

GENERAL NOTES:

1. ROLL-UP SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR CODE COMPLIANCE IN ACCORDANCE WITH THE 2014 (5th EDITION) OF THE FLORIDA BUILDING CODE. THIS ROLL-UP SHUTTER SHALL **NOT** BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES (MIAMI-DADE COUNTY / BROWARD COUNTIES).

DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE ABOVE MENTIONED CODE, FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE THESE SHUTTERS WILL BE INSTALLED FOR A DIRECTIONALITY FACTOR $K_d=0.85$. USING ASCE 7-10 FOR INSTALLATIONS UNDER 2014 FBC AND SHALL NOT EXCEED THE MAXIMUM (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 5, 6, 8, 9 & 10 THRU 13.

IN ORDER TO VERIFY THE ABOVE CONDITION, ULTIMATE DESIGN WIND LOADS DETERMINED PER ASCE 7-10 SHALL BE FIRST REDUCED TO A.S.D. DESIGN WIND LOADS BY MULTIPLYING THEM BY 0.6 IN ORDER TO TO COMPARE THESE W/ MAX. (A.S.D.) DESIGN PRESSURE RATINGS INDICATED ON SHEETS 5, 6, 8, 9 & 10 THRU 13.

IN ORDER TO VERIFY THAT COMPONENTS ON THIS P.E.D. AS TESTED WERE NOT OVER STRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS NOT USED IN THEIR ANALYSIS, HOWEVER A DURATION FACTOR $CD=1.60$ WAS USED FOR ANCHORS IN WOOD.

ROLL-UP SHUTTER'S ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.2 OF THE ABOVE MENTIONED CODE AS PER HTL REPORTS # 0187-0406-99, 0187-0422-99, 0187-0407-99, 0187-0408-99, 0187-0423-99, 0187-0413-99, 0187-0414-99 AND FTL REPORTS #3521, #3522, #3523, #3524 AS PER TAS-201, TAS-202 & TAS-203 PROTOCOLS.

2. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY & TEMPER (SEE SHEET 2).

3. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 W/ 50 ksi YIELD STRENGTH AND 90 ksi TENSILE STRENGTH. ALL TEK SCREWS SHALL BE AS MANUFACTURED BY ITW BUILDEX, INC. & SHALL COMPLY W/ FLORIDA BUILDING CODE SECTION 2411.3.3.4.

4. BOLTS TO BE ASTM A-307 GALVANIZED STEEL OR AISI 304 SERIES STAINLESS STEEL, WITH 36 ksi MINIMUM YIELD STRENGTH.

5. STORM BARS AT FLOOR AND CEILING MOUNTING INSTALLATIONS MAY BE REMOVABLE AT NON HURRICANE CONDITIONS. HOWEVER, EACH STORM BAR SHALL BEAR A PERMANENT LABEL IN A VISIBLE PLACE WITH A WARNING NOTE INSTRUCTING THE TENANT OR OWNER THAT STORM BARS MUST BE INSTALLED WITH CORRESPONDING HARDWARE DURING PERIODS OF HURRICANE WARNING AND THAT ROLL UP SHUTTERS WILL NOT OFFER HURRICANE PROTECTION UNLESS ALL STORM BAR ARE INSTALLED AS DIRECTED.

6. REMOVABLE STORM BARS SHALL BE STORED IN A CONSPICUOUS PLACE WITH EASY AND IMMEDIATE ACCESS SO THAT THEY CAN BE REACHED AND INSTALLED ANY TIME (HURRICANE CONDITIONS OR NOT) SLATS ARE ROLLED DOWN. THE EFFECT OF THE SLATS ROLLED DOWN WITHOUT STORM BARS IS; THOSE SLATS WILL SLIP OUT OF TRACK DUE TO THE DEFLECTION CAUSED BY WIND FORCES. WHEN REMOVING STORM BARS, ONE STORM BAR SHALL ALWAYS BE LEFT INSTALLED (SHALL NOT BE REMOVED). THIS CONDITION IS ONLY REQUIRED FOR HEADER SPANS EQUAL OR GREATER THAN 12'-0".

7. ANCHORS TO WALL FOR SIDE RAILS & BOX CONNECTION SHALL BE AS FOLLOWS: (UNLESS OTHERWISE NOTED)

(A) TO EXISTING POURED CONCRETE ($f'_c=3192$ psi Min.):
-1/4" ϕ TAPCON ANCHORS AS MANUFACTURED BY ITW BUILDEX, INC.

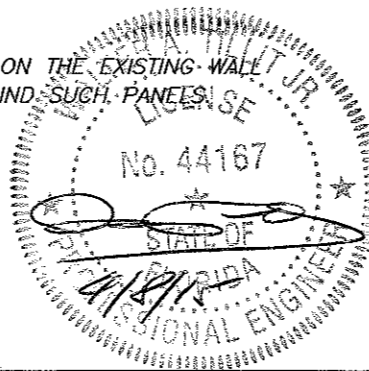
NOTES:

A.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS INTO POURED CONCRETE SHALL BE 1 3/4", NO EMBEDMENT INTO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.

A.2) IN CASE THAT PRECAST STONE, PRECAST CONCRETE PANELS, OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS.

(B) TO EXISTING CONCRETE BLOCK WALL (ASTM C-90):
-1/4" ϕ TAPCON ANCHORS, AS MANUFACTURED BY ITW BUILDEX, INC.

THIS DRAWING SHALL ONLY BE USED TO OBTAIN PERMITS IN THE STATE OF FLORIDA



NOTES:

B.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS, INTO THE CONCRETE BLOCK UNIT SHALL BE 1 1/4".

B.2) IN CASE THAT PRECAST STONE OR PRECAST CONCRETE PANELS BE FOUND ON THE EXISTING WALL, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS.

(C) TO EXISTING WOOD FRAME BUILDING: SOUTHERN PINE #2 W/ $G=0.55$ OR DOUGLAS FIR W/ $G=0.42$ MIN. -1/4" ϕ LAG SCREW PER NDS, WITH 1 1/2" MINIMUM THREADED PENETRATION BEYOND ANY WALL FINISH..

(D) ANCHORS REQUIRED FOR STORM BARS, HEADERS & MULLION CONNECTIONS TO CONCRETE ($f'_c=3$ ksi) SHALL BE AS SPECIFIED ON APPLICABLE SECTIONS SHOWN ON SHEETS 5, 6, 7 & 8 OF 13 RESPECTIVELY.

KWIK BOLT TZ AS MANUFACTURED BY HILTI, INC. CALK-IN ANCHORS AND POWER BOLTS TO BE MANUFACTURED BY POWERS FASTENERS, INC., & TAPCON ANCHORS AS MANUFACTURED BY ITW BUILDEX, INC.

(E) ANCHORS SHALL BE INSTALLED FOLLOWING ALL OF THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR'S MANUFACTURER.

8. A-150-H & A-200-H SLATS FOAM PLASTIC CORE SHALL CONSIST OF 100/100 PARTS BY WEIGHT OF ELASTOPOR R P12041 R(1.06 SPECIFIC GRAVITY) RESIN + ELASTOPOR R P1001 U (1.22 SPECIFIC GRAVITY) ISOCYANATE.

SLATS FOAM PLASTIC CORE SURFACE BURNING CHARACTERISTICS HAVE BEEN VERIFIED IN ACCORDANCE WITH SECTION 2603.3 OF THE FLORIDA BUILDING CODE AS PER CELOTEX CORPORATION TEST REPORT #520274A & 520274B RESPECTIVELY.

9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE WHERE SHUTTER IS TO BE ATTACHED TO INSURE PROPER ANCHORAGE. THIS SHUTTER SHALL ONLY BE ATTACHED TO CONCRETE, BLOCK OR WOOD FRAME BUILDINGS.

10. THE INSTALLATION CONTRACTOR IS TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION. CAULK AND SEAL SHUTTER TRACKS ALL AROUND FULL LENGTH.

11. ROLL-UP MECHANISM NOT PART OF THIS APPROVAL, BUT SHALL BE CERTIFIED BY AN INDEPENDENT TESTING AGENCY.

12. ROLL-UP SHUTTER INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

13. (a) THIS P.E.D. PREPARED BY THIS ENGINEER IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC PROJECT; i.e. WHERE THE SITE CONDITIONS DEVIATE FROM THE P.E.D.

(b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D. PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

(c) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

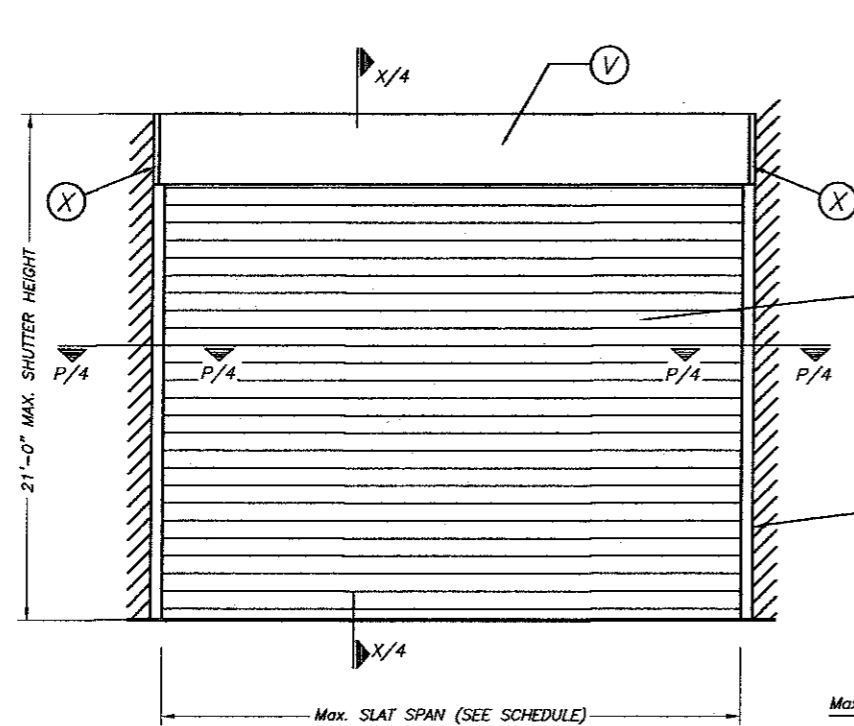
(d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.E.D. ENGINEER, SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.

(e) THIS P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.

14. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT ROLL-UP IN ACCORDANCE WITH SECTION 1710.8.3 OF FLORIDA BUILDING CODE. ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABELING TO COMPLY WITH SECTION 1710.8.2 OF THE FLORIDA BUILDING CODE.

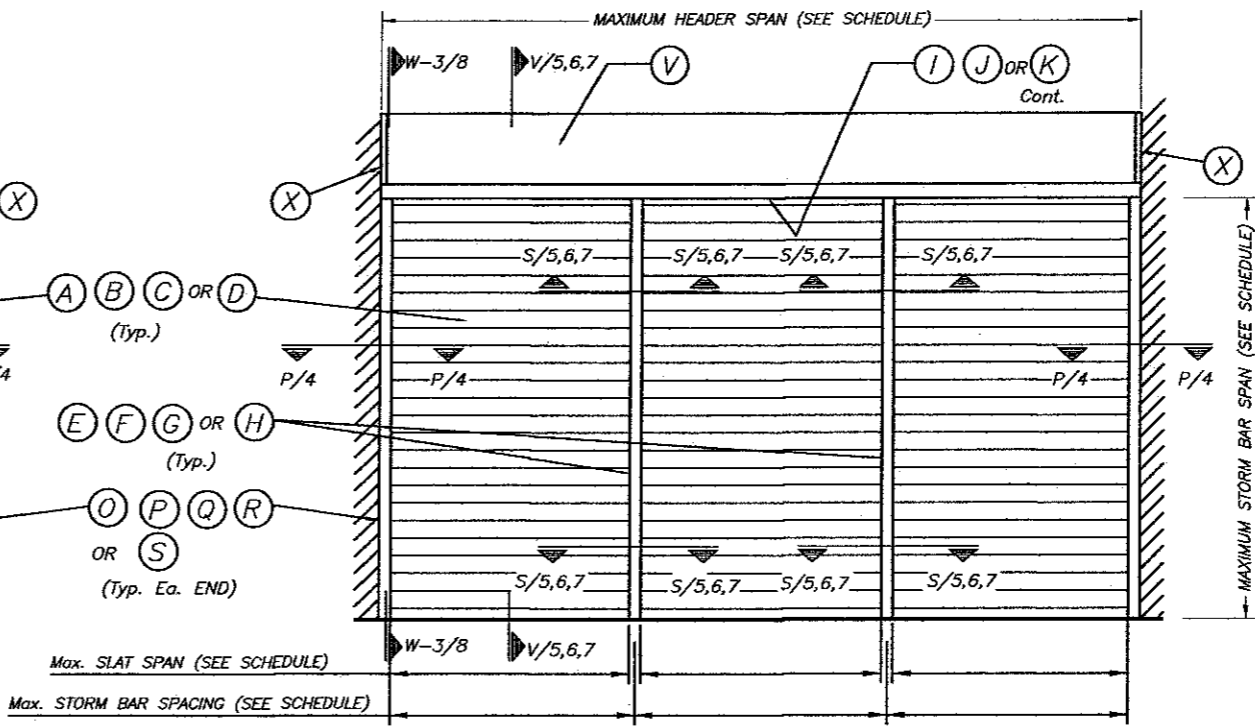
FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

<p>© 2015 TILECO, INC. TILLIT TESTING & ENGINEERING COMPANY 6305 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33186 Phone : (305)871-1530 . Fax : (305)871-1531 EB-0006719 WALTER A. TILLIT Jr. P.E. FLORIDA Lic. # 44167</p>		ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RLL-4, RLL-3, A-200-H, A-150-H SLATS	F.R.L. DRAWN BY:
		ROLLAC SHUTTERS OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839	04/02/15 DATE
		15-059 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No
1	OLD 11-238	04/02/15	3
2			4
			SHEET 1 OF 13



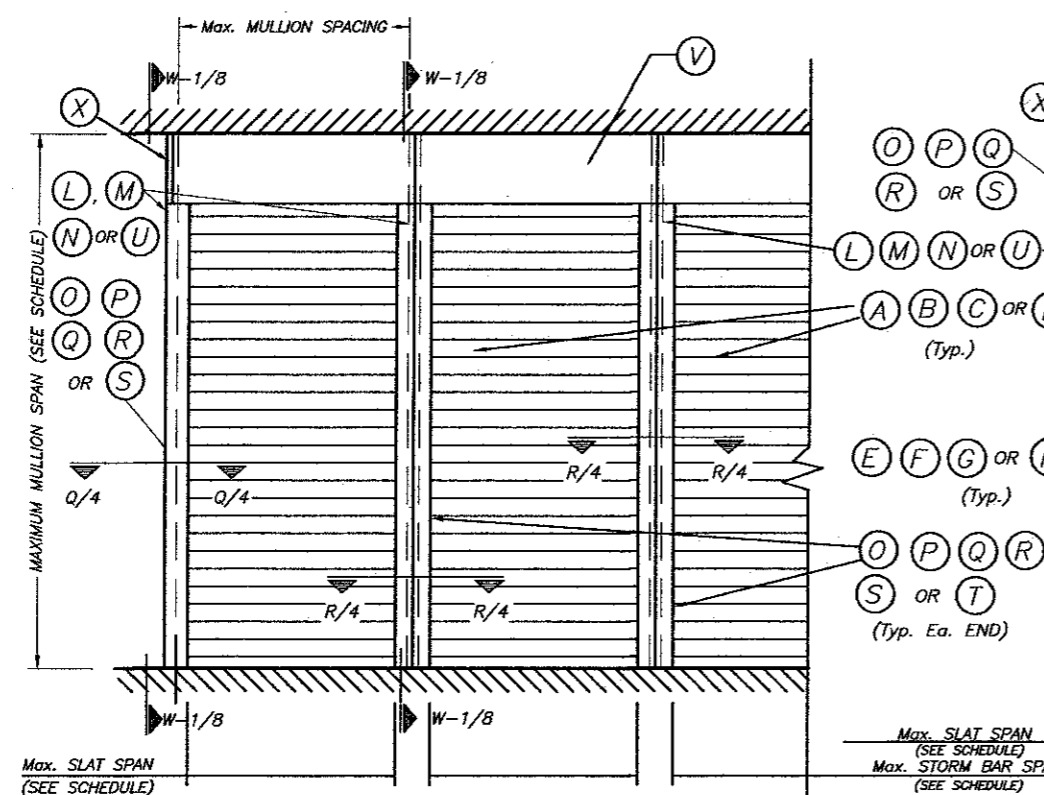
TYPICAL SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)

NOTE: SEE SHEET 2 & 3 OF 13 FOR COMPONENTS NOMENCLATURE.



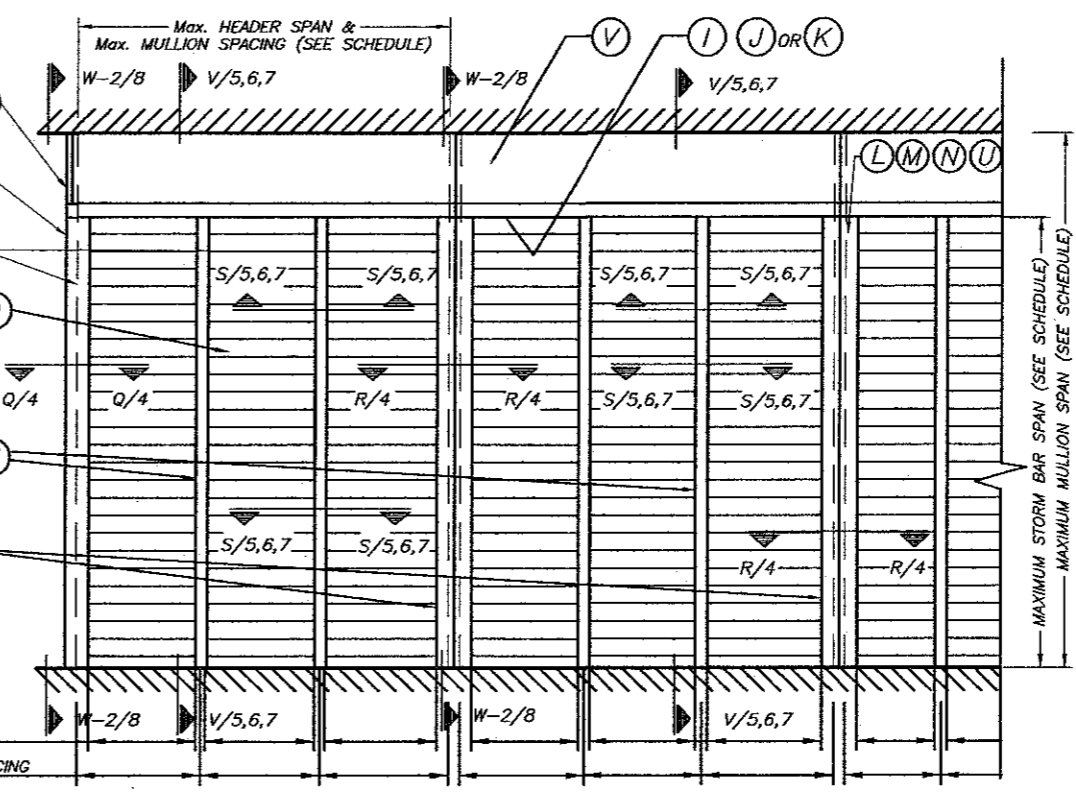
TYPICAL MULTIPLE UNIT ELEVATION (STORM BARS REQUIRED)

NOTE: SEE SHEET 2 & 3 OF 13 FOR COMPONENTS NOMENCLATURE.



