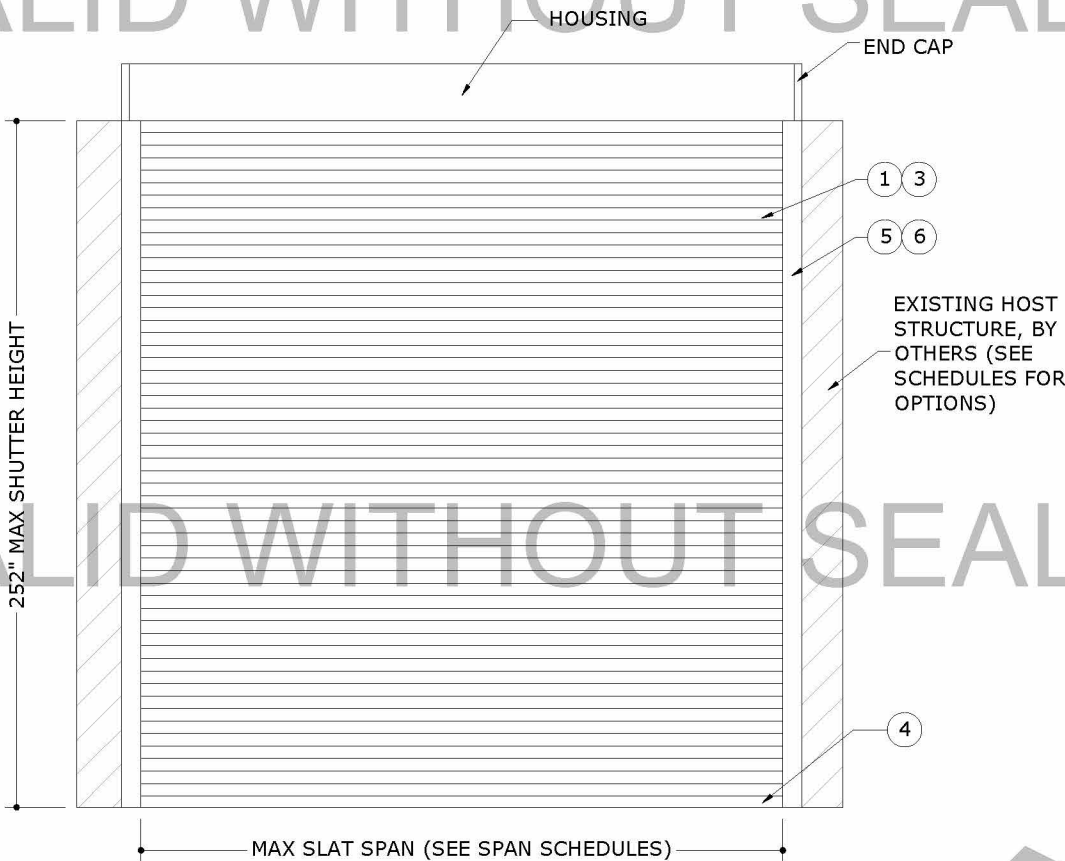


40mm SLAT BERTHA ROLL-UP HURRICANE SHUTTER

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



1 TYPICAL END RETENTION ROLL-UP SHUTTER

1 N.T.S.

EXTERIOR ELEV

SEE REMAINING SHEETS FOR COMPLETE ELEVATION OPTIONS

GENERAL NOTES

- THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE 2012, 2015 & 2018 INTERNATIONAL BUILDING CODE, AND THE INTERNATIONAL RESIDENTIAL CODE (IRC), AS WELL AS CURRENT VERSIONS OF THE MN, NC, NJ, NY, OH, SC & VA BUILDING CODES AS APPLICABLE. CODE ENFORCED COMPLIES WITH STATE OF SEAL AND IF MULTIPLE ARE LISTED THEN THE MOST STRINGENT APPLIES. FOR USE INSIDE AND OUTSIDE OUTSIDE THE HIGH VELOCITY HURRICANE ZONE, PER ASTM E330, E1886, AND E1996 AND TAS 201, 202 & 203 STANDARDS.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM. WIND LOAD DURATION FACTOR $C_d=1.6$ HAS BEEN USED FOR WOOD ANCHOR DESIGN.
- 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.
- DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR.
- 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.
- ROLL-UP MECHANISM AND HOOD ASSEMBLY ARE NOT PART OF THIS APPROVAL.
- 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.
- THE STRUCTURAL ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS BY THIS SYSTEM SHALL BE VERIFIED BY OTHERS.

