



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208

Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599

www.miamidade.gov/economy

NOTICE OF ACCEPTANCE (NOA)

Florida Shutters, Inc.
1055 Commerce Avenue
Vero Beach, FL 32960

SCOPE:

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

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: "Impact" Aluminum Hinged Colonial Shutter

APPROVAL DOCUMENT: Drawing No. 23-61299, titled "Impact Aluminum Colonial Shutter", sheets 1 through 8 of 8, prepared by Engineering Express, last revision dated November 08, 2023, signed and sealed by Frank L. Bennardo, P.E., on Dec. 07, 2023, bearing the Miami-Dade County Product Control Renewal stamp with the Notice of Acceptance number and the expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, the following statement: "Miami-Dade County Product Control Approved", and NOA number, per TAS-201, TAS-202, and TAS-203, unless otherwise noted herein.

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

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

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

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA **renews NOA #23-1215.06** and consists of this page 1, evidence submitted pages E-1, E-2, E-3, E-4, E-5 & E-6 as well as approval document mentioned above.

The submitted documentation was reviewed by **Helmy A. Makar, P.E., M.S.**



Helmy A. Makar
02/06/25

NOA No. 24-1220.01
Expiration Date: 02/08/2030
Approval Date: 02/06/2025

Florida Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #00-0411.09

A. DRAWINGS

1. *Drawing No. 1000A, titled "Impact Colonial Shutter", prepared by W. W. Schaefer Engineering & Consulting, P.A., dated January 10, 2001, sheets 1 through 7 of 7, signed and sealed by Warren W. Schaefer, P.E.*

B. TESTS

1. *Test Report on: 1) Large Missile Impact Test, per PA-201
2) Cyclic Wind Pressure Test, per PA-203 and
3) Uniform Static Air Pressure test per PA-202, of colonial shutters, prepared by Hurricane Test Laboratory Inc., Report No. 0205-1201-99, dated March 23, 2000, signed and sealed by Vinu J. Abraham, P.E.*

C. CALCULATIONS

1. *Anchor analysis and calculations dated 12/24/99, Pages 1 to 15, prepared by W. W. Schaefer Engineering & Consulting, P.A., signed and sealed by Warren W. Schaefer, P.E.*

D. MATERIAL CERTIFICATION

1. *Certified Tensile Test Report No. 0AM-142, prepared by QC Metallurgical Inc., dated 03/02/2000, per ASTM E8-93, signed and sealed by Frank Grate, P.E.*

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #04-0130.02

A. DRAWINGS

1. *Drawing No. 1000A, titled "Impact Colonial Shutters", sheets 1 through 7 of 7, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated January 10, 2001, signed and sealed by Warren W. Schaefer, P.E. on March 18, 2004.*

B. TESTS

1. *None.*

C. CALCULATIONS


1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATIONS

1. *None.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
Expiration Date: 02/08/2030
Approval Date: 02/06/2025

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

3. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #09-0121.12

A. DRAWINGS

1. *Drawing No. 08-FSH-0001, titled " Impact Aluminum Colonial Shutter ", sheets 1 through 7 of 7, prepared by Engineering Express, dated November 21, 2008, signed and sealed by Frank L. Bennardo, P.E., on March 10, 2009.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *Anchor analysis and calculations dated 02/20/2009, Pages 1 through 21 of 21, prepared by Engineering Express, signed and sealed by Frank L. Bennardo, P.E., on 02/20/2009.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATIONS

1. *None.*

4. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 10-0209.14

A. DRAWINGS

1. *None.*

B. TESTS

1. *Test Report on: 1) Large Missile Impact Test, per PA-201
2) Cyclic Wind Pressure Test, per PA-203 and
3) Uniform Static Air Pressure test per PA-202, of colonial shutters,
prepared by Hurricane Test Laboratory Inc., Report No. 0218-0203-09, dated July 01, 2009, signed and sealed by Vinu J. Abraham, P.E.*

C. CALCULATIONS


1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATIONS

1. *None.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
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Florida Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

5. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 11-1128.06

A. DRAWINGS

1. *Drawing No. 08-FSH-0001, titled " Impact Aluminum Colonial Shutter ", sheets 1 through 8 of 8, prepared by Engineering Express, dated October 10, 2011, signed and sealed by Frank L. Bennardo, P.E., on October 11, 2011.*

B. TESTS

1. *1. Test Report on 1) Large Missile Impact Test, per PA-201
2) Cyclic Wind Pressure Test, per PA-203 and
3) Uniform Static Air Pressure test per PA-202, of colonial shutters,
prepared by Hurricane Test Laboratory Inc., Report No. 0218-0203-09, dated July 01,
2009, signed and sealed by Vinu J. Abraham, P.E.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Permitting, Environment, and Regulatory Affairs (PERA).*

E. MATERIAL CERTIFICATIONS

1. *None.*

6. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 14-1120.10

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS


1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
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Florida Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

7. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 15-0316.10

A. DRAWINGS

1. *Drawing No. 14-1960, titled " Impact Aluminum Colonial Shutter ", sheets 1 through 8 of 8, prepared by Engineering Express, last revision dated October 28, 2014, signed and sealed by Frank L. Bennardo, P.E., on October 28, 2014.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *Florida Building Code, 2014 Edition, compliance letter, dated 03/06/2015, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E.*

8. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 18-0110.01

A. DRAWINGS

1. *Drawing No. 14-1960, titled " Impact Aluminum Colonial Shutter ", sheets 1 through 8 of 8, prepared by Engineering Express, last revision dated Dec. 28, 2017, signed and sealed by Frank L. Bennardo, P.E., on December 29, 2017.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *Anchor analysis and calculations dated 01/03/18, Pages 1 through 19 of 19, prepared by Engineering Express, signed and sealed by Frank L. Bennardo, P.E.*

D. QUALITY ASSURANCE

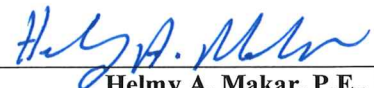
1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *FBC, 2017 Edition, compliance letter, dated 12/29/17, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
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Florida Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

9. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 19-1218.01

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *FBC, 2017 Edition, compliance letter, dated 12/06/19, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E.*

10. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 20-1102.06

A. DRAWINGS

1. *Drawing No. 20-28463, titled " Impact Aluminum Colonial Shutter ", sheets 1 through 8 of 8, prepared by Engineering Express, last revision dated October 19, 2020, signed and sealed by Frank L. Bennardo, P.E., on October 19, 2020.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE


1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *FBC, 2020 Edition, compliance letter, dated 10/19/20, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E., on 10/20/20.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
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Approval Date: 02/06/2025

Florida Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

11. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 23-1215.06

A. DRAWINGS

1. *Drawing No. 23-61299, titled "Impact Aluminum Colonial Shutter", sheets 1 through 8 of 8, prepared by Engineering Express, last revision dated November 08, 2023, signed and sealed by Frank L. Bennardo, P.E., on Dec. 07, 2023.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *FBC, 2023 Edition, compliance letter, dated 12/07/23, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E., on 12/07/23.*

12. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE

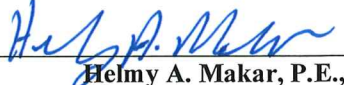
1. *By Miami-Dade County Department of Regulatory and Economic Resources.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. STATEMENTS

1. *FBC, 2023 Edition, compliance letter, dated 12/13/24, issued by Engineering Express, signed and sealed by Frank L. Bennardo, P.E., on 12/13/24.*



Helmy A. Makar, P.E., M.S.
Product Control Section Supervisor
NOA No. 24-1220.01
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Approval Date: 02/06/2025

FLORIDA SHUTTERS, INC.