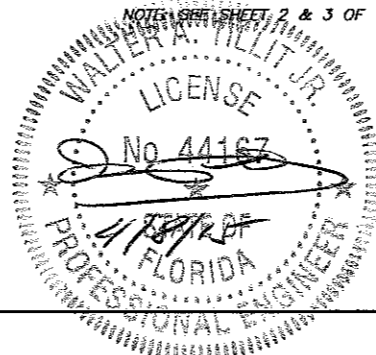
TYPICAL CONSECUTIVE SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)

NOTE: SEE SHEET 2 & 3 OF 13 FOR COMPONENTS NOMENCLATURE.



TYPICAL CONSECUTIVE MULTIPLE UNIT ELEVATION (STORM BARS REQUIRED)

NOTE: SEE SHEET 2 & 3 OF 13 FOR COMPONENTS NOMENCLATURE.



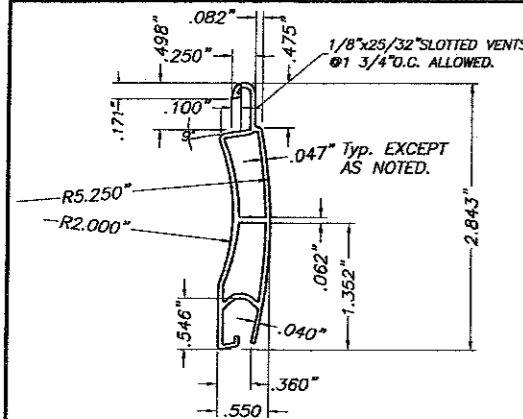
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TILTECO INC.

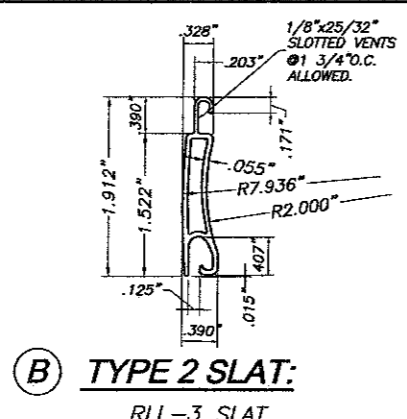
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166
Phone: (305)871-1530 Fax: (305)871-1531
EB-0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

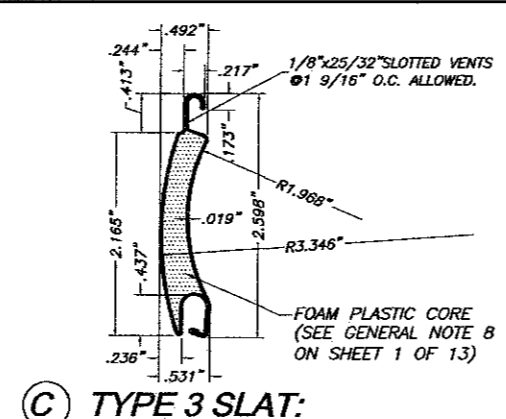
ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RLL-4, RLL-3, A-200-H, A-150-H SLATS		F.R.L. DRAWN BY:
ROLLAC SHUTTERS OF TEXAS, INC.		04/02/15 DATE
5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		15-059 DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 11-238	04/02/15
2		



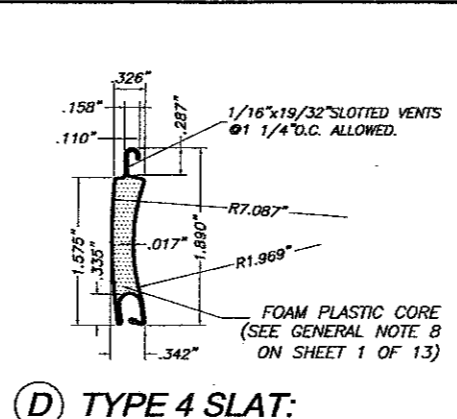
(A) TYPE 1 SLAT:
RLL-4 SLAT
EXTRUDED ALUMINUM
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



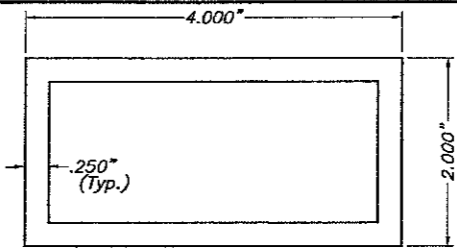
(B) TYPE 2 SLAT:
RLL-3 SLAT
EXTRUDED ALUMINUM
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



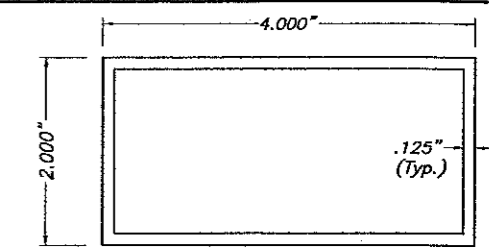
(C) TYPE 3 SLAT:
A-200-H SLAT
55mm (t = .019") HIGH
DENSITY FOAM PLASTIC CORE
SHEET METAL ALUMINUM SLAT
3005-H48 ALUMINUM ALLOY
SCALE: 1/2" = 1"



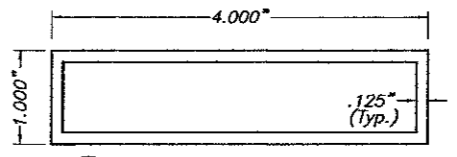
(D) TYPE 4 SLAT:
A-150-H SLAT
40mm (t = .017") HIGH
DENSITY FOAM PLASTIC CORE
SHEET METAL ALUMINUM SLAT
3005-H48 ALUMINUM ALLOY
SCALE: 1/2" = 1"



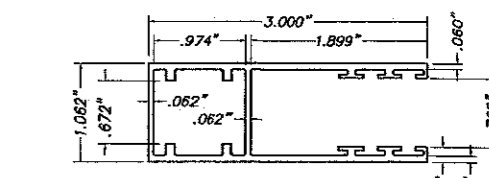
(I) TYPE 1 HEADER:
4" HEAVY EXTRUDED HEADER
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



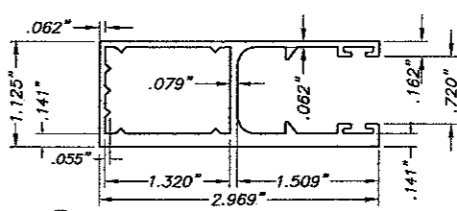
(J) TYPE 2 HEADER:
4" EXTRUDED HEADER
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



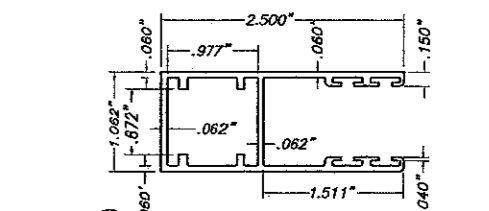
(K) TYPE 3 HEADER:
1"x4" EXTRUDED HEADER
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



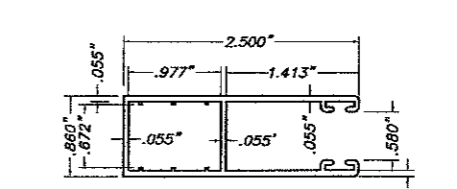
(O) TYPE 1 SIDE RAIL
RLL-25 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"



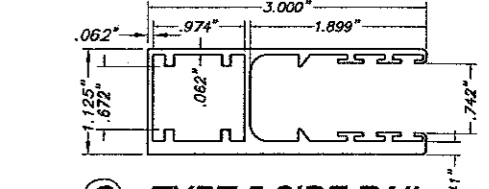
(P) TYPE 2 SIDE RAIL
RLL-40 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"



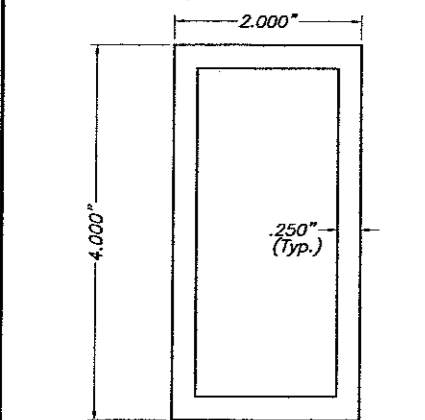
(Q) TYPE 3 SIDE RAIL
RLL-1 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"



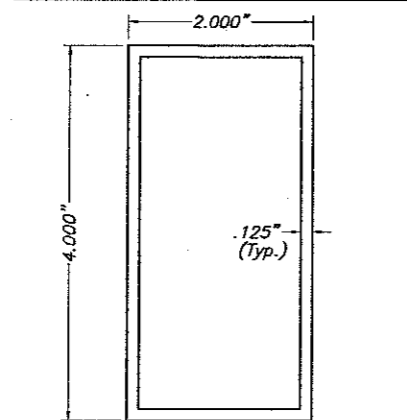
(R) TYPE 4 SIDE RAIL
RLL-32 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"



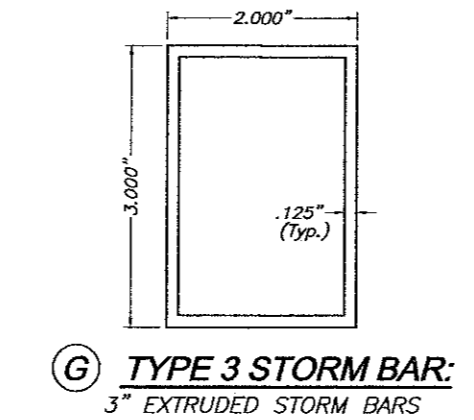
(S) TYPE 5 SIDE RAIL
RLL-54 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"



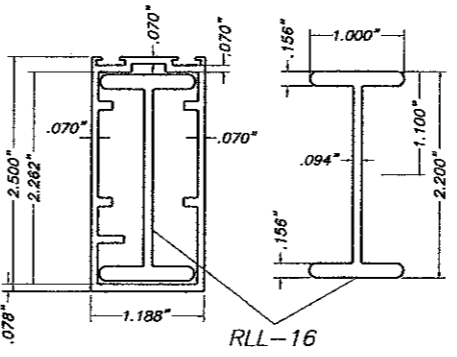
(E) TYPE 1 STORM BAR:
4" HEAVY EXTRUDED STORM BAR
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



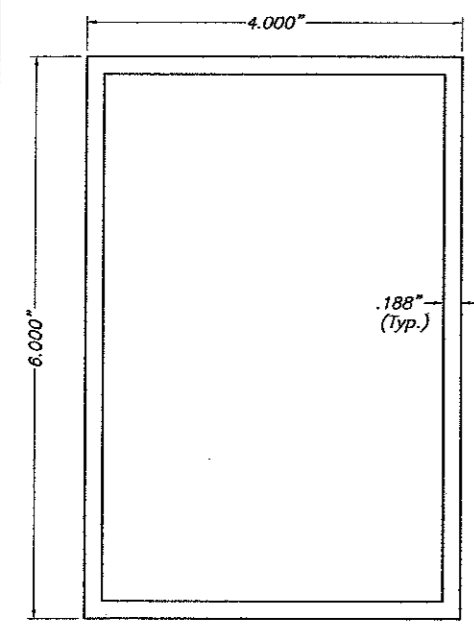
(F) TYPE 2 STORM BAR:
4" EXTRUDED STORM BARS
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



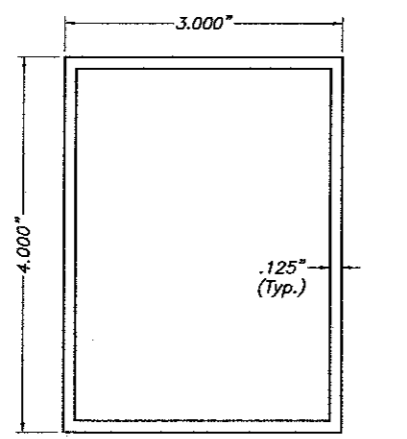
(G) TYPE 3 STORM BAR:
3" EXTRUDED STORM BARS
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



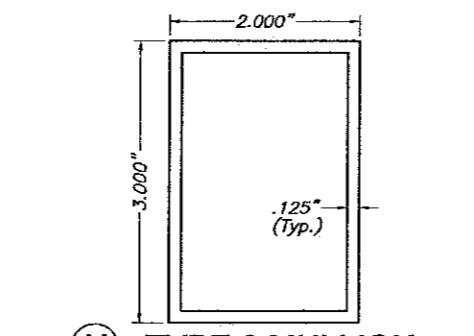
(H) TYPE 4 STORM BAR:
RLL-15 + RLL-16 EXTRUDED STORM BAR
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



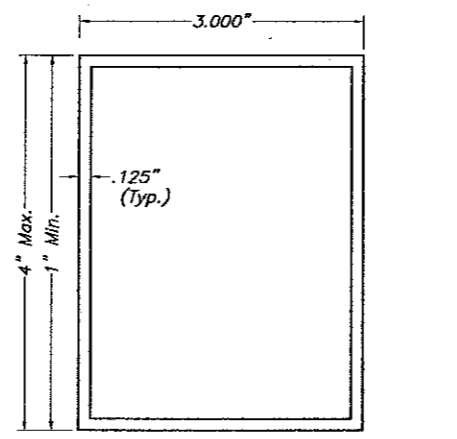
(L) TYPE 1 MULLION:
6" EXTRUDED MULLION
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



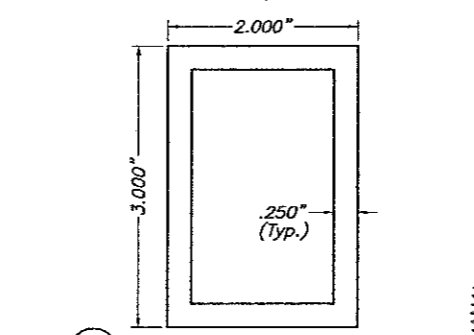
(M) TYPE 2 MULLION:
4" EXTRUDED MULLION
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



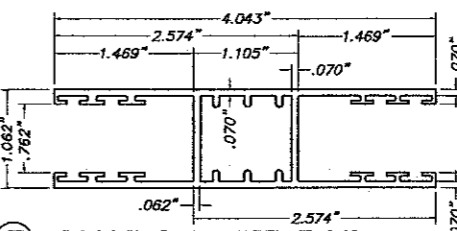
(N) TYPE 3 MULLION:
3" EXTRUDED MULLION
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



(Y) BUILD-OUT TUBES
3"x4" EXTRUDED TUBE
6063-T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"

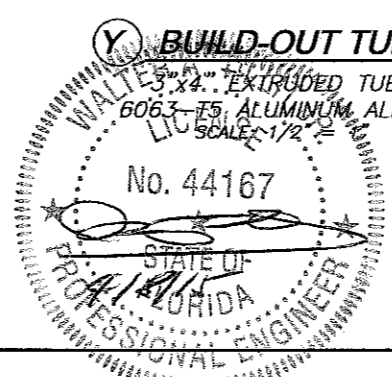


(U) TYPE 4 MULLION:
3" EXTRUDED MULLION
6063-T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



(T) MAXI CENTER RAIL
RLL-7 SIDE RAIL
6063-T5 Alum. ALLOY
SCALE: 1/2" = 1"

COMPONENTS



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TILTECO inc.

TILLIT TESTING & ENGINEERING COMPANY
6355 H.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166
Phone: (305) 871-1530 Fax: (305) 871-1531
EB-0006719
WALTER A. TILLIT Jr. P.E.
FLORIDA Lic. # 44167

ROLL-UP SHUTTER/WIND BORNE DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

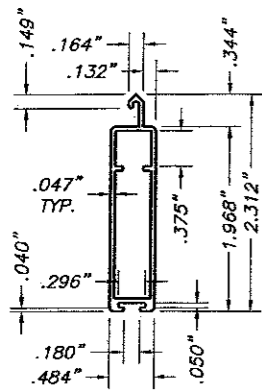
ROLLAC SHUTTERS OF TEXAS, INC.

