2.0"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	841.4 LB/FT	250.0 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"

ANCHOR NOTES:

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
2. WHERE ANCHORS FASTEN TO NARROW FACE OF STUD FRAMING, ANCHOR SHALL BE LOCATED IN CENTER OF NOMINAL 2x (MIN) WOOD STUD (i.e. 3/4" EDGE DISTANCE IS ACCEPTABLE FOR ANCHORS TO WOOD FRAMING).
3. MINIMUM EMBEDMENT SHALL BE AS NOTED IN ANCHOR SCHEDULE. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES.
4. ANCHOR SCHEDULE APPLIES TO ALL PRODUCTS CERTIFIED HEREIN, BUT ONLY PROVIDES MAXIMUM ALLOWABLE ANCHOR SPACING. MAXIMUM ALLOWABLE SPANS AND PRESSURES INDICATED IN SPAN SCHEDULE SHALL APPLY.
5. WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD.
6. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE EXISTING STRUCTURE.
7. MACHINE SCREWS SHALL HAVE MINIMUM OF 1/2" ENGAGEMENT OF THREADS IN BASE ANCHOR AND MAY HAVE EITHER A PAN HEAD, TRUSS HEAD, OR WAFER HEAD ("SIDEWALK BOLT") U.N.O.
8. SHEET METAL SCREWS SHALL BE INSTALLED WITH FULL ENGAGEMENT OF THREADS INTO METAL HOST STRUCTURE.
9. DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE FOR USE.
10. ANCHORS TO GROUT-FILLED BLOCK SHALL PENETRATE THROUGH FACE SHELL INTO GROUTED CELL.

WALL MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RVN	RVN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

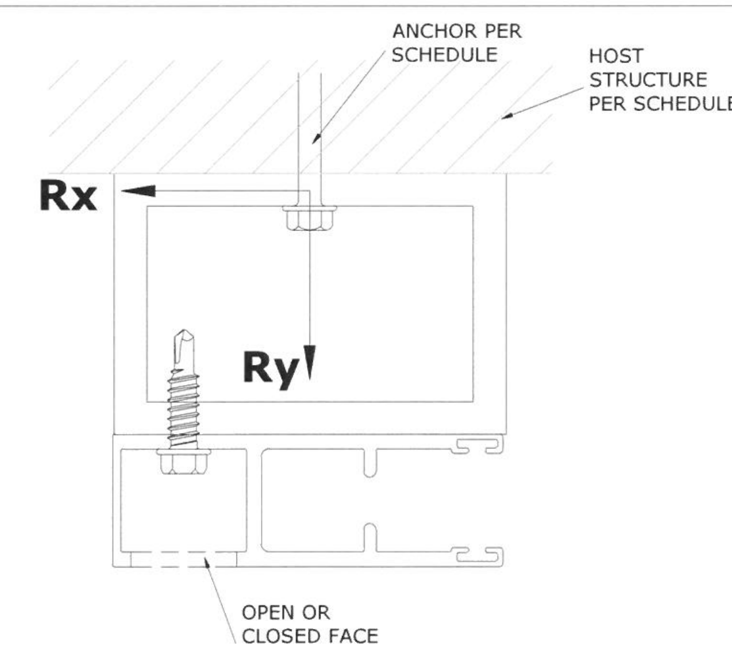
ANCHOR SCHEDULE: END RETENTION (ER) BUILD-OUT MOUNT (SINGLE WALL SLATS)

MAXIMUM SPACING (O.C.)

SLAT SPAN	DESIGN PRESSURE	Rx	Ry	1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
82"	+/- 40 PSF	351.0 LB/FT	227.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	4.5"	5.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	463.2 LB/FT	284.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	6.0"	6.0"	5.0"	3.75"	3.25"	4.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	575.2 LB/FT	341.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	4.0"	3.0"	2.75"	3.25"	5.5"	5.5"	6.0"	6.0"	6.0"
	+/- 70 PSF	687.1 LB/FT	398.7 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	3.5"	6.0"	6.0"	3.5"	2.5"	2.25"	2.5"	4.75"	4.75"	6.0"	6.0"	6.0"
	+/- 80 PSF	798.9 LB/FT	455.6 LB/FT	4.25"	4.75"	6.0"	6.0"	6.0"	3.0"	5.5"	5.25"	3.0"	2.25"		2.25"	4.0"	4.0"	6.0"	6.0"	6.0"
85"	+/- 40 PSF	382.8 LB/FT	236.2 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.5"	4.0"	4.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 49 PSF	488.8 LB/FT	289.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.75"	3.5"	3.25"	3.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 58 PSF	594.7 LB/FT	341.9 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	4.0"	3.0"	2.5"	3.0"	5.5"	5.5"	6.0"	6.0"	6.0"
	+/- 67 PSF	700.5 LB/FT	394.7 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	3.5"	6.0"	6.0"	3.5"	2.5"	2.25"	2.5"	4.75"	4.75"	6.0"	6.0"	6.0"
	+/- 76 PSF	806.1 LB/FT	447.6 LB/FT	4.25"	4.75"	6.0"	6.0"	6.0"	3.0"	5.5"	5.25"	3.0"	2.25"		2.25"	4.0"	4.25"	6.0"	6.0"	6.0"
90"	+/- 40 PSF	435.4 LB/FT	250.1 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	5.5"	4.0"	3.5"	4.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 47 PSF	531.2 LB/FT	296.5 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.6"	6.0"	6.0"	4.5"	3.5"	3.0"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 55 PSF	626.9 LB/FT	342.9 LB/FT	5.5"	6.0"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	3.75"	2.75"	2.5"	3.0"	5.25"	5.5"	6.0"	6.0"	6.0"
	+/- 62 PSF	722.5 LB/FT	389.3 LB/FT	4.75"	5.25"	6.0"	6.0"	6.0"	3.5"	6.0"	6.0"	3.25"	2.5"	2.0"	2.5"	4.5"	4.75"	6.0"	6.0"	6.0"
	+/- 70 PSF	818.0 LB/FT	435.7 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.0"	5.5"	5.25"	3.0"	2.25"		2.25"	4.0"	4.25"	6.0"	6.0"	6.0"
95"	+/- 40 PSF	487.7 LB/FT	263.9 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	6.0"	6.0"	5.0"	3.75"	3.25"	3.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 46 PSF	573.3 LB/FT	304.3 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	4.25"	3.0"	2.75"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 52 PSF	658.9 LB/FT	344.8 LB/FT	5.25"	5.75"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.75"	2.75"	2.25"	2.75"	5.25"	5.25"	6.0"	6.0"	6.0"
	+/- 58 PSF	744.4 LB/FT	385.2 LB/FT	4.75"	5.25"	6.0"	6.0"	6.0"	3.5"	6.0"	5.9"	3.25"	2.5"	2.0"	2.5"	4.5"	4.75"	6.0"	6.0"	6.0"
	+/- 64 PSF	829.7 LB/FT	425.6 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.0"	5.5"	5.25"	3.0"	2.0"		2.25"	4.25"	4.25"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	539.8 LB/FT	277.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.5"	3.5"	3.0"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 45 PSF	615.3 LB/FT	312.6 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	4.0"	3.0"	2.5"	3.0"	5.75"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	690.8 LB/FT	347.3 LB/FT	5.25"	5.5"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.5"	2.5"	2.25"	2.75"	5.0"	5.25"	6.0"	6.0"	6.0"
	+/- 55 PSF	766.1 LB/FT	382.0 LB/FT	4.75"	5.0"	6.0"	6.0"	6.0"	3.25"	6.0"	5.75"	3.25"	2.25"	2.0"	2.5"	4.5"	4.75"	6.0"	6.0"	6.0"
	+/- 60 PSF	841.4 LB/FT	416.8 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.0"	5.5"	5.25"	3.0"	2.0"		2.25"	4.25"	4.25"	6.0"	6.0"	6.0"

ANCHOR NOTES: SEE SHEET 18 FOR ANCHOR NOTES.

BUILD-OUT MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536

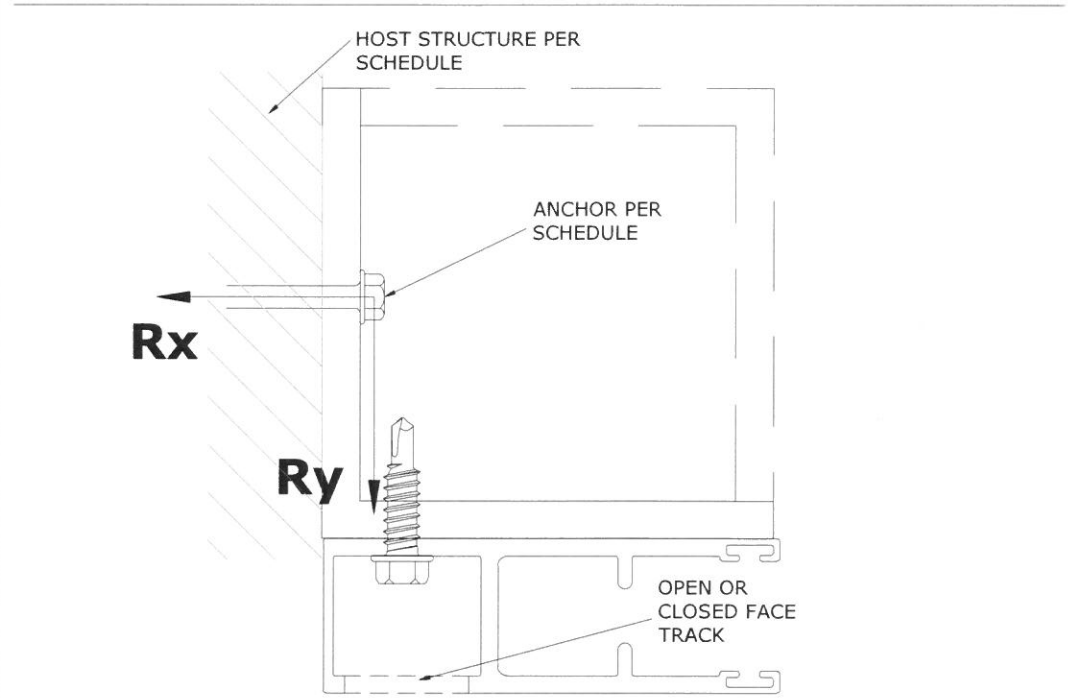
SCALE: NTS UNLESS NOTED

ANCHOR SCHEDULE: END RETENTION (ER) INTERIOR MOUNT (SINGLE WALL SLATS)