IMPACT ALUMINUM COLONIAL SHUTTER LARGE MISSILE IMPACT RESISTANT (MISSILE LEVEL D)

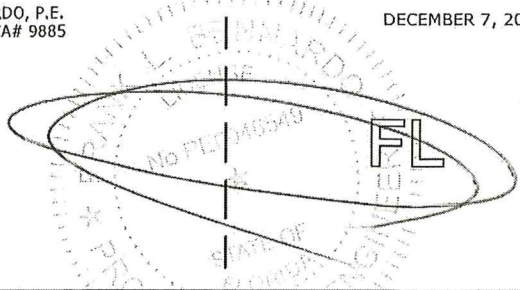
VALID FOR USE INSIDE AND OUTSIDE THE HVHZ (SEE LIMITATIONS HEREIN)

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

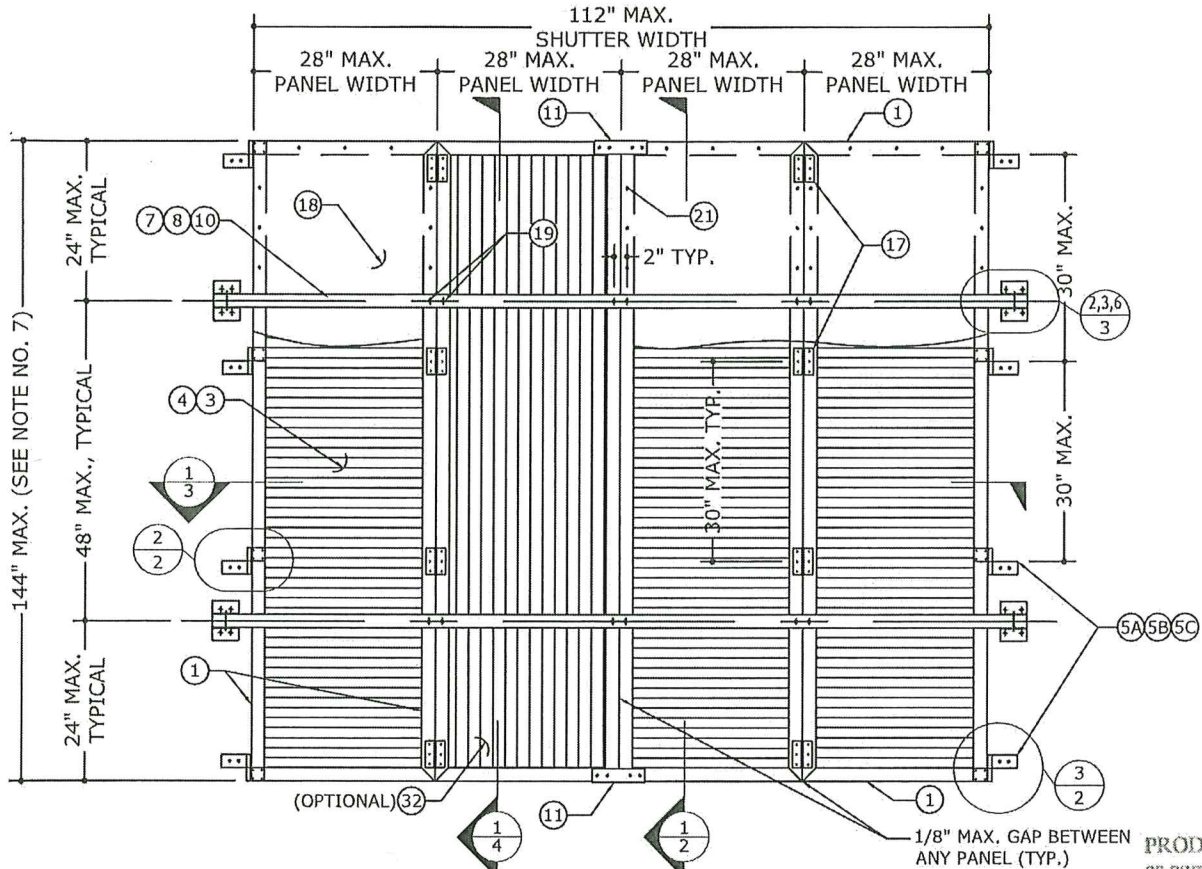
PRODUCT RENEWED
as complying with the Florida
Building Code
Acceptance No. 24-1220.01
Expiration Date 02/08/2030
By *Halley P. Miller*
Miami Design Product Control

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

DECEMBER 7, 2023



MAXIMUM ALLOWABLE DESIGN PRESSURES (ASD): ±80 PSF
REFERENCE DESIGN SCHEDULES HEREIN FOR ADDITIONAL LIMITATIONS TO ALLOWABLE DESIGN PRESSURES, AS DETERMINED BY SHUTTER SPAN, STORM BAR CONFIGURATIONS, AND ANCHORAGE.



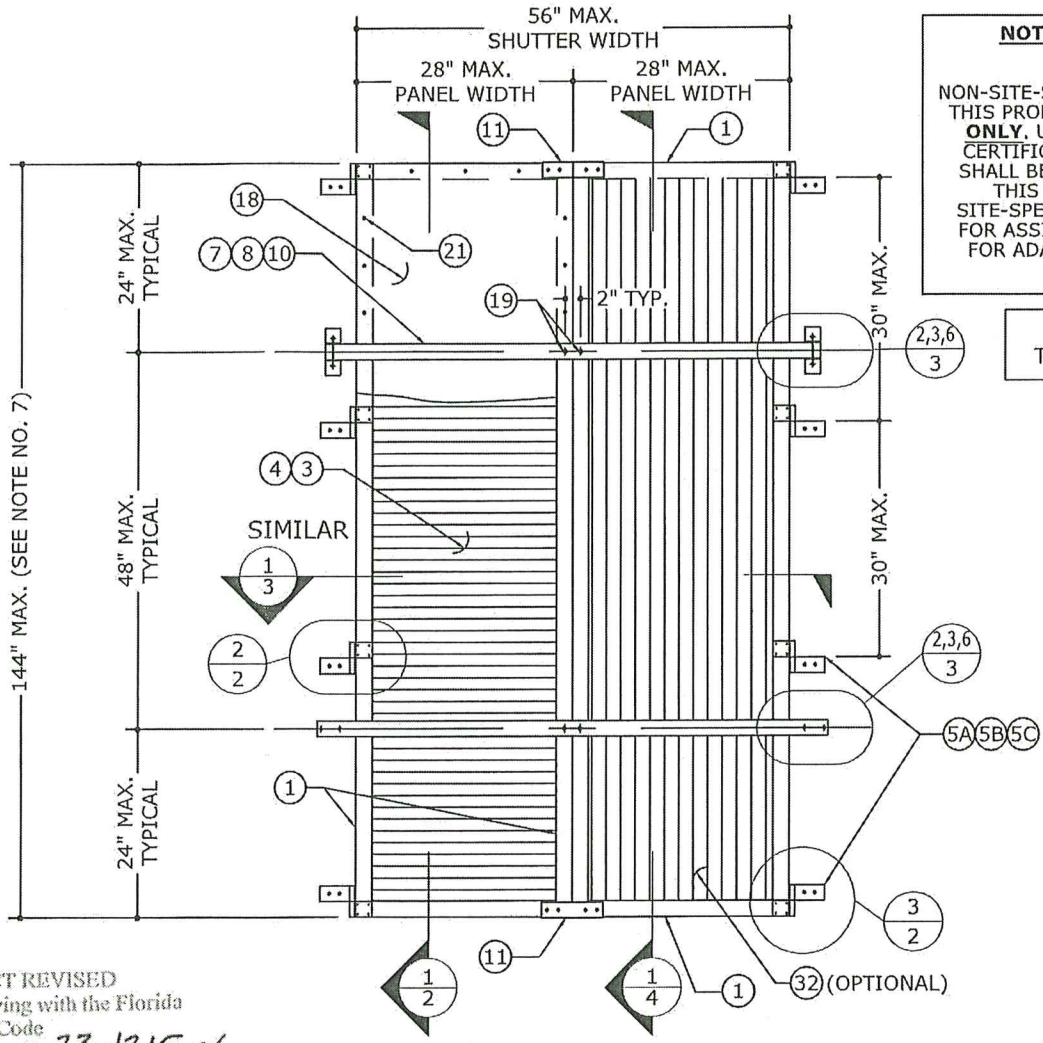
1 QUAD PANEL SHUTTER
1 N.T.S. EXTERIOR ELEV