5331 ORANGE STREET
PEARLAND, TX 77581
PHONE: (800) 880-0922, FAX: (281) 485-0839

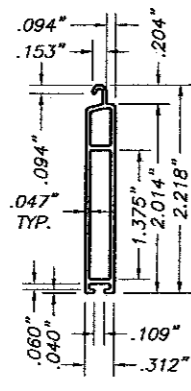
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 11-238	04/02/15	3		
2			4		

F.R.L. DRAWN BY: 04/02/15 DATE 15-059 DRAWING No SHEET 2 OF 13

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)



RLL-6
FOR RLL-4 & A-200-H
EXTRUDED ALUMINUM
6063-T5 ALUMINUM ALLOY

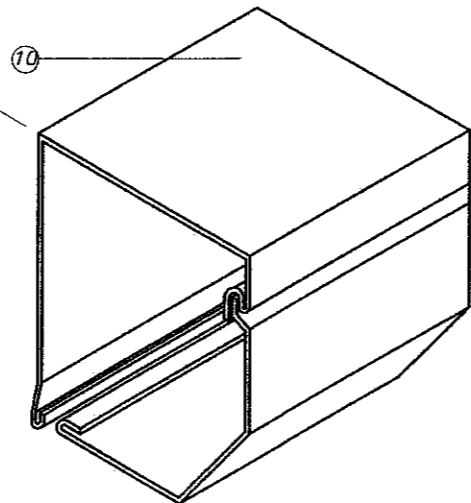


RLL-5
FOR RLL-3 & A-150-H
EXTRUDED ALUMINUM
6063-T5 ALUMINUM ALLOY

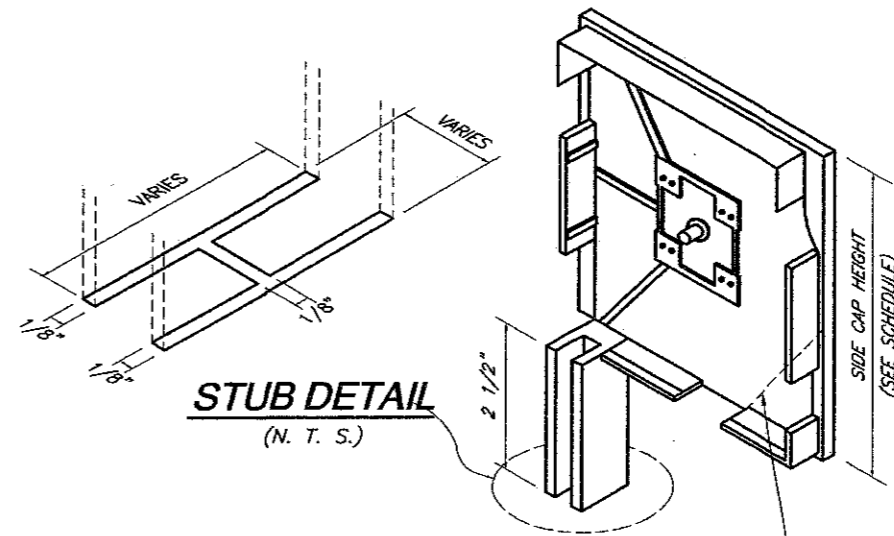
14 DETAILS

- TYPE 10 : N/A
- TYPE 9 : 10"
- TYPE 8 : 9"
- TYPE 7 : 8"
- TYPE 6 : 8"
- TYPE 5 : 7"
- TYPE 4 : 6.5"
- TYPE 3 : 6"
- TYPE 2 : 5.5"
- TYPE 1 : 4"

- TYPE 10 : 12"
- TYPE 9 : 10"
- TYPE 8 : 9"
- TYPE 7 : 8"
- TYPE 6 : 7"
- TYPE 5 : 6.5"
- TYPE 4 : 6"
- TYPE 3 : N/A
- TYPE 2 : N/A
- TYPE 1 : N/A

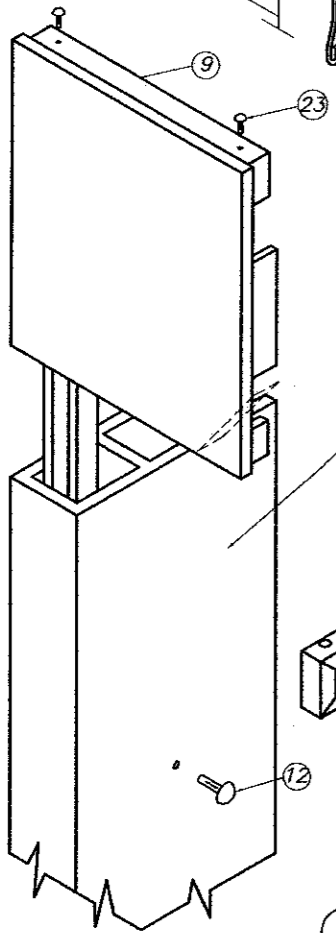


RV 45 & RV 45/S
HOUSINGS

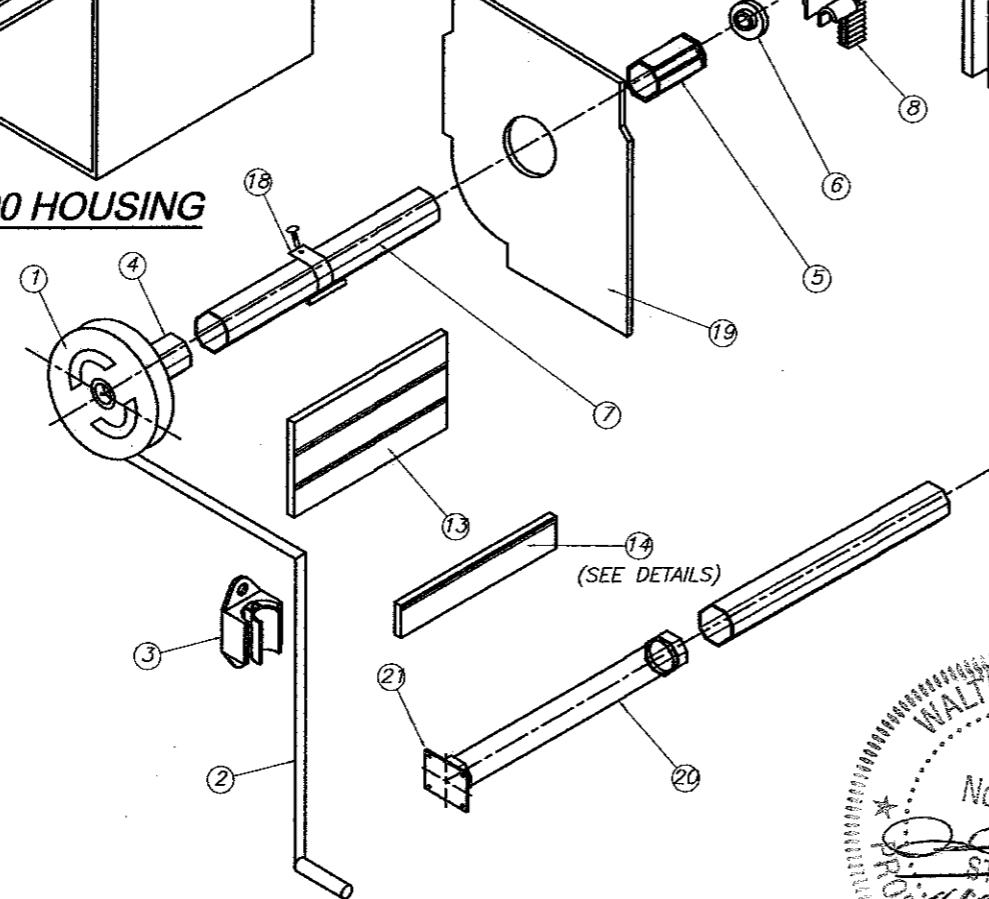


STUB DETAIL
(N. T. S.)

⊗ SIDE CAPS:
BK 90, BK 45 & BK 45/S



RV 90 HOUSING



V BOX COMPONENTS AND ASSEMBLY DETAIL
(SEE NOTE 11 ON SHEET 1)

COMPONENTS FOR GEAR OPERATED SYSTEM

- ① - GEAR
- ② - UNIVERSAL & CRANK
- ③ - CRANK HOLDER(OPTIONAL)
- ④ - GEAR INSERT(GEAR TO AXLE CONNECTOR)
- ⑤ - IDLER INSERT
- ⑥ - BALL BEARING
- ⑦ - OCTAGONAL AXLE *
- ⑧ - ENTRY GUIDES (ONLY FOR A-150-H SLAT)
- ⑨ - SIDE/END CAP *
- ⑩ - HOUSING(FRONT & BOTTOM), 0.040" THICK
- ⑪ - SIDE RAIL
- ⑫ - PLUG-BOTTOMS
- ⑬ - ALUMINUM SLATS
- ⑭ - BASE SLAT
- ⑮ - PLASTIC STOPS(OPTIONAL)
- ⑯ - SIDE LOCKS(OPTIONAL)
- ⑰ - STAPLES(OPTIONAL)
- ⑱ - SPRINGLOCK HANGER
- ⑲ - SAFETY PLATES

SIDE CAP HEIGHT SCHEDULE		
TYPE	90°	45°
1	4.0"	N/A
2	5.0"	N/A
3	5.5"	N/A
4	6.0"	6.0"
5	6.5"	6.5"
6	7.0"	7.0"
7	8.0"	8.0"
8	9.0"	9.0"
9	10.0"	10.0"
10	N/A	12.0"

N/A = NOT APPLICABLE

* SHALL BE CAPABLE TO SUSTAIN SLAT'S WEIGHT AND ASSURE LIFTING MECHANISM (SEE NOTE 11/1).

**ADDITIONAL COMPONENTS FOR
MOTORIZED OPERATED SYSTEM**

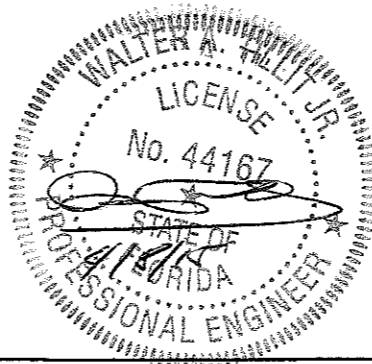
- ⑳ - TUBULAR MOTOR
- ㉑ - MOTOR BRACKET
- ㉒ - SWITCH

FASTENERS

- ㉓ - 3/16" ALUMINUM POP RIVETS(6 REQ'D EA.

SIDE CAP) : 2 @ TOP, 2 @ REAR, 2@ BOTTOM

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ROLL-UP SHUTTER/WIND BORNE DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

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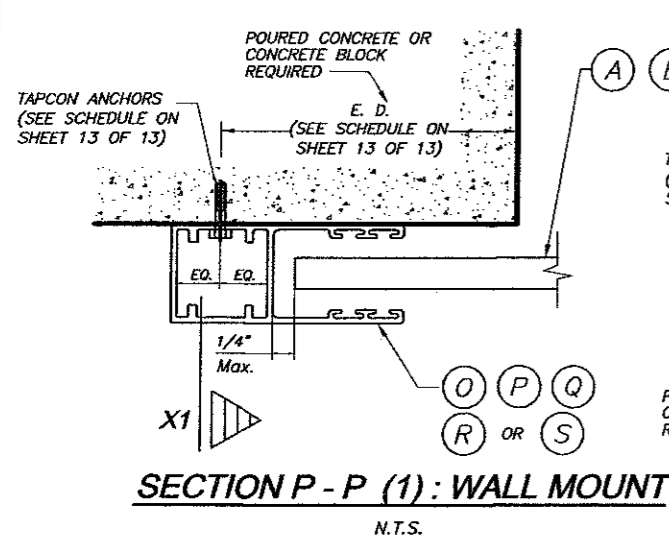
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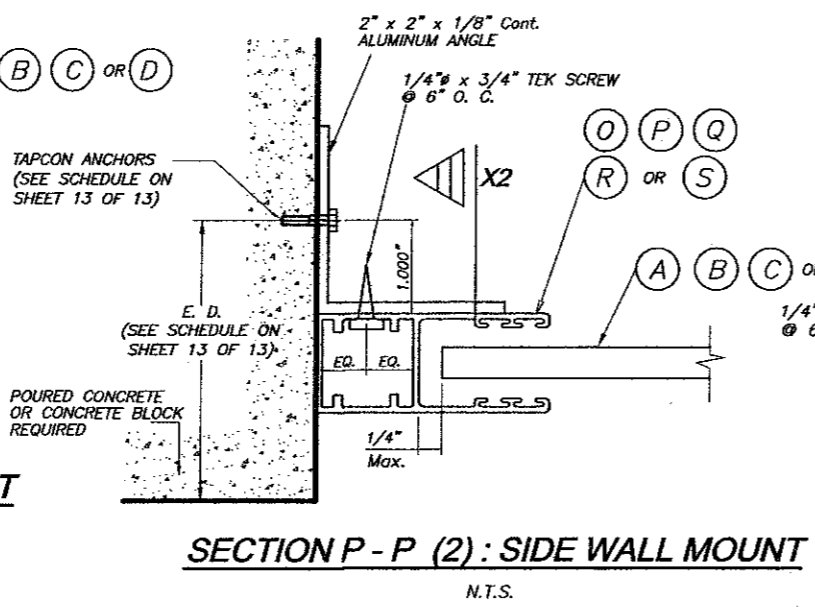
04/02/15
DATE

15-059
DRAWING No

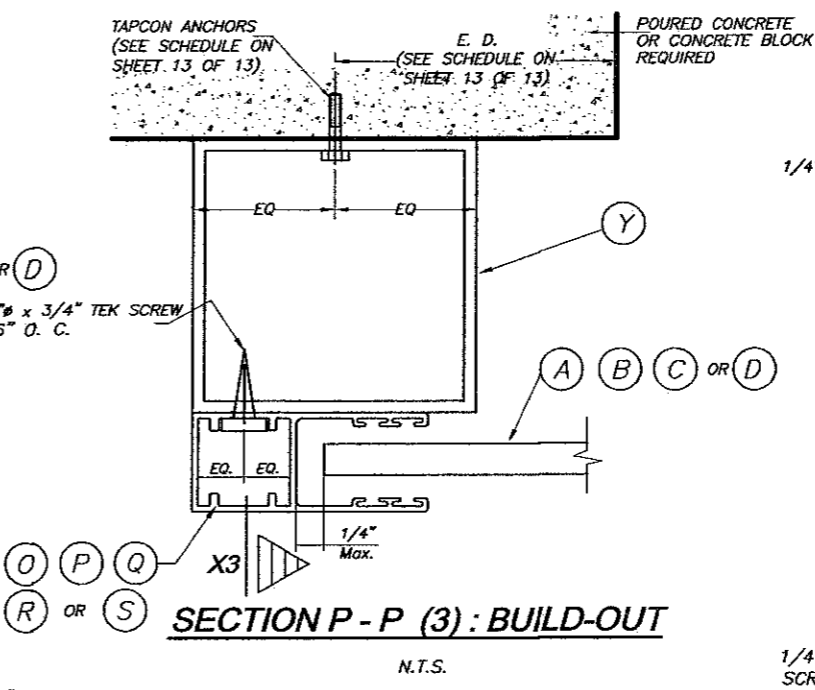
SHEET 3 OF 13



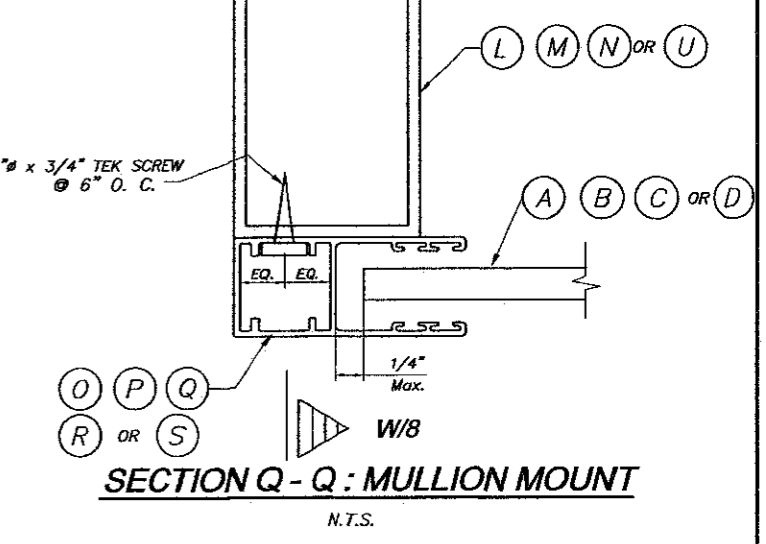
SECTION P - P (1) : WALL MOUNT
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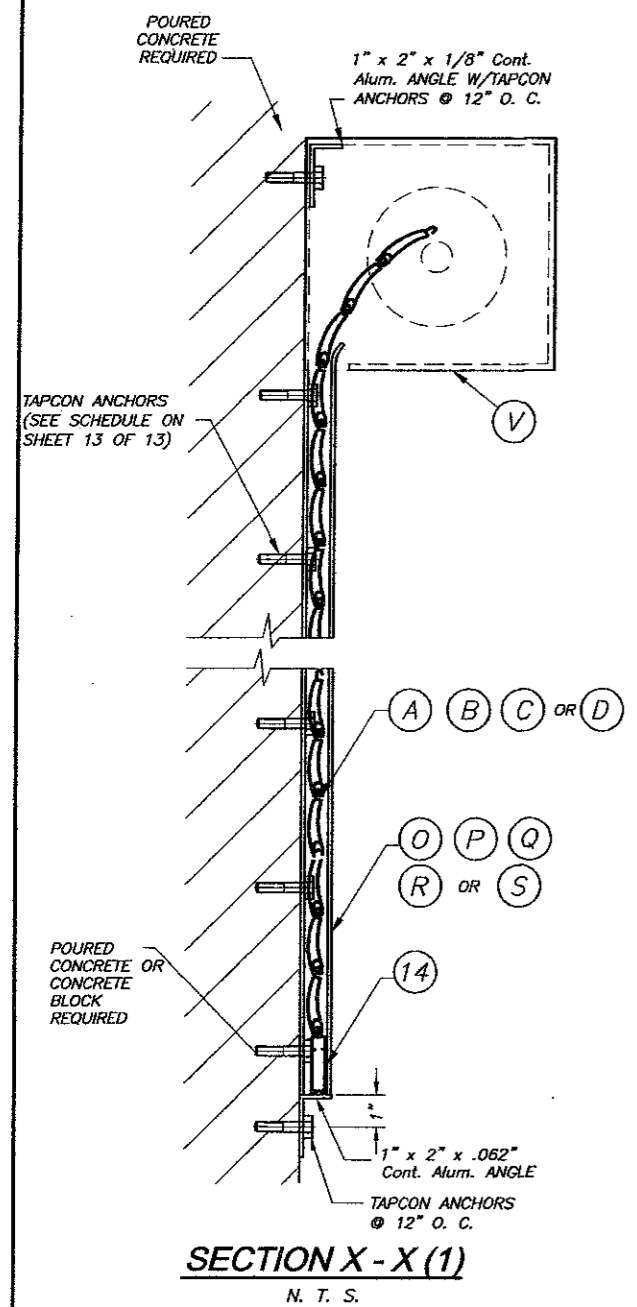
SECTION P - P (2) : SIDE WALL MOUNT
N.T.S.



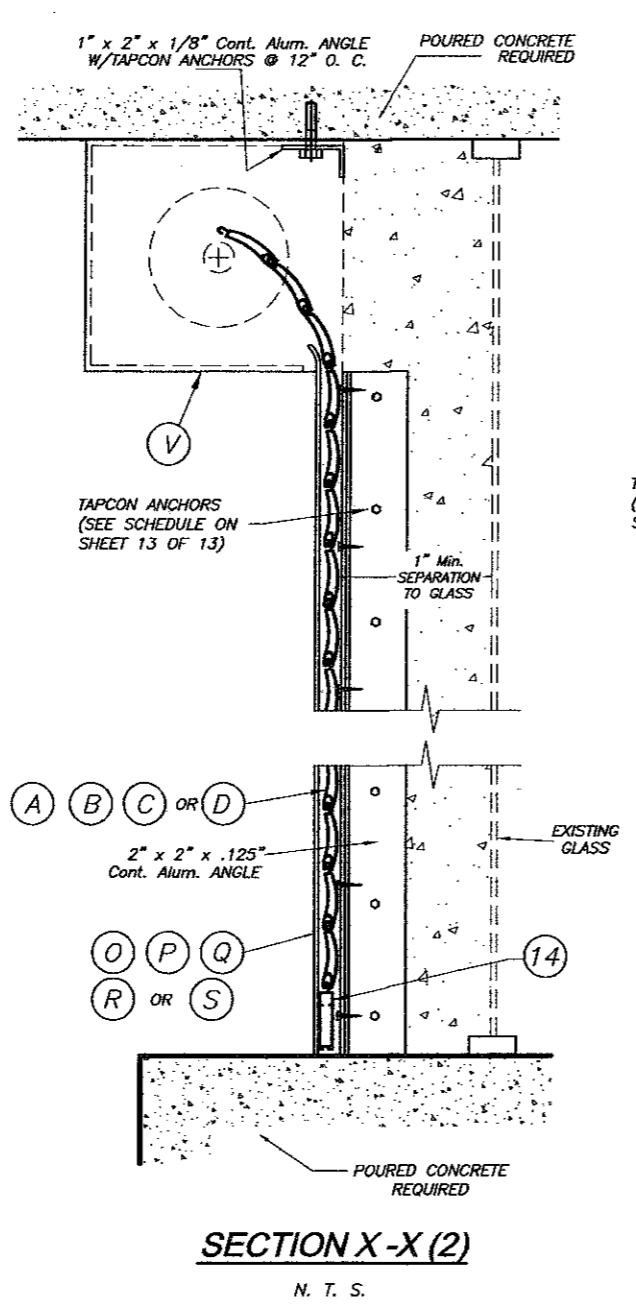
SECTION P - P (3) : BUILD-OUT
N.T.S.