SLAT SPAN	DESIGN PRESSURE	Rx	Ry	MAXIMUM SPACING (O.C.): 1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
82"	+/- 40 PSF	442.1 LB/FT	136.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.25"	3.75"	4.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	577.1 LB/FT	170.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.75"	6.0"	6.0"	5.0"	3.25"	2.75"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	712.0 LB/FT	205.0 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	4.0"	2.75"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 70 PSF	846.7 LB/FT	239.2 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 80 PSF	981.2 LB/FT	273.3 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"	2.0"		2.0"	4.75"	5.5"	6.0"	6.0"	6.0"
85"	+/- 40 PSF	477.3 LB/FT	141.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.0"	3.5"	4.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 49 PSF	604.5 LB/FT	173.4 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	4.75"	3.25"	2.75"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 58 PSF	731.5 LB/FT	205.1 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	4.0"	2.5"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 67 PSF	858.4 LB/FT	236.8 LB/FT	4.75"	5.25"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	3.5"	2.25"		2.25"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 76 PSF	985.2 LB/FT	268.5 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"	2.0"		2.0"	4.75"	5.5"	6.0"	6.0"	6.0"
90"	+/- 40 PSF	535.5 LB/FT	150.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	3.5"	3.0"	3.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 47 PSF	649.9 LB/FT	177.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	6.0"	6.0"	4.5"	3.0"	2.5"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 55 PSF	764.1 LB/FT	205.7 LB/FT	5.5"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	3.75"	2.5"	2.0"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 62 PSF	878.3 LB/FT	233.5 LB/FT	4.75"	5.0"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.25"	2.25"		2.25"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 70 PSF	992.3 LB/FT	261.4 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"	2.0"		2.0"	5.0"	5.5"	6.0"	6.0"	6.0"
95"	+/- 40 PSF	593.3 LB/FT	158.3 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.75"	6.0"	6.0"	5.0"	3.25"	2.75"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 46 PSF	695.1 LB/FT	182.6 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.0"	6.0"	6.0"	4.25"	2.75"	2.5"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 52 PSF	796.8 LB/FT	206.8 LB/FT	5.25"	5.75"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	3.75"	2.5"	2.0"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 58 PSF	898.5 LB/FT	231.1 LB/FT	4.75"	5.0"	6.0"	6.0"	6.0"	3.75"	6.0"	6.0"	3.25"	2.0"		2.25"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 64 PSF	1000.0 LB/FT	255.3 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"			2.0"	5.0"	5.5"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	651.0 LB/FT	166.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.25"	6.0"	6.0"	4.5"	3.0"	2.5"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 45 PSF	740.4 LB/FT	187.5 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.0"	2.5"	2.25"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 50 PSF	829.7 LB/FT	208.3 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	3.5"	2.25"	2.0"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 55 PSF	919.0 LB/FT	229.2 LB/FT	4.5"	5.0"	6.0"	6.0"	6.0"	3.75"	6.0"	5.75"	3.25"	2.0"		2.25"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	1008.1 LB/FT	250.0 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"			2.0"	5.0"	5.75"	6.0"	6.0"	6.0"

ANCHOR NOTES: SEE SHEET 18 FOR ANCHOR NOTES.

INTERIOR MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536

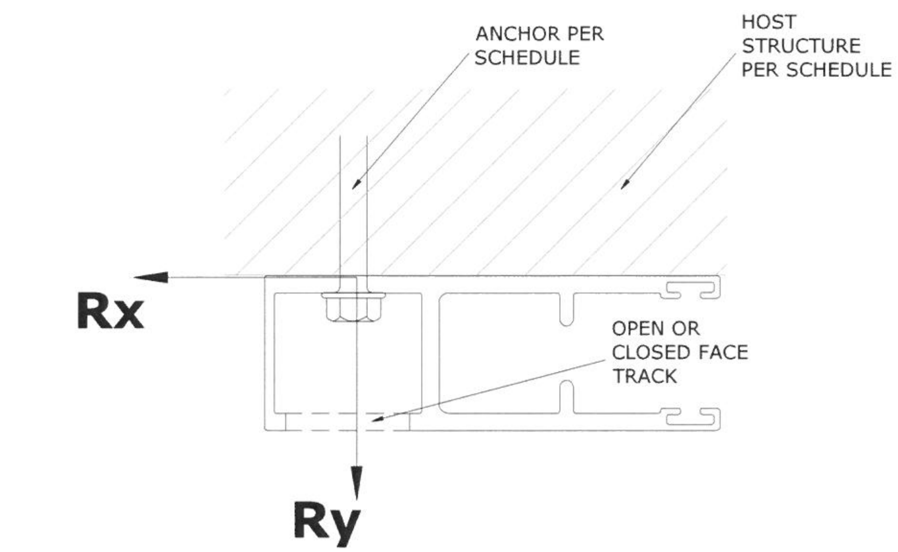
SCALE: NTS UNLESS NOTED

ANCHOR SCHEDULE: END RETENTION (ER) WALL MOUNT (DOUBLE WALL SLATS)

SLAT SPAN	DESIGN PRESSURE	Rx	Ry	MAXIMUM SPACING (O.C.)																
				1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON			1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET		1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX	
							TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE		TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE							TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
82"	+/- 40 PSF	315.5 LB/FT	136.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.2"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	539.4 LB/FT	205.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	5.0"	3.5"	3.1"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 80 PSF	762.5 LB/FT	273.3 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	3.5"	2.5"	2.2"	2.5"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 100 PSF	984.8 LB/FT	341.7 LB/FT	4.0"	4.25"	6.0"	6.0"	5.75"	3.0"	5.5"	5.0"	2.75"			2.0"	4.25"	4.75"	6.0"	6.0"	6.0"
	+/- 120 PSF	1206.2 LB/FT	410.0 LB/FT	3.25"	3.5"	6.0"	6.0"	4.75"	2.5"	4.5"	4.0"	2.25"				3.5"	4.0"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	516.3 LB/FT	166.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	3.75"	3.3"	4.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 56 PSF	751.2 LB/FT	231.5 LB/FT	5.5"	6.0"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	3.75"	2.5"	2.2"	2.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 71 PSF	985.5 LB/FT	296.3 LB/FT	4.0"	4.5"	6.0"	6.0"	6.0"	3.25"	5.75"	5.0"	3.0"			2.0"	4.5"	5.25"	6.0"	6.0"	6.0"
	+/- 87 PSF	1219.0 LB/FT	361.1 LB/FT	3.25"	3.5"	6.0"	6.0"	5.0"	2.5"	4.5"	4.25"	2.25"				3.75"	4.25"	6.0"	6.0"	6.0"
	+/- 102 PSF	1451.9 LB/FT	425.9 LB/FT	2.75"	3.0"	5.25"	5.25"	4.0"	2.25"	4.0"	3.5"	2.0"				3.0"	3.5"	6.0"	6.0"	6.0"
120"	+/- 40 PSF	735.9 LB/FT	200.0 LB/FT	5.75"	6.0"	6.0"	6.0"	6.0"	4.5"	6.0"	6.0"	4.0"	2.5"	2.3"	2.75"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 52 PSF	983.9 LB/FT	262.4 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"	2.0"		2.0"	5.0"	5.5"	6.0"	6.0"	6.0"
	+/- 65 PSF	1231.4 LB/FT	324.7 LB/FT	3.5"	3.5"	6.0"	6.0"	5.0"	2.75"	4.75"	4.25"	2.25"				4.0"	4.5"	6.0"	6.0"	6.0"
	+/- 77 PSF	1478.2 LB/FT	387.1 LB/FT	2.75"	3.0"	5.5"	5.25"	4.0"	2.25"	4.0"	3.5"	2.0"				3.25"	3.75"	6.0"	6.0"	6.0"
	+/- 90 PSF	1724.4 LB/FT	449.5 LB/FT	2.5"	2.5"	4.5"	4.5"	3.5"	2.0"	3.5"	3.0"					2.75"	3.25"	6.0"	6.0"	6.0"
144"	+/- 40 PSF	1007.7 LB/FT	240.0 LB/FT	4.25"	4.5"	6.0"	6.0"	6.0"	3.5"	6.0"	5.25"	3.0"			2.0"	5.0"	5.75"	6.0"	6.0"	6.0"
	+/- 50 PSF	1269.4 LB/FT	300.0 LB/FT	3.25"	3.5"	6.0"	6.0"	5.0"	2.75"	4.75"	4.25"	2.25"				4.0"	4.5"	6.0"	6.0"	6.0"
	+/- 60 PSF	1530.5 LB/FT	360.0 LB/FT	2.75"	3.0"	5.25"	5.25"	4.0"	2.25"	4.0"	3.5"	2.0"				3.25"	3.75"	6.0"	6.0"	6.0"
	+/- 70 PSF	1791.0 LB/FT	420.0 LB/FT	2.25"	2.5"	4.5"	4.5"	3.5"	2.0"	3.25"	3.0"					2.75"	3.25"	6.0"	6.0"	6.0"
	+/- 80 PSF	2051.0 LB/FT	480.0 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.5"	2.75"	6.0"	6.0"	6.0"
160"	+/- 35 PSF	1046.5 LB/FT	233.3 LB/FT	4.0"	4.5"	6.0"	6.0"	6.0"	3.5"	5.75"	5.25"	3.0"			2.0"	5.0"	5.75"	6.0"	6.0"	6.0"
	+/- 43 PSF	1304.2 LB/FT	288.9 LB/FT	3.25"	3.5"	6.0"	6.0"	4.75"	2.75"	4.75"	4.0"	2.25"				4.0"	4.5"	6.0"	6.0"	6.0"
	+/- 52 PSF	1561.8 LB/FT	344.4 LB/FT	2.75"	3.0"	5.25"	5.25"	4.0"	2.25"	4.0"	3.5"					3.25"	4.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	1819.5 LB/FT	400.0 LB/FT	2.25"	2.5"	4.5"	4.5"	3.5"	2.0"	3.25"	3.0"					2.75"	3.25"	6.0"	6.0"	6.0"
	+/- 68 PSF	2077.1 LB/FT	455.6 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.5"	3.0"	6.0"	6.0"	6.0"
192"	+/- 30 PSF	1196.0 LB/FT	240.0 LB/FT	3.75"	4.0"	6.0"	6.0"	5.25"	3.0"	5.25"	4.5"	2.5"				4.5"	5.25"	6.0"	6.0"	6.0"
	+/- 34 PSF	1348.6 LB/FT	270.0 LB/FT	3.25"	3.5"	6.0"	6.0"	4.75"	2.75"	4.5"	4.0"	2.25"				4.0"	4.75"	6.0"	6.0"	6.0"
	+/- 38 PSF	1501.2 LB/FT	300.0 LB/FT	3.0"	3.0"	5.5"	5.5"	4.25"	2.5"	4.0"	3.5"	2.0"				3.5"	4.25"	6.0"	6.0"	6.0"
	+/- 41 PSF	1653.8 LB/FT	330.0 LB/FT	2.5"	2.75"	5.0"	5.0"	3.75"	2.25"	3.75"	3.25"					3.25"	3.75"	6.0"	6.0"	6.0"
	+/- 45 PSF	1806.4 LB/FT	360.0 LB/FT	2.5"	2.5"	4.5"	4.5"	3.5"	2.0"	3.5"	3.0"					3.0"	3.5"	6.0"	6.0"	6.0"

ANCHOR NOTES: SEE SHEET 18 FOR ANCHOR NOTES.