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"

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.

- ALL EXTRUSIONS SHALL BE MINIMUM 6063-T6 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE.
- 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 OF THE FBC 2020 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
APPROVAL NUMBER
- 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.
- ALL STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.

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"

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NON-END RETENTION (NER) OPTION

FRANK BENNARDO, PE
PE# APPEARS IN SEAL

ENGINEERING
EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
(954) 354-0660 | (866) 396-9999
TEAM@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM

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

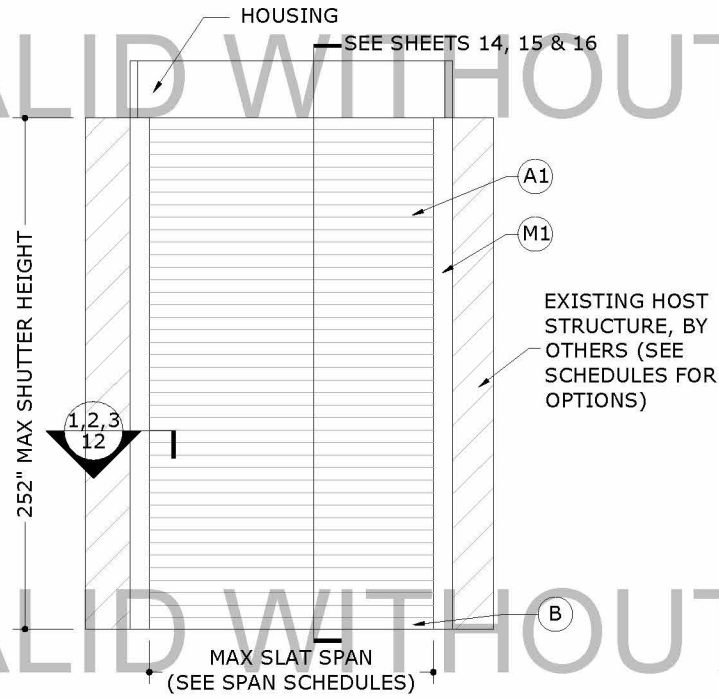
40mm ER & NON-ER SLAT BERTHA ROLL-UP HURRICANE SHUTTER

