

**GENERAL NOTES:**

1. ROLL-UP SHUTTER SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2006 EDITIONS OF THE INTERNATIONAL BUILDING CODE, (I.B.C.) AND INTERNATIONAL RESIDENTIAL CODE, (I.R.C.) WITH THE 2006 TEXAS REVISIONS, EFFECTIVE JANUARY 1, 2008. THIS ROLL-UP SHUTTER MAY BE INSTALLED AT SEAWARD AND INLAND AREAS, AS DEFINED BY THE TEXAS DEPARTMENT OF INSURANCE. DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF THE INTERNATIONAL BUILDING CODE, FOR A BASIC WIND SPEED AS REQUIRED BY THE JURISDICTION WHERE SHUTTER WILL BE INSTALLED, AND FOR A DIRECTIONALITY FACTOR  $K_d=0.85$ , IN ACCORDANCE W/ ASCE 7-05 STANDARD. ROLL-UP SHUTTER ADEQUACY FOR IMPACT AND CYCLIC RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTIONS 1609.1.2 AND R301.1.3 OF THE ABOVE MENTIONED CODES, RESPECTIVELY, AS PER FENESTRATION TESTING LAB REPORTS #6242, 6243 AND 6244 (SLATS AND MULLION), #6536 (STORM BARS) PER ASTM E 1886-05, E 1996-05, AND E 330-02 STANDARDS., QUALIFYING INSTALLATIONS FOR WIND ZONES 1, 2 & 3, MISSILE TYPE D, AND FOR INSTALLATIONS AT NON ESSENTIAL FACILITIES AS DEFINED BY SECTIONS 6.2.1.1, 6.2.1.2 AND 8.3 OF ASTM E 1996-05.

2. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH  $F_y = 25.0$  ksi MINIMUM (UNLESS OTHERWISE NOTED). THE THICKNESS OF ALL EXTRUSIONS SHALL BE AS SHOWN ON THIS DRAWING.

3. ALL SCREWS & BOLTS INSTALLED AT SEAWARD AREAS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES AND MEET ASTM A167, OR HOT DIPPED GALVANIZED(AFTER FABRICATION) CARBON STEEL AS PER ASTM A123 OR ASTM A153, OR HOT DIPPED GALVANIZED OR GALVANNEALED(PRIOR TO FABRICATION) AND MEET ASTM A653 WITH 50 ksi YIELD STRENGTH AND 90 ksi TENSILE STRENGTH, PER 2006 TEXAS REVISIONS TO SECTION 1716.1.1 OF THE 2006 I.B.C. AND SECTION R325.1.1 OF THE 2006 I.R.C.

4. ALL SCREWS & BOLTS INSTALLED AT INLAND I AREAS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES AND MEET ASTM A167, OR HOT DIPPED GALVANIZED(AFTER FABRICATION) CARBON STEEL AS PER ASTM A123 OR ASTM A153, OR HOT DIPPED GALVANIZED OR GALVANNEALED(PRIOR TO FABRICATION) AND MEET ASTM A653; HOT DIP GALVANIZED OR ELECTRO GALVANIZED PER ASTM A641, MECHANICALLY DEPOSITED ZINC COATINGS PER ASTM B695 OR ELECTRO DEPOSITED ZINC COATINGS PER ASTM B633, PER THE 2006 TEXAS REVISIONS TO SECTION 1716.1.2 OF THE 2006 I.B.C. AND TO SECTION R325.1.2 OF THE 2006 I.R.C.

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). EMBEDMENT AND EDGE DISTANCE ARE BEYOND ANY FINISH.

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

**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"  $\phi$  TAPCON, ITW BUILDEX PER N.D.S. 2005.

**NOTES:**

- C.1) MINIMUM THREADED PENETRATION OF TAPCON ANCHORS INTO TO WOOD FRAME UNIT SHALL BE 1 1/2". NO THREADED PENETRATION INTO TO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED THREADED PENETRATION.
- C.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.

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

8. 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.

- CALK-IN ANCHORS TO BE AS MANUFACTURED BY POWERS FASTENERS, INC.
- TAPCON ANCHORS AS MANUFACTURED BY ITW BUILDEX, INC.
- 410 S.S. WEDGE-BOLT ANCHORS AS MANUFACTURED BY POWERS FASTENERS, INC.

MINIMUM EDGE DISTANCE AND SPACING FOR ABOVE MENTIONED ANCHORS SHALL BE AS INDICATED BELOW OR AT ABOVE MENTIONED SHEETS. EDGE DISTANCE AND EMBEDMENT ARE BEYOND ANY FINISH MATERIAL.

ANCHOR	SPACING	EDGE DISTANCE	MINIMUM EMBEDMENT	
			POURED CONCRETE	CONCRETE BLOCK
-1/4" $\phi$ TAPCON	3"	3"	1 3/4" (Min. $f'_c=3192$ psi)	1 1/4" (ASTM C-90)
-1/4" $\phi$ CALK-IN	2 1/2"	3"	7/8" (Min. $f'_c=3000$ psi)	-
-3/8" $\phi$ CALK-IN	3 3/4"	4 1/2"	1 1/4" (Min. $f'_c=3000$ psi)	-
-5/16" $\phi$ TAPCON XL	3 3/4"	4"	-	1 3/4" (ASTM C-90, GROUT FILLED)
-3/8" $\phi$ 410 S.S. WEDGE-BOLT	4 1/2"	4 1/2"	2 1/2" (Min. $f'_c=3000$ psi)	-
-1/2" $\phi$ 410 S.S. WEDGE-BOLT	6"	6"	3" (Min. $f'_c=3000$ psi)	-

9. 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 INTERNATIONAL BUILDING CODE AS PER CELOTEX CORPORATION TEST REPORT #520274A & 520274B RESPECTIVELY.

10. 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.

11. THE INSTALLATION CONTRACTOR IS TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION.

12. ROLL-UP MECHANISM NOT PART OF THIS APPROVAL.

13. 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.

14. (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.

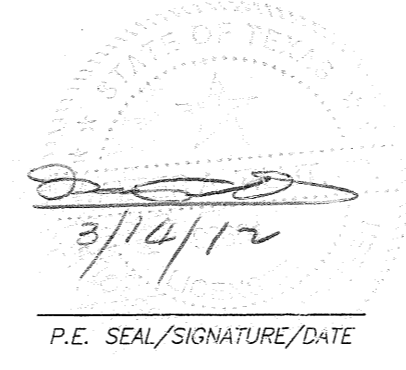
(b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D. PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

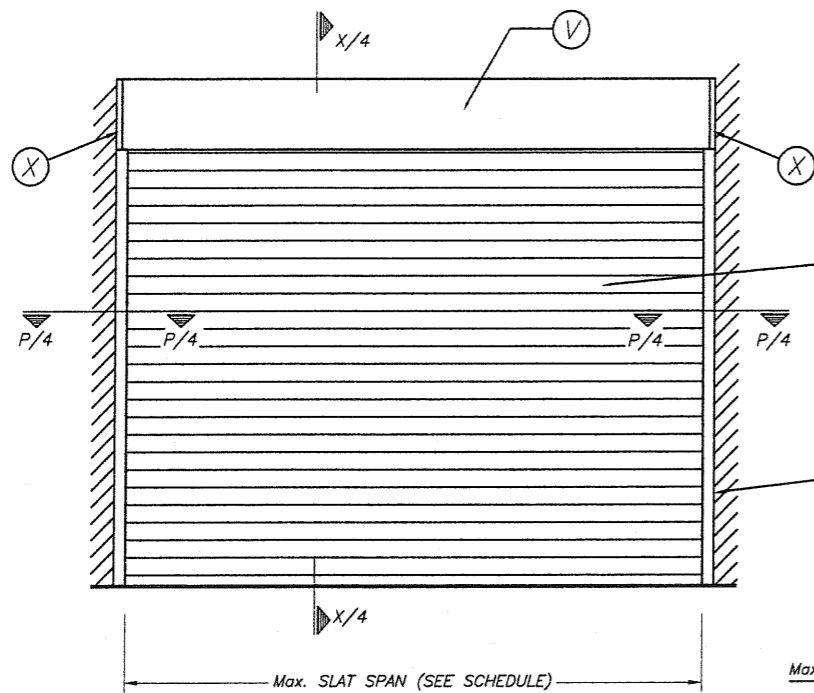
(c) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.

(d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER OR REGISTERED 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.

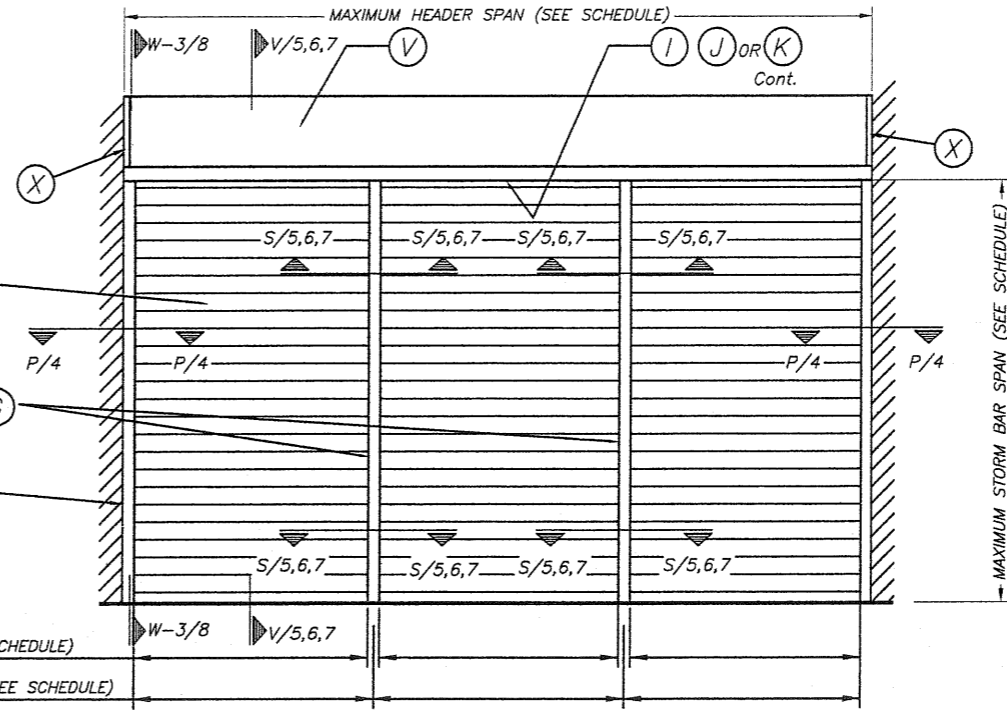
15. SHUTTER MANUFACTURER'S LABEL SHALL BE LOCATED ON A READILY VISIBLE LOCATION AT ROLL-UP SHUTTER IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF INSURANCE REQUIREMENTS. ONE LABEL SHALL BE PLACED FOR EVERY OPENING.