WALL MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020

ENGINEERING EXPRESS
CORPORATE OFFICE
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536

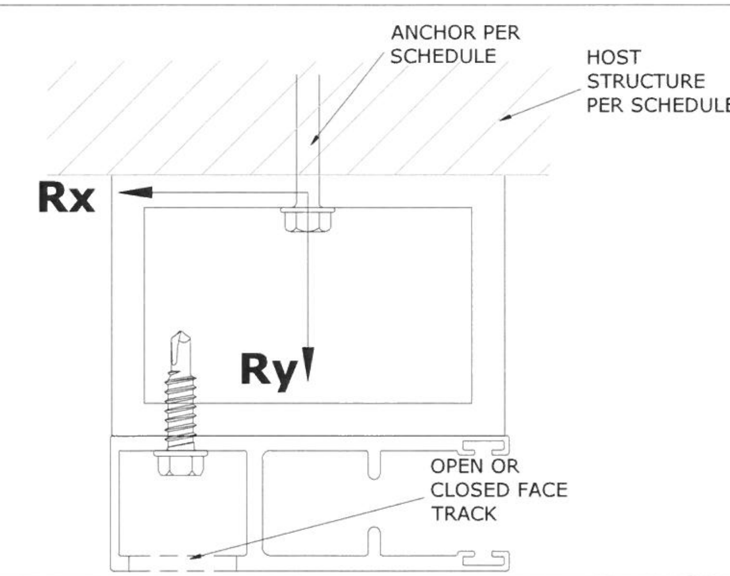
SCALE: NTS UNLESS NOTED

ANCHOR SCHEDULE: END RETENTION (ER) BUILD-OUT MOUNT (DOUBLE WALL SLATS)

SLAT SPAN	DESIGN PRESSURE	Rx	Ry	1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	5/16" ITW TAPCON: TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" ALL-POINTS SOLID-SET: TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	3/8" ELCO OR DEWALT CONFLEX: TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
				MAXIMUM SPACING (O.C.)																
82"	+/- 40 PSF	315.5 LB/FT	227.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	4.75"	5.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	539.4 LB/FT	341.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.25"	6.0"	6.0"	4.25"	3.25"	2.75"	3.25"	5.5"	5.75"	6.0"	6.0"	6.0"
	+/- 80 PSF	762.5 LB/FT	455.6 LB/FT	4.5"	4.75"	6.0"	6.0"	6.0"	3.0"	5.75"	5.5"	3.0"	2.25"	2.0"	2.5"	4.0"	4.25"	6.0"	6.0"	6.0"
	+/- 100 PSF	984.8 LB/FT	569.6 LB/FT	3.5"	3.75"	6.0"	6.0"	5.0"	2.5"	4.5"	4.25"	2.25"				3.25"	3.25"	6.0"	6.0"	6.0"
	+/- 120 PSF	1206.2 LB/FT	683.5 LB/FT	2.75"	3.0"	5.25"	5.25"	4.0"	2.0"	3.75"	3.5"	2.0"				2.75"	2.75"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	516.3 LB/FT	277.8 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.75"	3.5"	3.0"	3.5"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 56 PSF	751.2 LB/FT	385.9 LB/FT	4.75"	5.0"	6.0"	6.0"	6.0"	3.25"	6.0"	5.75"	3.25"	2.5"	2.0"	2.5"	4.5"	4.75"	6.0"	6.0"	6.0"
	+/- 71 PSF	985.5 LB/FT	493.9 LB/FT	3.5"	4.0"	6.0"	6.0"	5.25"	2.5"	4.75"	4.5"	2.5"				3.5"	3.75"	6.0"	6.0"	6.0"
	+/- 87 PSF	1219.0 LB/FT	601.9 LB/FT	3.0"	3.25"	5.5"	5.5"	4.25"	2.0"	4.0"	3.5"	2.0"				3.0"	3.0"	6.0"	6.0"	6.0"
	+/- 102 PSF	1451.9 LB/FT	709.9 LB/FT	2.5"	2.5"	4.5"	4.5"	3.5"		3.25"	3.0"					2.5"	2.5"	6.0"	6.0"	6.0"
120"	+/- 40 PSF	735.9 LB/FT	333.4 LB/FT	5.0"	5.5"	6.0"	6.0"	6.0"	3.5"	6.0"	6.0"	3.5"	2.5"	2.0"	2.5"	5.0"	5.25"	6.0"	6.0"	6.0"
	+/- 52 PSF	983.9 LB/FT	437.4 LB/FT	3.75"	4.0"	6.0"	6.0"	5.5"	2.75"	5.0"	4.5"	2.5"				3.75"	4.0"	6.0"	6.0"	6.0"
	+/- 65 PSF	1231.4 LB/FT	541.3 LB/FT	3.0"	3.25"	5.5"	5.5"	4.5"	2.25"	4.0"	3.75"	2.0"				3.0"	3.25"	6.0"	6.0"	6.0"
	+/- 77 PSF	1478.2 LB/FT	645.3 LB/FT	2.5"	2.75"	4.75"	4.5"	3.5"		3.25"	3.0"					2.5"	2.75"	6.0"	6.0"	6.0"
	+/- 90 PSF	1724.4 LB/FT	749.3 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		2.75"	2.5"					2.0"	2.25"	6.0"	6.0"	6.0"
144"	+/- 40 PSF	1007.7 LB/FT	400.1 LB/FT	3.75"	4.0"	6.0"	6.0"	5.5"	2.75"	5.0"	4.75"	2.5"				4.0"	4.25"	6.0"	6.0"	6.0"
	+/- 50 PSF	1269.4 LB/FT	500.1 LB/FT	3.0"	3.25"	5.5"	5.5"	4.5"	2.25"	4.0"	3.75"	2.0"				3.0"	3.25"	6.0"	6.0"	6.0"
	+/- 60 PSF	1530.5 LB/FT	600.1 LB/FT	2.5"	2.75"	4.75"	4.5"	3.5"		3.25"	3.0"					2.5"	2.75"	6.0"	6.0"	6.0"
	+/- 70 PSF	1791.0 LB/FT	700.1 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		2.75"	2.5"					2.25"	2.5"	6.0"	6.0"	6.0"
	+/- 80 PSF	2051.0 LB/FT	800.2 LB/FT		2.0"	3.5"	3.5"	2.75"		2.5"	2.25"					2.0"	2.0"	6.0"	6.0"	6.0"
160"	+/- 35 PSF	1046.5 LB/FT	389.0 LB/FT	3.75"	4.0"	6.0"	6.0"	5.5"	2.75"	5.0"	4.5"	2.5"				4.0"	4.25"	6.0"	6.0"	6.0"
	+/- 43 PSF	1304.2 LB/FT	481.6 LB/FT	3.0"	3.25"	5.5"	5.5"	4.25"	2.25"	4.0"	3.75"	2.0"				3.0"	3.5"	6.0"	6.0"	6.0"
	+/- 52 PSF	1561.8 LB/FT	574.2 LB/FT	2.5"	2.75"	4.75"	4.5"	3.5"		3.25"	3.0"					2.5"	2.75"	6.0"	6.0"	6.0"
	+/- 60 PSF	1819.5 LB/FT	666.8 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.25"	2.5"	6.0"	6.0"	6.0"
	+/- 68 PSF	2077.1 LB/FT	759.4 LB/FT		2.0"	3.5"	3.5"	2.75"		2.5"	2.25"					2.0"	2.0"	6.0"	6.0"	6.0"
192"	+/- 30 PSF	1196.0 LB/FT	400.1 LB/FT	3.25"	3.5"	6.0"	6.0"	4.75"	2.5"	4.5"	4.0"	2.25"				3.5"	4.0"	6.0"	6.0"	6.0"
	+/- 34 PSF	1348.6 LB/FT	450.1 LB/FT	3.0"	3.25"	5.5"	5.5"	4.25"	2.25"	4.0"	3.5"	2.0"				3.25"	3.5"	6.0"	6.0"	6.0"
	+/- 38 PSF	1501.2 LB/FT	500.1 LB/FT	2.5"	2.75"	5.0"	5.0"	3.75"	2.0"	3.5"	3.25"					3.0"	3.0"	6.0"	6.0"	6.0"
	+/- 41 PSF	1653.8 LB/FT	550.1 LB/FT	2.5"	2.5"	4.5"	4.5"	3.5"		3.25"	3.0"					2.5"	2.75"	6.0"	6.0"	6.0"
	+/- 45 PSF	1806.4 LB/FT	600.1 LB/FT	2.25"	2.25"	4.0"	4.0"	3.25"		3.0"	2.75"					2.5"	2.5"	6.0"	6.0"	6.0"

ANCHOR NOTES: SEE SHEET 18 FOR ANCHOR NOTES.

BUILD-OUT MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

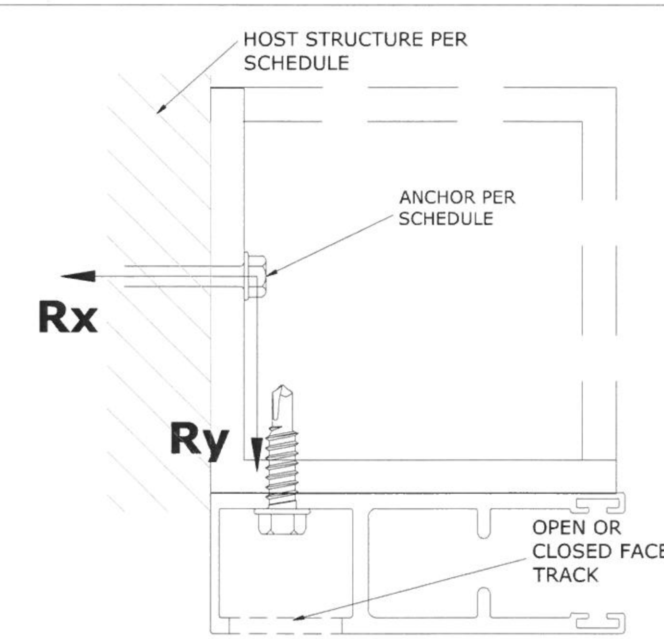
19-7536
SCALE: NTS UNLESS NOTED

ANCHOR SCHEDULE: END RETENTION (ER) INTERIOR MOUNT (DOUBLE WALL SLATS)