INTERNATIONAL BUILDING CODE

REMARKS	DATE
DRWN CHKD RWVN RWVN CCB RWVN	1/8/2020 9/02/2020
INIT ISSUE 2020-FBC	

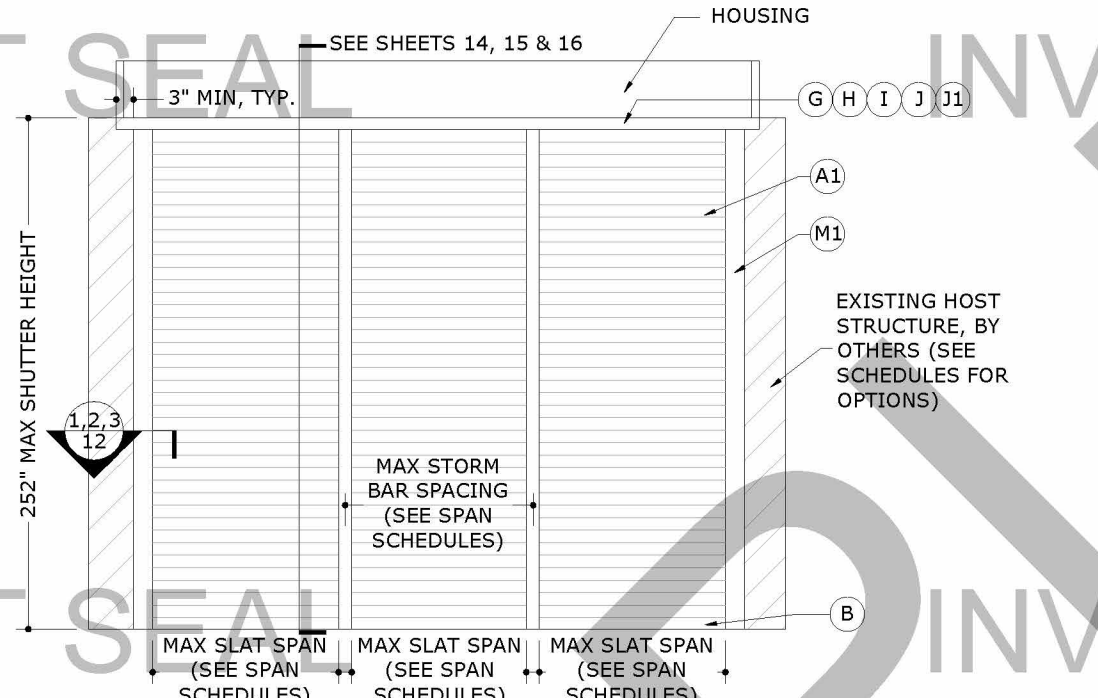
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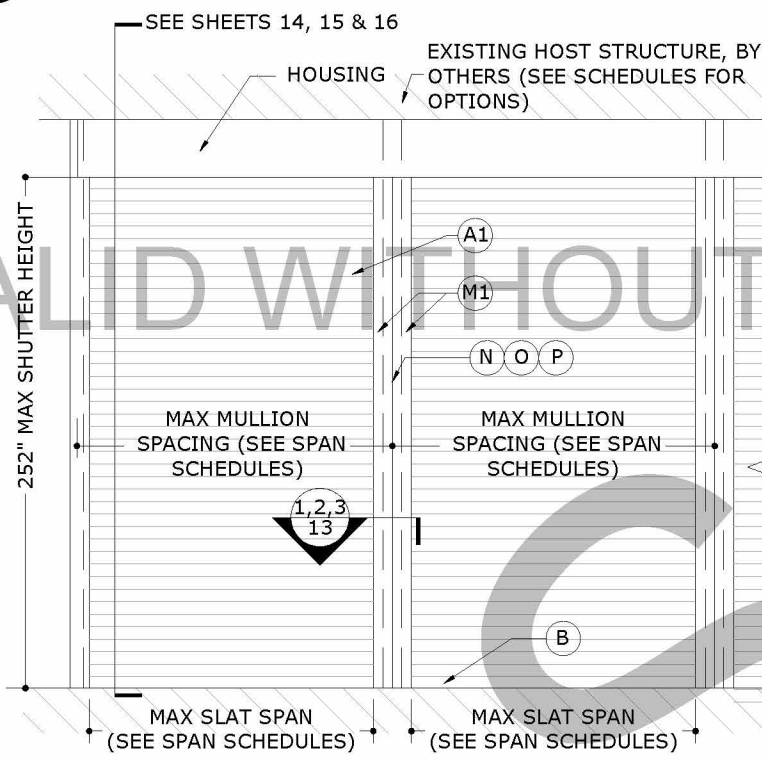
TYPICAL NON-END RETENTION
SINGLE SPAN SHUTTER
(WITHOUT STORM BARS)