TEXAS DEPARTMENT INSURANCE-2006					
 <p>WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER</p> <p>6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531</p> <p>TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790</p> <p>P.E. SEAL/SIGNATURE/DATE</p>		ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS		M.C.V./A.G. DRAWN BY	
		ROLLAC SHUTTERS OF TEXAS, INC.		03/10/10 DATE	
		5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		10-035 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	REPORT 6536	03/12/12	3		
2			4		



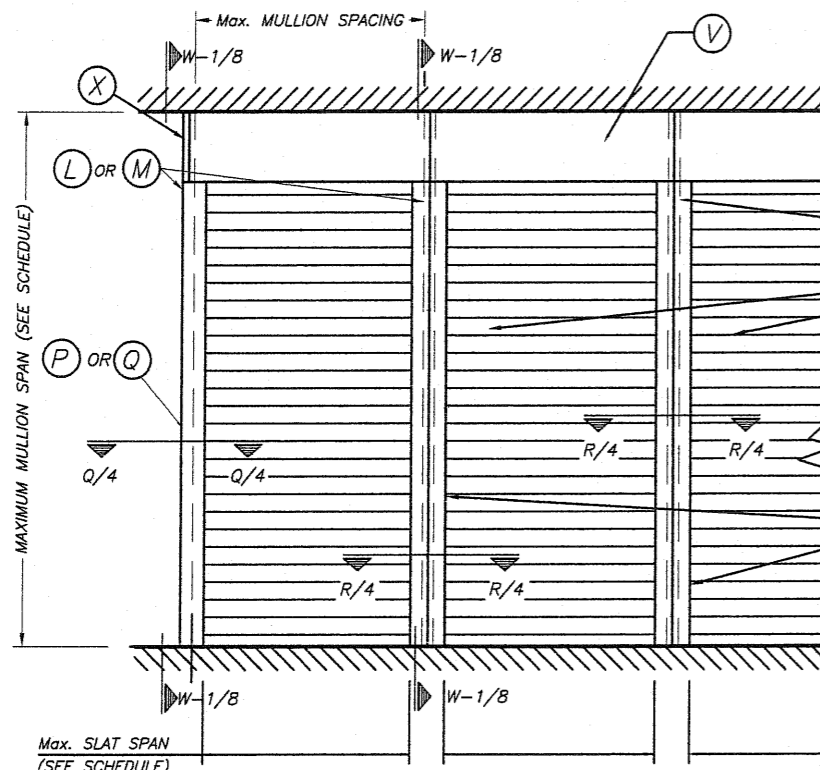
**TYPICAL SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)**

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



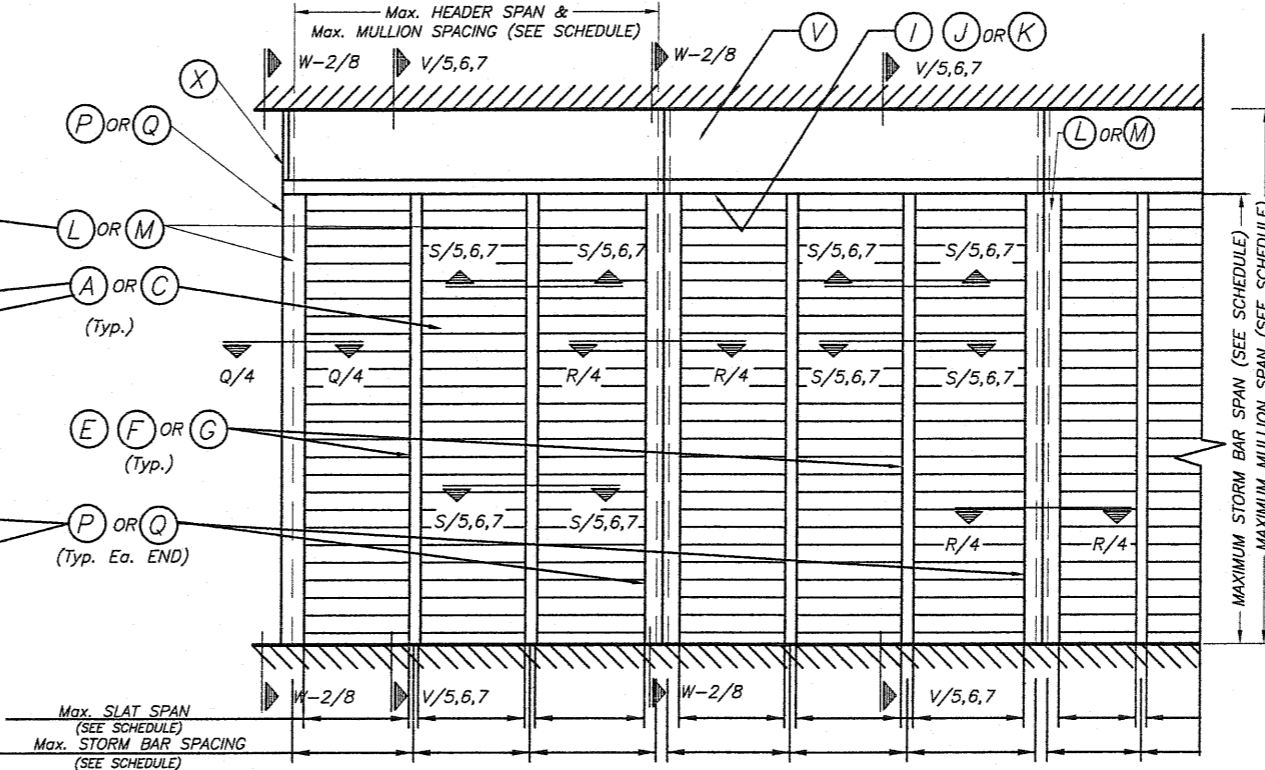
**TYPICAL MULTIPLE UNIT ELEVATION (STORM BARS REQUIRED)**

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



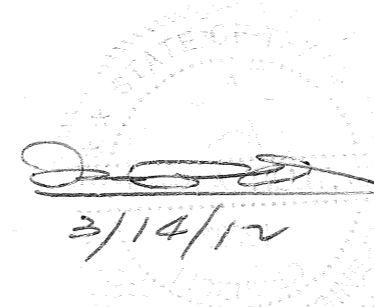
**TYPICAL CONSECUTIVE SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)**

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.

  
 3/14/12  
 P.E. SEAL/SIGNATURE/DATE

**WALTER A. TILLIT Jr. P.E.**  
 PROFESSIONAL ENGINEER  
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 VIRGINIA GARDENS, FL 33166  
 PHONE (305) 871-1530 FAX (305) 871-1531  
 TEXAS LIC. # 90691  
 FIRM REGISTRATION # F-13790

**TEXAS DEPARTMENT INSURANCE-2006**

ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION  
 RLL 55-X AND A-200-H SLATS

M.C.V./A.G.  
 DRAWN BY

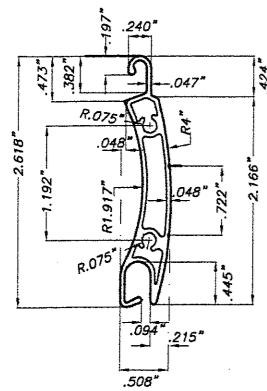
**ROLLAC SHUTTERS OF TEXAS, INC.**

03/10/10  
 DATE

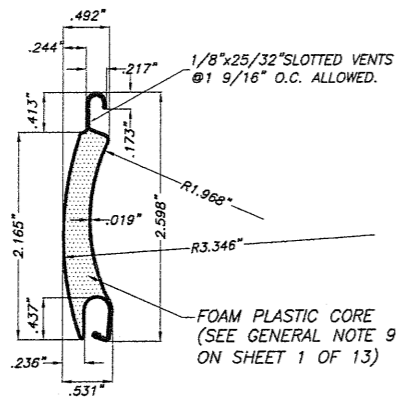
5331 ORANGE STREET  
 PEARLAND, TX 77581  
 PHONE: (800) 880-0922, FAX: (281) 485-0839

10-035  
 DRAWING No

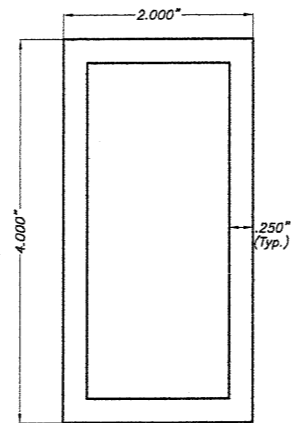
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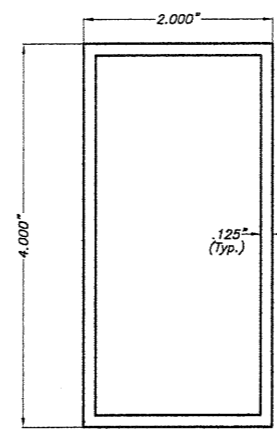
**(A) SLAT**  
RLL 55-X SLAT  
6061-T6 OR 6005-T5 ALUM. ALLOY



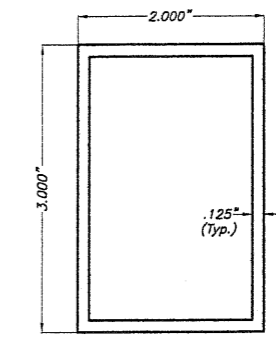
**(C) TYPE 2 SLAT:**  
A-200-H SLAT  
55mm (t = .019") HIGH DENSITY FOAM PLASTIC CORE SHEET METAL ALUMINUM SLAT  
3005-H48 ALUMINUM ALLOY



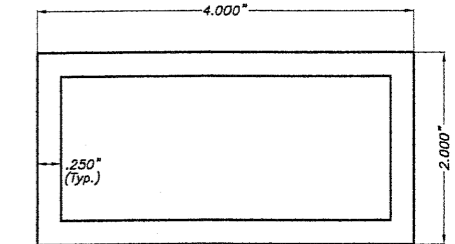
**(E) TYPE 1 STORM BAR:**  
4" HEAVY EXTRUDED STORM BAR  
6063-T6 ALUMINUM ALLOY