GENERAL NOTES

- THE SYSTEM DESCRIBED HEREIN HAS BEEN DESIGNED AND TESTED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, EIGHTH EDITION (2023), FOR USE WITHIN AND OUTSIDE OF THE HIGH VELOCITY HURRICANE ZONE (HVHZ), PER TAS 2017/2027/203.
- POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE. WIND LOAD DURATION FACTOR $C_d = 1.6$ HAS BEEN USED FOR WOOD ANCHOR DESIGN. DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY A 1.5 SAFETY FACTOR FOR STATIC WIND LOADS. PRESSURE VALUES IN THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES UNLESS NOTED OTHERWISE.
- 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.
- PERMIT HOLDER SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO EXISTING STRUCTURE.
- ALL EXTRUSIONS SHALL BE 6063-T5 ALUMINUM ALLOY, UNLESS NOTED OTHERWISE.
- SHUTTER WIDTH SHALL BE RESTRICTED BY THE MAXIMUM DIMENSIONS SHOWN HEREIN. MAX SHUTTER HEIGHT MAY EXCEED 96" (UP TO 144" MAX) PROVIDED THAT THE MINIMUM STORM BAR SPACING INDICATED HEREIN IS NOT EXCEEDED AND THE OPTIONAL 'TONGUE AND GROOVE BLADE' IS NOT UTILIZED (PART #32).
- EACH SHUTTER ASSEMBLY SHALL BE PERMANENTLY LABELED ON THE BOTTOM, PLACED ON THE BACK OF THE SHUTTER WITH A MINIMUM OF THE FOLLOWING INFORMATION:

FLORIDA SHUTTERS, INC.
VERO BEACH, FLORIDA
TAS 201, 202, 203
MIAMI-DADE NOA NUMBER

- ALL BOLTS & WASHERS SHALL BE ZINC COATED STEEL, GALVANIZED STEEL, OR STAINLESS STEEL WITH A MINIMUM TENSILE YIELD STRENGTH OF 60 KSI. ALL 3/16"Ø OR 1/4"Ø POP RIVETS SHALL BE 5052 ALUMINUM ALLOY OR STRONGER. FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION 1.3.7.2 BY THE ALUMINUM ASSOCIATION INC., AND ANY APPLICABLE FEDERAL, STATE AND/OR LOCAL CODES.



2 DOUBLE PANEL SHUTTER
1 N.T.S. EXTERIOR ELEV

- REFER TO FASTENER MANUFACTURER'S PUBLISHED DATA SHEETS AND RECOMMENDATIONS FOR FASTENER INSTALLATION INSTRUCTIONS.
- ALL STEEL IN CONTACT WITH ALUMINUM SHALL BE PAINTED OR PLATED AS PRESCRIBED IN THE ABOVE-NOTED BUILDING CODE.
- THIS ENGINEERING IS FOR THE EXCLUSIVE USE OF ITS OWNER, FLORIDA SHUTTERS, INC. IF THIS HAS BEEN SUBMITTED BY ANOTHER COMPANY IT MUST HAVE A NOTARIZED LETTER OF AUTHORIZATION.
- ENGINEER SEAL AFFIXED HERETO VALIDATE STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
- ALTERATIONS, ADDITIONS, AND OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.

SYSTEM NOTES

- SINGLE & TRIPLE PANEL SHUTTERS ARE ALSO APPROVED CONFIGURATIONS. SINGLE PANEL SHUTTERS SHALL COMPLY WITH THE DOUBLE PANEL SHUTTER REQUIREMENTS & THE TRIPLE PANEL SHUTTERS SHALL COMPLY WITH THE QUAD PANEL SHUTTER REQUIREMENTS.
- THE NUMBER OF STORM BARS REQUIRED FOR USE WITH THIS SYSTEM VARIES, DEPENDING ON REQUIRED SIZES AND DESIGN PRESSURES. SEE ELEVATIONS AND DESIGN SCHEDULES HEREIN FOR MINIMUM STORM BAR REQUIREMENTS AND LIMITATIONS.

NOTE REGARDING USE OF THIS DOCUMENT & USE OUTSIDE FLORIDA:

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. THIS PRODUCT EVALUATION IS VALID FOR USE IN **FLORIDA ONLY**. USE OF THIS EVALUATION REQUIRES A REVIEW & CERTIFICATION BY A LOCAL DESIGN PROFESSIONAL WHO SHALL BE RESPONSIBLE FOR THE PROPER ADAPTATION OF THIS GENERAL PERFORMANCE EVALUATION TO ANY SITE-SPECIFIC PROJECT. CONTACT ENGINEERING EXPRESS FOR ASSISTANCE WITH YOUR PROJECT-SPECIFIC NEEDS & FOR ADAPTATION & CERTIFICATION OF THIS DOCUMENT OUTSIDE OF FLORIDA.

SEE LAST PAGE FOR DEFINITIONS OF TERMINOLOGY/ABBREVIATIONS USED HEREIN.

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ENGINEERING EXPRESS®

POSTAL ADDRESS:
2234 NORTH FEDERAL HWY #7664
BOCA RATON, FL 33431
ENGINEERINGEXPRESS.COM

FLORIDA SHUTTERS, INC.

1055 COMMERCE AVENUE
VERO BEACH, FL 32960
(772) 569-2200

IMPACT ALUMINUM COLONIAL SHUTTER
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
MIAMI-DADE COUNTY NOTICE OF ACCEPTANCE (NOA)

REMARKS	DATE	DRWN	CHKD	DATE	DRWN	CHKD
PREV. SUB. NOA 22-1106-02	10/19/20	CB	RWN	10/19/20	CB	RWN
2023 FBC UPDATE	11/08/23	MR	RWN	11/08/23	MR	RWN

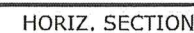
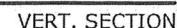
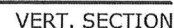
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23-61299