				MAXIMUM SPACING (O.C.)																
							5/16" ITW TAPCON				1/4" ALL-POINTS SOLID-SET								3/8" ELCO OR DEWALT CONFLEX	
SLAT SPAN	DESIGN PRESSURE	Rx	Ry	1/4" ELCO OR DEWALT ULTRACON TO 2700 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	1/4" SS ITW TAPCON TO 3192 PSI MIN. CONCRETE; 1.75" MIN. EMBEDMENT; 2.5" MIN. EDGE DISTANCE	5/16" ELCO OR DEWALT ULTRACON TO 3500 PSI MIN. CONCRETE; 2" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	TO 2899 PSI MIN. CONCRETE; 2.25" MIN. EMBEDMENT; 3.125" MIN. EDGE DISTANCE	TO GROUT-FILLED CONCRETE BLOCK; 2.25" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	TO HOLLOW CONCRETE BLOCK; 1.75" MIN. EMBEDMENT; 4" MIN. EDGE DISTANCE	1/4" DEWALT POWER-BOLT TO 3000 PSI MIN. CONCRETE; 2.5" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	TO 3000 PSI MIN. CONCRETE; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	TO HOLLOW BLOCK; 0.875" MIN. EMBEDMENT; 3" MIN. EDGE DISTANCE	1/4" LAG SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	5/16" LAG SCREW TO G=0.42 MIN WOOD; 2" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 WOOD SCREW TO G=0.55 MIN WOOD; 1.5" MIN. EMBEDMENT; 0.75" MIN. EDGE DISTANCE	#14 410 SS SMS W/ FULL THREAD PENETRATION OR 1/4-20 410 SS THRU-BOLT TO 0.125" MIN. 6063-T6 ALUM; 0.5" MIN. EDGE DISTANCE	5/16" 410 SS SMS W/ FULL THREAD PENETRATION OR 5/16-18 410 SS THRU-BOLT TO 0.25" MIN. 6063-T6 ALUM; 0.625" MIN. EDGE DISTANCE	3/8" DEWALT SCREW BOLT TO 3000 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 4.5" MIN. EDGE DISTANCE	TO 1819 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE	TO 4510 PSI MIN. CONCRETE; 3.5" MIN. EMBEDMENT; 3.75" MIN. EDGE DISTANCE
82"	+/- 40 PSF	406.7 LB/FT	136.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	4.0"	5.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 60 PSF	676.2 LB/FT	205.0 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	4.75"	6.0"	6.0"	4.25"	2.75"	2.5"	3.0"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 80 PSF	944.8 LB/FT	273.3 LB/FT	4.25"	4.75"	6.0"	6.0"	6.0"	3.5"	6.0"	5.5"	3.0"	2.0"		2.0"	5.0"	5.5"	6.0"	6.0"	6.0"
	+/- 100 PSF	1212.7 LB/FT	341.7 LB/FT	3.5"	3.75"	6.0"	6.0"	5.0"	2.75"	4.75"	4.25"	2.25"				4.0"	4.5"	6.0"	6.0"	6.0"
	+/- 120 PSF	1479.7 LB/FT	410.0 LB/FT	2.75"	3.0"	5.25"	5.25"	4.0"	2.25"	4.0"	3.5"	2.0"				3.25"	3.5"	6.0"	6.0"	6.0"
100"	+/- 40 PSF	627.5 LB/FT	166.7 LB/FT	6.0"	6.0"	6.0"	6.0"	6.0"	5.5"	6.0"	6.0"	4.75"	3.0"	2.5"	3.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 56 PSF	905.6 LB/FT	231.5 LB/FT	4.75"	5.0"	6.0"	6.0"	6.0"	3.75"	6.0"	5.75"	3.25"	2.0"		2.25"	5.5"	6.0"	6.0"	6.0"	6.0"
	+/- 71 PSF	1183.1 LB/FT	296.3 LB/FT	3.5"	3.75"	6.0"	6.0"	5.25"	3.0"	5.0"	4.5"	2.5"				4.25"	4.75"	6.0"	6.0"	6.0"
	+/- 87 PSF	1459.9 LB/FT	361.1 LB/FT	3.0"	3.0"	5.5"	5.5"	4.25"	2.25"	4.0"	3.5"	2.0"				3.5"	4.0"	6.0"	6.0"	6.0"
	+/- 102 PSF	1735.9 LB/FT	425.9 LB/FT	2.5"	2.5"	4.5"	4.5"	3.5"	2.0"	3.5"	3.0"					2.75"	3.25"	6.0"	6.0"	6.0"
120"	+/- 40 PSF	869.3 LB/FT	200.0 LB/FT	5.0"	5.25"	6.0"	6.0"	6.0"	4.0"	6.0"	6.0"	3.5"	2.25"		2.25"	6.0"	6.0"	6.0"	6.0"	6.0"
	+/- 52 PSF	1158.9 LB/FT	262.4 LB/FT	3.75"	4.0"	6.0"	6.0"	5.5"	3.0"	5.25"	4.5"	2.5"				4.5"	5.25"	6.0"	6.0"	6.0"
	+/- 65 PSF	1448.0 LB/FT	324.7 LB/FT	3.0"	3.25"	5.5"	5.5"	4.25"	2.5"	4.25"	3.75"	2.0"				3.5"	4.0"	6.0"	6.0"	6.0"
	+/- 77 PSF	1736.4 LB/FT	387.1 LB/FT	2.5"	2.5"	4.75"	4.5"	3.5"	2.0"	3.5"	3.0"					3.0"	3.5"	6.0"	6.0"	6.0"
	+/- 90 PSF	2024.2 LB/FT	449.5 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.5"	3.0"	6.0"	6.0"	6.0"
144"	+/- 40 PSF	1167.8 LB/FT	240.0 LB/FT	3.75"	4.0"	6.0"	6.0"	5.5"	3.0"	5.25"	4.75"	2.5"				4.5"	5.5"	6.0"	6.0"	6.0"
	+/- 50 PSF	1469.5 LB/FT	300.0 LB/FT	3.0"	3.25"	5.75"	5.5"	4.25"	2.5"	4.25"	3.75"	2.0"				3.5"	4.25"	6.0"	6.0"	6.0"
	+/- 60 PSF	1770.6 LB/FT	360.0 LB/FT	2.5"	2.5"	4.75"	4.5"	3.5"	2.0"	3.5"	3.0"					3.0"	3.5"	6.0"	6.0"	6.0"
	+/- 70 PSF	2071.2 LB/FT	420.0 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.5"	3.0"	6.0"	6.0"	6.0"
	+/- 80 PSF	2371.2 LB/FT	480.0 LB/FT		2.0"	3.5"	3.5"	2.5"		2.5"	2.25"					2.25"	2.5"	6.0"	6.0"	6.0"
160"	+/- 35 PSF	1202.2 LB/FT	233.3 LB/FT	3.75"	4.0"	6.0"	6.0"	5.25"	3.0"	5.25"	4.5"	2.5"				4.5"	5.5"	6.0"	6.0"	6.0"
	+/- 43 PSF	1496.9 LB/FT	288.9 LB/FT	3.0"	3.0"	5.5"	5.5"	4.25"	2.5"	4.25"	3.75"	2.0"				3.5"	4.25"	6.0"	6.0"	6.0"
	+/- 52 PSF	1791.6 LB/FT	344.4 LB/FT	2.5"	2.5"	4.75"	4.5"	3.5"	2.0"	3.5"	3.0"					3.0"	3.5"	6.0"	6.0"	6.0"
	+/- 60 PSF	2086.3 LB/FT	400.0 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.5"					2.5"	3.0"	6.0"	6.0"	6.0"
	+/- 68 PSF	2381.0 LB/FT	455.6 LB/FT		2.0"	3.5"	3.5"	2.5"		2.5"	2.25"					2.25"	2.75"	6.0"	6.0"	6.0"
192"	+/- 30 PSF	1356.1 LB/FT	240.0 LB/FT	3.25"	3.5"	6.0"	6.0"	4.75"	2.75"	4.75"	4.0"	2.25"				4.0"	5.0"	6.0"	6.0"	6.0"
	+/- 34 PSF	1528.7 LB/FT	270.0 LB/FT	3.0"	3.0"	5.5"	5.5"	4.25"	2.5"	4.25"	3.5"	2.0"				3.5"	4.5"	6.0"	6.0"	6.0"
	+/- 38 PSF	1701.3 LB/FT	300.0 LB/FT	2.5"	2.75"	5.0"	5.0"	3.75"	2.25"	3.75"	3.25"					3.25"	4.0"	6.0"	6.0"	6.0"
	+/- 41 PSF	1873.9 LB/FT	330.0 LB/FT	2.25"	2.5"	4.5"	4.5"	3.5"	2.0"	3.5"	3.0"					3.0"	3.5"	6.0"	6.0"	6.0"
	+/- 45 PSF	2046.5 LB/FT	360.0 LB/FT	2.0"	2.25"	4.0"	4.0"	3.0"		3.0"	2.75"					2.75"	3.25"	6.0"	6.0"	6.0"

ANCHOR NOTES: SEE SHEET 18 FOR ANCHOR NOTES.

INTERIOR MOUNT DIRECTIVE



FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS®
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RVN	RVN	1/8/2020

19-7536

SCALE: NTS UNLESS NOTED

END RETENTION (ER) SINGLE WALL SLAT MULLION SCHEDULES

MULLION SCHEDULE: INTERMEDIATE MULLIONS

		4"x6"x0.25" ALUM TUBE		6"x4"x0.25" ALUM TUBE		4"x8"x0.25" ALUM TUBE		8"x4"x0.25" ALUM TUBE	
SLAT SPAN	DESIGN PRESSURE	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt
82"	+/- 40 PSF	144.0"	1640.0 LB	144.0"	1640.0 LB	144.0"	1640.0 LB	144.0"	1640.0 LB
	+/- 50 PSF	144.0"	2050.0 LB	141.0"	2007.4 LB	144.0"	2050.0 LB	144.0"	2050.0 LB
	+/- 60 PSF	144.0"	2460.0 LB	132.7"	2266.8 LB	144.0"	2460.0 LB	144.0"	2460.0 LB
	+/- 70 PSF	144.0"	2870.0 LB	126.0"	2512.2 LB	144.0"	2870.0 LB	137.0"	2731.2 LB
	+/- 80 PSF	144.0"	3280.0 LB	120.6"	2746.0 LB	144.0"	3280.0 LB	131.1"	2985.5 LB
85"	+/- 40 PSF	144.0"	1700.0 LB	144.0"	1700.0 LB	144.0"	1700.0 LB	144.0"	1700.0 LB
	+/- 49 PSF	144.0"	2080.5 LB	140.3"	2027.2 LB	144.0"	2080.5 LB	144.0"	2080.5 LB
	+/- 58 PSF	144.0"	2461.0 LB	132.7"	2267.4 LB	144.0"	2461.0 LB	144.0"	2461.0 LB
	+/- 67 PSF	144.0"	2841.4 LB	126.5"	2495.5 LB	144.0"	2841.4 LB	137.5"	2713.1 LB
	+/- 76 PSF	144.0"	3221.9 LB	121.3"	2713.5 LB	144.0"	3221.9 LB	131.9"	2950.2 LB
90"	+/- 40 PSF	144.0"	1800.0 LB	144.0"	1800.0 LB	144.0"	1800.0 LB	144.0"	1800.0 LB
	+/- 47 PSF	144.0"	2134.2 LB	139.1"	2062.0 LB	144.0"	2134.2 LB	144.0"	2134.2 LB
	+/- 55 PSF	144.0"	2468.4 LB	132.5"	2271.9 LB	144.0"	2468.4 LB	144.0"	2468.4 LB
	+/- 62 PSF	144.0"	2802.5 LB	127.0"	2472.6 LB	144.0"	2802.5 LB	138.1"	2688.3 LB
	+/- 70 PSF	144.0"	3136.7 LB	122.4"	2665.5 LB	144.0"	3136.7 LB	133.0"	2897.9 LB
95"	+/- 40 PSF	144.0"	1900.0 LB	144.0"	1900.0 LB	144.0"	1900.0 LB	144.0"	1900.0 LB
	+/- 46 PSF	144.0"	2190.9 LB	137.9"	2098.3 LB	144.0"	2190.9 LB	144.0"	2190.9 LB
	+/- 52 PSF	144.0"	2481.7 LB	132.3"	2280.1 LB	144.0"	2481.7 LB	143.8"	2479.0 LB
	+/- 58 PSF	144.0"	2772.6 LB	127.5"	2455.0 LB	144.0"	2772.6 LB	138.6"	2669.1 LB
	+/- 64 PSF	144.0"	3063.5 LB	123.3"	2623.8 LB	144.0"	3063.5 LB	134.1"	2852.7 LB
100"	+/- 40 PSF	144.0"	2000.0 LB	142.2"	1974.6 LB	144.0"	2000.0 LB	144.0"	2000.0 LB
	+/- 45 PSF	144.0"	2250.0 LB	136.7"	2135.9 LB	144.0"	2250.0 LB	144.0"	2250.0 LB
	+/- 50 PSF	144.0"	2500.0 LB	132.0"	2291.3 LB	144.0"	2500.0 LB	143.5"	2491.1 LB
	+/- 55 PSF	144.0"	2750.0 LB	127.9"	2441.6 LB	144.0"	2750.0 LB	139.0"	2654.6 LB
	+/- 60 PSF	144.0"	3000.0 LB	124.2"	2587.5 LB	144.0"	3000.0 LB	135.0"	2813.1 LB

MULLION SCHEDULE NOTES:

1. VALUES SHOWN IN MULLION SCHEDULES ARE MAXIMUM ALLOWABLE MULLION LENGTHS AT EACH RESPECTIVE SLAT SPAN AND DESIGN PRESSURE.
2. "INTERMEDIATE MULLIONS" ARE AS DEFINED IN ELEVATION 2/3.
3. "END MULLIONS" ARE AS DEFINED IN ELEVATION 2/3
4. ALL MULLIONS SHALL BE 6061-T6 ALUMINUM OR EQUIVALENT.
5. ALLOWABLE DESIGN PRESSURES AND SLAT SPANS INDICATED ARE FOR DETERMINING PERMISSIBLE MULLION LENGTHS ONLY. ACTUAL SLAT SPANS AND DESIGN PRESSURES SHALL NOT EXCEED THOSE INDICATED IN SPAN SCHEDULES.
6. "END REACTIONS" ARE LISTED FOR EACH COMBINATION OF DESIGN LOAD, MULLION TYPE, SLAT TYPE (OPEN OR CLOSED) & SLAT SPAN. CHOOSE MOUNTING CONNECTIONS (PER APPLICABLE CONNECTION DETAILS HEREIN) THAT PROVIDES "CONNECTION CAPACITY" GREATER THAN OR EQUAL TO "END REACTIONS" GIVEN ABOVE.
7. "INTERMEDIATE MULLIONS" SHALL HAVE EQUAL SLAT SPANS ON ADJACENT SIDES OF MULLION. OTHERWISE, USE "END MULLION" TABLES.