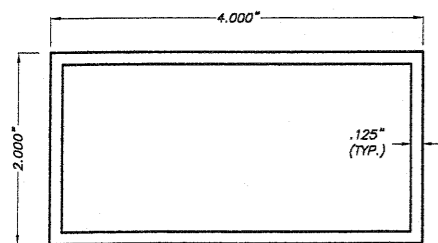
**(F) TYPE 2 STORM BAR:**  
4" EXTRUDED STORM BARS  
6063-T6 ALUMINUM ALLOY



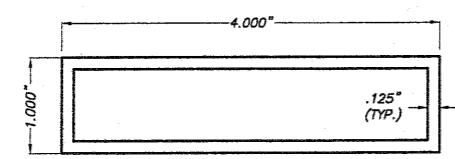
**(G) TYPE 3 STORM BAR:**  
3" EXTRUDED STORM BARS  
6063-T6 ALUMINUM ALLOY



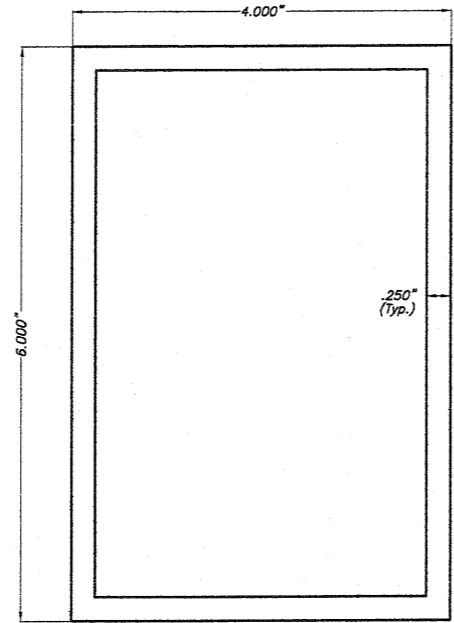
**(I) TYPE 1 HEADER:**  
4" HEAVY EXTRUDED HEADER  
6063-T6 ALUMINUM ALLOY



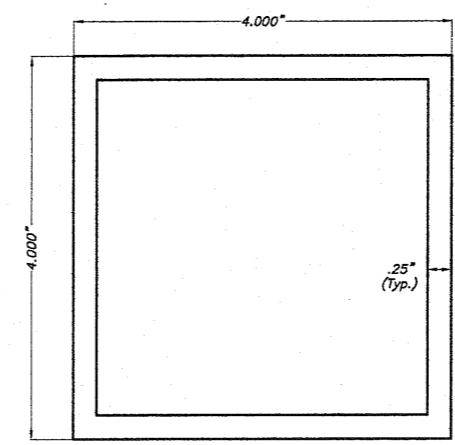
**(J) TYPE 2 HEADER:**  
4" EXTRUDED HEADER  
6063-T6 ALUMINUM ALLOY



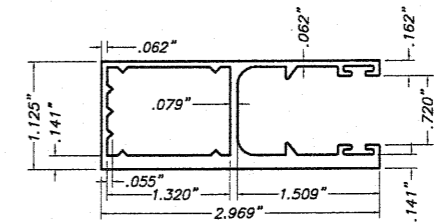
**(K) TYPE 3 HEADER:**  
1"x4" EXTRUDED HEADER  
6063-T6 ALUMINUM ALLOY



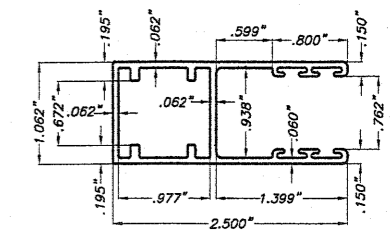
**(L) TYPE 1 MULLION:**  
6" EXTRUDED MULLION  
6063-T6 ALUMINUM ALLOY



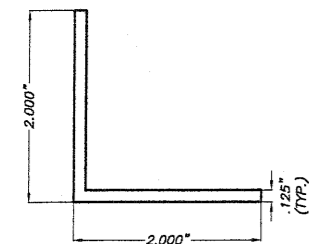
**(M) TYPE 2 MULLION:**  
4" EXTRUDED MULLION  
6063-T6 ALUMINUM ALLOY



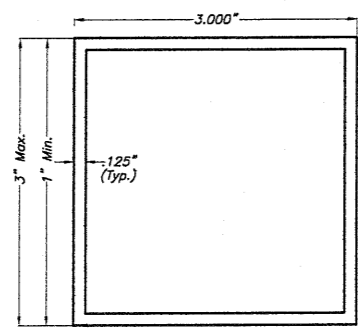
**(P) TYPE 1 SIDE RAIL**  
RLL-40 SIDE RAIL  
6063-T5 Alum. ALLOY



**(Q) TYPE 2 SIDE RAIL**  
RLL-1 SIDE RAIL  
6063-T5 Alum. ALLOY



**(S) INSIDE MOUNT ALUM. ANGLE:**  
EXTRUDED ALUMINUM  
6063-T6 ALUMINUM ALLOY



**(Y) BUILD-OUT TUBES**  
3"x3" EXTRUDED TUBE  
6063-T5 ALUMINUM ALLOY

# COMPONENTS

SCALE: 1/2" = 1"

STATE OF TEXAS  
WALTER A. TILLIT Jr. P.E.  
PROFESSIONAL ENGINEER  
3/14/12  
P.E. SEAL/SIGNATURE/DATE

TEXAS DEPARTMENT INSURANCE-2006

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TEXAS LIC. # 90691  
FIRM REGISTRATION # F-13790

ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION  
RLL 55-X AND A-200-H SLATS

**ROLLAC SHUTTERS OF TEXAS, INC.**  
5331 ORANGE STREET  
PEARLAND, TX 77581  
PHONE: (800) 880-0922, FAX: (281) 485-0839

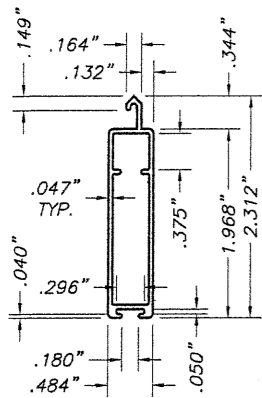
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SHEET 2 OF 13

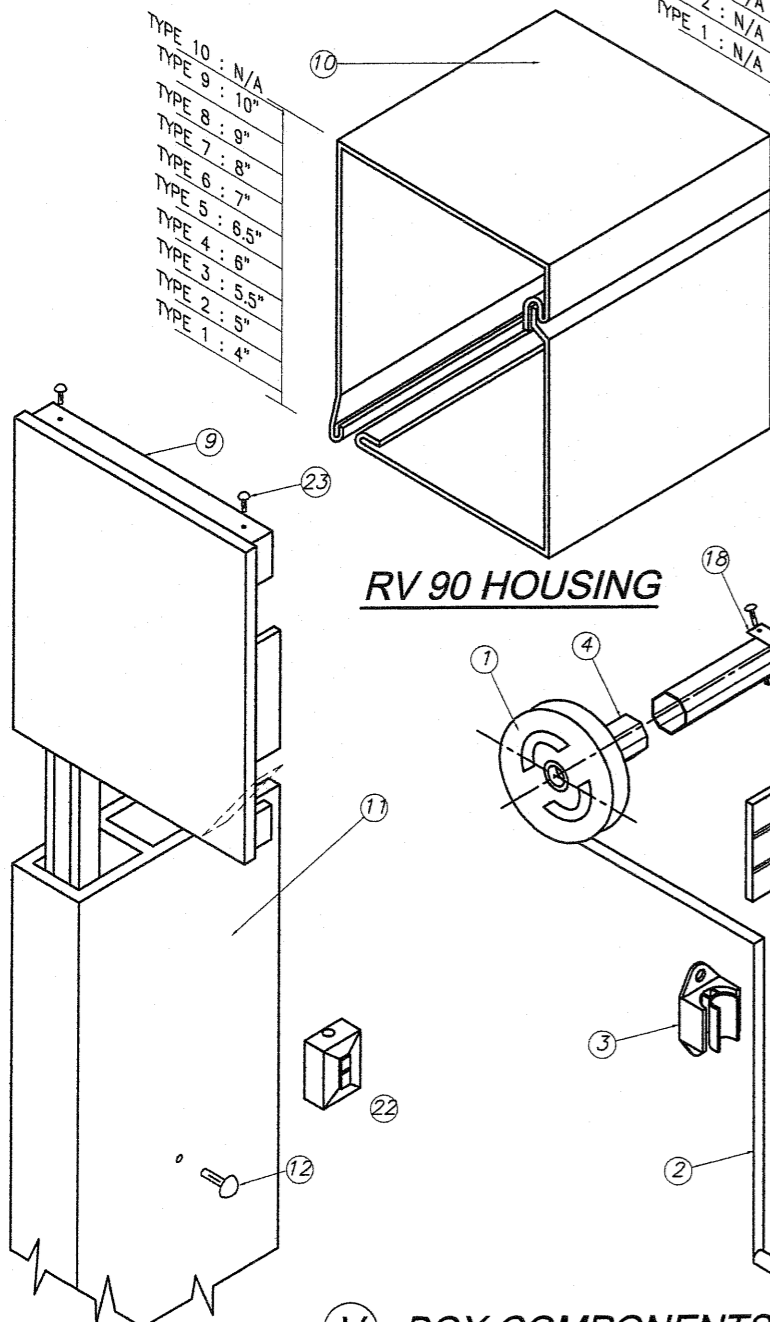


RLL-6  
FOR A-200-H & RLL 55-X SLATS  
EXTRUDED ALUMINUM  
6063-T6 ALUMINUM ALLOY

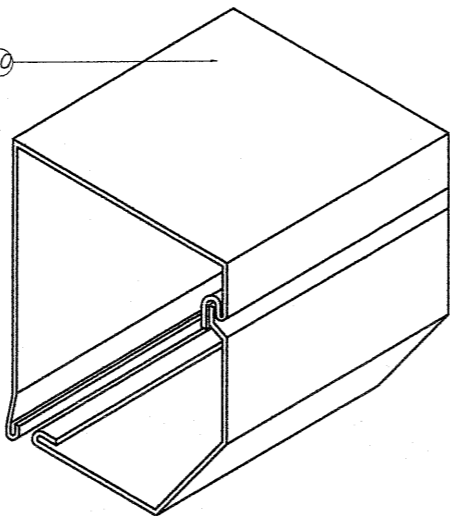
**14 DETAILS**

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

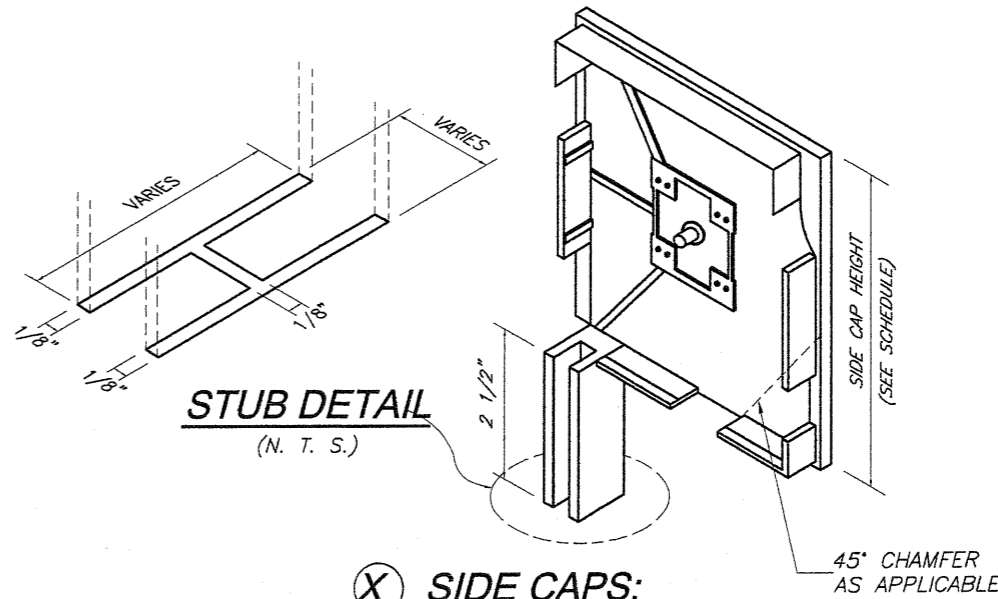
- TYPE 10 : 12"
- TYPE 9 : 10"
- TYPE 8 : 9"
- TYPE 7 : 8"
- TYPE 6 : 7"
- TYPE 5 : 6.5"
- TYPE 4 : 6"
- TYPE 3 : N/A
- TYPE 2 : N/A
- TYPE 1 : N/A