SCALE: NTS UNLESS NOTED

1

8



(2) #8 SMS PER CLIP

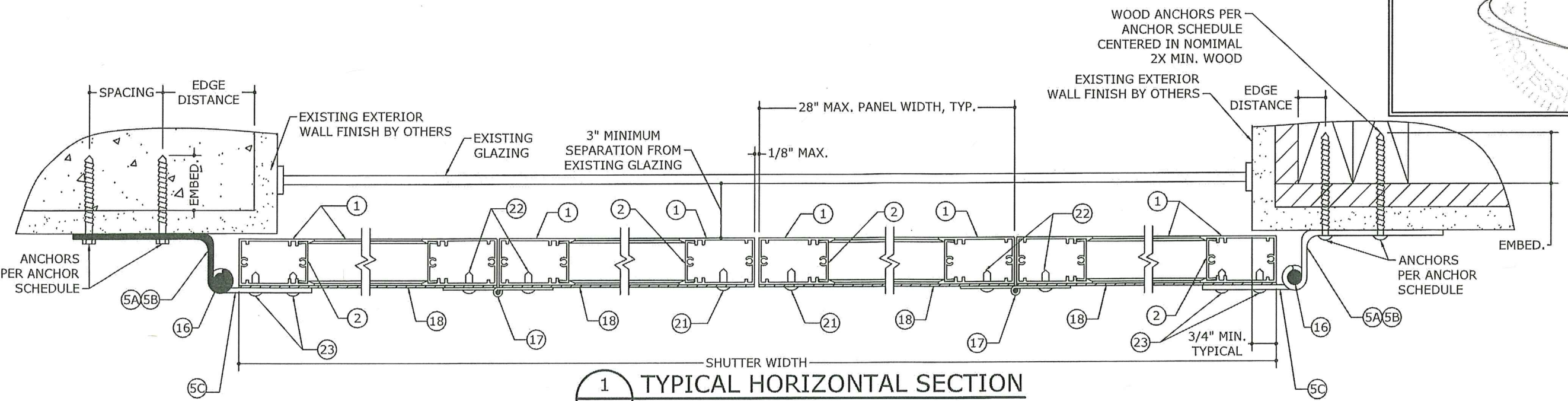
SECTION

SECTION

c:\users\eric\engineering\express\production - documents\projects\23-123-61299 2023 noa product update fl 19-1218.01\work\2023 fbc\drawings & cad\5 - 23-61299d noa dwg.dwg 17/2023 2:22 PM ERJC

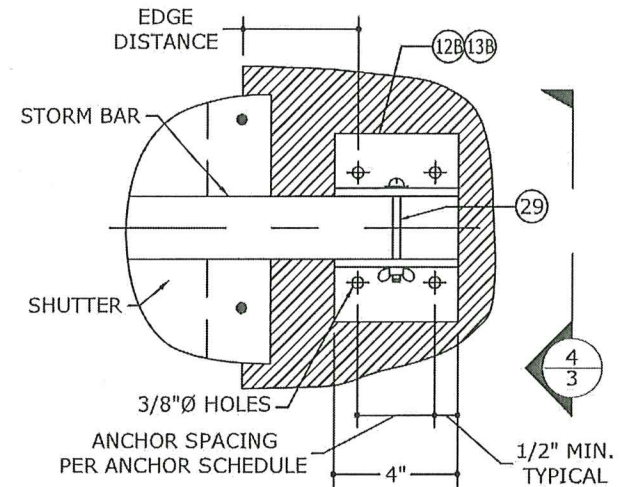
FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

DECEMBER 7, 2023



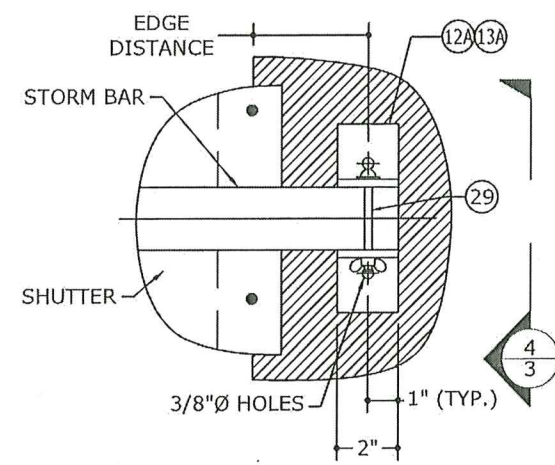
1
3 4" = 1'-0"

TYPICAL HORIZONTAL SECTION
HORIZ. SECTION



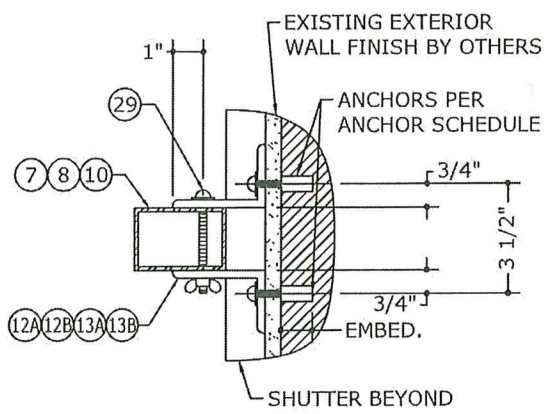
2
3 2" = 1'-0"

STORM BAR CONNECTION TYPE 'A'
EXTERIOR ELEV



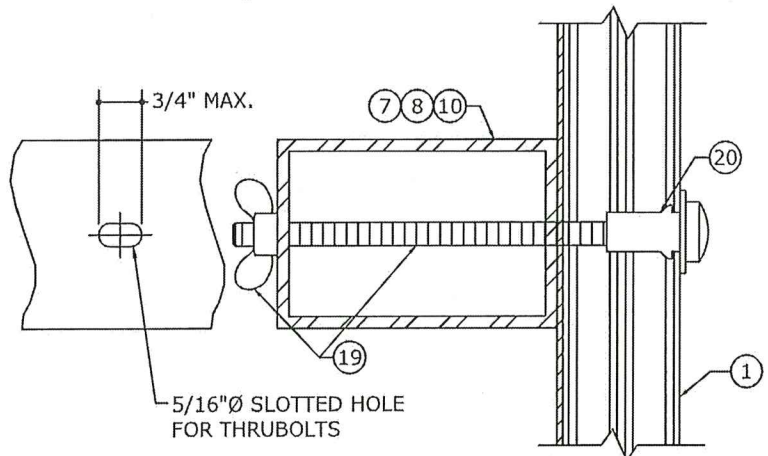
3
3 2" = 1'-0"

STORM BAR CONNECTION TYPE 'B'
EXTERIOR ELEV



4
3 2" = 1'-0"

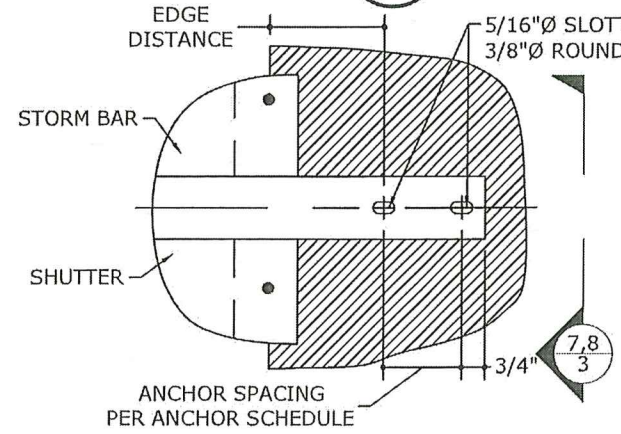
STORM BAR CONNECTION SECTION
VERT SECTION



5
3 6" = 1'-0"

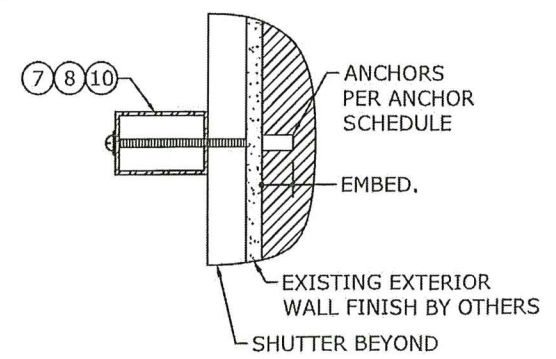
STORM BAR TO FRAME CONNECTION DETAIL
VERT SECTION

NOTE: CONNECTION OF STORM BAR TO SHUTTER FRAMES IS NOT REQUIRED AT SINGLE BAR SHUTTERS.