MULLION SCHEDULE: END MULLIONS

		4"x6"x0.25" ALUM TUBE				6"x4"x0.25" ALUM TUBE				4"x8"x0.25" ALUM TUBE				8"x4"x0.25" ALUM TUBE			
SLAT SPAN	DESIGN PRESSURE	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum
82"	+/- 40 PSF	144.0"	2105.9 LB	820.0 LB	2259.9 LB	139.7"	2043.7 LB	795.8 LB	2193.2 LB	144.0"	2105.9 LB	820.0 LB	2259.9 LB	144.0"	2105.9 LB	820.0 LB	2259.9 LB
	+/- 50 PSF	139.0"	2682.2 LB	989.3 LB	2858.9 LB	127.4"	2458.8 LB	906.9 LB	2620.7 LB	144.0"	2779.0 LB	1025.0 LB	2962.0 LB	138.5"	2673.2 LB	986.0 LB	2849.2 LB
	+/- 60 PSF	125.2"	3000.6 LB	1069.4 LB	3185.4 LB	118.5"	2840.9 LB	1012.4 LB	3015.9 LB	141.6"	3394.2 LB	1209.6 LB	3603.3 LB	128.9"	3088.6 LB	1100.7 LB	3278.9 LB
	+/- 70 PSF	114.8"	3287.9 LB	1144.4 LB	3481.4 LB	111.7"	3198.3 LB	1113.2 LB	3386.5 LB	129.9"	3719.3 LB	1294.6 LB	3938.2 LB	121.5"	3477.2 LB	1210.3 LB	3681.8 LB
	+/- 80 PSF	106.7"	3551.8 LB	1215.2 LB	3753.9 LB	106.2"	3536.3 LB	1209.9 LB	3737.6 LB	120.7"	4017.9 LB	1374.7 LB	4246.6 LB	115.5"	3844.7 LB	1315.4 LB	4063.5 LB
85"	+/- 40 PSF	144.0"	2297.0 LB	850.0 LB	2449.3 LB	135.8"	2165.6 LB	801.3 LB	2309.1 LB	144.0"	2297.0 LB	850.0 LB	2449.3 LB	144.0"	2297.0 LB	850.0 LB	2449.3 LB
	+/- 49 PSF	135.9"	2767.6 LB	981.6 LB	2936.5 LB	125.1"	2548.8 LB	904.0 LB	2704.4 LB	144.0"	2933.1 LB	1040.2 LB	3112.1 LB	136.0"	2771.1 LB	982.8 LB	2940.2 LB
	+/- 58 PSF	123.6"	3061.9 LB	1055.9 LB	3238.9 LB	117.2"	2904.7 LB	1001.6 LB	3072.6 LB	139.8"	3463.8 LB	1194.4 LB	3663.9 LB	127.4"	3158.0 LB	1089.0 LB	3340.5 LB
	+/- 67 PSF	114.1"	3330.0 LB	1125.7 LB	3515.1 LB	111.0"	3239.6 LB	1095.1 LB	3419.6 LB	129.1"	3767.2 LB	1273.5 LB	3976.6 LB	120.7"	3522.1 LB	1190.6 LB	3717.9 LB
	+/- 76 PSF	106.5"	3577.8 LB	1191.7 LB	3771.0 LB	105.9"	3557.5 LB	1185.0 LB	3749.7 LB	120.5"	4047.6 LB	1348.2 LB	4266.2 LB	115.2"	3867.8 LB	1288.3 LB	4076.7 LB
90"	+/- 40 PSF	144.0"	2612.6 LB	900.0 LB	2763.3 LB	130.1"	2359.6 LB	812.8 LB	2495.7 LB	144.0"	2612.6 LB	900.0 LB	2763.3 LB	141.4"	2565.4 LB	883.7 LB	2713.3 LB
	+/- 47 PSF	131.1"	2902.9 LB	971.9 LB	3061.3 LB	121.7"	2694.1 LB	901.9 LB	2841.1 LB	144.0"	3187.4 LB	1067.1 LB	3361.3 LB	132.3"	2929.1 LB	980.6 LB	3088.9 LB
	+/- 55 PSF	121.0"	3160.2 LB	1036.9 LB	3325.9 LB	115.2"	3008.6 LB	987.1 LB	3166.4 LB	136.9"	3575.2 LB	1173.0 LB	3762.7 LB	125.2"	3271.0 LB	1073.2 LB	3442.6 LB
	+/- 62 PSF	112.9"	3397.7 LB	1098.3 LB	3570.8 LB	109.9"	3307.1 LB	1069.0 LB	3475.6 LB	127.7"	3844.0 LB	1242.6 LB	4039.8 LB	119.4"	3595.5 LB	1162.2 LB	3778.7 LB
	+/- 70 PSF	106.2"	3619.4 LB	1156.6 LB	3799.7 LB	105.4"	3592.4 LB	1148.0 LB	3771.3 LB	120.1"	4094.9 LB	1308.6 LB	4298.9 LB	114.6"	3905.7 LB	1248.1 LB	4100.2 LB
95"	+/- 40 PSF	137.3"	2790.2 LB	905.9 LB	2933.6 LB	125.2"	2544.8 LB	826.2 LB	2675.6 LB	144.0"	2926.1 LB	950.0 LB	3076.5 LB	136.2"	2766.7 LB	898.3 LB	2908.9 LB
	+/- 46 PSF	126.9"	3031.3 LB	965.3 LB	3181.3 LB	118.7"	2834.7 LB	902.7 LB	2974.9 LB	143.6"	3429.5 LB	1092.1 LB	3599.2 LB	129.0"	3081.9 LB	981.4 LB	3234.3 LB
	+/- 52 PSF	118.5"	3254.3 LB	1021.4 LB	3410.8 LB	113.3"	3110.1 LB	976.2 LB	3259.7 LB	134.1"	3681.9 LB	1155.7 LB	3859.0 LB	123.2"	3381.3 LB	1061.3 LB	3544.0 LB
	+/- 58 PSF	111.6"	3462.7 LB	1074.8 LB	3625.7 LB	108.8"	3373.5 LB	1047.1 LB	3532.3 LB	126.3"	3917.8 LB	1216.1 LB	4102.2 LB	118.3"	3667.7 LB	1138.5 LB	3840.3 LB
	+/- 64 PSF	105.8"	3659.0 LB	1125.8 LB	3828.3 LB	104.9"	3626.7 LB	1115.9 LB	3794.5 LB	119.8"	4140.0 LB	1273.8 LB	4331.5 LB	114.1"	3943.0 LB	1213.2 LB	4125.4 LB
100"	+/- 40 PSF	131.2"	2950.4 LB	910.9 LB	3087.9 LB	121.1"	2723.1 LB	840.7 LB	2850.0 LB	144.0"	3239.0 LB	1000.0 LB	3389.9 LB	131.6"	2960.6 LB	914.0 LB	3098.5 LB
	+/- 45 PSF	123.0"	3154.0 LB	961.1 LB	3297.2 LB	115.9"	2971.5 LB	905.4 LB	3106.4 LB	139.2"	3568.7 LB	1087.4 LB	3730.7 LB	126.0"	3230.6 LB	984.4 LB	3377.3 LB
	+/- 50 PSF	116.2"	3345.1 LB	1008.9 LB	3493.9 LB	111.5"	3209.6 LB	968.0 LB	3352.4 LB	131.5"	3784.9 LB	1141.5 LB	3953.3 LB	121.2"	3489.5 LB	1052.4 LB	3644.7 LB
	+/- 55 PSF	110.4"	3525.6 LB	1054.6 LB	3679.9 LB	107.7"	3438.9 LB	1028.7 LB	3589.5 LB	125.0"	3989.2 LB	1193.3 LB	4163.8 LB	117.1"	3738.8 LB	1118.4 LB	3902.5 LB
	+/- 60 PSF	105.5"	3697.1 LB	1098.5 LB	3856.8 LB	104.4"	3660.6 LB	1087.7 LB	3818.8 LB	119.3"	4183.2 LB	1243.0 LB	4364.0 LB	113.5"	3979.9 LB	1182.5 LB	4151.8 LB

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536

SCALE: NTS UNLESS NOTED

END RETENTION (ER) DOUBLE WALL SLAT MULLION SCHEDULES

MULLION SCHEDULE: INTERMEDIATE MULLIONS		4"x6"x0.25" ALUM TUBE		6"x4"x0.25" ALUM TUBE		4"x8"x0.25" ALUM TUBE		8"x4"x0.25" ALUM TUBE	
SLAT SPAN	DESIGN PRESSURE	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt	MAX MULLION LENGTH	END REACTION Rt
82"	+/- 40 PSF	144.0"	1640.0 LB	144.0"	1640.0 LB	144.0"	1640.0 LB	144.0"	1640.0 LB
	+/- 60 PSF	144.0"	2460.0 LB	132.7"	2266.8 LB	144.0"	2460.0 LB	144.0"	2460.0 LB
	+/- 80 PSF	144.0"	3280.0 LB	120.6"	2746.0 LB	144.0"	3280.0 LB	131.1"	2985.5 LB
	+/- 100 PSF	138.6"	3947.3 LB	111.9"	3186.5 LB	144.0"	4100.0 LB	121.7"	3464.4 LB
	+/- 120 PSF	130.5"	4457.5 LB	105.3"	3598.3 LB	144.0"	4920.0 LB	114.5"	3912.2 LB
100"	+/- 40 PSF	144.0"	2000.0 LB	142.2"	1974.6 LB	144.0"	2000.0 LB	144.0"	2000.0 LB
	+/- 56 PSF	144.0"	2777.6 LB	127.4"	2458.0 LB	144.0"	2777.6 LB	138.5"	2672.3 LB
	+/- 71 PSF	144.0"	3555.3 LB	117.4"	2897.6 LB	144.0"	3555.3 LB	127.6"	3150.3 LB
	+/- 87 PSF	136.1"	4095.4 LB	109.9"	3306.1 LB	144.0"	4332.9 LB	119.5"	3594.4 LB
	+/- 102 PSF	128.8"	4571.8 LB	104.0"	3690.7 LB	144.0"	5110.6 LB	113.1"	4012.5 LB
120"	+/- 40 PSF	144.0"	2400.0 LB	133.8"	2229.8 LB	144.0"	2400.0 LB	144.0"	2400.0 LB
	+/- 52 PSF	144.0"	3148.4 LB	122.2"	2672.1 LB	144.0"	3148.4 LB	132.9"	2905.2 LB
	+/- 65 PSF	141.0"	3815.8 LB	113.8"	3080.4 LB	144.0"	3896.9 LB	123.8"	3349.0 LB
	+/- 77 PSF	133.0"	4290.0 LB	107.4"	3463.1 LB	144.0"	4645.3 LB	116.7"	3765.2 LB
	+/- 90 PSF	126.5"	4739.2 LB	102.1"	3825.8 LB	143.2"	5365.6 LB	111.0"	4159.4 LB
144"	+/- 40 PSF	144.0"	2880.0 LB	125.9"	2518.0 LB	144.0"	2880.0 LB	136.9"	2737.6 LB
	+/- 50 PSF	144.0"	3600.0 LB	116.9"	2921.9 LB	144.0"	3600.0 LB	127.1"	3176.7 LB
	+/- 60 PSF	136.2"	4087.3 LB	110.0"	3299.5 LB	144.0"	4320.0 LB	119.6"	3587.3 LB
	+/- 70 PSF	129.4"	4529.6 LB	104.5"	3656.6 LB	144.0"	5040.0 LB	113.6"	3975.5 LB
	+/- 80 PSF	123.5"	4939.3 LB	99.9"	3997.1 LB	138.6"	5544.8 LB	108.6"	4345.6 LB
160"	+/- 35 PSF	144.0"	2800.0 LB	127.1"	2471.1 LB	144.0"	2800.0 LB	138.2"	2686.7 LB
	+/- 43 PSF	144.0"	3466.7 LB	118.4"	2849.3 LB	144.0"	3466.7 LB	128.7"	3097.8 LB
	+/- 52 PSF	138.3"	3968.7 LB	111.6"	3203.8 LB	144.0"	4133.3 LB	121.3"	3483.2 LB
	+/- 60 PSF	131.5"	4384.7 LB	106.2"	3539.6 LB	144.0"	4800.0 LB	115.4"	3848.3 LB
	+/- 68 PSF	126.0"	4781.8 LB	101.7"	3860.2 LB	142.3"	5401.8 LB	110.6"	4196.8 LB
192"	+/- 30 PSF	144.0"	2880.0 LB	125.9"	2518.0 LB	144.0"	2880.0 LB	136.9"	2737.6 LB
	+/- 34 PSF	144.0"	3240.0 LB	121.1"	2723.7 LB	144.0"	3240.0 LB	131.6"	2961.2 LB
	+/- 38 PSF	144.0"	3600.0 LB	116.9"	2921.9 LB	144.0"	3600.0 LB	127.1"	3176.7 LB
	+/- 41 PSF	140.3"	3856.9 LB	113.2"	3113.5 LB	144.0"	3960.0 LB	123.1"	3385.1 LB
	+/- 45 PSF	136.2"	4087.3 LB	110.0"	3299.5 LB	144.0"	4320.0 LB	119.6"	3587.3 LB