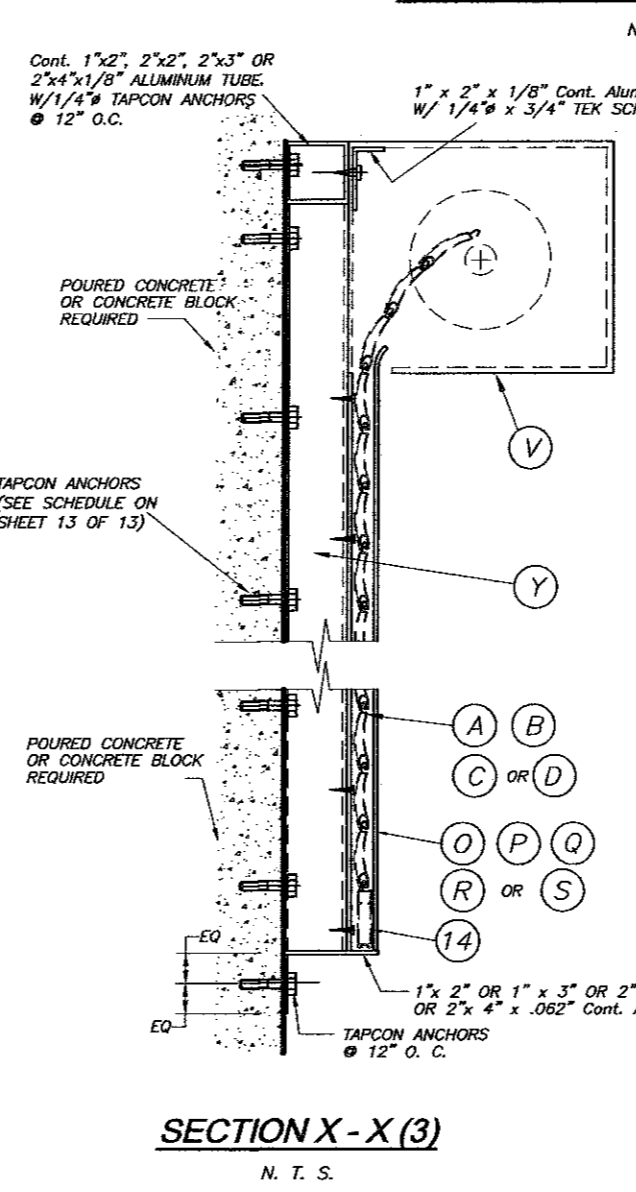
SECTION Q - Q : MULLION MOUNT
N.T.S.



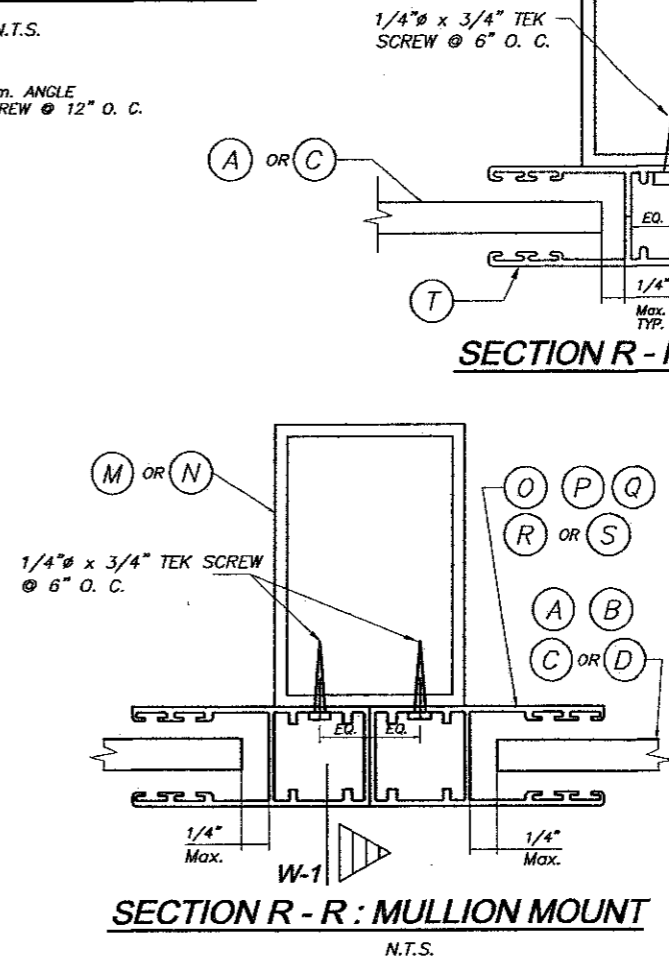
SECTION X - X (1)
N. T. S.



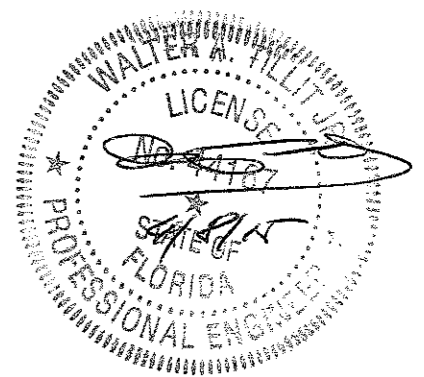
SECTION X - X (2)
N. T. S.



SECTION X - X (3)
N. T. S.



SECTION R - R : MULLION MOUNT
N.T.S.



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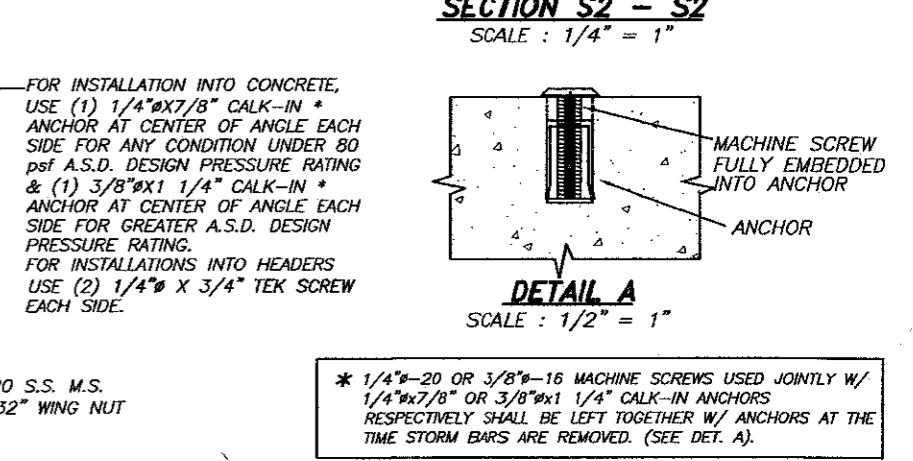
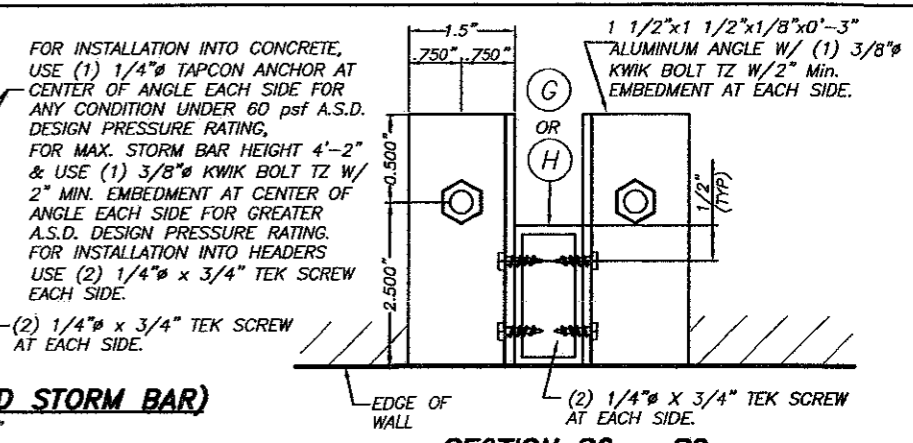
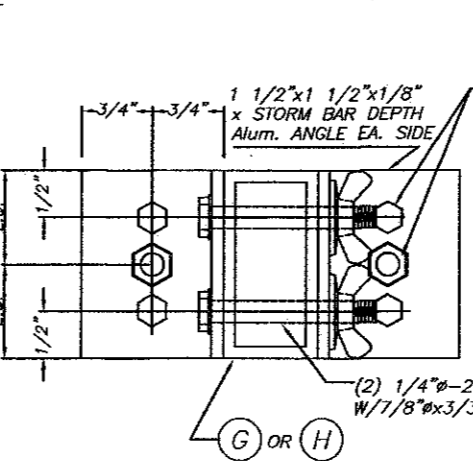
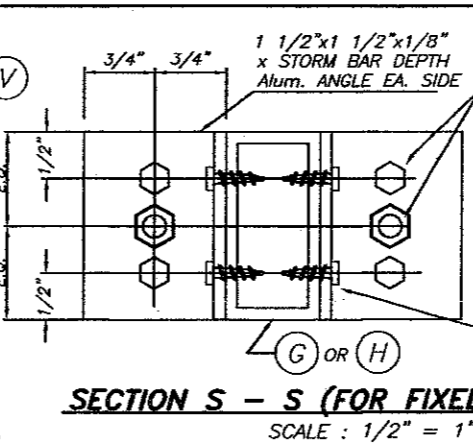
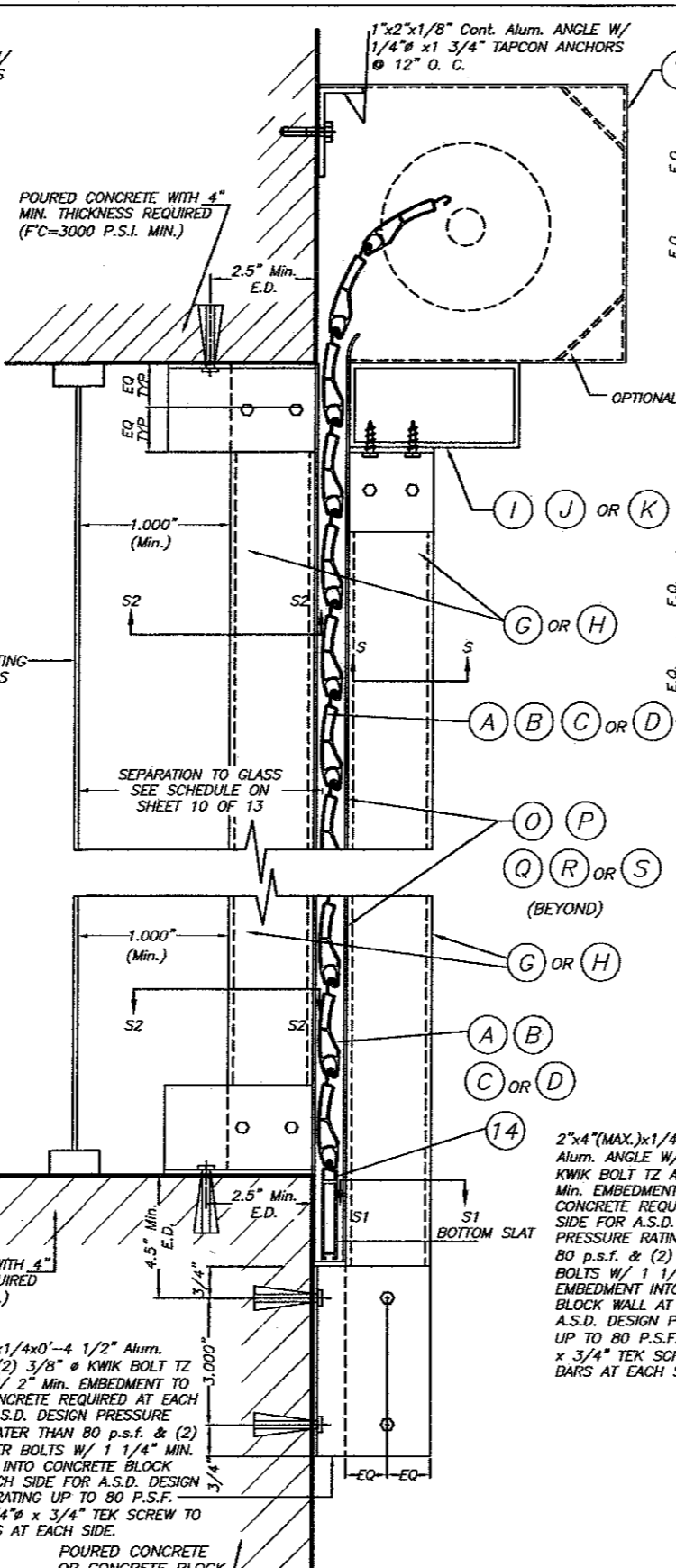
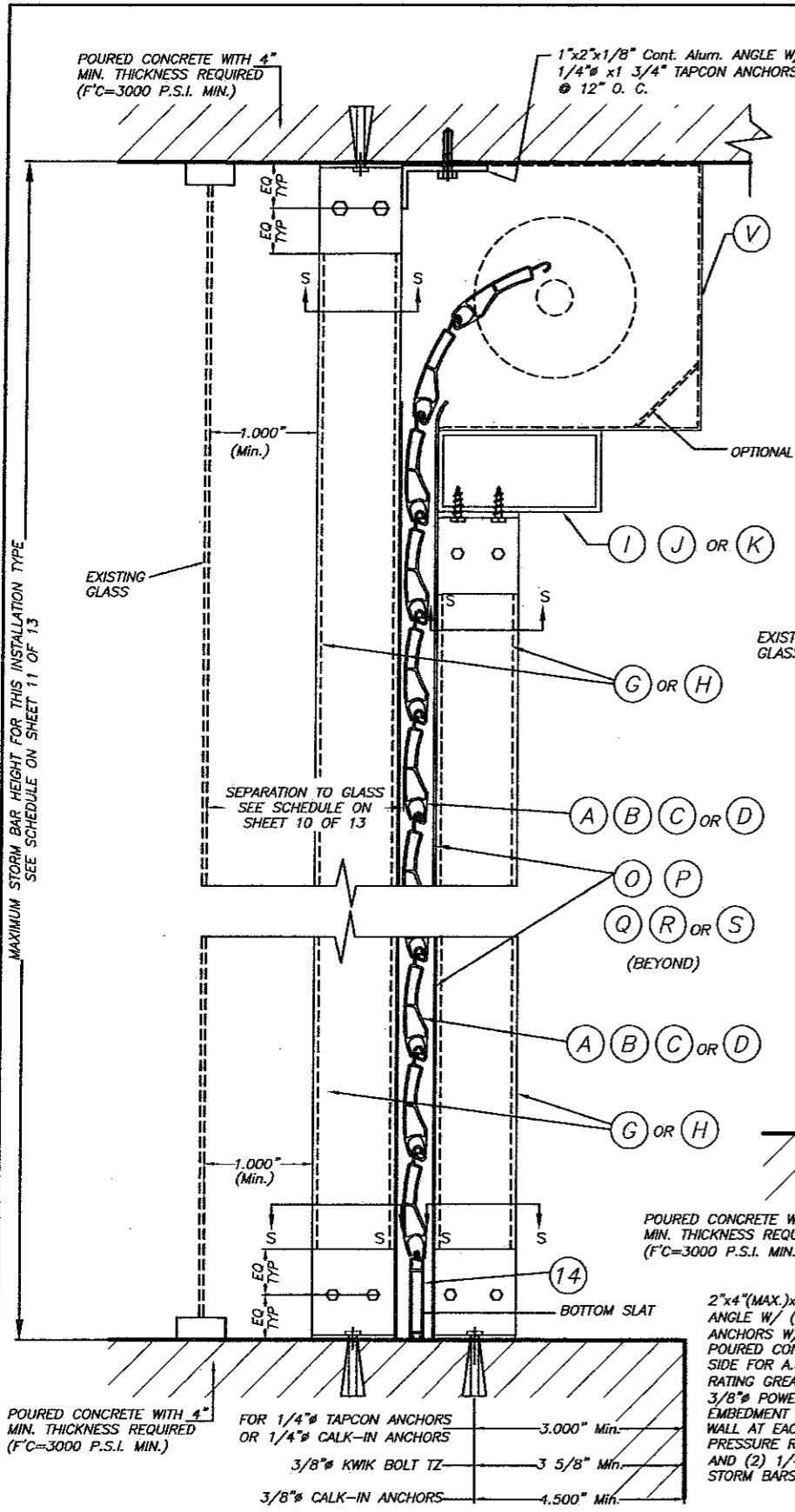
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SHEET 4 OF 13



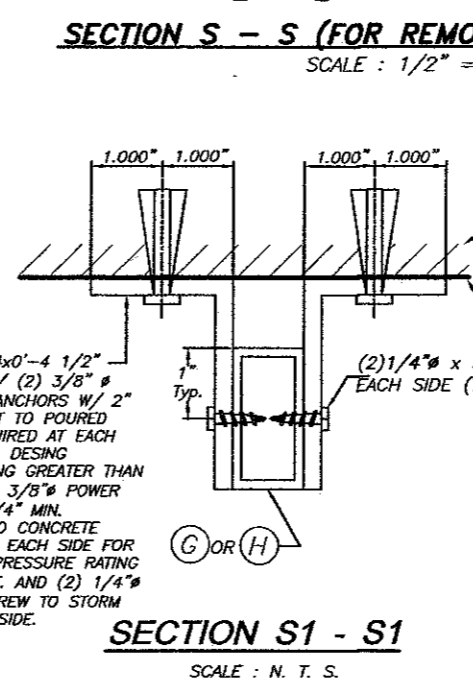
* 1/4"-20 OR 3/8"-16 MACHINE SCREWS USED JOINTLY W/ 1/4"x7/8" OR 3/8"x1 1/4" CALK-IN ANCHORS RESPECTIVELY SHALL BE LEFT TOGETHER W/ ANCHORS AT THE TIME STORM BARS ARE REMOVED. (SEE DET. A).

CEILING & FLOOR MOUNTING: SECTION V-V(2) INSTALLATION W/ FIXED OR REMOVABLE STORM BARS W/CONCRETE ANCHORS
(SEE SECTION "S" FOR ANCHOR TYPE REQUIREMENT)
N.T.S.

SINGLE SPAN SECTIONS AND DETAILS ARE SIMILAR TO ABOVE SHOWN WITHOUT STORM BAR & HEADERS.

WALL MOUNTING: SECTION V-V(1) INSTALLATION W/ FIXED STORM BARS W/CONCRETE ANCHORS
N.T.S.