**RV 90 HOUSING**



**RV 45 & RV 45/S HOUSINGS**



**STUB DETAIL**  
(N. T. S.)

**X SIDE CAPS:**  
**BK 90, BK 45 & BK 45/S**

**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 W/PLASTIC SLAT LOCKS @ EVERY OTHER SLAT W/ (2) #4x1" F.H. S.M.S.
- ⑭ - BASE SLAT
- ⑮ - SPRINGLOCK HANGER
- ⑯ - 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

**ADDITIONAL COMPONENTS FOR  
MOTORIZED OPERATED SYSTEM**

- ⑰ - TUBULAR MOTOR
- ⑱ - MOTOR BRACKET
- ⑳ - SWITCH

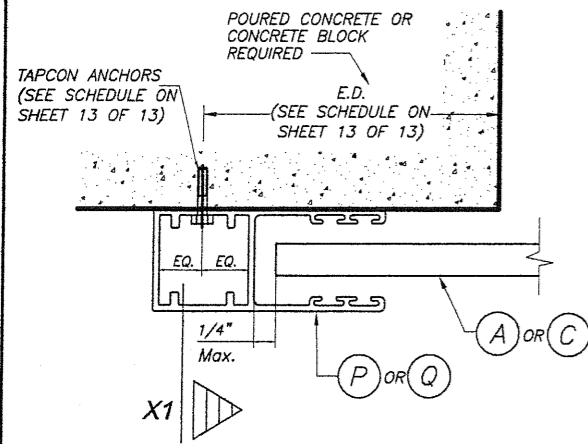
\* SHALL BE CAPABLE TO SUSTAIN SLAT'S WEIGHT AND ASSURE LIFTING MECHANISM (SEE NOTE 12/1).

**FASTENERS**

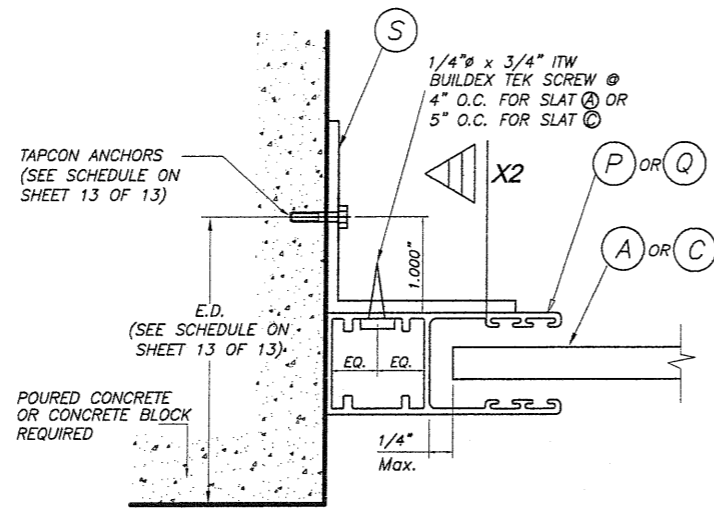
- ㉓ - 3/16" ALUMINUM POP RIVETS (6 REQ'D EA. SIDE CAP) : 2 @ TOP, 2 @ REAR, 2 @ BOTTOM

**V BOX COMPONENTS AND ASSEMBLY DETAIL**  
(SEE NOTE 12 ON SHEET 1)

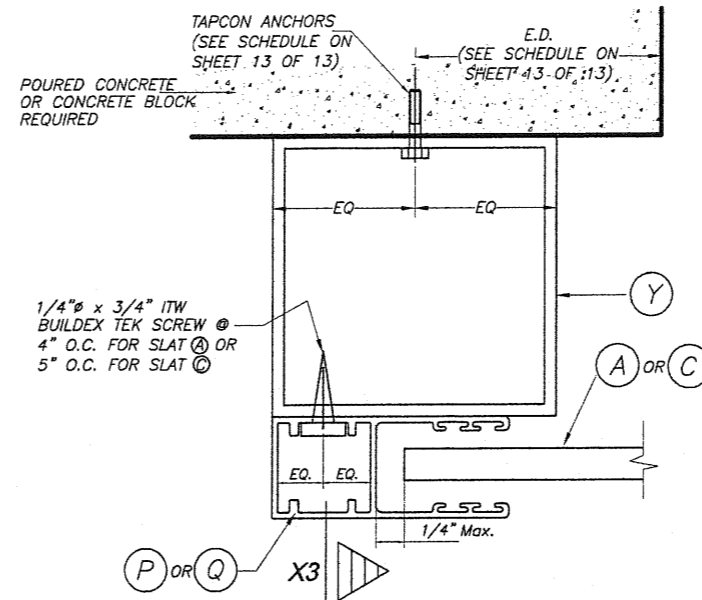
	<b>TEXAS DEPARTMENT INSURANCE-2006</b>					
	<b>WALTER A. TILLIT Jr. P.E.</b> PROFESSIONAL ENGINEER  6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531  TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790	<b>ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS</b>  <b>ROLLAC SHUTTERS OF TEXAS, INC.</b>  5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839	M.C.V./A.G. DRAWN BY  03/10/10 DATE  10-035 DRAWING No			
REV. No    DESCRIPTION    DATE    REV. No    DESCRIPTION    DATE		SHEET 3 OF 13				
1			3			
2			4			



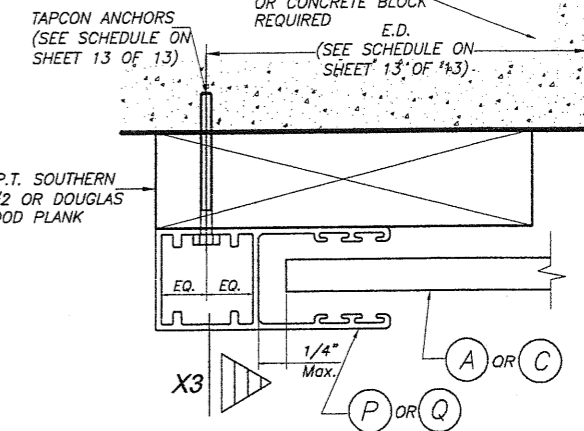
**SECTION P - P (1) : WALL MOUNT**  
N.T.S.



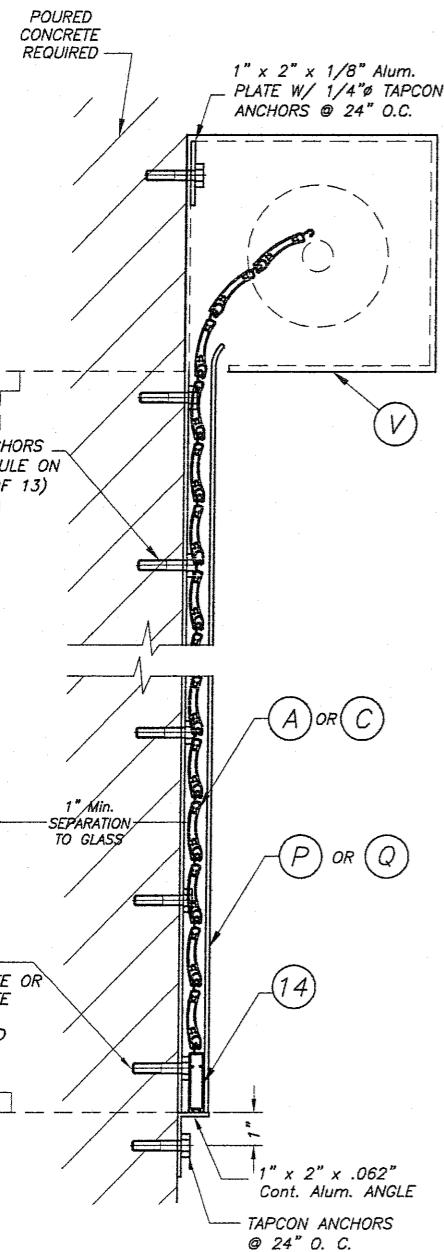
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N.T.S.



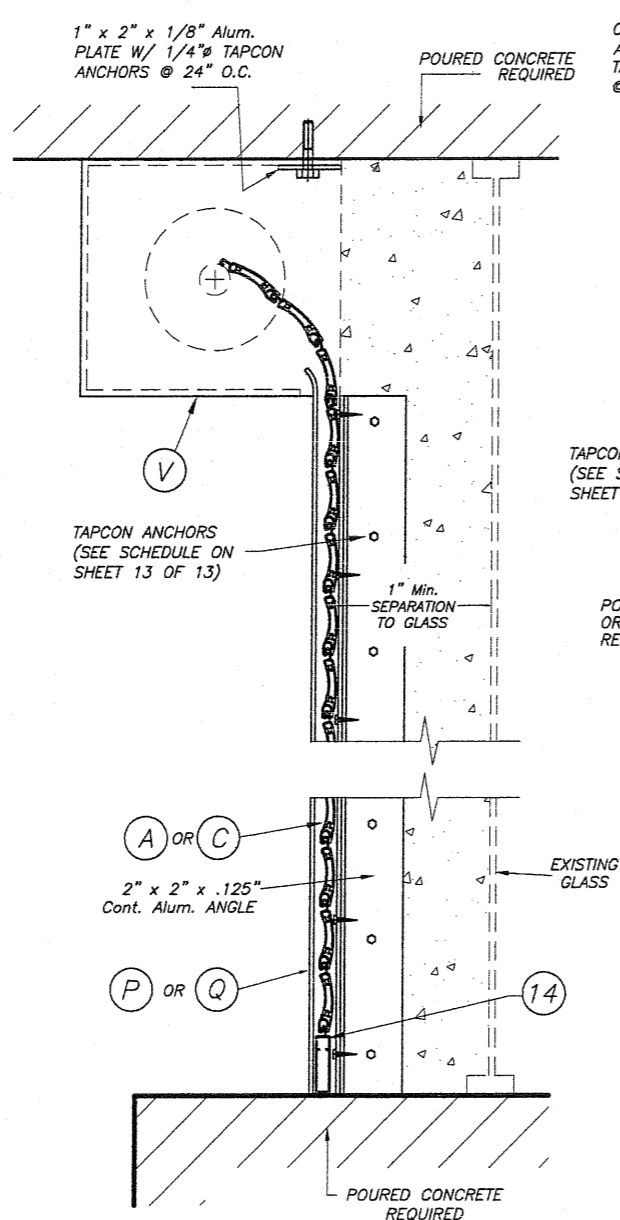
**SECTION P - P (3) : BUILD-OUT**  
N.T.S.