1
2 N.T.S. EXTERIOR ELEV



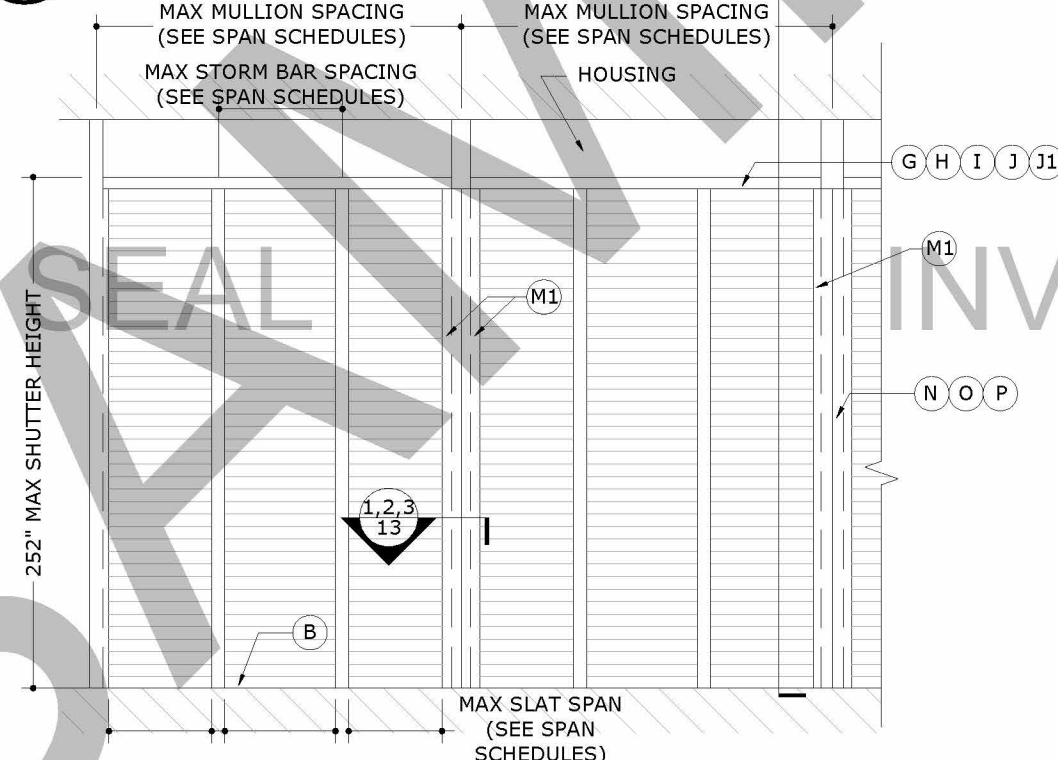
TYPICAL NON-END RETENTION
SINGLE SPAN SHUTTER
(WITH STORM BARS)

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

DOUBLE WALL ER SLATS 1

NON-END RETENTION
SLATS A1

NOTE: PART 1 MAY BE USED IN LIEU OF PART A1 FOR ALL NON-ER SHUTTERS

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

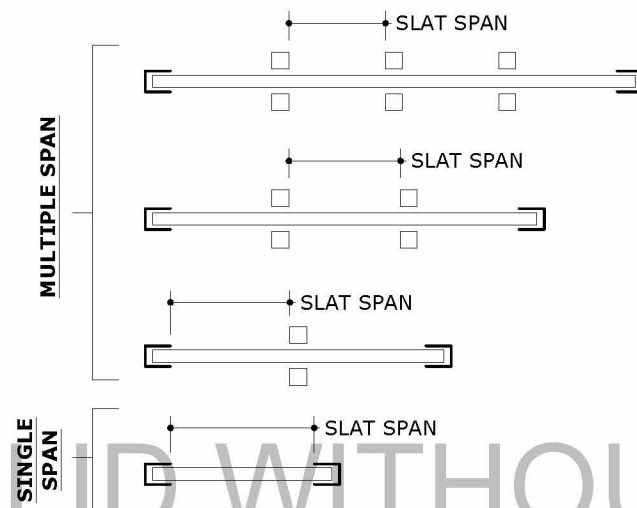
SPAN SCHEDULE NOTES (NON-END RETENTION):