SECTION V - V



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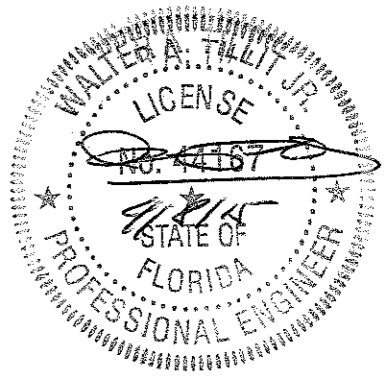
ROLL-UP SHUTTER/WIND BORNE DEBRI REGION
RL-4, RLL-3, A-200-H, A-150-H SLATS

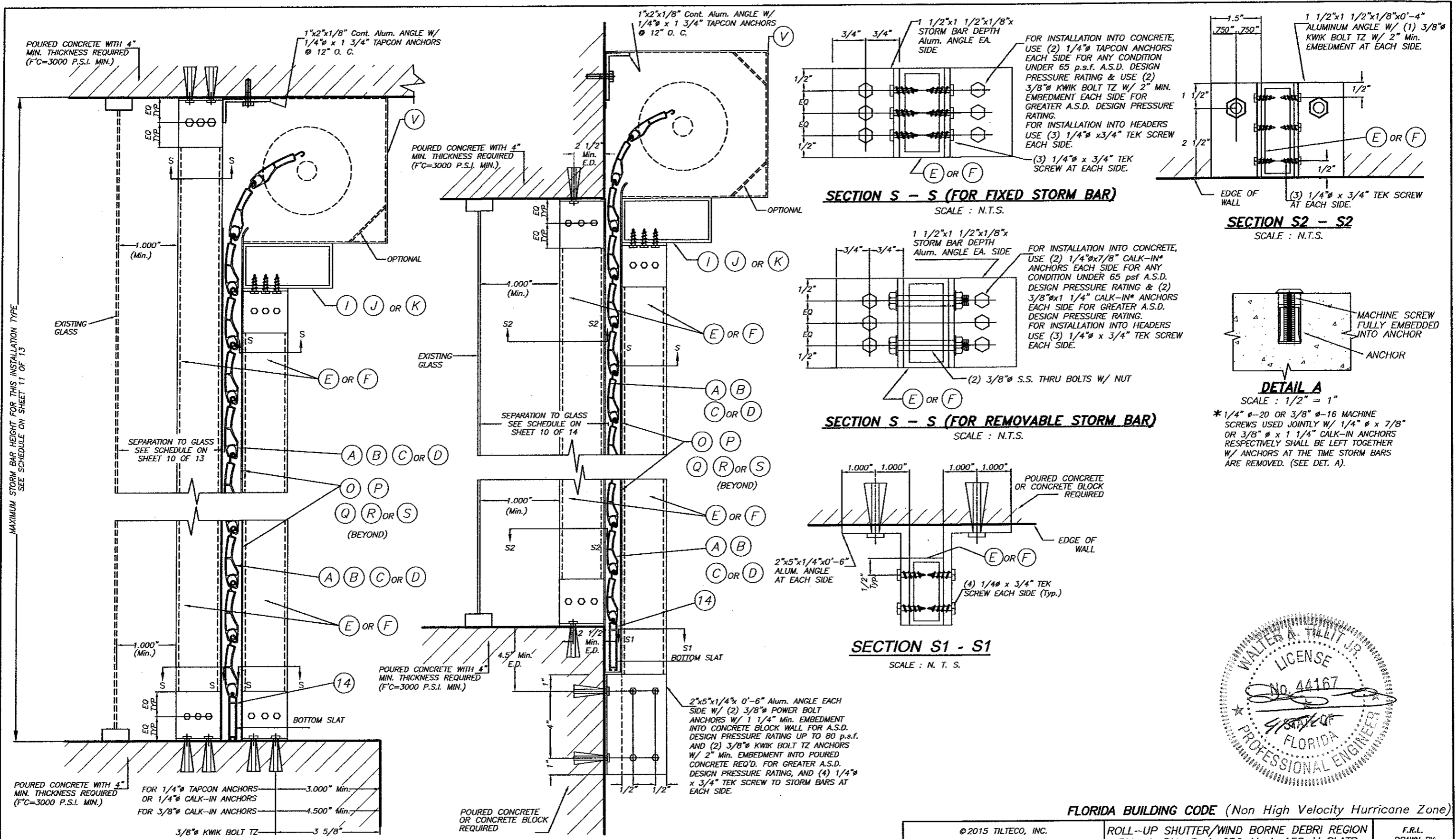
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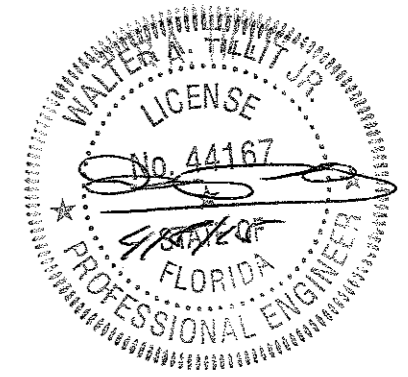


CEILING & FLOOR MOUNTING: SECTION V-V(2) INSTALLATION W/ FIXED OR REMOVABLE STORM BARS W/ CONCRETE ANCHORS
 (SEE SECTION "S" FOR ANCHOR TYPE REQUIREMENT)
 SCALE: N.T.S.

WALL MOUNTING: SECTION V-V(1) INSTALLATION W/ FIXED STORM BARS W/ CONCRETE ANCHORS
 SCALE: N.T.S.

SECTION V - V

SINGLE SPAN SECTIONS AND DETAILS ARE SIMILAR TO ABOVE SHOWN WITHOUT STORM BAR & HEADERS.



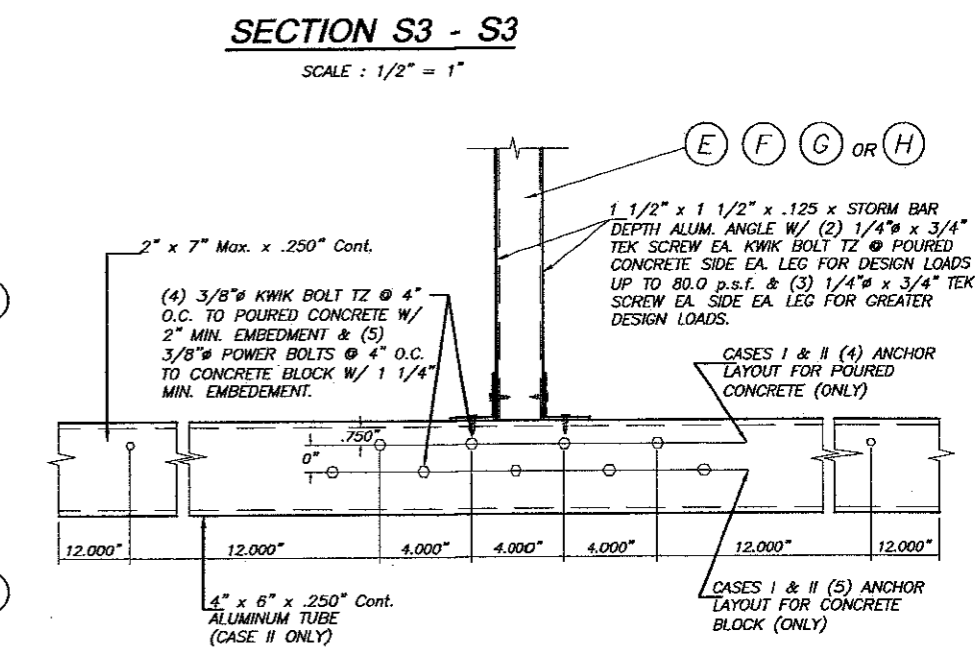
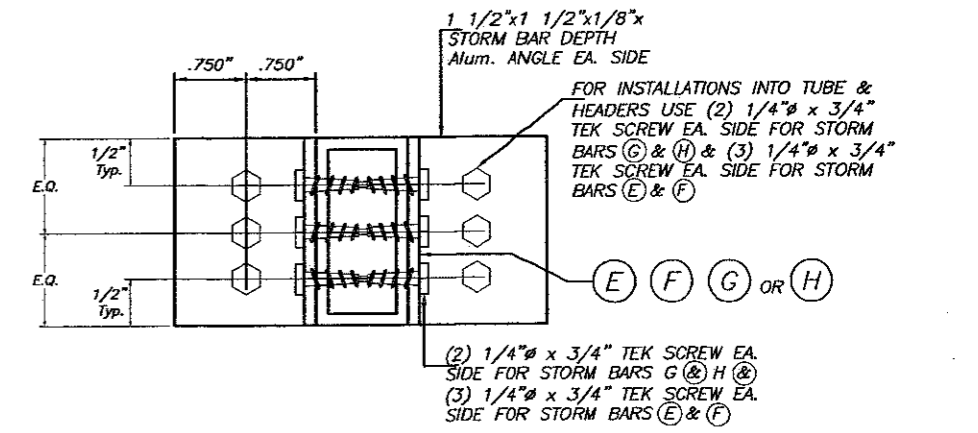
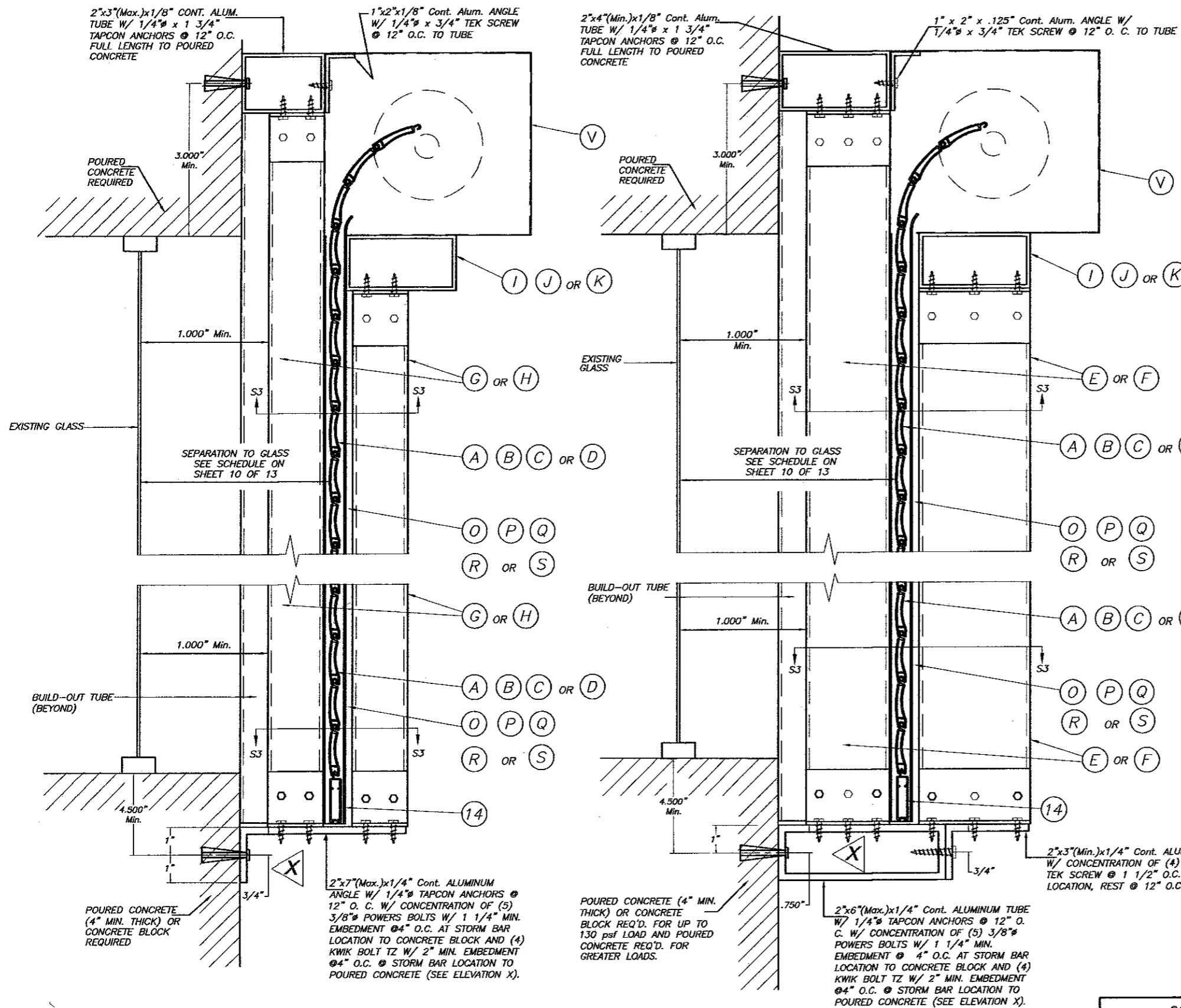
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CASE I

CASE II

STORM BAR CONNECTION AT BUILD-OUT INSTALLATION : SECTIONS V - V (3)

SCALE : 1/4" = 1"

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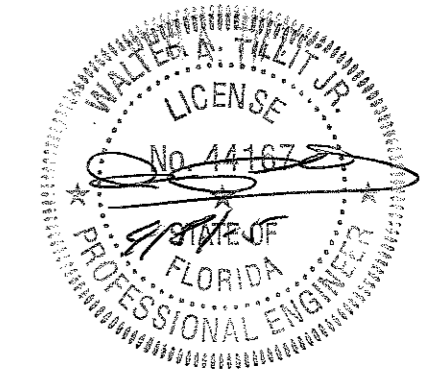
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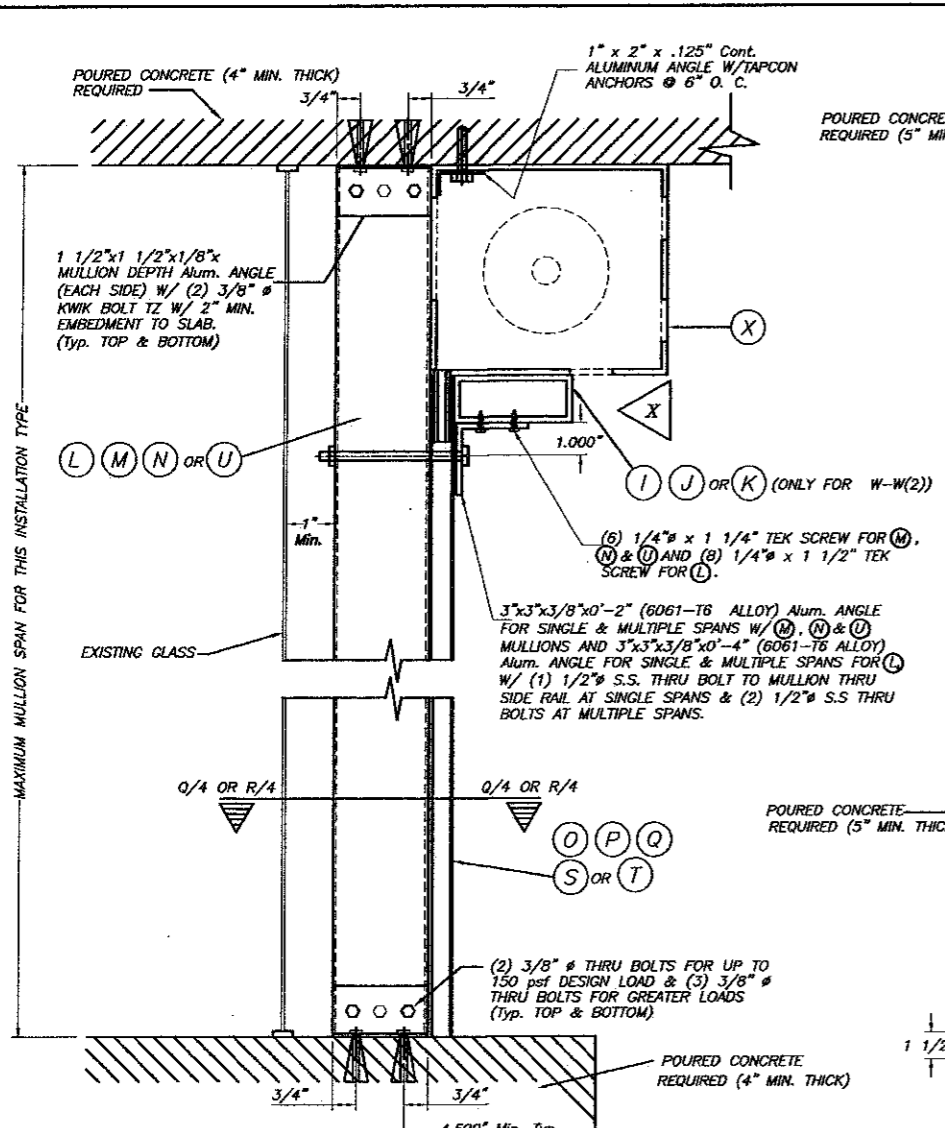
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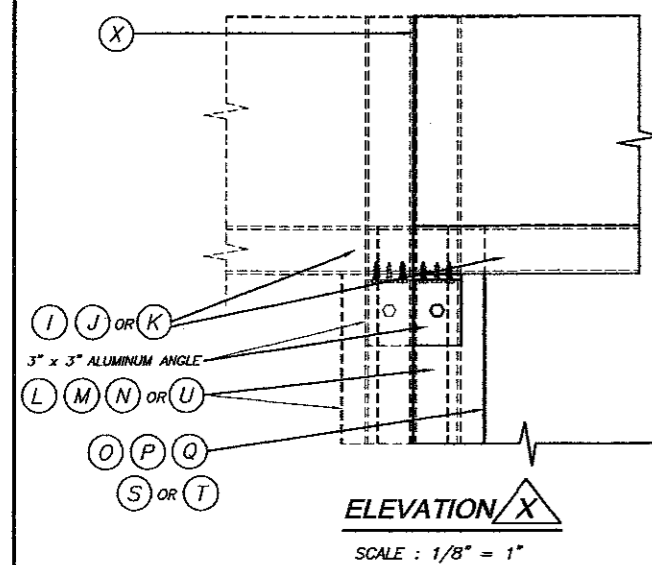
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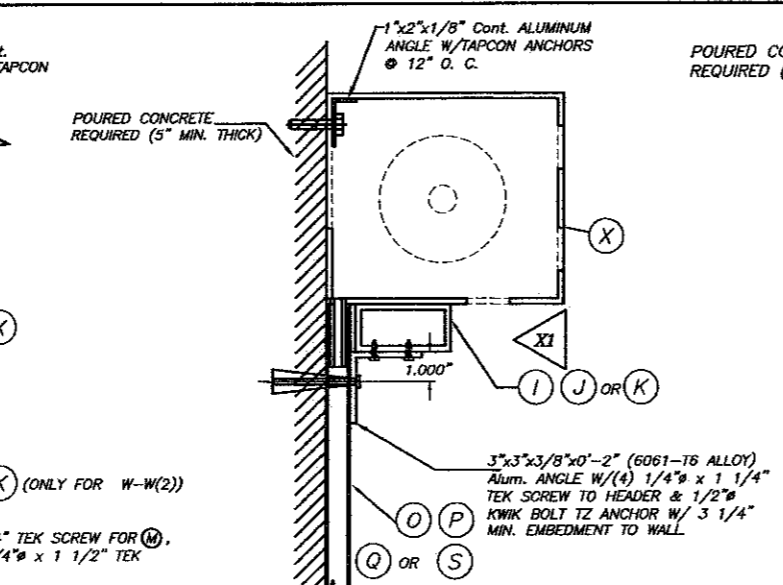