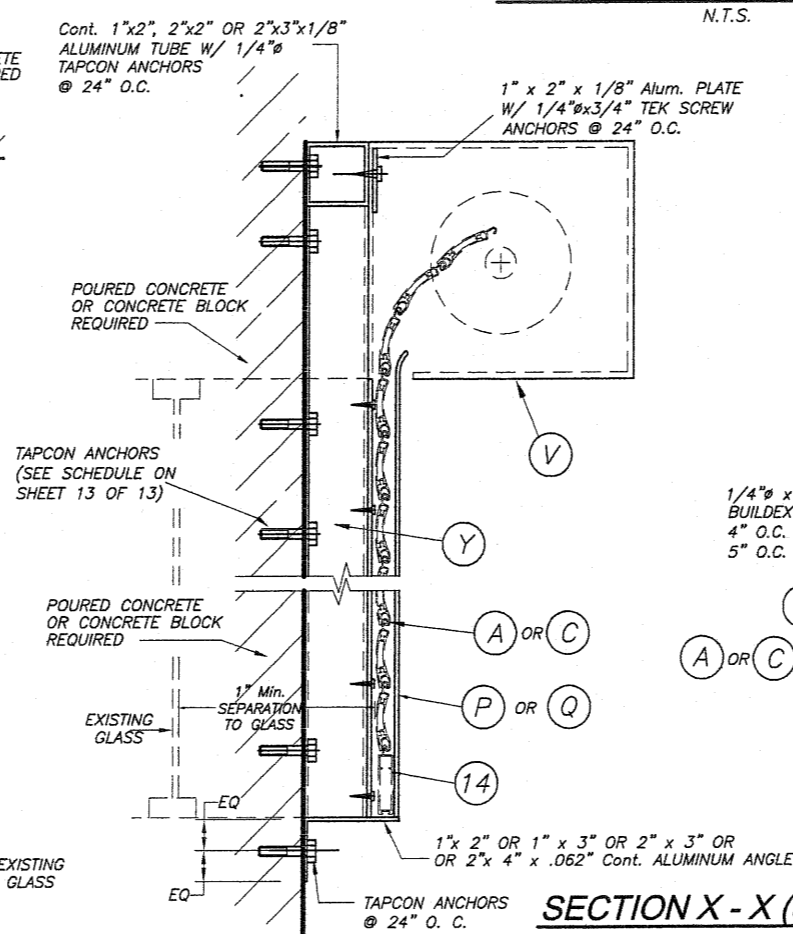
**SECTION P - P (3) : B.O. (OPTION)**  
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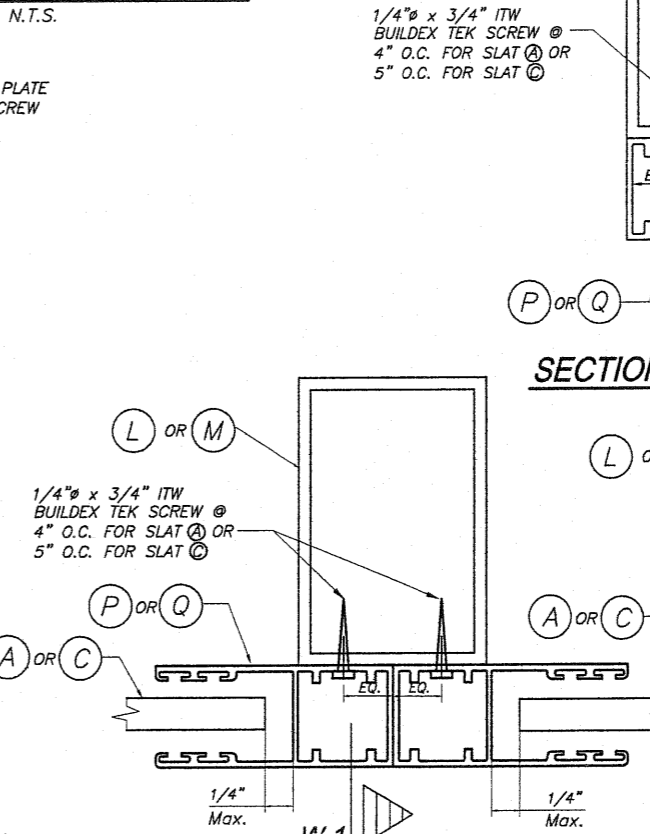
**SECTION X - X (1)**  
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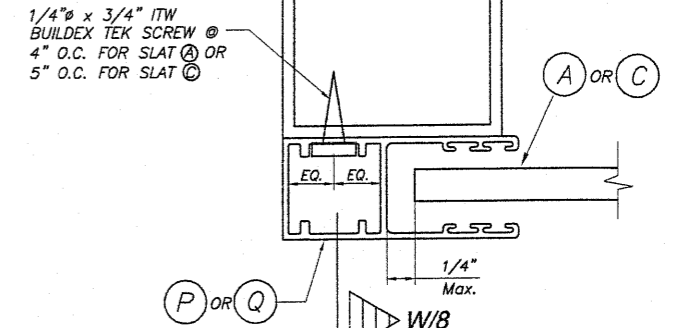
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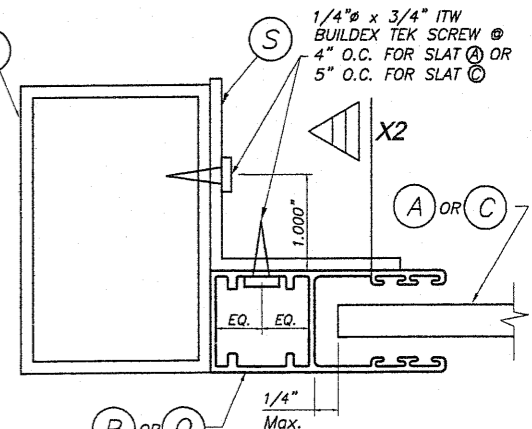
**SECTION X - X (3)**  
N. T. S.