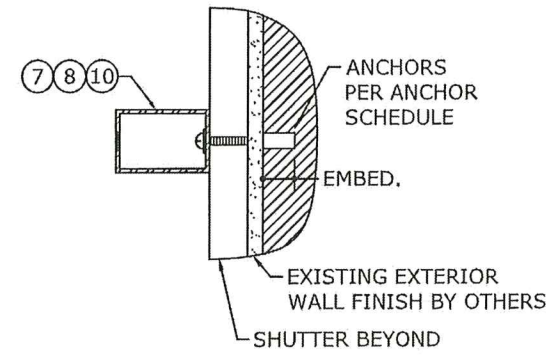
6
3 2" = 1'-0"

STORM BAR CONNECTION TYPE 'C'
EXTERIOR ELEV



7
3 2" = 1'-0"

STORM BAR CONNECTION SECTION
VERT SECTION



8
3 2" = 1'-0"

ALT. STORM BAR CONNECTION SECTION
VERT SECTION

PRODUCT RENEWED
as complying with the Florida
Building Code
Acceptance No. 24-1220.01
Expiration Date 02/08/2030
By H. G. A. Miller
Miami Dade Product Control

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 23-1215.06
Expiration Date 02/08/25
By H. G. A. Miller
Miami Dade Product Control

ENGINEERING EXPRESS

POSTAL ADDRESS:
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FLORIDA SHUTTERS, INC.
1055 COMMERCE AVENUE
VERO BEACH, FL 32960
(772) 569-2200

IMPACT ALUMINUM COLONIAL SHUTTER
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
MIAMI-DADE COUNTY NOTICE OF ACCEPTANCE (NOA)