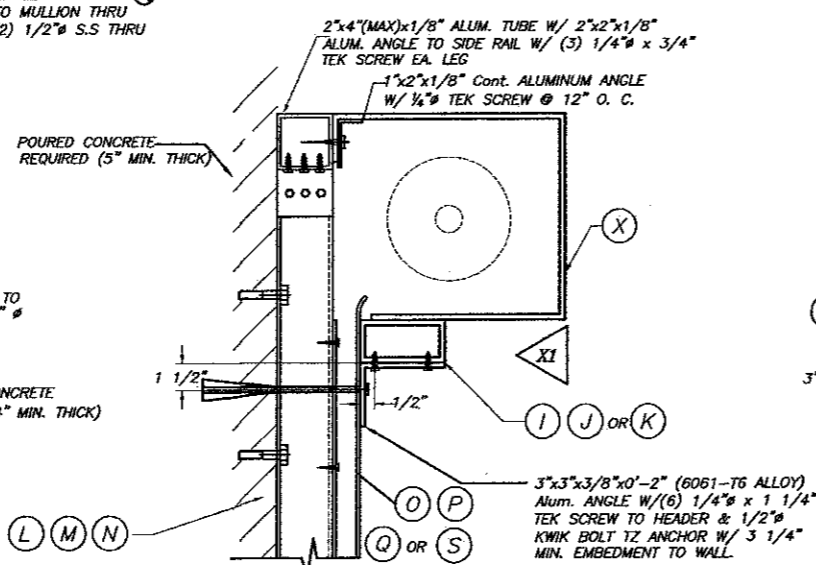
FLOOR/CEILING MOUNTING :
SECTION W-W (1), W/O HEADER
SECTION W-W (2), W/HEADER
 SCALE : 1/8" = 1"



ELEVATION X
 SCALE : 1/8" = 1"



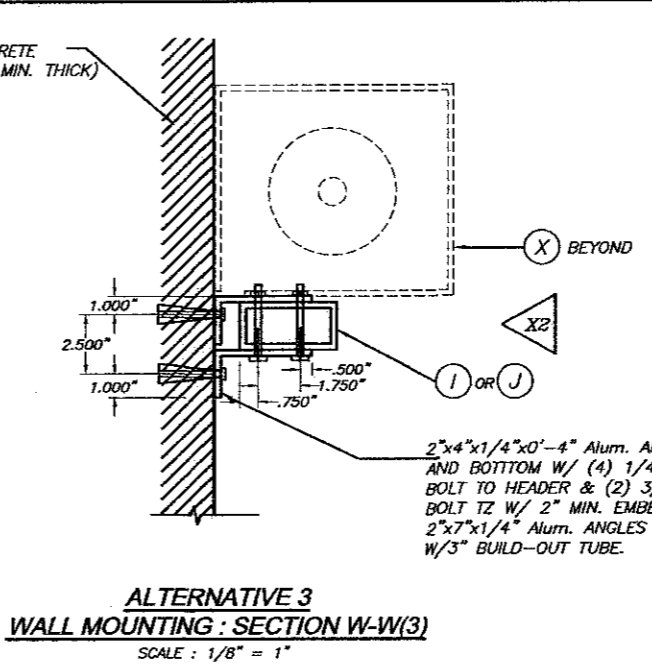
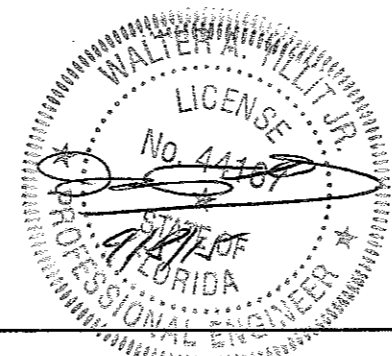
ALTERNATIVE 1
WALL MOUNTING : SECTION W-W(3)
 SCALE : 1/8" = 1"



ALTERNATIVE 2
WALL MOUNTING : SECTION W-W(3)
 SCALE : 1/8" = 1"

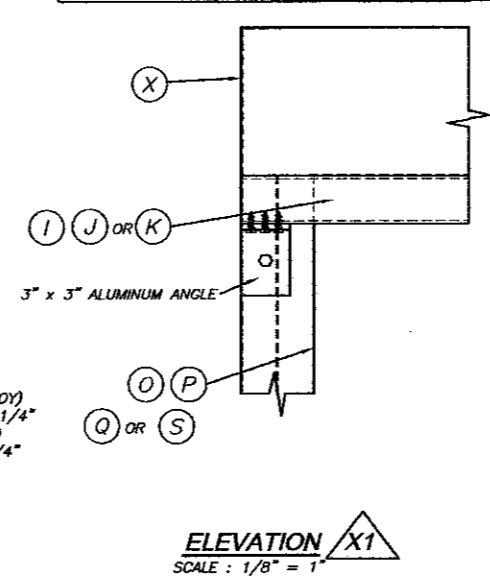
NOTE:
 INSTALLATION DETAILS SHOWN ON ALTERNATIVES 1 & 2 ARE VALID FOR ANY STORM BAR HEIGHT AND HEADER SPAN CONDITION UNDER 175 psf. A.S.D. DESIGN PRESSURE RATING.

TYPICAL HEADER CONNECTION AT ENDS:
SECTIONS W-W

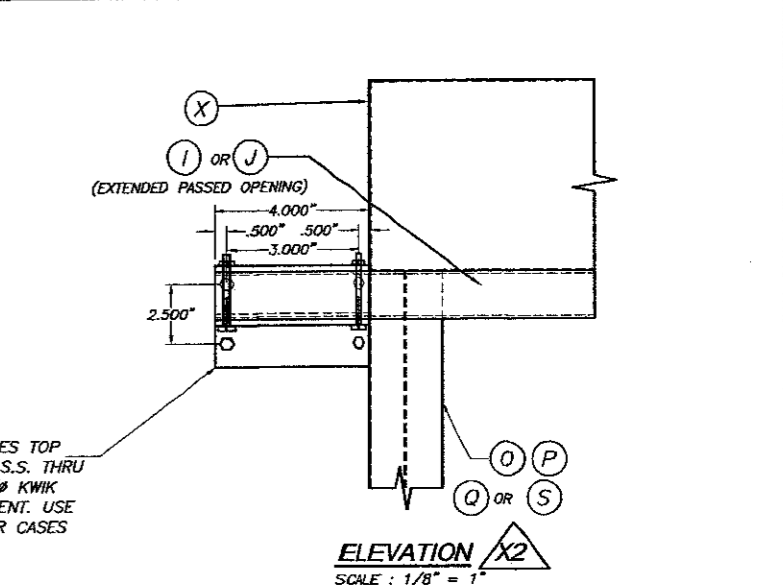


ALTERNATIVE 3
WALL MOUNTING : SECTION W-W(3)
 SCALE : 1/8" = 1"

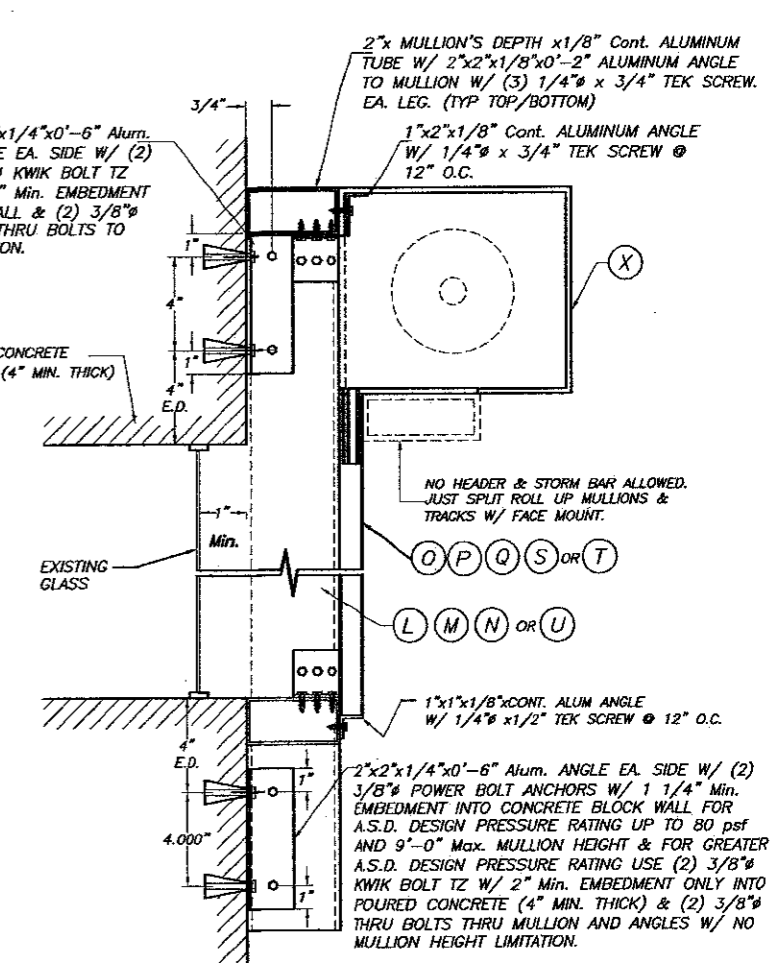
NOTE:
 VALID FOR ANY SPAN AND LOAD CONDITION



ELEVATION X1
 SCALE : 1/8" = 1"



ELEVATION X2
 SCALE : 1/8" = 1"



WALL MOUNTING : MULLION CONNECTION
AT TOP & BOTTOM : SECTION W-W (1)
 SCALE : 1/8" = 1"

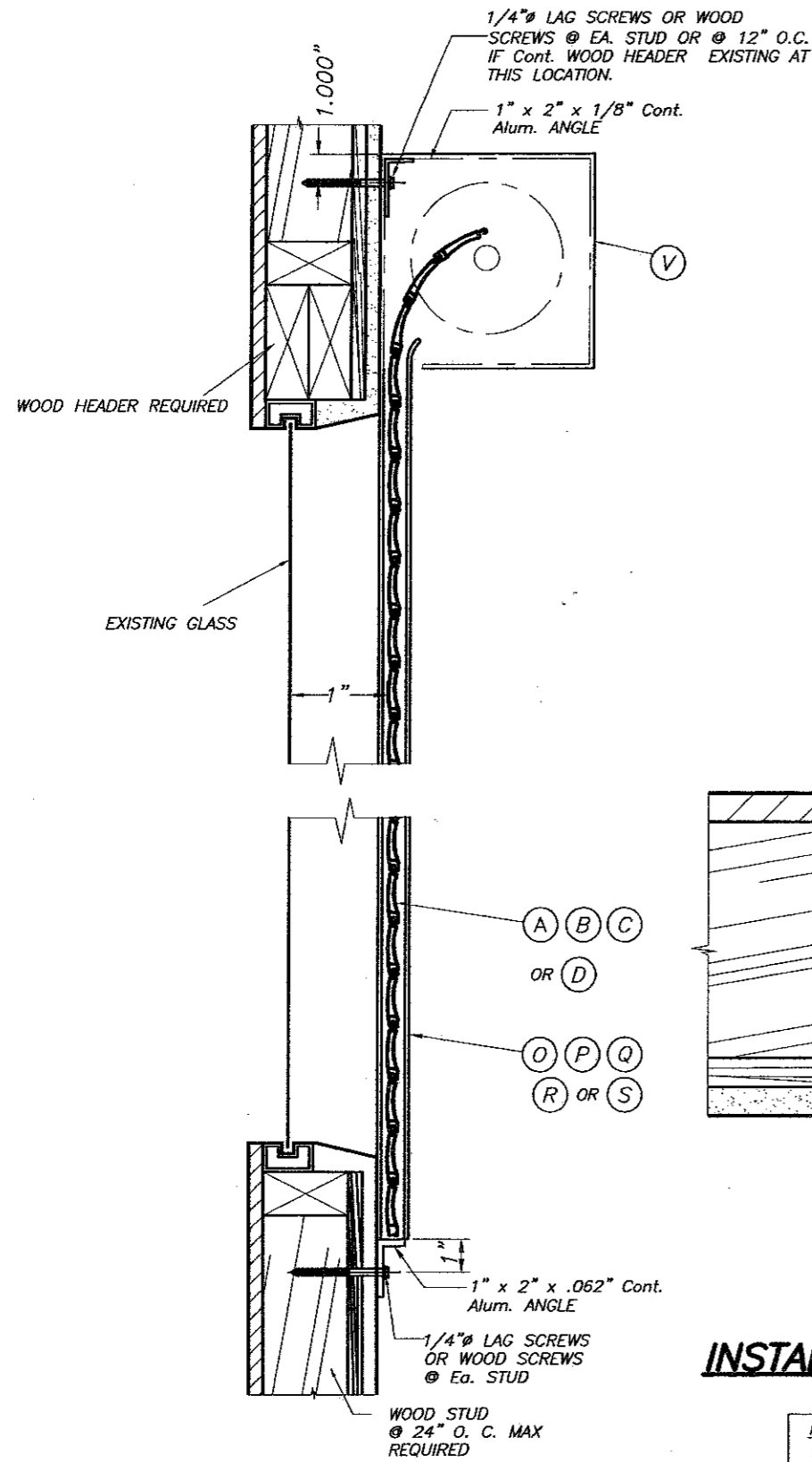
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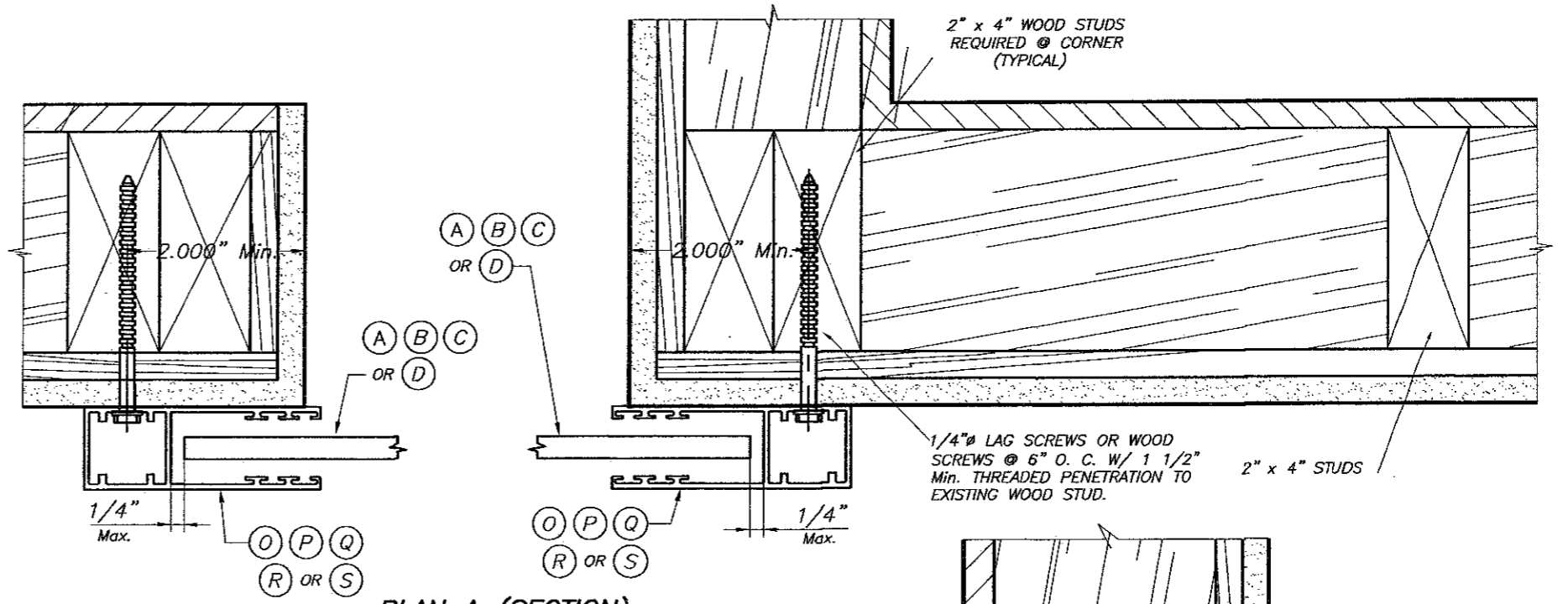
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4		
		SHEET 8 OF 13

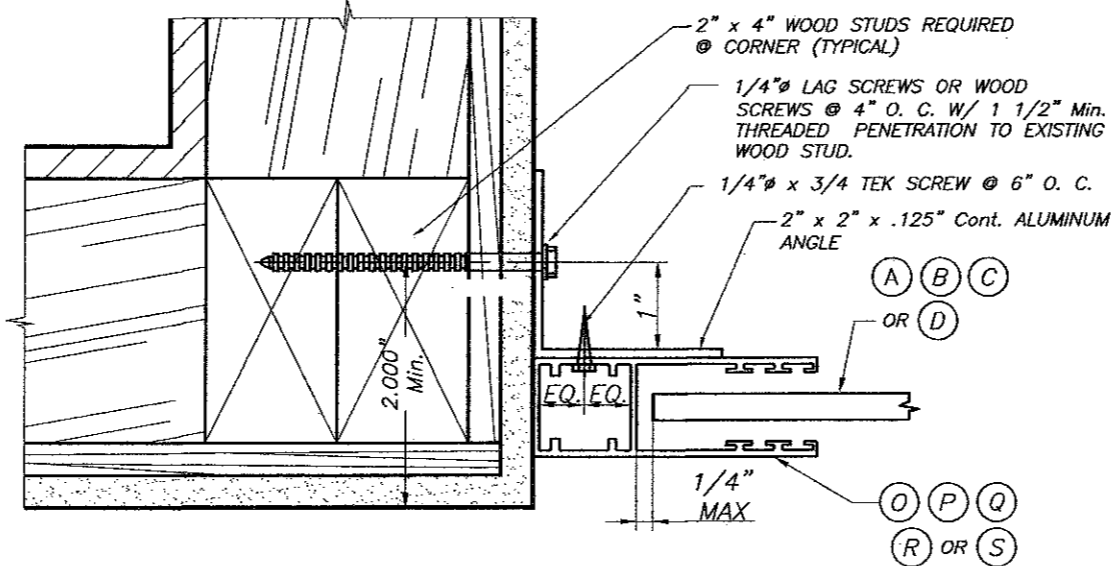


**WALL MOUNTING INSTALLATION
SINGLE SPAN CONDITION**

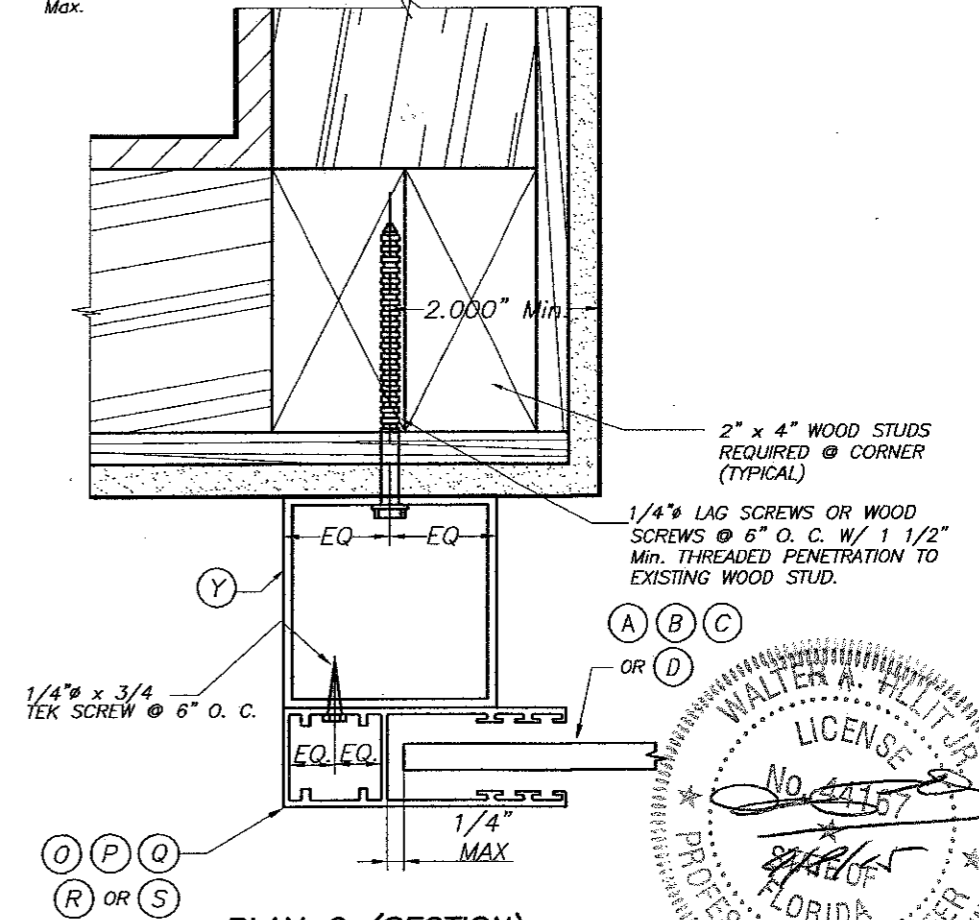
N. T. S.