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



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

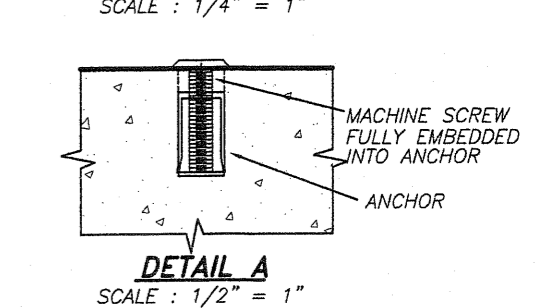
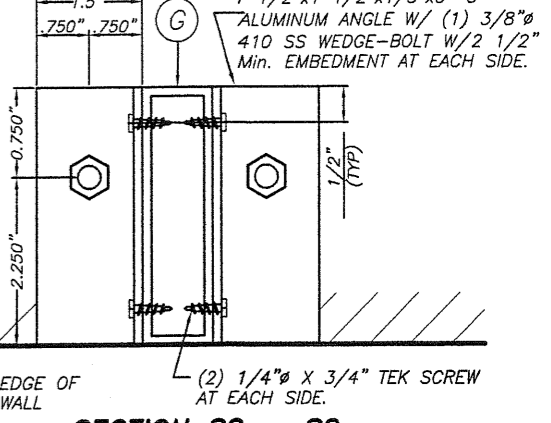
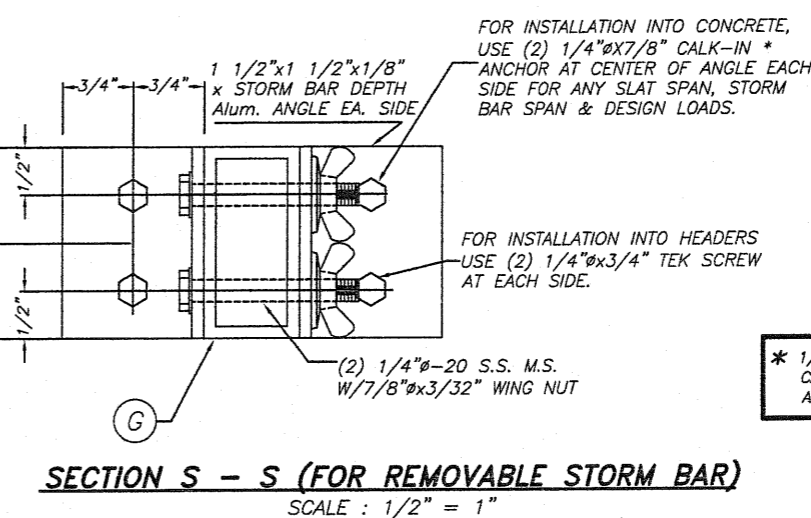
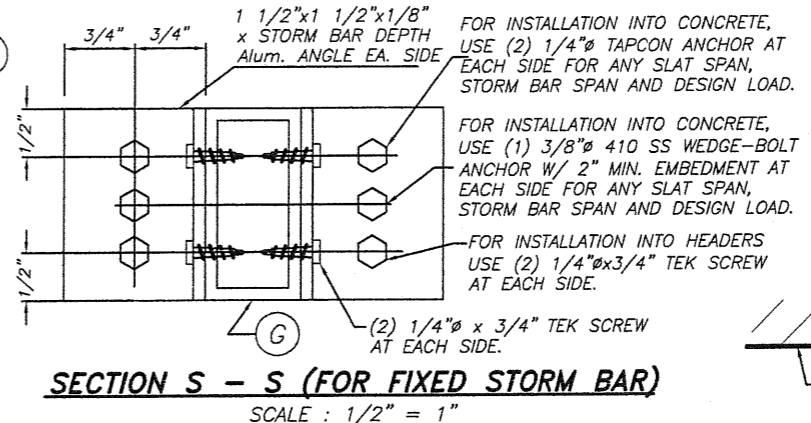
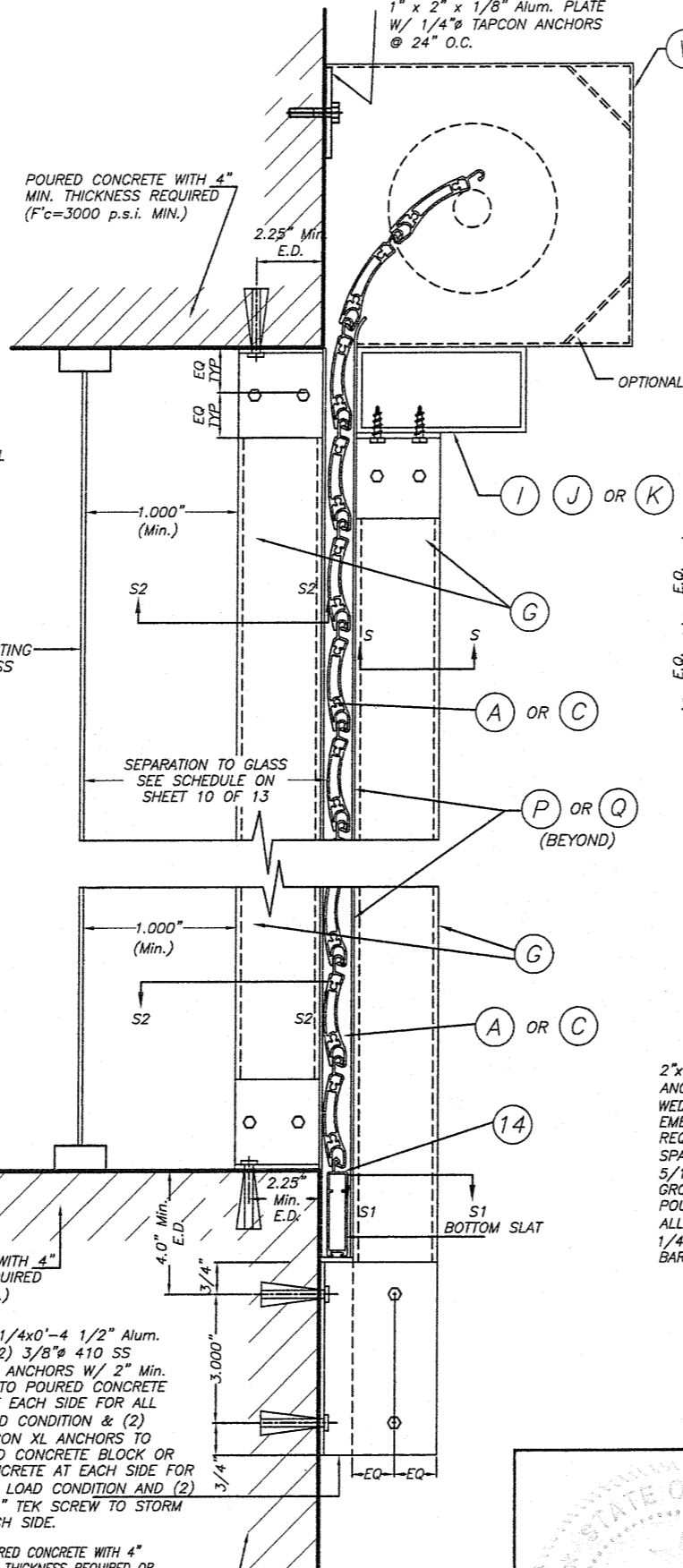
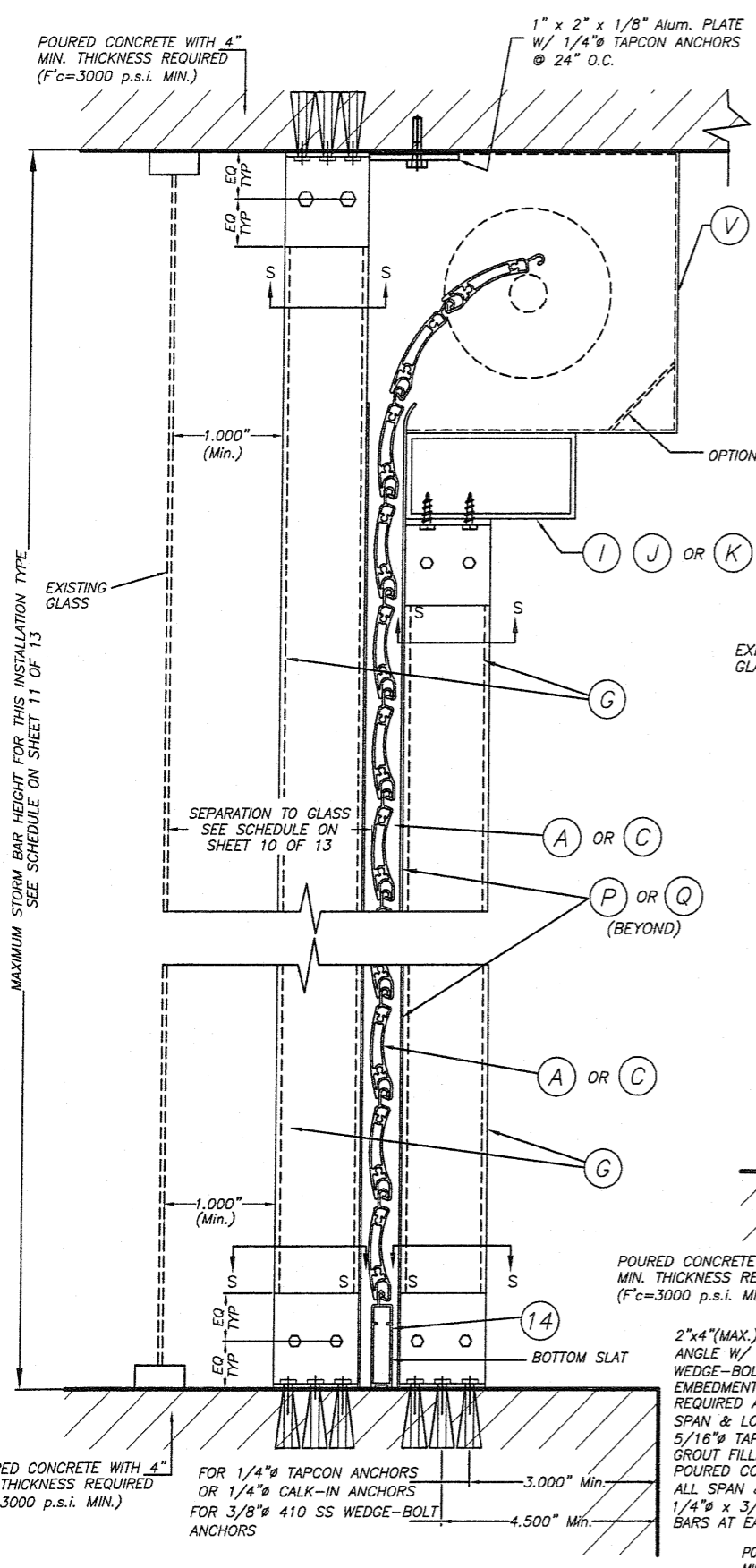


**SECTION R - R : MULLION MOUNT**  
N.T.S.

STATE OF TEXAS  
  
 3/18/12  
 P.E. SEAL/SIGNATURE/DATE

TEXAS DEPARTMENT INSURANCE-2006					
WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER			ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RL 55-X AND A-200-H SLATS		M.C.V./A.G. DRAWN BY
6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531			5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		03/10/10 DATE
TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790			ROLLAC SHUTTERS OF TEXAS, INC.		10-035 DRAWING No
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1			3		
2			4		