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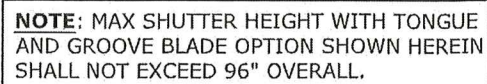
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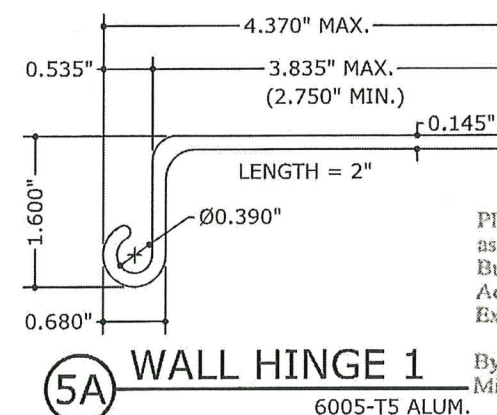
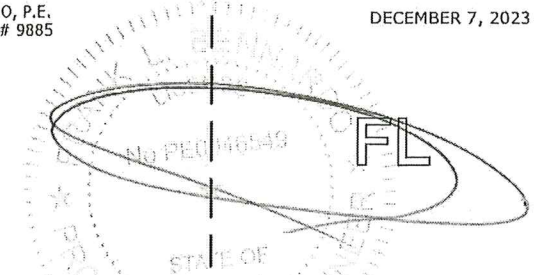
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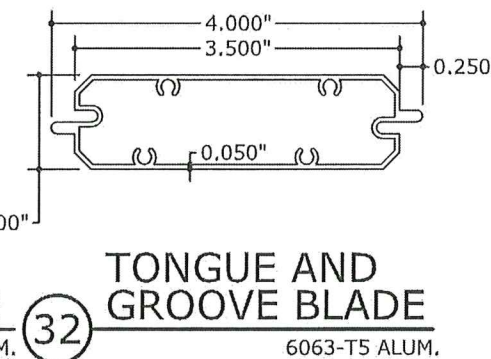
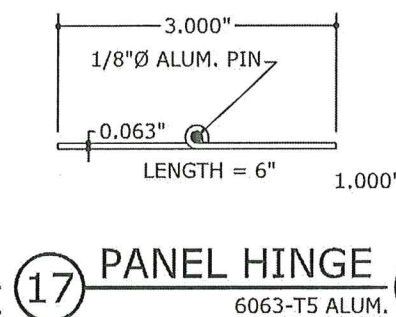
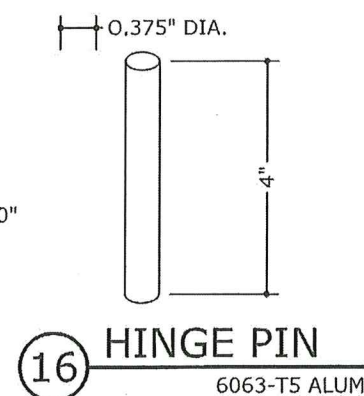
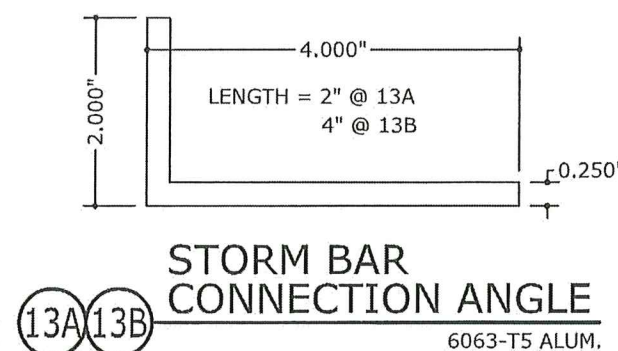
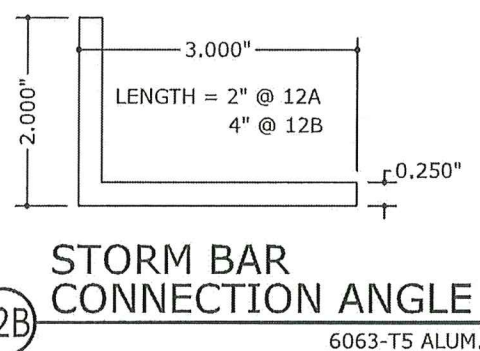
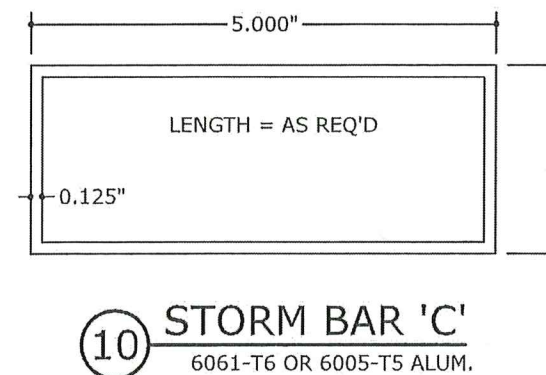
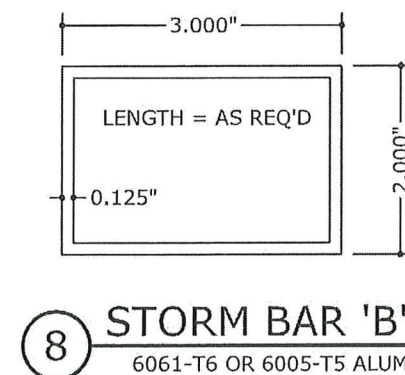
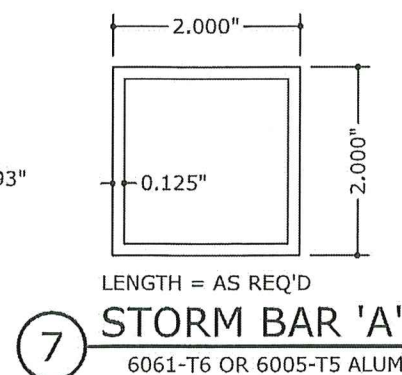
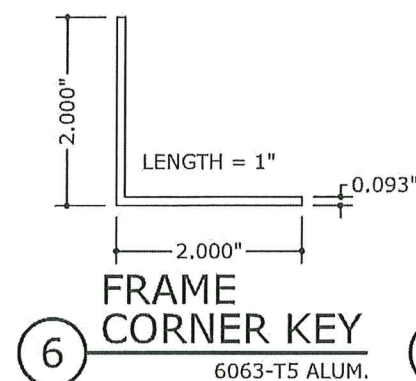
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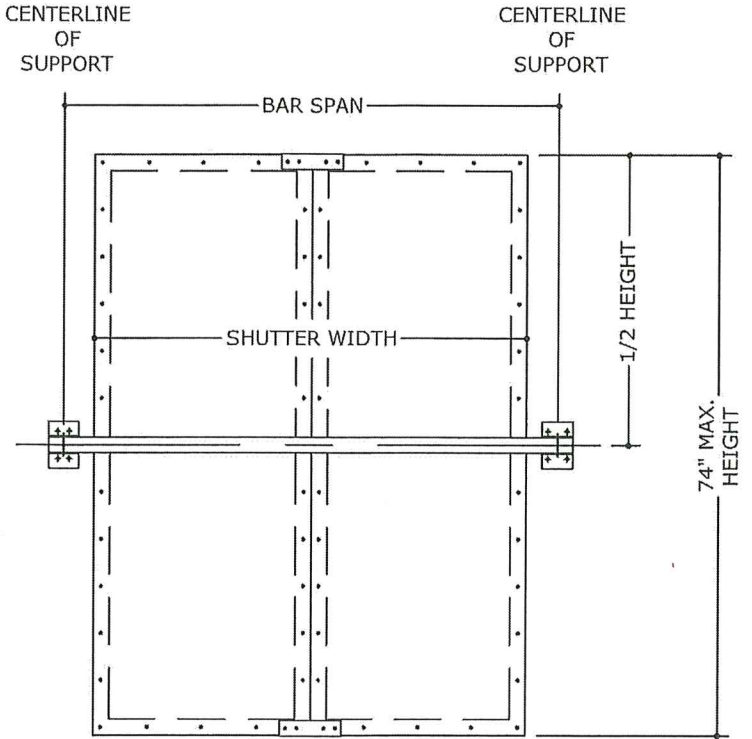
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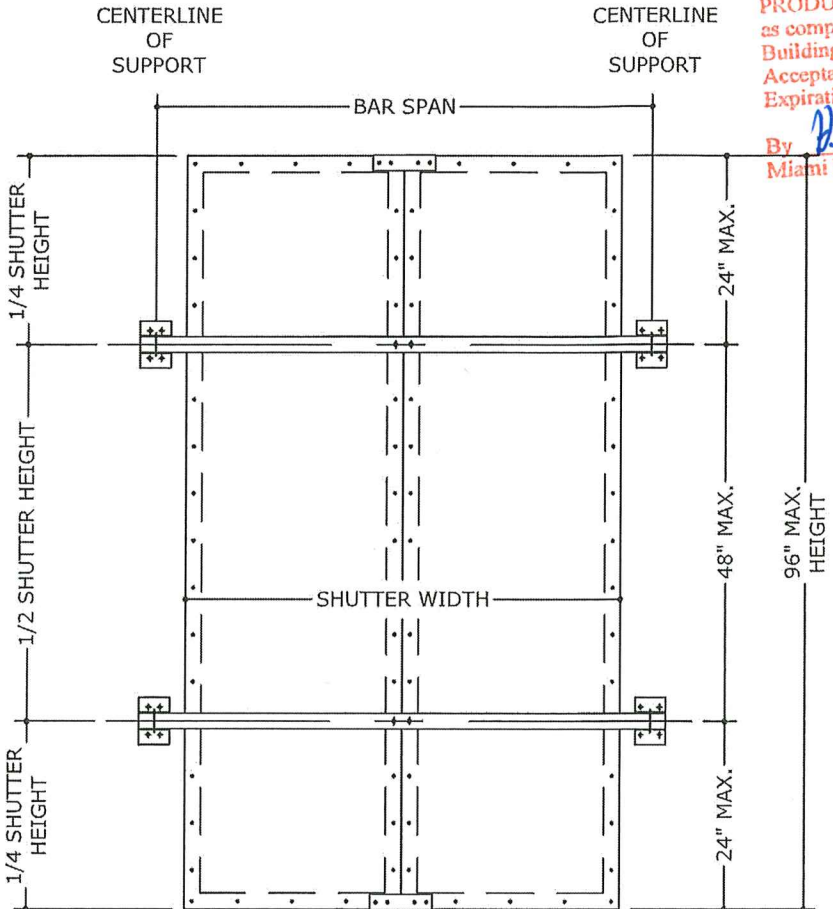
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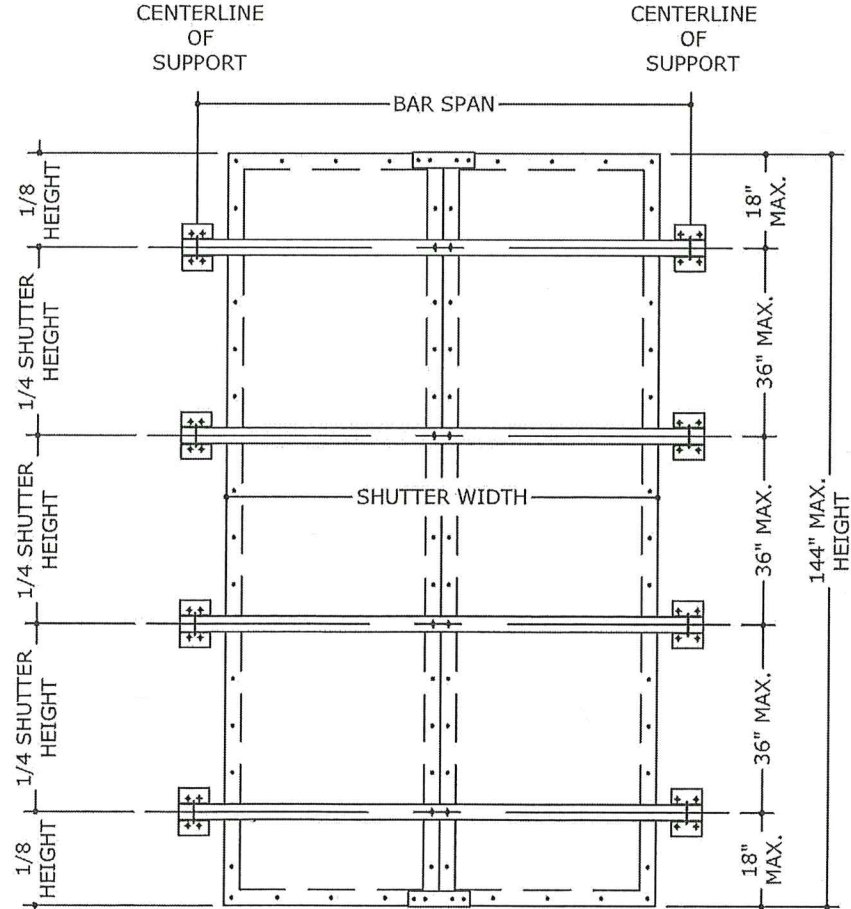
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SINGLE BAR