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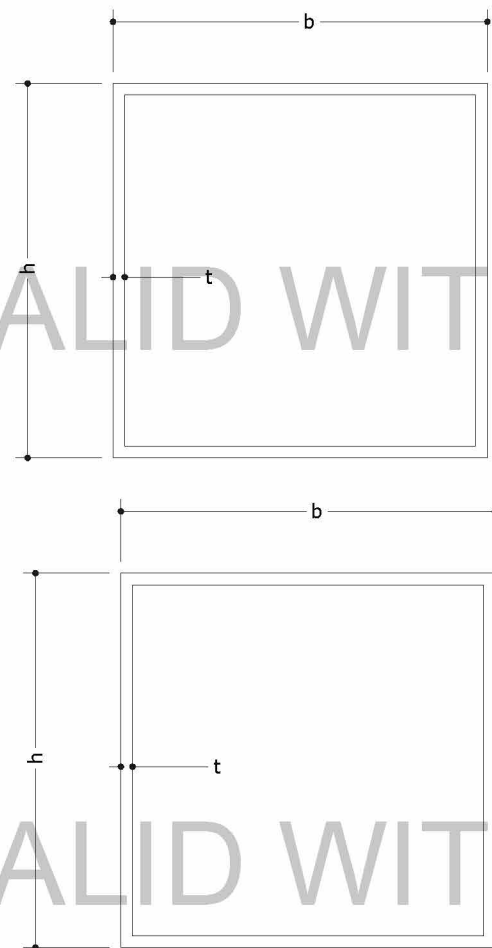
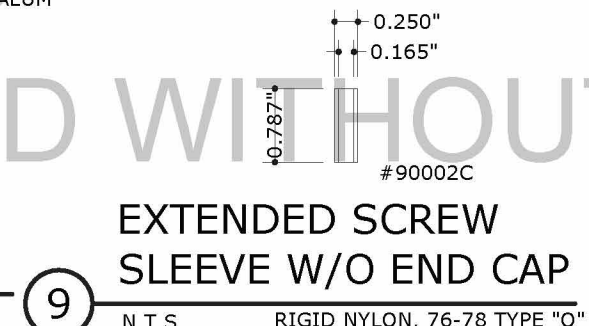
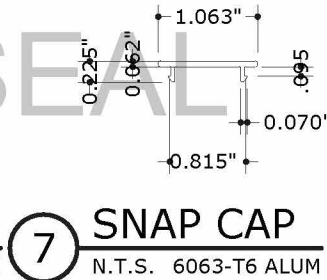
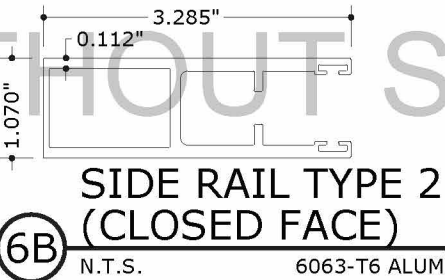
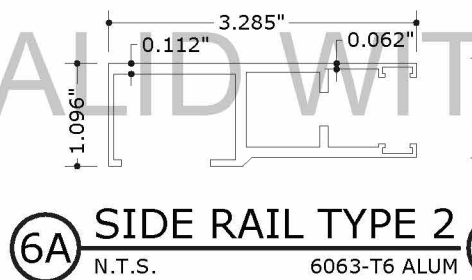
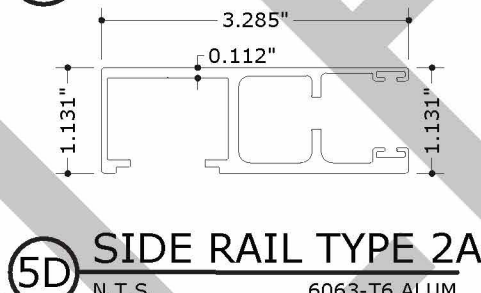
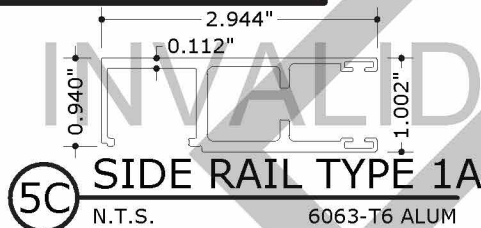
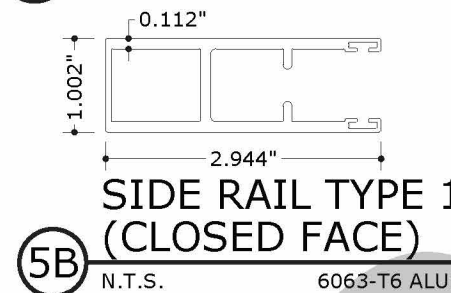
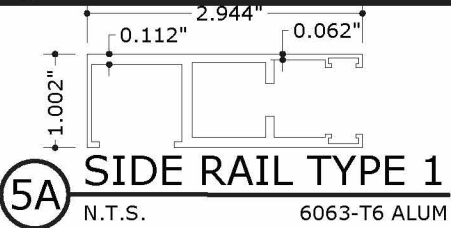
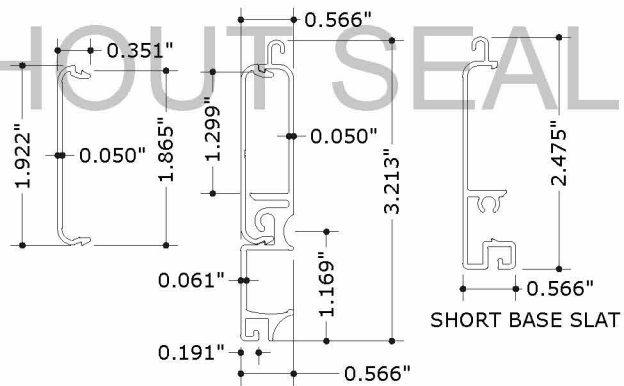
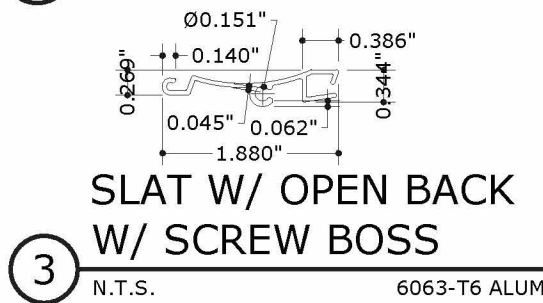
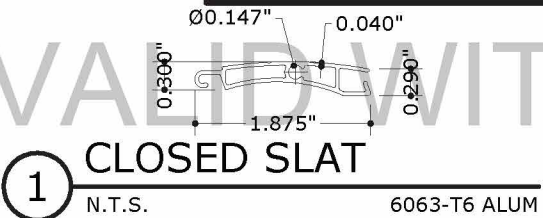
GLASS SEPARATION NOTES (NON-END RETENTION):