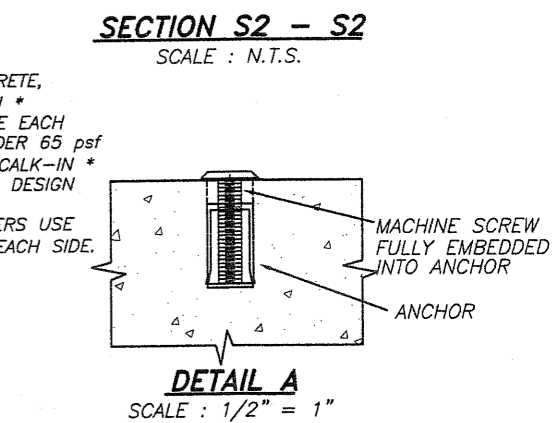
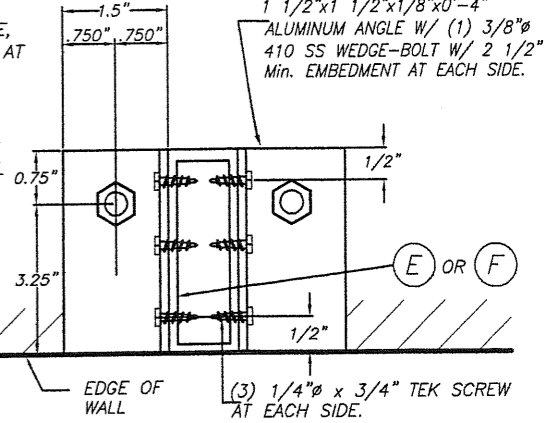
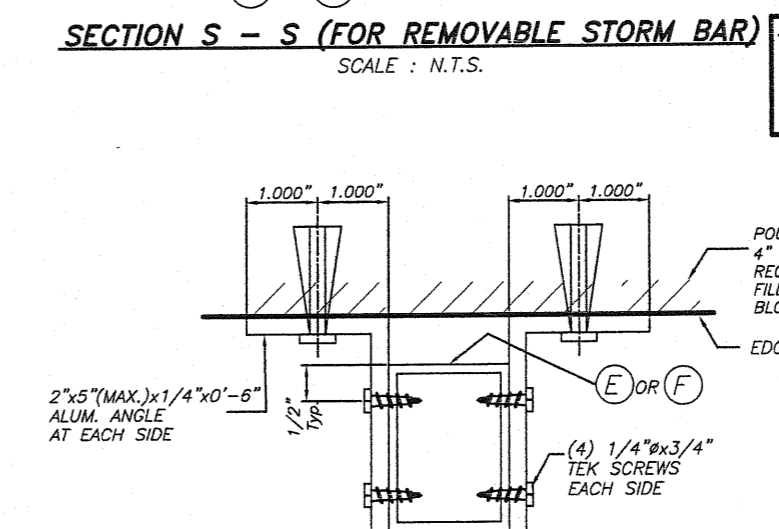
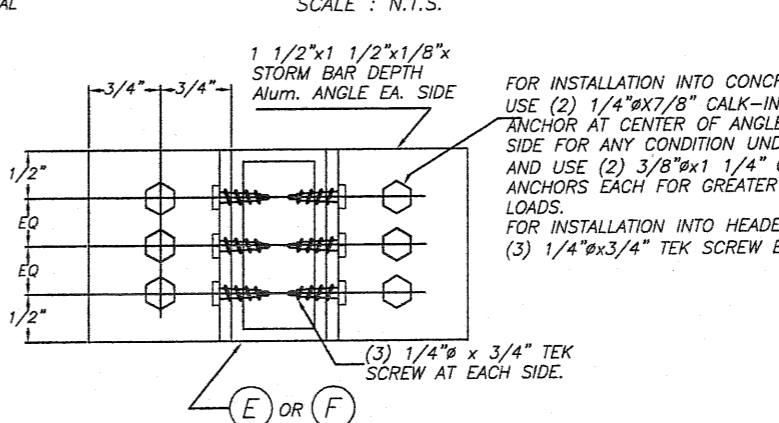
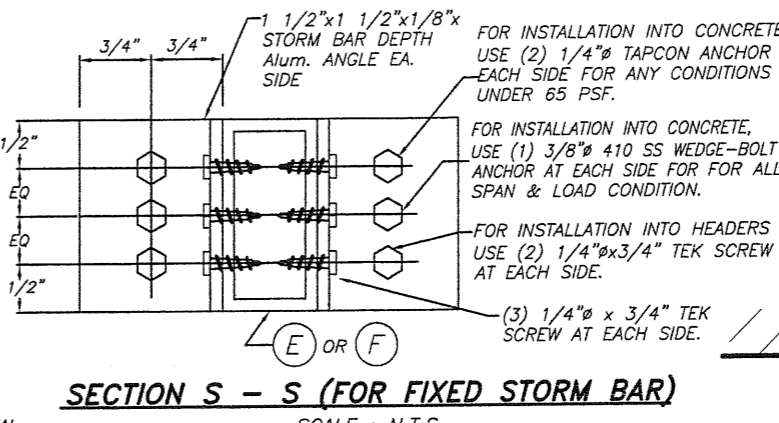
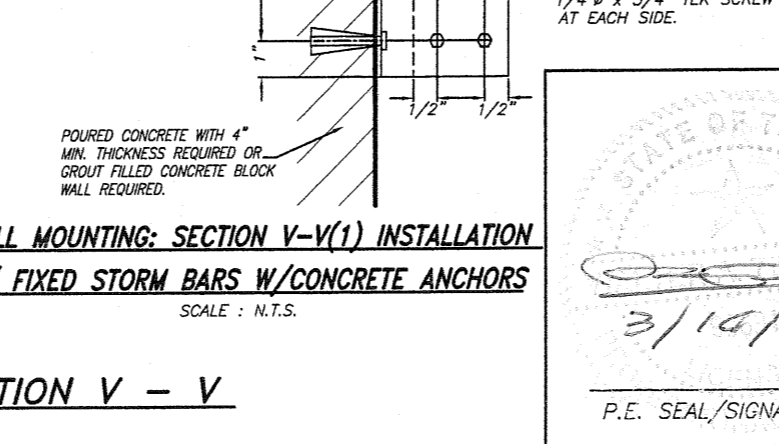
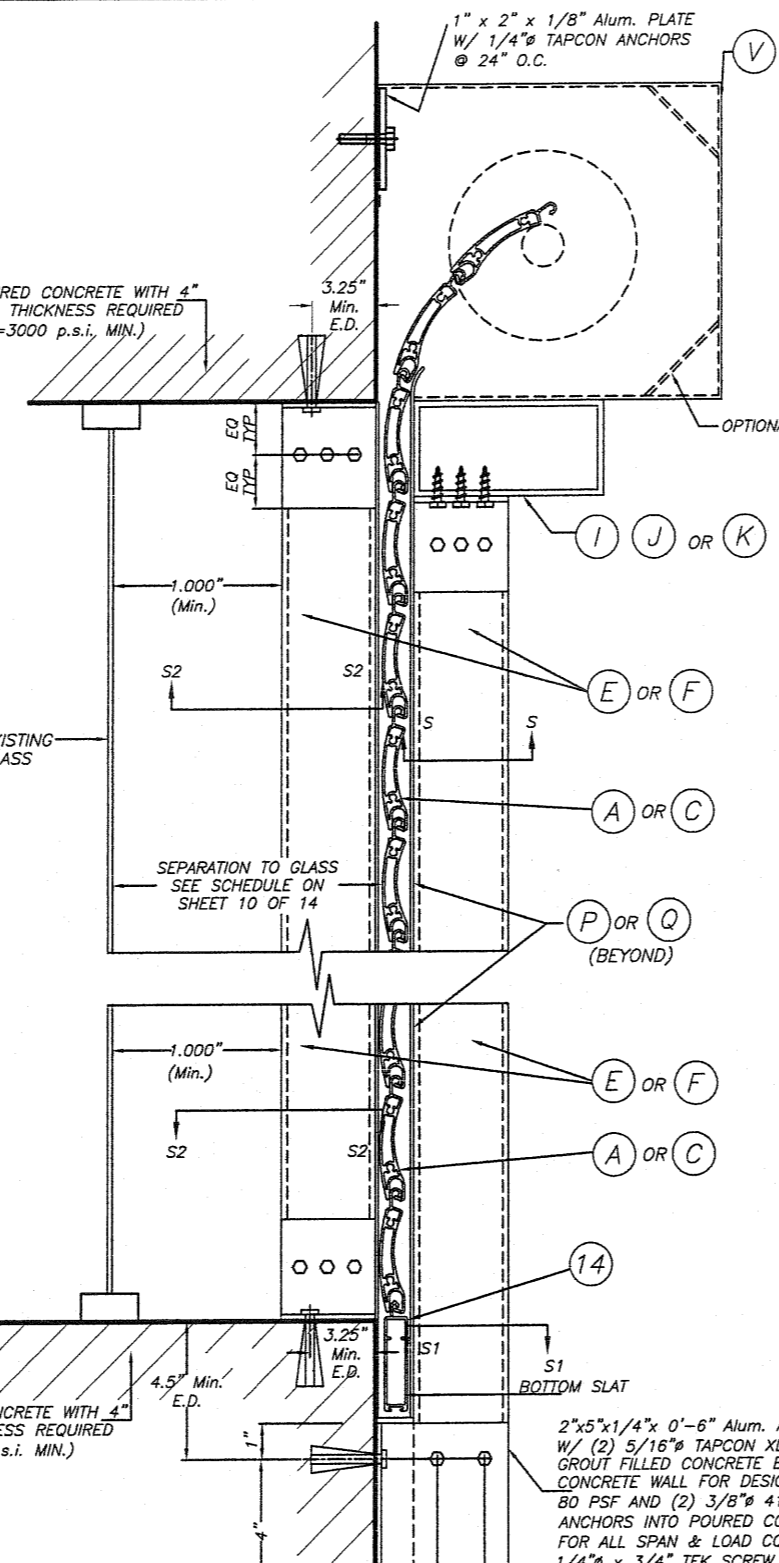
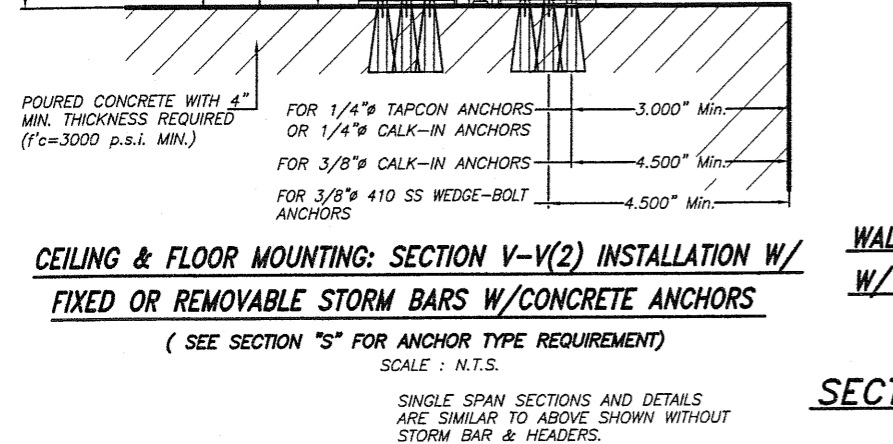
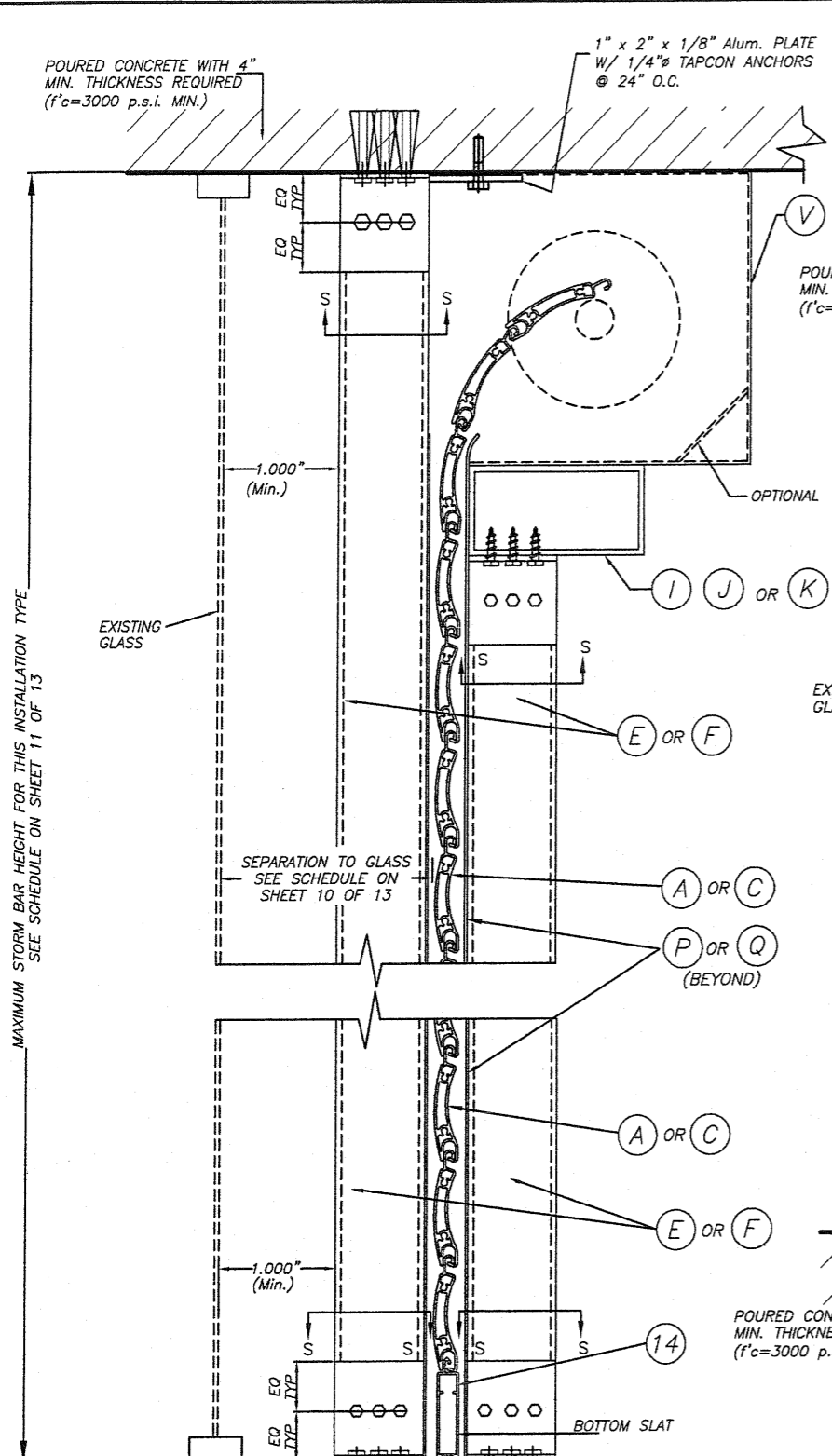
\* 1/4"Ø-20 MACHINE SCREWS USED JOINTLY W/ 1/4"Øx7/8" CALK-IN ANCHORS RESPECTIVELY SHALL BE LEFT TOGETHER W/ ANCHORS AT THE TIME STORM BARS ARE REMOVED. (SEE DET. A).