TWO BARS



FOUR BARS

TABLE 1: SINGLE STORM BAR SHUTTER DESIGN SCHEDULE

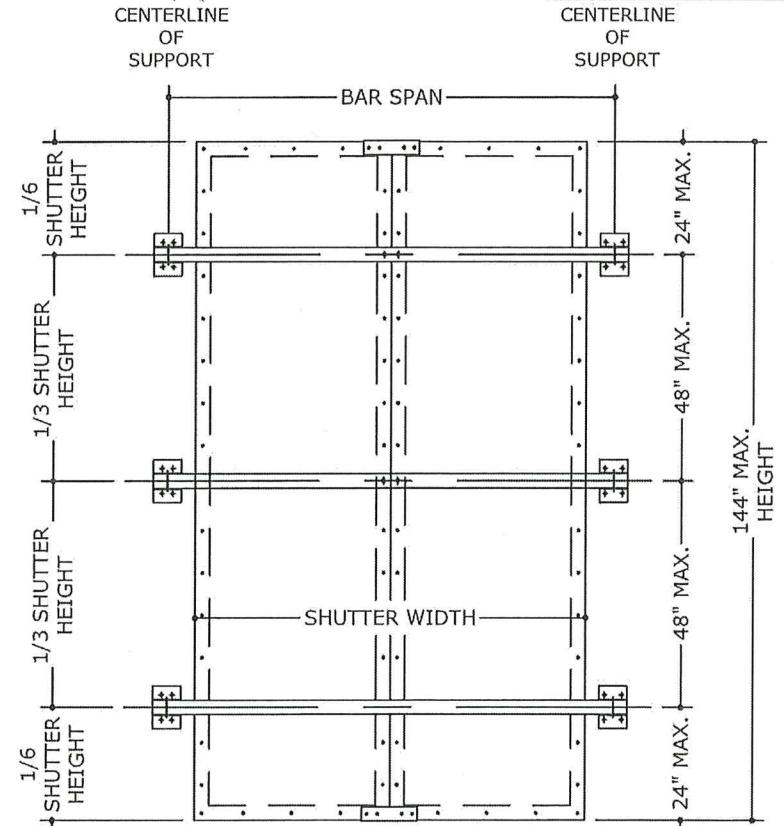
SHUTTER HEIGHT	ALLOWABLE DESIGN PRESSURE (PSF)	
	POSITIVE	NEGATIVE
UP TO 54"	80.0 psf	80.0 psf
56"	76.1 psf	76.1 psf
58"	71.0 psf	71.0 psf
60"	66.3 psf	64.3 psf
62"	62.1 psf	58.3 psf
64"	58.3 psf	53.0 psf
66"	54.8 psf	48.3 psf
68"	51.6 psf	44.2 psf
70"	47.5 psf	40.5 psf
72"	42.4 psf	37.2 psf
74"	38.0 psf	34.3 psf

- NOTE:
1. MINIMUM SEPARATION FROM GLASS FOR ALL SHUTTER CONFIGURATIONS SHALL BE 3" MIN.
 2. MAXIMUM BAR SPAN AS DENOTED HEREIN SHALL NOT BE MORE THAN 10" LONGER THAN SHUTTER WIDTH.
 3. TABLE 1 SHALL ONLY BE USED FOR SINGLE STORM BAR SHUTTERS WITH 74" MAX HEIGHT. SINGLE STORM BAR SHUTTERS MAY HAVE 1, 2, 3, OR 4 PANELS.
 4. REFERENCE STORM BAR DESIGN SCHEDULES FOR ADDITIONAL LIMITATIONS TO DESIGN PRESSURES AS GOVERNED BY STORM BARS AND STORM BAR CONNECTIONS.

NOTE: DESIGN PRESSURES LISTED ARE MAXIMUM (ASD) ALLOWABLE DESIGN PRESSURES.

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THREE BARS

ANCHOR SCHEDULE:

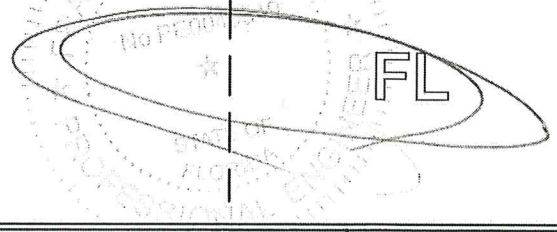
- WALL CLIP ANCHORS:**
- (2) 1/4" CARBON STEEL TAPCONS (ITW) THRU WOOD BUCKS OR DIRECTLY INTO MASONRY/CONCRETE WITH 1-1/4" MIN EMBED, 1-1/2" MIN SPACING, AND 1" MIN EDGE DISTANCE.
 - (1) #12 WOOD SCREWS TO G=0.55 MIN WOOD WITH 1-1/2" MIN THREAD PENETRATION AND 3/4" MIN EDGE DISTANCE.
- HINGE ANCHORS:**
- 1/4" CARBON STEEL TAPCONS (ITW) THRU WOOD BUCKS OR DIRECTLY INTO MASONRY/CONCRETE WITH 1-1/4" MIN EMBED, 2" MIN SPACING, AND 2-1/2" MIN EDGE DISTANCE.
 - #12 WOOD SCREWS TO G=0.55 MIN WOOD WITH 1-1/2" MIN THREAD PENETRATION, 1-1/2" MIN SPACING, AND 3/4" MIN EDGE DISTANCE.
- STORM BAR ANCHORS:**
- 1/4"-20 DEWALT CALK-IN ANCHORS TO MASONRY/CONCRETE WITH 7/8" MIN EMBED, 2-1/2" MIN SPACING, AND 3" MIN EDGE DISTANCE.
 - 1/4" DEWALT PANELMATES (MALE OR FEMALE) TO MASONRY/CONCRETE WITH 1-1/4" MIN EMBED, 2-1/2" MIN SPACING, AND 3" MIN EDGE DISTANCE.
 - 1/4" DEWALT PANELMATES (MALE OR FEMALE) TO G=0.55 MIN WOOD WITH 1-7/8" MIN THREAD PENETRATION, 1-1/2" MIN SPACING, AND 3/4" MIN EDGE DISTANCE.

ANCHOR NOTES:

1. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
2. TAPCONS SHALL BE MANUFACTURED BY ITW. "DEWALT PANELMATE" ANCHORS FOR USE IN CONCRETE, HOLLOW BLOCK OR WOOD MAY BE MALE OR FEMALE.
3. 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).
4. WOOD HOST STRUCTURE SHALL BE "SOUTHERN PINE" G=0.55 OR GREATER DENSITY.
5. MINIMUM EMBEDMENT SHALL BE AS NOTED IN ANCHOR SCHEDULE. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO, FOAM, BRICK, AND OTHER WALL FINISHES.
6. WHERE EXISTING STRUCTURE IS WOOD FRAMING, EXISTING CONDITIONS MAY VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT INTO PLYWOOD.
7. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO THE EXISTING STRUCTURE.
8. 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.

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

DECEMBER 7, 2023



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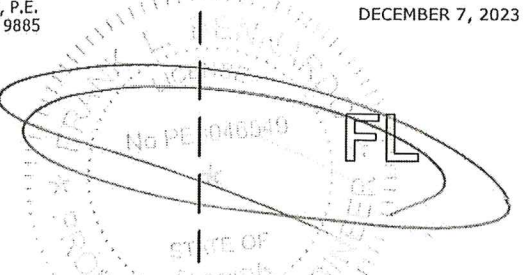
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TABLE 2: STORM BAR DESIGN SCHEDULE
(FOR USE WITH SINGLE-BAR SHUTTERS ONLY)