MULLION SCHEDULE NOTES:
SEE SHEET 24 FOR MULLION SCHEDULE NOTES.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RVN	RVN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

END RETENTION (ER) DOUBLE WALL SLAT MULLION SCHEDULES

MULLION SCHEDULE: END MULLIONS

		4"x6"x0.25" ALUM TUBE				6"x4"x0.25" ALUM TUBE				4"x8"x0.25" ALUM TUBE				8"x4"x0.25" ALUM TUBE			
SLAT SPAN	DESIGN PRESSURE	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum	MAX MULLION LENGTH	END REACTION Rv	END REACTION Rt	END REACTION Rsum
82"	+/- 40 PSF	144.0"	1893.0 LB	820.0 LB	2063.0 LB	144.0"	1893.0 LB	820.0 LB	2063.0 LB	144.0"	1893.0 LB	820.0 LB	2063.0 LB	144.0"	1893.0 LB	820.0 LB	2063.0 LB
	+/- 60 PSF	128.3"	2884.8 LB	1096.3 LB	3086.1 LB	121.1"	2721.7 LB	1034.4 LB	2911.7 LB	144.0"	3236.5 LB	1230.0 LB	3462.4 LB	131.7"	2959.1 LB	1124.6 LB	3165.6 LB
	+/- 80 PSF	108.7"	3452.5 LB	1237.6 LB	3667.7 LB	107.9"	3428.2 LB	1228.9 LB	3641.8 LB	122.9"	3905.4 LB	1399.9 LB	4148.7 LB	117.3"	3727.2 LB	1336.0 LB	3959.4 LB
	+/- 100 PSF	96.0"	3937.6 LB	1366.1 LB	4167.8 LB	99.1"	4065.7 LB	1410.5 LB	4303.4 LB	108.6"	4454.3 LB	1545.4 LB	4714.8 LB	107.7"	4420.2 LB	1533.5 LB	4678.7 LB
	+/- 120 PSF	86.9"	4367.4 LB	1484.5 LB	4612.8 LB	92.1"	4628.8 LB	1573.3 LB	4888.9 LB	98.3"	4940.7 LB	1679.3 LB	5218.3 LB	100.7"	5060.2 LB	1719.9 LB	5344.5 LB
100"	+/- 40 PSF	133.5"	2872.7 LB	927.3 LB	3018.6 LB	122.9"	2643.5 LB	853.3 LB	2777.8 LB	144.0"	3097.9 LB	1000.0 LB	3255.3 LB	133.6"	2874.0 LB	927.7 LB	3020.0 LB
	+/- 56 PSF	111.2"	3481.2 LB	1072.6 LB	3642.7 LB	108.4"	3394.3 LB	1045.8 LB	3551.7 LB	125.8"	3938.8 LB	1213.6 LB	4121.5 LB	117.9"	3690.3 LB	1137.0 LB	3861.5 LB
	+/- 71 PSF	97.3"	3996.7 LB	1201.6 LB	4173.4 LB	99.1"	4067.5 LB	1222.8 LB	4247.3 LB	110.1"	4522.2 LB	1359.5 LB	4722.1 LB	107.7"	4422.2 LB	1329.5 LB	4617.7 LB
	+/- 87 PSF	87.6"	4451.4 LB	1318.5 LB	4642.6 LB	92.3"	4687.1 LB	1388.3 LB	4888.4 LB	99.2"	5036.8 LB	1491.9 LB	5253.1 LB	100.3"	5095.9 LB	1509.4 LB	5314.7 LB
	+/- 102 PSF	80.4"	4862.4 LB	1426.3 LB	5067.3 LB	85.7"	5186.3 LB	1521.3 LB	5404.9 LB	90.9"	5501.9 LB	1613.9 LB	5733.8 LB	94.6"	5725.7 LB	1679.5 LB	5966.9 LB
120"	+/- 40 PSF	113.7"	3486.0 LB	947.4 LB	3612.4 LB	109.2"	3348.0 LB	909.9 LB	3469.4 LB	128.7"	3944.9 LB	1072.1 LB	4088.0 LB	118.7"	3640.0 LB	989.2 LB	3772.0 LB
	+/- 52 PSF	98.5"	4037.6 LB	1076.6 LB	4178.6 LB	99.1"	4063.3 LB	1083.5 LB	4205.2 LB	111.5"	4569.2 LB	1218.4 LB	4728.9 LB	107.8"	4417.6 LB	1178.0 LB	4572.0 LB
	+/- 65 PSF	88.1"	4521.1 LB	1192.3 LB	4675.6 LB	92.0"	4718.7 LB	1244.4 LB	4880.0 LB	99.7"	5116.5 LB	1349.3 LB	5291.4 LB	100.0"	5130.2 LB	1352.9 LB	5305.6 LB
	+/- 77 PSF	80.5"	4956.5 LB	1298.0 LB	5123.6 LB	86.2"	5310.8 LB	1390.8 LB	5489.9 LB	91.1"	5609.3 LB	1469.0 LB	5798.5 LB	94.1"	5794.6 LB	1517.5 LB	5990.0 LB
	+/- 90 PSF	74.5"	5355.4 LB	1396.0 LB	5534.4 LB	79.9"	5739.4 LB	1496.1 LB	5931.2 LB	84.4"	6060.9 LB	1579.9 LB	6263.4 LB	89.4"	6421.3 LB	1673.8 LB	6635.9 LB
144"	+/- 40 PSF	98.2"	4124.5 LB	982.3 LB	4239.9 LB	98.3"	4128.4 LB	983.2 LB	4243.9 LB	111.2"	4668.3 LB	1111.8 LB	4798.9 LB	106.9"	4488.5 LB	1069.0 LB	4614.0 LB
	+/- 50 PSF	87.6"	4631.9 LB	1094.7 LB	4759.5 LB	91.0"	4815.2 LB	1138.0 LB	4947.9 LB	99.1"	5242.7 LB	1239.1 LB	5387.1 LB	99.0"	5235.2 LB	1237.3 LB	5379.4 LB
	+/- 60 PSF	79.8"	5087.9 LB	1196.8 LB	5226.8 LB	85.5"	5454.8 LB	1283.1 LB	5603.7 LB	90.3"	5758.9 LB	1354.6 LB	5916.1 LB	93.0"	5930.5 LB	1395.0 LB	6092.4 LB
	+/- 70 PSF	73.8"	5505.3 LB	1291.0 LB	5654.7 LB	79.4"	5923.6 LB	1389.1 LB	6084.3 LB	83.5"	6231.4 LB	1461.3 LB	6400.4 LB	88.3"	6585.8 LB	1544.4 LB	6764.5 LB
	+/- 80 PSF	68.9"	5892.3 LB	1379.0 LB	6051.5 LB	74.2"	6340.4 LB	1483.8 LB	6511.7 LB	78.0"	6669.4 LB	1560.8 LB	6849.6 LB	83.5"	7133.5 LB	1669.4 LB	7326.2 LB
160"	+/- 35 PSF	96.9"	4224.6 LB	941.9 LB	4328.3 LB	97.1"	4233.8 LB	944.0 LB	4337.7 LB	109.7"	4782.0 LB	1066.2 LB	4899.5 LB	105.6"	4603.0 LB	1026.3 LB	4716.0 LB
	+/- 43 PSF	86.8"	4718.3 LB	1045.2 LB	4832.7 LB	90.2"	4902.9 LB	1086.0 LB	5021.7 LB	98.3"	5341.0 LB	1183.1 LB	5470.4 LB	98.1"	5330.5 LB	1180.8 LB	5459.7 LB
	+/- 52 PSF	79.4"	5165.1 LB	1139.1 LB	5289.2 LB	85.0"	5529.0 LB	1219.4 LB	5661.9 LB	89.8"	5846.7 LB	1289.4 LB	5987.2 LB	92.4"	6011.2 LB	1325.7 LB	6155.7 LB
	+/- 60 PSF	73.6"	5576.1 LB	1225.9 LB	5709.3 LB	79.3"	6013.6 LB	1322.1 LB	6157.2 LB	83.3"	6312.0 LB	1387.7 LB	6462.8 LB	87.8"	6655.3 LB	1463.1 LB	6814.3 LB
	+/- 68 PSF	68.9"	5958.9 LB	1306.9 LB	6100.5 LB	74.3"	6426.9 LB	1409.6 LB	6579.7 LB	77.9"	6745.3 LB	1479.4 LB	6905.7 LB	83.5"	7230.0 LB	1585.7 LB	7401.9 LB
192"	+/- 30 PSF	91.3"	4550.4 LB	913.1 LB	4641.1 LB	92.9"	4627.9 LB	928.7 LB	4720.1 LB	103.4"	5151.5 LB	1033.7 LB	5254.2 LB	101.0"	5031.5 LB	1009.7 LB	5131.8 LB
	+/- 34 PSF	86.0"	4832.7 LB	967.5 LB	4928.6 LB	89.2"	5013.6 LB	1003.8 LB	5113.1 LB	97.4"	5471.1 LB	1095.4 LB	5579.7 LB	97.0"	5450.8 LB	1091.3 LB	5559.0 LB
	+/- 38 PSF	81.5"	5099.4 LB	1019.1 LB	5200.3 LB	86.1"	5385.0 LB	1076.1 LB	5491.5 LB	92.3"	5773.1 LB	1153.7 LB	5887.2 LB	93.6"	5854.6 LB	1170.0 LB	5970.4 LB
	+/- 41 PSF	77.7"	5352.9 LB	1068.1 LB	5458.4 LB	83.4"	5744.0 LB	1146.2 LB	5857.3 LB	87.9"	6060.0 LB	1209.2 LB	6179.5 LB	90.6"	6245.0 LB	1246.1 LB	6368.1 LB
	+/- 45 PSF	74.3"	5594.9 LB	1115.0 LB	5704.9 LB	80.4"	6054.0 LB	1206.5 LB	6173.0 LB	84.2"	6334.0 LB	1262.3 LB	6458.6 LB	88.0"	6623.4 LB	1320.0 LB	6753.7 LB