**PLAN A (SECTION)
WALL MOUNT**
SCALE : 3/8" = 1"



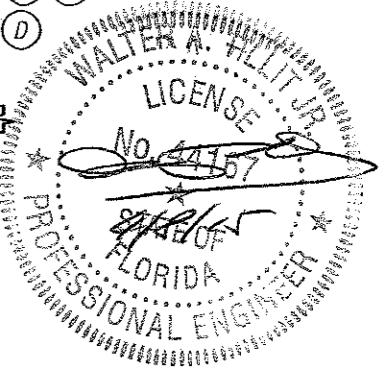
**PLAN B (SECTION)
INSIDE MOUNT**
SCALE : 3/8" = 1"



**PLAN C (SECTION)
BUILD-OUT**
SCALE : 3/8" = 1"

INSTALLATIONS INTO EXISTING WOOD BUILDINGS

- NOTES:**
1. INSTALLATIONS ARE ONLY VALID FOR BUILDINGS WITH A.S.D. DESIGN PRESSURE RATING UP TO 80 p.s.f.
 2. FOR NEW FRAME CONSTRUCTION: WOOD MEMBER TO BE SOUTHERN PINE No. 2 W/ SPECIFIC DENSITY OF 0.55 OR DOUGLAS FIR W/ SPECIFIC DENSITY OF 0.42.
 3. MINIMUM PENETRATION OF LAG SCREWS OR WOOD SCREWS INTO WOOD MEMBER TO BE 1 1/2".



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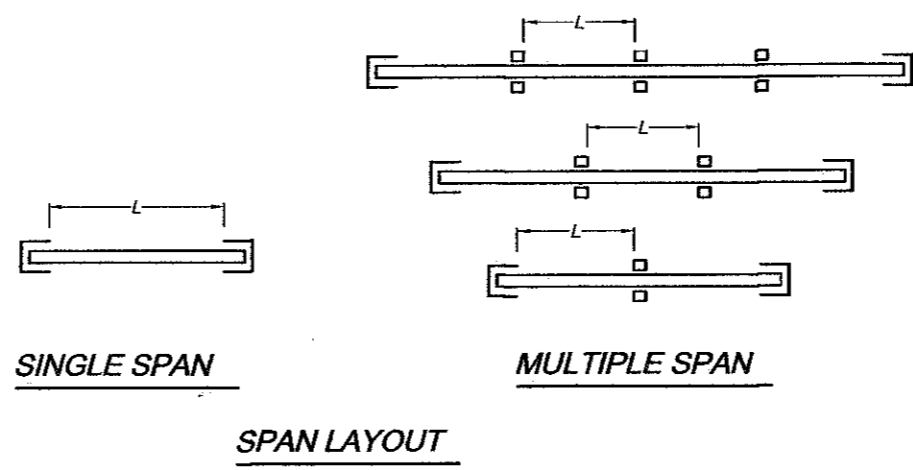
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SHEET 9 OF 13		

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SLAT PERFORMANCE CHART
MAXIMUM A.S.D. DESIGN PRESSURE RATING (p. s. f.)
AND CORRESPONDING MAXIMUM SLAT SPAN "L"

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)	TYPE 1 SLAT RLL-4 SLAT		TYPE 2 SLAT RLL-3 SLAT		TYPE 3 SLAT A-200-H SLAT		TYPE 4 SLAT A-150-H SLAT *	
	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS
	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT
25.0	7'-8"	1"	5'-11"	1"	6'-0"	1"	4'-5"	1"
30.0	7'-4"	1"	5'-8"	1"	5'-9"	1"	4'-3"	1"
35.0	7'-1"	1"	5'-5"	1"	5'-4"	1"	4'-1"	1"
40.0	6'-10"	1"	5'-3"	1"	5'-0"	1"	4'-0"	1"
45.0	6'-7"	1"	5'-1"	1"	4'-8"	1"	3'-10"	1"
50.0	6'-5"	1"	4'-11"	1"	4'-5"	1"	3'-8"	1"
55.0	6'-3"	1"	4'-9"	1"	4'-3"	1"	3'-7"	1"
60.0	6'-1"	1"	4'-8"	1"	4'-1"	1"	3'-6"	1"
65.0	5'-11"	1"	4'-7"	1"	3'-11"	1"	3'-4"	1"
70.0	5'-10"	1"	4'-5"	1"	3'-9"	1"	3'-3"	1"
75.0	5'-9"	1"	4'-4"	1"	3'-8"	1"	3'-1"	1"
80.0	5'-7"	1"	4'-3"	1"	3'-6"	1"	3'-0"	1"
85.0	5'-6"	1"	4'-1"	1"	3'-5"	1"	2'-11"	1"
90.0	5'-5"	1"	4'-0"	1"	3'-4"	1"	2'-10"	1"
95.0	5'-4"	1"	3'-11"	1"	3'-3"	1"	2'-9"	1"
100.0	5'-3"	1"	3'-10"	1"	3'-2"	1"	2'-8"	1"
105.0	5'-2"	1"	3'-8"	1"	3'-1"	1"	-	-
110.0	5'-1"	1"	3'-7"	1"	3'-0"	1"	-	-
115.0	5'-0"	1"	3'-6"	1"	2'-11"	1"	-	-
120.0	4'-10"	1"	3'-6"	1"	2'-11"	1"	-	-
125.0	4'-9"	1"	3'-5"	1"	2'-10"	1"	-	-
130.0	4'-8"	1"	3'-4"	1"	2'-9"	1"	-	-
135.0	4'-7"	1"	3'-3"	1"	2'-9"	1"	-	-
140.0	4'-6"	1"	3'-2"	1"	2'-8"	1"	-	-
145.0	4'-5"	1"	3'-2"	1"	2'-7"	1"	-	-
150.0	4'-4"	1"	3'-1"	1"	2'-7"	1"	-	-
155.0	4'-3"	1"	3'-1"	1"	2'-6"	1"	-	-
160.0	4'-3"	1"	3'-0"	1"	2'-6"	1"	-	-
165.0	4'-2"	1"	2'-11"	1"	2'-5"	1"	-	-
170.0	4'-1"	1"	2'-11"	1"	2'-5"	1"	-	-
175.0	4'-0"	1"	2'-10"	1"	2'-5"	1"	-	-
180.0	4'-0"	1"	2'-10"	1"	2'-4"	1"	-	-
185.0	3'-11"	1"	2'-9"	1"	2'-4"	1"	-	-
190.0	3'-10"	1"	2'-9"	1"	2'-3"	1"	-	-
195.0	3'-10"	1"	2'-9"	1"	2'-3"	1"	-	-



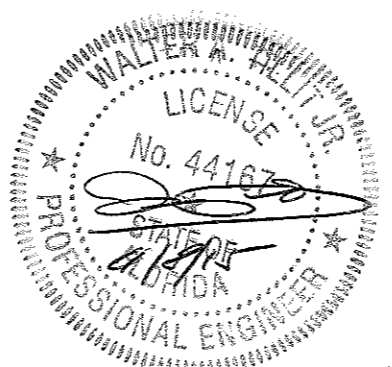
NOTE: MINIMUM SEPARATION TO GLASS FOR SINGLE AND MULTIPLE UNITS SHALL BE MEASURED FROM BACK OF SLAT TO GLASS.

- : NOT APPLICABLE.

* TYPE 4 SLAT SHALL BE ONLY INSTALLED ABOVE 30' ELEVATION OF BUILDING MEASURED AT BOTTOM OF SHUTTER.

SIDE RAIL REQUIRED FOR A GIVEN TYPE OF SLAT

SLAT TYPE	REQ'D SIDE RAIL TO BE USED
(A) (RLL-4)	(O) (RLL-25) & (T) (RLL-7) : DESIGN LOAD. (P) (RLL-40) & (S) (RLL-54) : ALL DESIGN LOADS.
(B) (RLL-3)	(R) (RLL-32)
(C) (A-200-H)	(O) (RLL-25), (Q) (RLL-1) & (T) (RLL-7)
(D) (A-150-H)	(R) (RLL-32)



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TILTECO inc.

TILLIT TESTING & ENGINEERING COMPANY
 6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166
 Phone : (305)871-1530 . Fax : (305)871-1531
 EB-0006719
 WALTER A. TILLIT Jr. P.E.
 FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RLL-4, RLL-3, A-200-H, A-150-H SLATS		F.R.L. DRAWN BY:
ROLLAC SHUTTERS OF TEXAS, INC.		04/02/15 DATE
5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		15-059 DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 11-238	04/02/15
2		

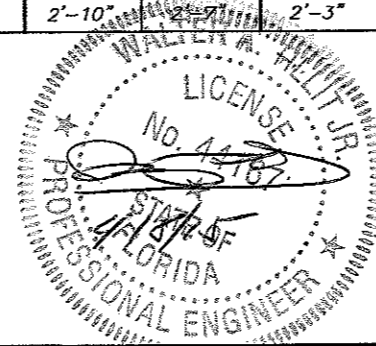
SHEET 10 OF 13

**STORM BAR LOADING CHART MAXIMUM A.S.D. DESIGN PRESSURE RATING (p. s. f.) AND CORRESPONDING
MAXIMUM SPAN "L" FOR A GIVEN TYPE OF STORM BAR AND STORM BAR SPACING.**

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)	Ⓔ TYPE 1 STORM BAR 2" x 4" x 1/4"				Ⓕ TYPE 2 STORM BAR 2" x 4" x 1/8"				Ⓖ TYPE 3 STORM BAR 2" x 3" x 1/8"				Ⓗ TYPE 4 STORM BAR RLL-15 + RLL-16			
	* STORM BAR SPACING				* STORM BAR SPACING				* STORM BAR SPACING				* STORM BAR SPACING			
	≤ 3'-0"	3' TO 4'	4' TO 5'	5' TO 6'	≤ 3'-0"	3' TO 4'	4' TO 5'	5' TO 6'	≤ 3'-0"	3' TO 4'	4' TO 5'	5' TO 6'	≤ 3'-0"	3' TO 4'	4' TO 5'	5' TO 6'
30.0 OR LESS	10'-0"	10'-0"	10'-0"	10'-0"	9'-0"	9'-0"	9'-0"	8'-11"	8'-0"	8'-0"	8'-0"	7'-3"	5'-6"	5'-6"	5'-2"	4'-8"
35.0	10'-0"	10'-0"	10'-0"	10'-0"	9'-0"	9'-0"	9'-0"	8'-3"	8'-0"	8'-0"	7'-5"	6'-9"	5'-6"	5'-4"	4'-9"	4'-4"
40.0	10'-0"	10'-0"	10'-0"	9'-11"	9'-0"	9'-0"	8'-6"	7'-9"	8'-0"	7'-9"	6'-11"	6'-4"	5'-6"	5'-0"	4'-5"	4'-1"
45.0	10'-0"	10'-0"	10'-0"	9'-8"	9'-0"	8'-11"	8'-0"	7'-4"	8'-0"	7'-3"	6'-6"	5'-11"	5'-5"	4'-8"	4'-2"	3'-10"
50.0	10'-0"	10'-0"	9'-10"	9'-3"	9'-0"	8'-6"	7'-7"	6'-11"	8'-0"	6'-11"	6'-2"	5'-8"	5'-2"	4'-5"	4'-0"	3'-8"
55.0	10'-0"	10'-0"	9'-7"	8'-10"	9'-0"	8'-1"	7'-3"	6'-7"	7'-7"	6'-7"	5'-11"	5'-5"	4'-11"	4'-3"	3'-9"	3'-6"
60.0	10'-0"	9'-11"	9'-3"	8'-5"	8'-11"	7'-9"	6'-11"	6'-4"	7'-3"	6'-4"	5'-8"	5'-2"	4'-8"	4'-1"	3'-8"	3'-4"
65.0	10'-0"	9'-9"	8'-11"	8'-1"	8'-7"	7'-5"	6'-8"	6'-1"	7'-0"	6'-1"	5'-5"	4'-11"	4'-6"	3'-11"	3'-6"	3'-2"
70.0	10'-0"	9'-7"	8'-7"	7'-10"	8'-3"	7'-2"	6'-5"	5'-10"	6'-9"	5'-10"	5'-3"	4'-9"	4'-4"	3'-9"	3'-4"	3'-1"
75.0	10'-0"	9'-3"	8'-3"	7'-7"	8'-0"	6'-11"	6'-2"	5'-8"	6'-6"	5'-8"	5'-1"	4'-7"	4'-2"	3'-8"	3'-3"	3'-0"
80.0	9'-11"	8'-11"	8'-0"	7'-4"	7'-9"	6'-9"	6'-0"	5'-6"	6'-4"	5'-6"	4'-11"	4'-6"	4'-1"	3'-6"	3'-2"	2'-10"
85.0	9'-10"	8'-8"	7'-9"	7'-1"	7'-6"	6'-6"	5'-10"	5'-4"	6'-1"	5'-4"	4'-9"	4'-4"	3'-11"	3'-5"	3'-1"	2'-9"
90.0	9'-8"	8'-5"	7'-7"	6'-11"	7'-4"	6'-4"	5'-8"	5'-2"	5'-11"	5'-2"	4'-7"	4'-2"	3'-10"	3'-4"	3'-0"	2'-8"
95.0	9'-6"	8'-3"	7'-4"	6'-8"	7'-1"	6'-2"	5'-6"	5'-0"	5'-9"	5'-0"	4'-6"	4'-1"	3'-9"	3'-3"	2'-11"	2'-8"
100.0	9'-3"	8'-0"	7'-2"	6'-6"	6'-11"	6'-0"	5'-4"	4'-11"	5'-8"	4'-11"	4'-4"	4'-0"	3'-8"	3'-2"	2'-10"	2'-7"
105.0	9'-0"	7'-10"	7'-0"	6'-5"	6'-9"	5'-10"	5'-3"	4'-9"	5'-6"	4'-9"	4'-3"	3'-11"	3'-6"	3'-1"	2'-9"	2'-6"
110.0	8'-10"	7'-8"	6'-10"	6'-3"	6'-7"	5'-9"	5'-1"	4'-8"	5'-5"	4'-8"	4'-2"	3'-10"	3'-6"	3'-0"	2'-8"	2'-5"
115.0	8'-7"	7'-6"	6'-8"	6'-1"	6'-6"	5'-7"	5'-0"	4'-7"	5'-3"	4'-7"	4'-1"	3'-9"	3'-5"	2'-11"	2'-7"	2'-5"
120.0	8'-5"	7'-4"	6'-6"	6'-0"	6'-4"	5'-6"	4'-11"	4'-6"	5'-2"	4'-6"	4'-0"	3'-8"	3'-4"	2'-10"	2'-7"	2'-4"
125.0	8'-3"	7'-2"	6'-5"	5'-10"	6'-2"	5'-4"	4'-10"	4'-5"	5'-1"	4'-4"	3'-11"	3'-7"	3'-3"	2'-10"	2'-6"	2'-4"
130.0	8'-1"	7'-0"	6'-3"	5'-9"	6'-1"	5'-3"	4'-9"	4'-4"	4'-11"	4'-3"	3'-10"	3'-6"	3'-2"	2'-9"	2'-6"	2'-3"
135.0	7'-11"	6'-11"	6'-2"	5'-8"	6'-0"	5'-2"	4'-7"	4'-3"	4'-10"	4'-2"	3'-9"	3'-5"	3'-1"	2'-8"	2'-5"	2'-2"
140.0	7'-10"	6'-9"	6'-1"	5'-6"	5'-10"	5'-1"	4'-6"	4'-2"	4'-9"	4'-2"	3'-8"	3'-4"	3'-1"	2'-8"	2'-5"	2'-2"
145.0	7'-8"	6'-8"	5'-11"	5'-5"	5'-9"	5'-0"	4'-6"	4'-1"	4'-8"	4'-1"	3'-8"	3'-4"	3'-0"	2'-7"	2'-4"	2'-2"
150.0	7'-7"	6'-6"	5'-10"	5'-4"	5'-8"	4'-11"	4'-5"	4'-0"	4'-7"	4'-0"	3'-7"	3'-3"	3'-0"	2'-7"	2'-4"	2'-1"
155.0	7'-5"	6'-5"	5'-9"	5'-3"	5'-7"	4'-10"	4'-4"	3'-11"	4'-6"	3'-11"	3'-6"	3'-2"	2'-11"	2'-6"	2'-3"	2'-1"
160.0	7'-4"	6'-4"	5'-8"	5'-2"	5'-6"	4'-9"	4'-3"	3'-11"	4'-6"	3'-10"	3'-5"	3'-2"	2'-10"	2'-6"	2'-3"	2'-0"
165.0	7'-2"	6'-3"	5'-7"	5'-1"	5'-5"	4'-8"	4'-2"	3'-10"	4'-5"	3'-10"	3'-5"	3'-1"	2'-10"	2'-5"	2'-2"	2'-0"
170.0	7'-1"	6'-2"	5'-6"	5'-0"	5'-4"	4'-7"	4'-1"	3'-9"	4'-4"	3'-9"	3'-4"	3'-1"	2'-9"	2'-5"	2'-2"	2'-0"
175.0	7'-0"	6'-1"	5'-5"	4'-11"	5'-3"	4'-6"	4'-1"	3'-8"	4'-3"	3'-8"	3'-4"	3'-0"	2'-9"	2'-5"	2'-1"	1'-11"
180.0	6'-11"	6'-0"	5'-4"	4'-10"	5'-2"	4'-6"	4'-0"	3'-8"	4'-2"	3'-8"	3'-3"	3'-0"	2'-8"	2'-4"	2'-1"	1'-11"
185.0	6'-10"	5'-11"	5'-3"	4'-10"	5'-1"	4'-5"	3'-11"	3'-7"	4'-2"	3'-7"	3'-3"	2'-11"	2'-8"	2'-4"	2'-1"	1'-11"
190.0	6'-8"	5'-10"	5'-2"	4'-9"	5'-0"	4'-4"	3'-11"	3'-7"	4'-1"	3'-7"	3'-2"	2'-11"	2'-8"	2'-3"	2'-0"	1'-10"
195.0	6'-7"	5'-9"	5'-2"	4'-8"	5'-0"	4'-4"	3'-10"	3'-6"	4'-0"	3'-6"	3'-2"	2'-10"	2'-7"	2'-3"	2'-0"	1'-10"

* STORM BAR SPACING SHALL BE SUCH THAT MAXIMUM SLAT SPAN SHALL NOT BE EXCEEDED.