SHUTTER WIDTH	SHUTTER HEIGHT	ALLOWABLE STORM BAR DESIGN PRESSURE (PSF)			ALLOWABLE ANCHORAGE DESIGN PRESSURE (PSF)			
		STORM BAR 'A' 2"x2"x0.125"	STORM BAR 'B' 2"x3"x0.125"	STORM BAR 'C' 2"x5"x0.125"	CONN. 'A'		CONN. 'B' & 'C'	
					WOOD	BLOCK/ CONCRETE	WOOD	BLOCK/ CONCRETE
36"	54"	80	80	80	80	80	80	65
	60"	80	80	80	80	80	80	58
	66"	80	80	80	80	80	80	53
	72"	80	80	80	80	80	80	48
	74"	80	80	80	80	80	80	47
42"	54"	80	80	80	80	80	80	55
	60"	78	80	80	80	80	80	50
	66"	71	80	80	80	80	80	45
	72"	65	80	80	80	80	80	41
	74"	63	80	80	80	80	80	40
48"	54"	69	80	80	80	80	80	48
	60"	62	80	80	80	80	80	44
	66"	57	80	80	80	80	80	40
	72"	52	80	80	80	73	80	36
	74"	51	80	80	80	71	80	35
54"	54"	57	80	80	80	80	80	43
	60"	51	80	80	80	78	80	39
	66"	46	80	80	80	71	80	35
	72"	43	79	80	80	65	80	32
	74"	41	77	80	80	63	80	31
60"	54"	47	80	80	80	78	80	39
	60"	43	80	80	80	70	80	35
	66"	39	72	80	80	64	80	32
	72"	35	66	80	80	58	80	
	74"	35	64	80	80	57	80	
66"	54"	40	75	80	80	71	80	35
	60"	36	67	80	80	64	80	32
	66"	33	61	80	80	58	80	
	72"	30	56	80	80	53	79	
	74"		55	80	80	51	77	
72"	54"	34	64	80	80	65	80	32
	60"	31	58	80	80	58	80	
	66"		53	80	80	53	79	
	72"		48	80	80	48	73	
	74"		47	80	80	47	71	


- TABLE 2 NOTES:
- TABLE 2 SHALL BE USED ONLY FOR SHUTTERS WITH (1) STORM BAR.
 - SINGLE STORM BAR SHUTTERS SHALL NOT EXCEED 74" MAXIMUM SHUTTER HEIGHT.
 - TABLE 2 SHALL BE USED IN CONJUNCTION WITH TABLE 1. DESIGN PRESSURES FOR SINGLE STORM BAR SHUTTERS SHALL NOT EXCEED THE LESSER OF THOSE INDICATED IN TABLE 1 AND TABLE 2.
 - FOR SHUTTERS GREATER THAN 74" TALL OR UTILIZING MULTIPLE STORM BARS, REFERENCE TABLE 3.
 - DESIGN PRESSURES LISTED ARE MAXIMUM (ASD) ALLOWABLE DESIGN PRESSURES.

TABLE 2 CONTINUED

SHUTTER WIDTH	SHUTTER HEIGHT	ALLOWABLE STORM BAR DESIGN PRESSURE (PSF)			ALLOWABLE ANCHORAGE DESIGN PRESSURE (PSF)			
		STORM BAR 'A' 2"x2"x0.125"	STORM BAR 'B' 2"x3"x0.125"	STORM BAR 'C' 2"x5"x0.125"	CONN. 'A'		CONN. 'B' & 'C'	
					WOOD	BLOCK/ CONCRETE	WOOD	BLOCK/ CONCRETE
78"	54"		56	80	80	60	80	30
	60"		50	80	80	54	80	
	66"		46	80	80	49	73	
	72"		42	80	80	45	67	
	74"		41	80	80	43	65	
84"	54"		49	80	80	55	80	
	60"		44	80	80	50	75	
	66"		40	80	80	45	68	
	72"		37	80	80	41	62	
	74"		36	80	80	40	60	
90"	54"		43	80	80	52	77	
	60"		39	80	80	46	70	
	66"		35	80	80	42	63	
	72"		32	73	80	39	58	
	74"		31	71	80	38	56	
96"	54"		38	80	80	48	73	
	60"		34	78	80	44	65	
	66"		31	71	80	40	59	
	72"			65	80	36	54	
	74"			63	80	35	53	
102"	54"		34	78	80	46	68	
	60"		31	70	80	41	61	
	66"			64	80	37	56	
	72"			58	80	34	51	
	74"			57	80	33	50	
108"	54"		30	70	80	43	64	
	60"			63	80	39	58	
	66"			57	80	35	53	
	72"			53	80	32	48	
	74"			51	80	31	47	
112"	54"			66	80	41	62	
	60"			59	80	37	56	
	66"			54	80	34	51	
	72"			49	80	31	47	
	74"			48	80	30	45	

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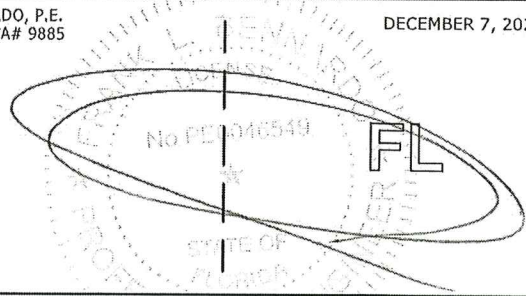
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SHUTTER WIDTH	STORM BAR SPACING	ALLOWABLE STORM BAR DESIGN PRESSURE (PSF)			ALLOWABLE ANCHORAGE DESIGN PRESSURE (PSF)			
		STORM BAR 'A' 2"x2"x0.125"	STORM BAR 'B' 2"x3"x0.125"	STORM BAR 'C' 2"x5"x0.125"	CONN. 'A'		CONN. 'B' & 'C'	
					WOOD	BLOCK/ CONCRETE	WOOD	BLOCK/ CONCRETE
36"	UP TO 32"	80	80	80	80	80	80	80
	UP TO 48"	60	60	60	80	80	80	73
42"	UP TO 32"	80	80	80	80	80	80	80
	UP TO 48"	60	60	60	80	80	80	62
48"	UP TO 32"	80	80	80	80	80	80	80
	UP TO 48"	60	60	60	80	80	80	55
54"	UP TO 32"	80	80	80	80	80	80	73
	UP TO 48"	60	60	60	80	80	80	48
60"	UP TO 32"	80	80	80	80	80	80	66
	UP TO 48"	53	60	60	80	80	80	44
66"	UP TO 32"	68	80	80	80	80	80	60
	UP TO 48"	45	60	60	80	80	80	40
72"	UP TO 32"	58	80	80	80	80	80	55
	UP TO 48"	38	60	60	80	73	80	36
78"	UP TO 32"	47	80	80	80	80	80	50
	UP TO 48"	31	60	60	80	67	80	33
84"	UP TO 32"	38	80	80	80	80	80	47
	UP TO 48"		55	60	80	62	80	31
90"	UP TO 32"	32	73	80	80	80	80	44
	UP TO 48"		49	60	80	58	80	
96"	UP TO 32"		65	80	80	80	80	41
	UP TO 48"		43	60	80	55	80	
102"	UP TO 32"		58	80	80	77	80	38
	UP TO 48"		39	60	80	51	77	
108"	UP TO 32"		51	80	80	73	80	36
	UP TO 48"		34	60	80	48	73	
112"	UP TO 32"		47	80	80	70	80	35
	UP TO 48"		31	60	80	47	70	

1. TABLE 3 SHALL BE USED ONLY FOR SHUTTERS WITH MULTIPLE STORM BARS.
2. DESIGN PRESSURES FOR MULTIPLE BAR SHUTTERS SHALL NOT EXCEED THE DESIGN PRESSURES INDICATED IN TABLE 3.
3. FOR SHUTTERS UTILIZING ONLY ONE STORM BAR, REFERENCE TABLES 1 AND 2.
4. DESIGN PRESSURES LISTED ARE MAXIMUM (ASD) ALLOWABLE DESIGN PRESSURES.

THE FOLLOWING ABBREVIATIONS MAY APPEAR IN THIS APPROVAL:

CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

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