- 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.
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SLAT SPAN DIAGRAMS



END RETENTION (ER) COMPONENTS

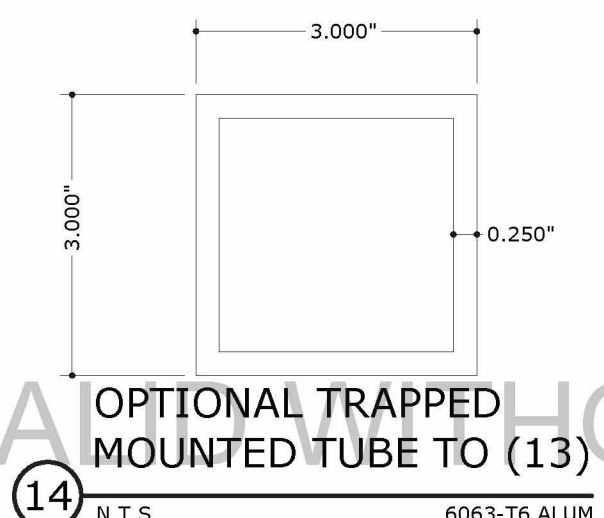
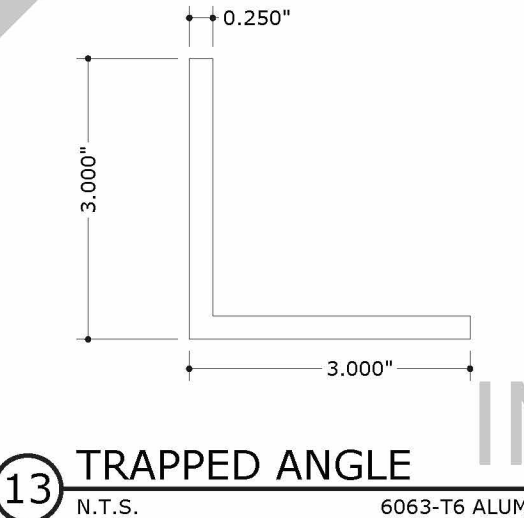


BUILD-OUT MOUNTED TUBES

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"

MULLIONS

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



FRANK BENNARDO, PE
PE# APPEARS IN SEAL

ENGINEERING EXPRESS

CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
(954) 354-0660 | (866) 396-9999
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
INTERNATIONAL BUILDING CODE

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2020-FBC	CCB	RWN	9/02/2020

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