MULLION SCHEDULE NOTES:
SEE SHEET 24 FOR MULLION SCHEDULE NOTES.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
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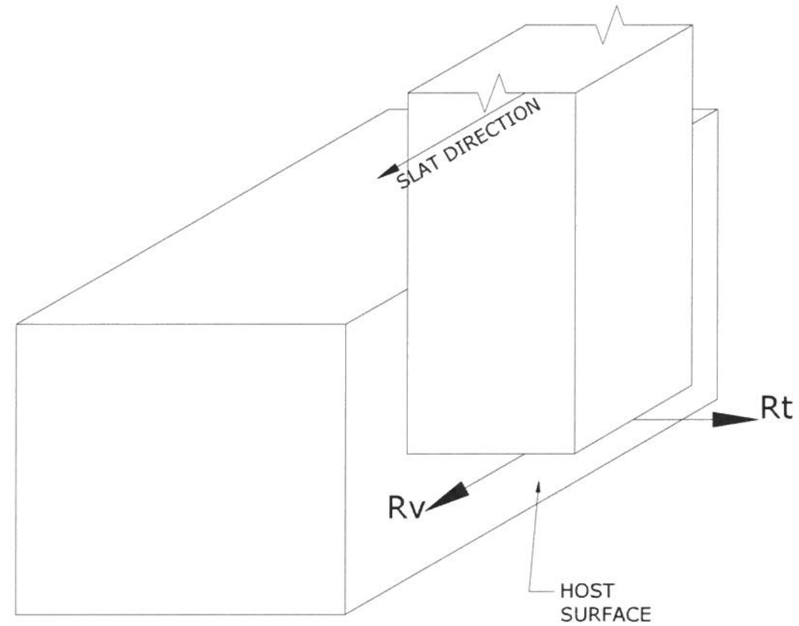
40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER
PRODUCT APPROVAL #FL32029.1

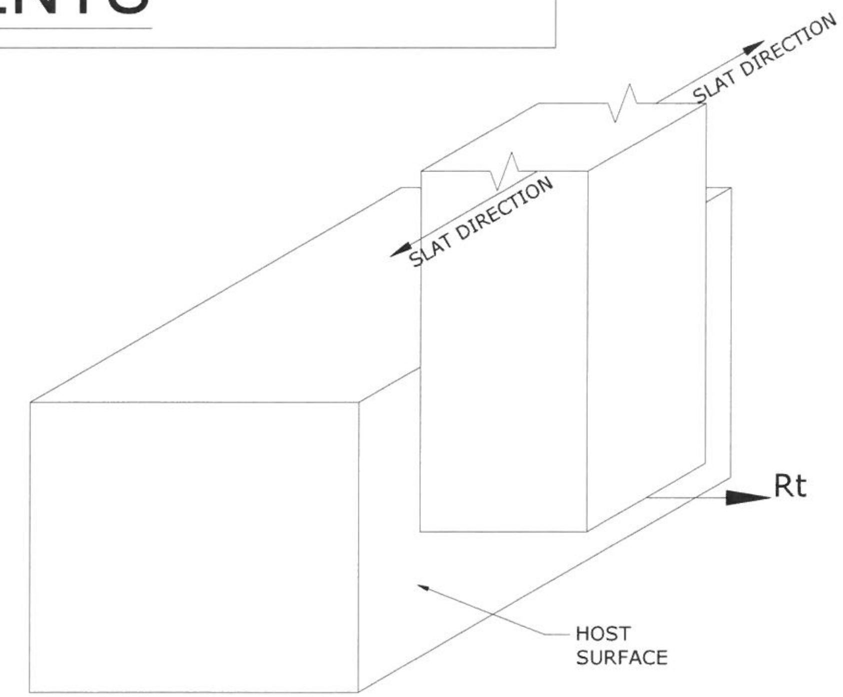
REMARKS	DRWN	CHKD	DATE
INIT ISSUE	RWN	RWN	1/8/2020

19-7536
SCALE: NTS UNLESS NOTED

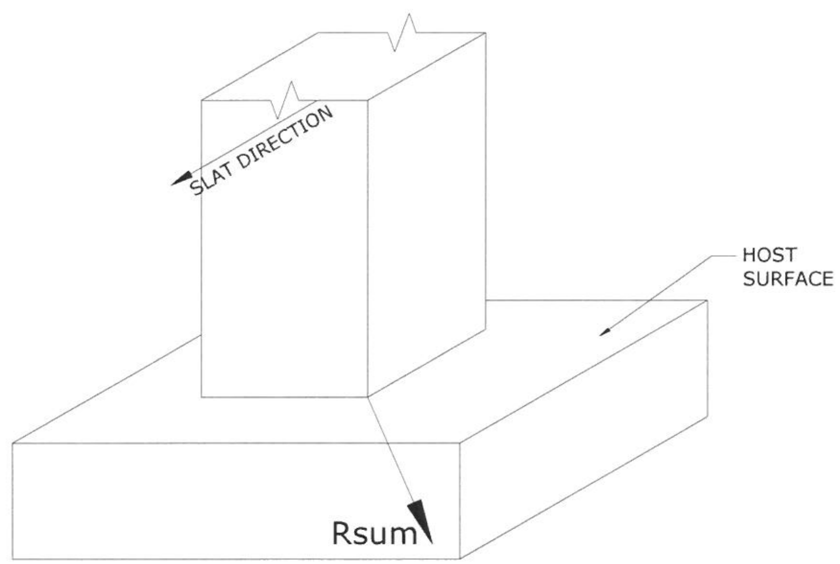
END RETENTION (ER) MULLION END ATTACHMENTS



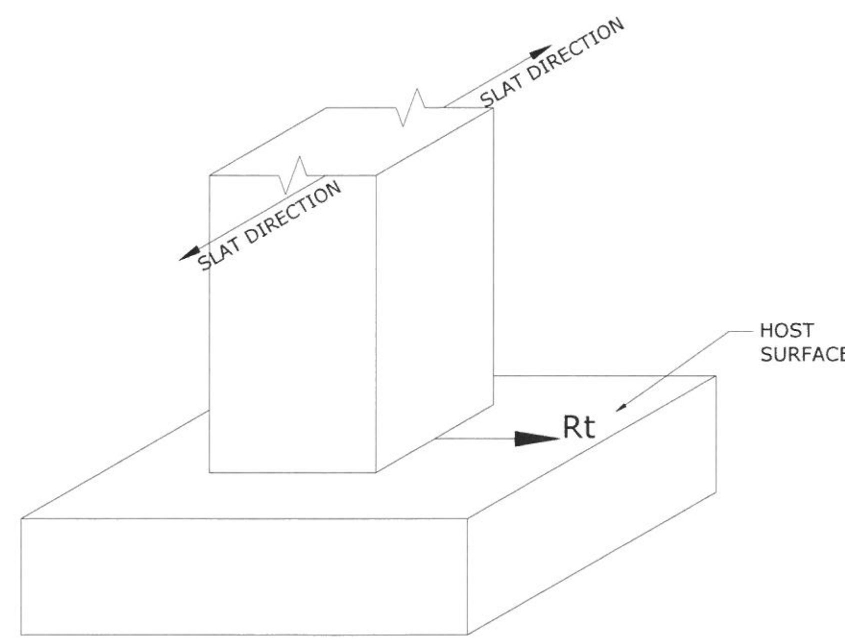
1/27 END MULLION "FACE MOUNT" DIAGRAM
N.T.S. ISOMETRIC



2/27 INTERIOR MULLION "FACE MOUNT" DIAGRAM
N.T.S. ISOMETRIC



3/27 END MULLION "TRAPPED MOUNT" DIAGRAM
N.T.S. ISOMETRIC



4/27 INTERIOR MULLION "TRAPPED MOUNT" DIAGRAM
N.T.S. ISOMETRIC

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
04/10/2020
ENGINEERING EXPRESS
CORPORATE OFFICE
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

AMERICAN SHUTTER SYSTEMS ASSOCIATION, INC.
4268 West Roads Dr.
West Palm Beach, FL 33407
(561) 841-5480

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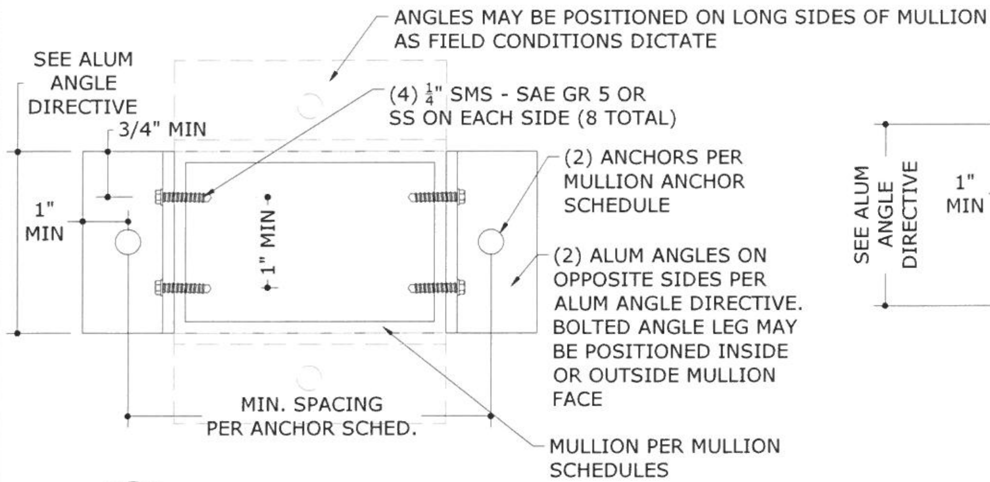
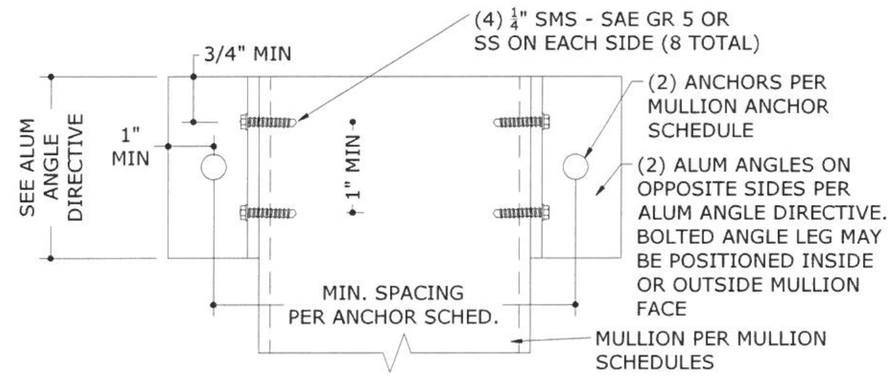
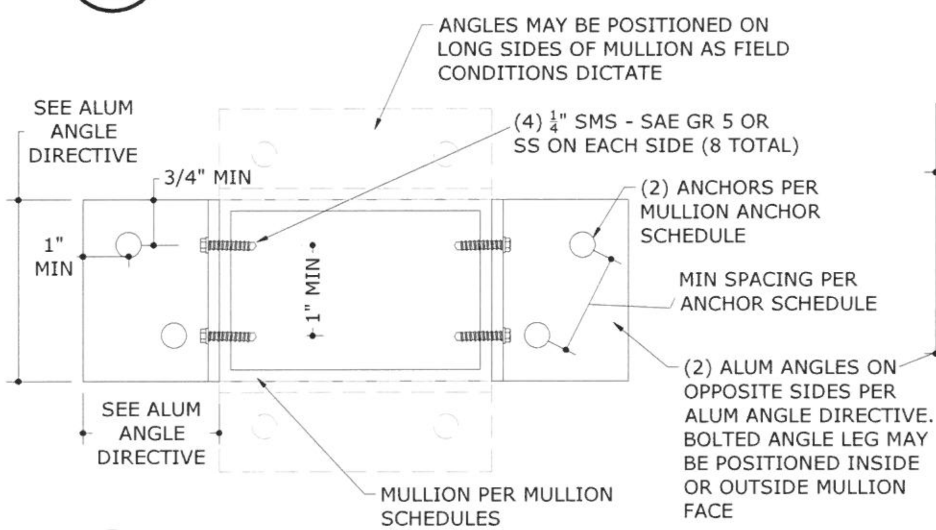