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TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166
Phone: (305)871-1530 Fax: (305)871-1531
EB-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA Lic. # 44167

FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

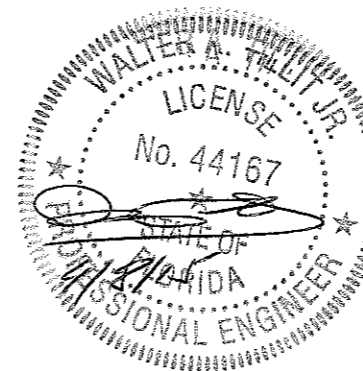
ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RLL-4, RLL-3, A-200-H, A-150-H SLATS		F.R.L. DRAWN BY:
ROLLAC SHUTTERS OF TEXAS, INC.		04/02/15 DATE
5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		15-059 DRAWING No
REV. No	DESCRIPTION	DATE
1	OLD 11-238	04/02/15
2		

HEADER LOADING CHART

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p. s. f.) AND CORRESPONDING MAXIMUM SPAN "L" (Ft.) FOR A GIVEN TYPE OF HEADER AND STORM BAR HEIGHT (Ft.).

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)	Ⓛ TYPE 1 HEADER 2" x 4" X 1/4"			Ⓜ TYPE 2 HEADER 2" x 4" X 1/8"		Ⓚ TYPE 3 HEADER 1" x 4" X 1/8"	
	STORM BAR HEIGHT			STORM BAR HEIGHT		STORM BAR HEIGHT	
	≤ 7'-0"	7' TO 9'	9' TO 10'	≤ 5'-0"	5' TO 8'	≤ 5'-0"	5' TO 7'
30.0 OR LESS	15'-1"	14'-0"	13'-2"	12'-0"	11'-2"	7'-1"	6'-6"
35.0	14'-9"	13'-0"	12'-4"	12'-0"	10'-4"	7'-1"	6'-6"
40.0	13'-9"	12'-2"	11'-6"	12'-0"	9'-8"	7'-1"	6'-6"
45.0	13'-0"	11'-5"	10'-10"	11'-6"	9'-1"	7'-1"	6'-4"
50.0	12'-4"	10'-10"	10'-4"	10'-11"	8'-8"	7'-1"	6'-0"
55.0	11'-9"	10'-4"	9'-10"	10'-5"	8'-3"	6'-10"	5'-9"
60.0	11'-3"	9'-11"	9'-5"	10'-0"	7'-11"	6'-6"	5'-6"
65.0	10'-10"	9'-6"	9'-0"	9'-7"	7'-7"	6'-3"	5'-4"
70.0	10'-5"	9'-2"	8'-8"	9'-3"	7'-4"	6'-0"	5'-1"
75.0	10'-1"	8'-10"	8'-5"	8'-11"	7'-1"	5'-10"	4'-11"
80.0	9'-9"	8'-7"	8'-2"	8'-8"	6'-10"	5'-8"	4'-9"
85.0	9'-5"	8'-4"	7'-11"	8'-5"	6'-7"	5'-6"	4'-8"
90.0	9'-2"	8'-1"	7'-8"	8'-2"	6'-5"	5'-4"	4'-6"
95.0	8'-11"	7'-11"	7'-6"	7'-11"	6'-3"	5'-2"	4'-5"
100.0	8'-8"	7'-8"	7'-3"	7'-9"	6'-1"	5'-1"	4'-3"
105.0	8'-6"	7'-6"	7'-1"	7'-6"	6'-0"	4'-11"	4'-2"
110.0	8'-4"	7'-4"	6'-11"	7'-4"	5'-10"	4'-10"	4'-1"
115.0	8'-1"	7'-2"	6'-9"	7'-2"	5'-8"	4'-9"	4'-0"
120.0	7'-11"	7'-0"	6'-8"	7'-1"	5'-7"	4'-7"	3'-11"
125.0	7'-9"	6'-10"	6'-6"	6'-11"	5'-6"	4'-6"	3'-10"
130.0	7'-8"	6'-9"	6'-5"	6'-9"	5'-4"	4'-5"	3'-9"
135.0	7'-6"	6'-7"	6'-3"	6'-8"	5'-3"	4'-4"	3'-8"
140.0	7'-4"	6'-6"	6'-2"	6'-6"	5'-2"	4'-3"	3'-7"
145.0	7'-3"	6'-5"	6'-1"	6'-5"	5'-1"	4'-2"	3'-7"
150.0	7'-1"	6'-3"	5'-11"	6'-4"	5'-0"	4'-2"	3'-6"
155.0	7'-0"	6'-2"	5'-10"	6'-2"	4'-11"	4'-1"	3'-5"
160.0	6'-11"	6'-1"	5'-9"	6'-1"	4'-10"	4'-0"	3'-5"
165.0	6'-9"	6'-0"	5'-8"	6'-0"	4'-9"	3'-11"	3'-4"
170.0	6'-8"	5'-11"	5'-7"	5'-11"	4'-8"	3'-11"	3'-3"
175.0	6'-7"	5'-10"	5'-6"	5'-10"	4'-7"	3'-10"	3'-3"
180.0	6'-6"	5'-9"	5'-5"	5'-9"	4'-7"	3'-9"	3'-2"
185.0	6'-5"	5'-8"	5'-4"	5'-8"	4'-6"	3'-9"	3'-2"
190.0	6'-4"	5'-7"	5'-3"	5'-7"	4'-5"	3'-8"	3'-1"
195.0	6'-3"	5'-6"	5'-3"	5'-6"	4'-4"	3'-7"	3'-1"



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

©2015 TILTECO, INC.		ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RLL-4, RLL-3, A-200-H, A-150-H SLATS		F.R.L. DRAWN BY:	
 TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166 Phone: (305)871-1530 • Fax: (305)871-1531 EB-0006719 WALTER A. TILLIT Jr. P.E. FLORIDA Lic. # 44167		ROLLAC SHUTTERS OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		04/02/15 DATE	
		15-059 DRAWING No		SHEET 12 OF 13	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 11-238	04/02/15	3		
2			4		

MULLION LOADING CHART
MAXIMUM A.S.D. DESIGN PRESSURE RATING (p. s. f.) AND
CORRESPONDING MAXIMUM SPAN "L" (Ft.) FOR A GIVEN TYPE OF
MULLION AND MULLION SPACING (Ft.).

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)	Ⓛ TYPE 1 MULLION 4" x 6" x 3/16"			Ⓜ TYPE 2 MULLION 3" x 4" x 1/8"			Ⓝ TYPE 3 MULLION 2" x 3" x 1/8"			Ⓤ TYPE 4 MULLION 2" x 3" x 1/4"			
	MULLION SPACING			MULLION SPACING			MULLION SPACING			MULLION SPACING			
	≤ 4'-0"	4' TO 5'	5' TO 8'	≤ 4'-0"	4' TO 5'	5' TO 8'	≤ 3'-0"	3' TO 4'	4' TO 5'	< 3'-0"	3' TO 4'	4' TO 5'	5' TO 6'
30.0 OR LESS	12'-0"	12'-0"	12'-0"	9'-0"	9'-0"	8'-10"	7'-10"	7'-2"	6'-7"	9'-5"	8'-7"	7'-11"	7'-6"
35.0	12'-0"	12'-0"	12'-0"	9'-0"	9'-0"	8'-2"	7'-5"	6'-9"	6'-3"	8'-11"	8'-2"	7'-7"	7'-1"
40.0	12'-0"	12'-0"	12'-0"	8'-10"	9'-0"	7'-8"	7'-2"	6'-6"	6'-0"	8'-7"	7'-9"	7'-3"	6'-10"
45.0	12'-0"	12'-0"	12'-0"	8'-4"	9'-0"	7'-3"	6'-10"	6'-3"	5'-9"	8'-3"	7'-6"	6'-11"	6'-6"
50.0	12'-0"	12'-0"	12'-0"	7'-10"	8'-8"	6'-10"	6'-7"	6'-0"	5'-7"	7'-11"	7'-3"	6'-8"	6'-4"
55.0	12'-0"	12'-0"	11'-6"	7'-6"	8'-3"	6'-6"	6'-5"	5'-10"	5'-5"	7'-8"	7'-0"	6'-6"	6'-1"
60.0	12'-0"	12'-0"	11'-0"	7'-2"	7'-11"	6'-3"	6'-3"	5'-8"	5'-3"	7'-6"	6'-10"	6'-4"	5'-11"
65.0	12'-0"	12'-0"	10'-7"	6'-11"	7'-7"	6'-0"	6'-1"	5'-6"	5'-1"	7'-3"	6'-7"	6'-2"	5'-9"
70.0	11'-9"	12'-0"	10'-2"	6'-8"	7'-4"	5'-9"	5'-11"	5'-4"	5'-0"	7'-1"	6'-6"	6'-0"	5'-8"
75.0	11'-4"	12'-0"	9'-10"	6'-5"	7'-1"	5'-7"	5'-9"	5'-3"	4'-11"	6'-11"	6'-4"	5'-10"	5'-6"
80.0	11'-0"	12'-0"	9'-6"	6'-3"	6'-10"	5'-5"	5'-8"	5'-2"	4'-9"	6'-10"	6'-2"	5'-9"	5'-5"
85.0	10'-8"	11'-8"	9'-3"	6'-0"	6'-8"	5'-3"	5'-7"	5'-0"	4'-8"	6'-8"	6'-1"	5'-7"	5'-3"
90.0	10'-4"	11'-5"	9'-0"	5'-10"	6'-5"	5'-1"	5'-5"	4'-11"	4'-7"	6'-6"	5'-11"	5'-6"	5'-2"
95.0	10'-1"	11'-1"	8'-9"	5'-9"	6'-3"	5'-0"	5'-4"	4'-10"	4'-6"	6'-5"	5'-10"	5'-5"	5'-1"
100.0	9'-10"	10'-10"	8'-6"	5'-7"	6'-1"	4'-10"	5'-3"	4'-9"	4'-5"	6'-4"	5'-9"	5'-4"	5'-0"
105.0	9'-7"	10'-6"	8'-4"	5'-5"	6'-0"	4'-9"	5'-2"	4'-8"	4'-4"	6'-3"	5'-8"	5'-3"	4'-11"
110.0	9'-4"	10'-3"	8'-2"	5'-4"	5'-10"	4'-7"	5'-1"	4'-7"	4'-2"	6'-1"	5'-7"	5'-2"	4'-10"
115.0	9'-2"	10'-1"	7'-11"	5'-2"	5'-9"	4'-6"	5'-0"	4'-7"	4'-1"	6'-0"	5'-6"	5'-1"	4'-9"
120.0	8'-11"	9'-10"	7'-9"	5'-1"	5'-7"	4'-5"	4'-11"	4'-6"	4'-0"	5'-11"	5'-5"	5'-0"	4'-9"
125.0	8'-9"	9'-8"	7'-8"	5'-0"	5'-6"	4'-4"	4'-11"	4'-5"	3'-11"	5'-10"	5'-4"	4'-11"	4'-8"
130.0	8'-7"	9'-6"	7'-6"	4'-11"	5'-4"	4'-3"	4'-10"	4'-4"	3'-10"	5'-9"	5'-3"	4'-11"	4'-7"
135.0	8'-5"	9'-3"	7'-4"	4'-9"	5'-3"	4'-2"	4'-9"	4'-3"	3'-9"	5'-9"	5'-2"	4'-10"	4'-6"
140.0	8'-3"	9'-1"	7'-3"	4'-8"	5'-2"	4'-1"	4'-8"	4'-2"	3'-9"	5'-8"	5'-2"	4'-9"	4'-5"
145.0	8'-2"	9'-0"	7'-1"	4'-7"	5'-1"	4'-0"	4'-8"	4'-1"	3'-8"	5'-7"	5'-1"	4'-8"	4'-4"
150.0	8'-0"	8'-10"	7'-0"	4'-7"	5'-0"	3'-11"	4'-7"	4'-0"	3'-7"	5'-6"	5'-0"	4'-8"	4'-3"
155.0	7'-11"	8'-8"	6'-10"	4'-6"	4'-11"	3'-11"	4'-6"	3'-11"	3'-6"	5'-5"	4'-11"	4'-7"	4'-2"
160.0	7'-9"	8'-6"	6'-9"	4'-5"	4'-10"	3'-10"	4'-6"	3'-11"	3'-6"	5'-5"	4'-11"	4'-6"	4'-1"
165.0	7'-8"	8'-5"	6'-8"	4'-4"	4'-9"	3'-9"	4'-5"	3'-10"	3'-5"	5'-4"	4'-10"	4'-5"	4'-1"
170.0	7'-6"	8'-3"	6'-7"	4'-3"	4'-8"	3'-9"	4'-4"	3'-9"	3'-5"	5'-3"	4'-10"	4'-5"	4'-0"
175.0	7'-5"	8'-2"	6'-5"	4'-3"	4'-8"	3'-8"	4'-4"	3'-9"	3'-4"	5'-3"	4'-9"	4'-4"	3'-11"
180.0	7'-4"	8'-1"	6'-4"	4'-2"	4'-7"	3'-7"	4'-3"	3'-8"	3'-3"	5'-2"	4'-9"	4'-3"	3'-11"
185.0	7'-3"	7'-11"	6'-3"	4'-1"	4'-6"	3'-7"	4'-2"	3'-7"	3'-3"	5'-2"	4'-8"	4'-2"	3'-10"
190.0	7'-1"	7'-10"	6'-2"	4'-0"	4'-5"	3'-6"	4'-2"	3'-7"	3'-2"	5'-1"	4'-8"	4'-2"	3'-9"
195.0	7'-0"	7'-9"	6'-1"	4'-0"	4'-5"	3'-6"	4'-1"	3'-6"	3'-2"	5'-1"	4'-7"	4'-1"	3'-9"

NOTES: REFER TO ELEVATIONS ON SHEET 1A OF 13

1- FOR MULLIONS INSTALLED W/O STORM BARS

A) MULLION SPACING SHALL BE SUCH THAT MAXIMUM SLAT SPAN SHALL NOT BE EXCEEDED

2- FOR MULLIONS INSTALLED W/ STORM BARS & HEADERS

A) MULLION SPACING SHALL BE SUCH THAT MAXIMUM HEADER SPAN SHALL NOT BE EXCEEDED

B) STORM BAR SPACING SHALL BE SUCH THAT MAXIMUM SLAT SPAN SHALL NOT BE EXCEEDED

MAXIMUM ANCHOR SPACING AT SIDE RAILS *

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)		SLAT TYPE 1 (Ⓐ) (RL-4)					
		Ⓛ (RL-25) AND Ⓜ (RL-54) SIDE RAILS			Ⓝ (RL-40) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT	WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT
80 OR LESS	MASONRY	3 1/2"	4"	6"	4 1/2"	3 1/2"	6"
	CONCRETE	6"	6"	6"	6"	6"	6"
>80 TO 120	MASONRY	N/A	3"	6"	3"	N/A	5 1/2"
	CONCRETE	6"	6"	6"	6"	6"	6"
>120 TO 150	MASONRY	N/A	N/A	5 1/2"	N/A	N/A	5"
	CONCRETE	6"	6"	6"	6"	5 1/2"	6"
>150 TO 195	MASONRY	N/A	N/A	5"	N/A	N/A	4"
	CONCRETE	6"	5"	6"	6"	5"	6"

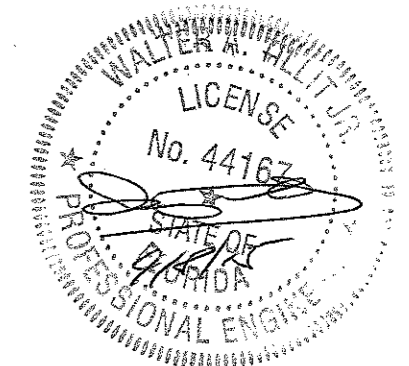
MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)		SLAT TYPE 2 (Ⓑ) (RL-3)		
		Ⓝ (RL-32) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT
80 OR LESS	MASONRY	5 1/2"	5 1/2"	6"
	CONCRETE	6"	6"	6"
>80 TO 120	MASONRY	4"	4 1/2"	6"
	CONCRETE	6"	6"	6"
>120 TO 150	MASONRY	3 1/2"	4"	6"
	CONCRETE	6"	6"	6"
>150 TO 195	MASONRY	3"	3 1/2"	6"
	CONCRETE	6"	6"	6"

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)		SLAT TYPE 3 (Ⓒ) (A-200-H)					
		Ⓛ (RL-25) SIDE RAIL			Ⓝ (RL-1) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	MOUNT	WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT
80 OR LESS	MASONRY	6"	6"	6"	6"	6"	6"
	CONCRETE	6"	6"	6"	6"	6"	6"
>80 TO 120	MASONRY	5"	5"	5"	5 1/2"	5 1/2"	6"
	CONCRETE	6"	6"	6"	6"	6"	6"
>120 TO 150	MASONRY	4 1/2"	4 1/2"	6"	5"	5"	6"
	CONCRETE	6"	6"	6"	6"	6"	6"
>150 TO 195	MASONRY	3 1/2"	4"	6"	4"	4"	6"
	CONCRETE	6"	6"	6"	6"	6"	6"

MAXIMUM A.S.D. DESIGN PRESSURE RATING (p.s.f.)		SLAT TYPE 4 (Ⓓ) (A-150-H)		
		Ⓝ (RL-32) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	MOUNT
80 OR LESS	MASONRY	6"	6"	6"
	CONCRETE	6"	6"	6"
>80 TO 100	MASONRY	6"	6"	6"
	CONCRETE	6"	6"	6"

* MAXIMUM ANCHOR SPACING (in.) AT SIDE RAILS VERSUS EDGE DISTANCE = E.D.

MAXIMUM ANCHOR SPACING ARE VALID FOR 3" EDGE DISTANCE.



FLORIDA BUILDING CODE (Non High Velocity Hurricane Zone)

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 WALTER A. TILLIT Jr. P.E.
 FLORIDA Lic. # 44167

ROLL-UP SHUTTER/WIND BORNE DEBRI REGION RL-4, RL-3, A-200-H, A-150-H SLATS		F.R.L. DRAWN BY:
ROLLAC SHUTTERS OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX. 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		04/02/15 DATE
REV. No. DESCRIPTION DATE REV. No. DESCRIPTION DATE		15-059 DRAWING No
1	OLD 11-238 04/02/15	3
2		4
		SHEET 13 OF 13