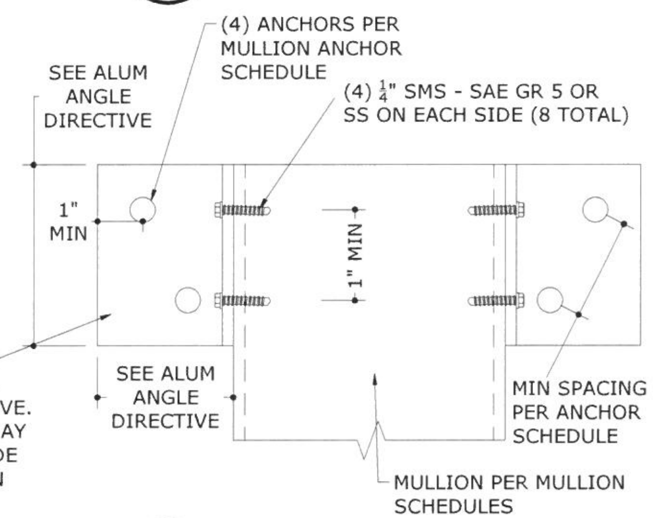
1A / 28 TRAPPED MOUNT OPTION 1
N.T.S.



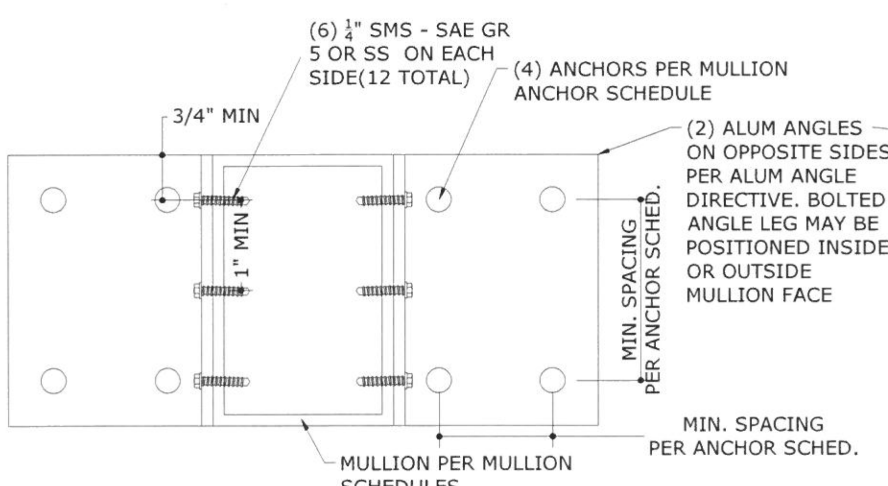
1B / 28 FACE MOUNT OPTION 1
N.T.S.



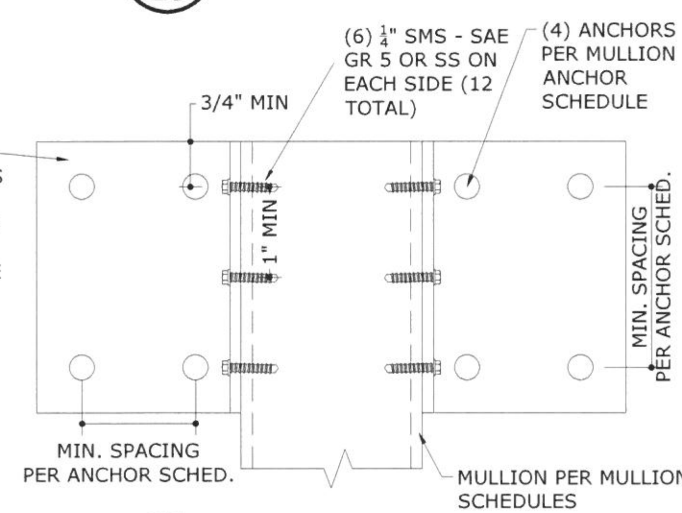
2A / 28 TRAPPED MOUNT OPTION 2
N.T.S.



2B / 28 FACE MOUNT OPTION 2
N.T.S.



3A / 28 TRAPPED MOUNT OPTION 3
N.T.S.



3B / 28 FACE MOUNT OPTION 3
N.T.S.

MULLION ANCHOR SCHEDULE

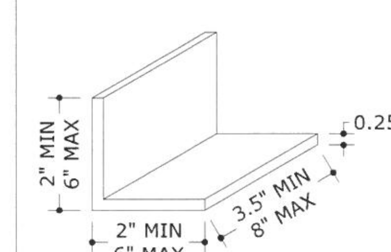
ANCHOR TYPE	MINIMUM SPACING	MINIMUM EDGE DISTANCE	CONNECTION DETAIL	CONNECTION CAPACITY	
1/2" DEWALT SCREW BOLTS (OR EQUIV.) W/ 2-1/2" EMBED TO 3KSI MIN. CONCRETE	6"	4.5"	1A/13, 1B/13	Tcap	3660 LB
				Vcap	2249 LB
	4.0"	4.5"	2A/13, 2B/13	Tcap	6442 LB
				Vcap	4106 LB
	4.0"	4.5"	3A/13, 3B/13	Tcap	12883 LB
				Vcap	8213 LB
3/8" DEWALT SCREW BOLTS (OR EQUIV.) W/ 2" EMBED TO 3KSI MIN. CONCRETE	6.0"	2.5"	1A/13, 1B/13	Tcap	1905 LB
				Vcap	1007 LB
	3.0"	2.5"	2A/13, 2B/13	Tcap	3801 LB
				Vcap	1700 LB
	3.0"	2.5"	3A/13, 3B/13	Tcap	7622 LB
				Vcap	3399 LB
3/8" DEWALT SCREW BOLTS (OR EQUIV.) W/ 3-1/4" EMBED TO GROUT-FILLED CONCRETE BLOCK*	6.0"	4.5"	1A/13, 1B/13	Tcap	1953 LB
				Vcap	1233 LB
	3.0"	4.5"	2A/13, 2B/13	Tcap	3906 LB
				Vcap	2467 LB
	3.0"	4.5"	3A/13, 3B/13	Tcap	7812 LB
				Vcap	4934 LB
5/16" LAG SCREW W/ 2" MIN. THREAD PENETRATION TO G=0.42 MIN WOOD	2.0"	1.25"	1A/13, 1B/13	Tcap	1310 LB
				Vcap	302 LB
	2.0"	1.25"	2A/13, 2B/13	Tcap	2620 LB
				Vcap	604 LB
	2.0"	1.25"	3A/13, 3B/13	Tcap	3930 LB
				Vcap	906 LB
5/16" DEWALT ULTRACON (OR EQUIV.) W/ 2" EMBED TO 3.5KSI MIN CONCRETE	5.0"	3.125"	1A/13, 1B/13	Tcap	1670 LB
				Vcap	1700 LB
	3.75"	3.125"	2A/13, 2B/13	Tcap	1820 LB
				Vcap	2840 LB
	3.75"	3.125"	3A/13, 3B/13	Tcap	3640 LB
				Vcap	5680 LB
5/16" DEWALT ULTRACON (OR EQUIV.) W/ 2-1/4" EMBED TO GROUT-FILLED CONCRETE BLOCK	5.0"	2.5"	1A/13, 1B/13	Tcap	580 LB
				Vcap	750 LB
	5.0"	2.5"	2A/13, 2B/13	Tcap	1160 LB
				Vcap	1500 LB
	5.0"	2.5"	3A/13, 3B/13	Tcap	2320 LB
				Vcap	3000 LB

MULLION ANCHOR SCHEDULE NOTES:

1. FOR "TRAPPED MOUNT" CONDITIONS WITH END MULLIONS, 'Rsum' VALUES IN MULLION SCHEDULE SHALL NOT EXCEED MAX 'Vcap' VALUES NOTED IN THIS SCHEDULE.
2. FOR "FACE MOUNT" CONDITIONS WITH END MULLIONS, **Rv/Vcap + Rt/Tcap SHALL BE LESS THAN OR EQUAL TO 1.0**, WHERE 'Rv' AND 'Rt' ARE PER MULLION SCHEDULES, AND 'Tcap' AND 'Vcap' ARE PER THIS SCHEDULE.
3. FOR "TRAPPED MOUNT" CONDITIONS WITH INTERMEDIATE MULLIONS, 'Rt' VALUES IN MULLION SCHEDULES SHALL NOT EXCEED 'Vcap' VALUES NOTED IN THIS SCHEDULE.
4. FOR "FACE MOUNT" CONDITIONS WITH INTERMEDIATE MULLIONS, 'Rt' VALUES IN MULLION SCHEDULES SHALL NOT EXCEED 'Tcap' VALUES NOTED IN THIS SCHEDULE
5. * ANCHORS SHALL PENETRATE THROUGH FACE SHELL INTO GROUTED CELL.
6. ALTERNATE ANCHORS AND OR END CONNECTION CONFIGURATIONS MAY BE DESIGNED/CERTIFIED ON A SITE SPECIFIC BASIS BASED ON THE END LOADINGS LISTED IN THE MULLION SCHEDULES.
7. 1/2" UNC THRU BOLTS MAY BE USED IN LEIU OF 1/4" SMS PER THE FOLLOWING DIRECTIVE
   7.1. (4) SMS PER SIDE = (2) 1/2" UNC THRU BOLTS / (6) SMS PER SIDE = (3) 1/2" UNC THRU BOLTS

ALUM ANGLE DIRECTIVE

N.T.S. 6061-T6 OR 6005-T5 ALUM



ANGLE DIMENSION NOTE:
MINIMUM REQUIRED ANGLE LEG SIZES AND LENGTH SHALL BE DETERMINED BASED ON THE ANCHOR REQUIREMENTS IN THE MULLION ANCHOR SCHEDULE AND THE MULLION ATTACHMENT DETAILS HEREIN

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885
FRANK L. BENNARDO LICENSE No PE0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER
04/10/2020

ENGINEERING EXPRESS®
CORPORATE OFFICE
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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