**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**

STATE OF TEXAS  
 WALTER A. TILLIT Jr. P.E.  
 PROFESSIONAL ENGINEER  
 6355 N.W. 36 STREET, STE. 305  
 VIRGINIA GARDENS, FL 33166  
 PHONE (305) 871-1530 FAX (305) 871-1531  
 TEXAS LIC. # 90691  
 FIRM REGISTRATION # F-13790  
 P.E. SEAL/SIGNATURE/DATE  
 3/18/12

<b>TEXAS DEPARTMENT INSURANCE-2006</b>					
WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER			ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLS 55-X AND A-200-H SLATS		
6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531			ROLLAC SHUTTERS OF TEXAS, INC.		
TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790			5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		
					M.C.V./A.G. DRAWN BY
					03/10/10 DATE
					10-035 DRAWING No
SHEET 5 OF 13					



\* 1/4"  $\phi$ -20 OR 3/8"  $\phi$ -16 MACHINE SCREWS USED JOINTLY W/ 1/4"  $\phi$  x 7/8" OR 3/8"  $\phi$  x 1 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)  
 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.

STATE OF TEXAS  
 P.E. SEAL/SIGNATURE/DATE  
 3/10/12

TEXAS DEPARTMENT INSURANCE-2006

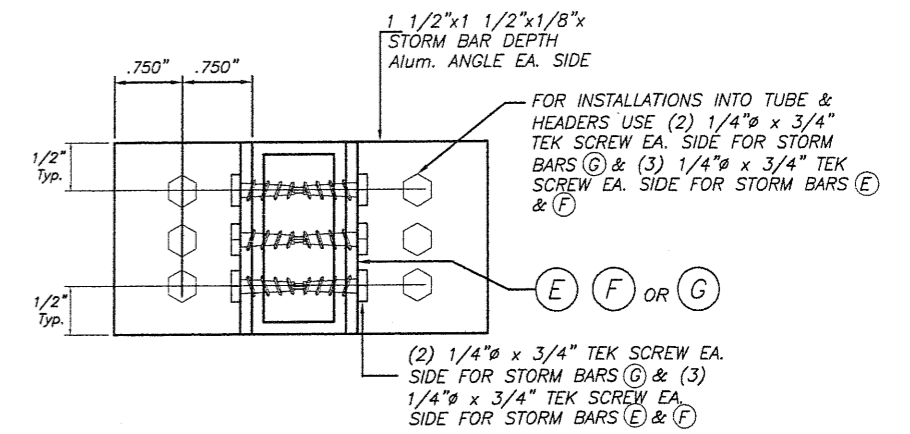
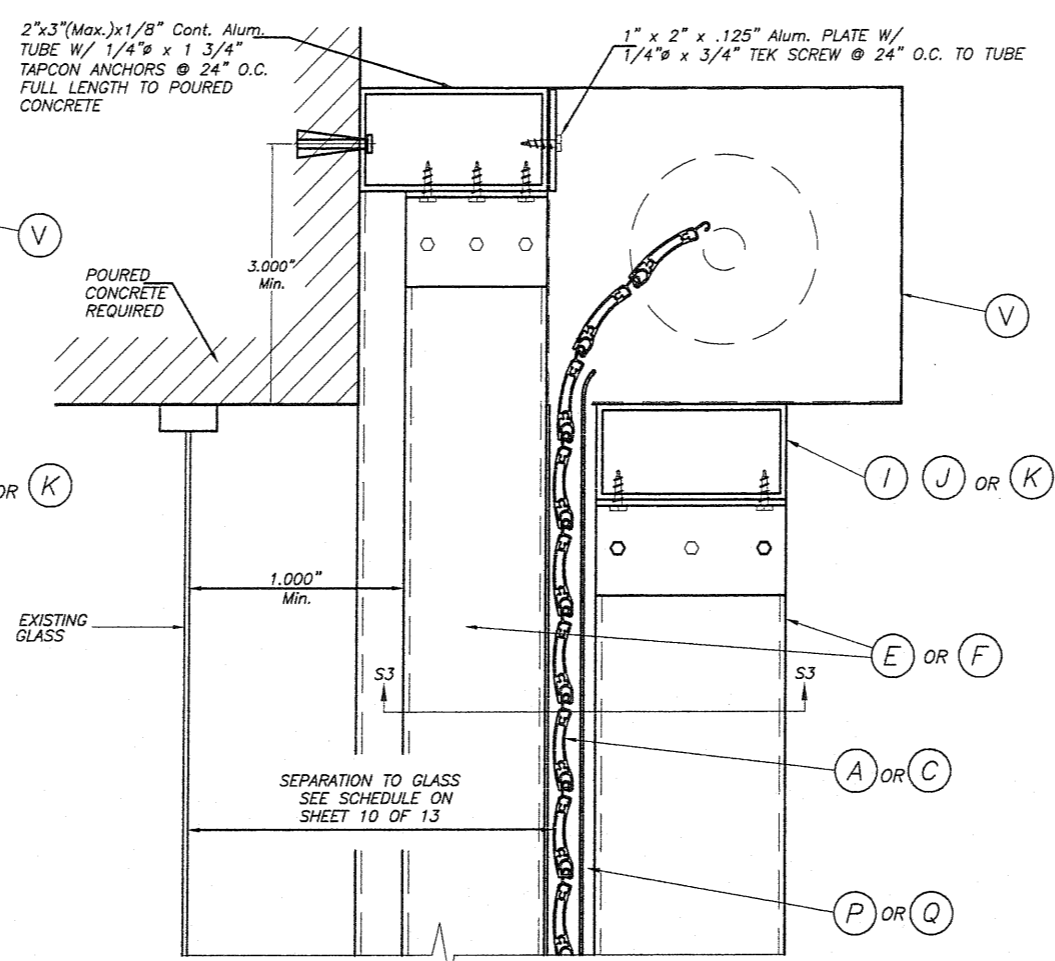
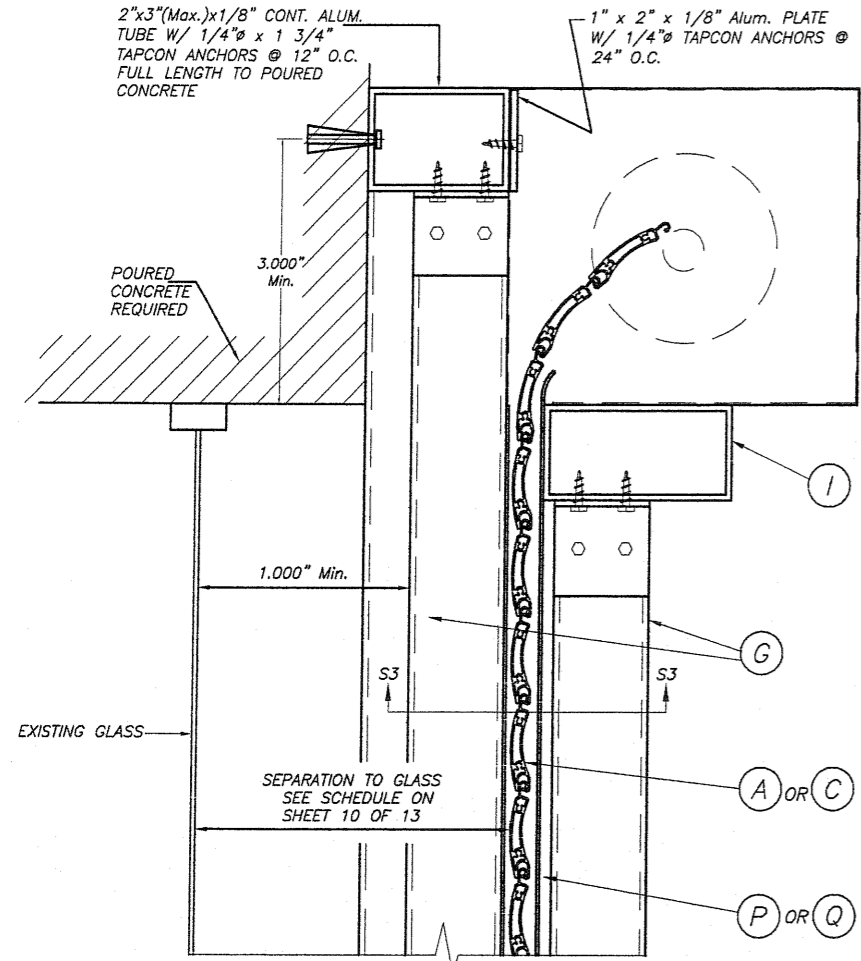
WALTER A. TILLIT Jr. P.E.  
 PROFESSIONAL ENGINEER  
 6355 N.W. 36 STREET, STE. 305  
 VIRGINIA GARDENS, FL 33166  
 PHONE (305) 871-1530 FAX (305) 871-1531  
 TEXAS LIC. # 90691  
 FIRM REGISTRATION # F-13790

ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION  
 RLL 55-X AND A-200-H SLATS

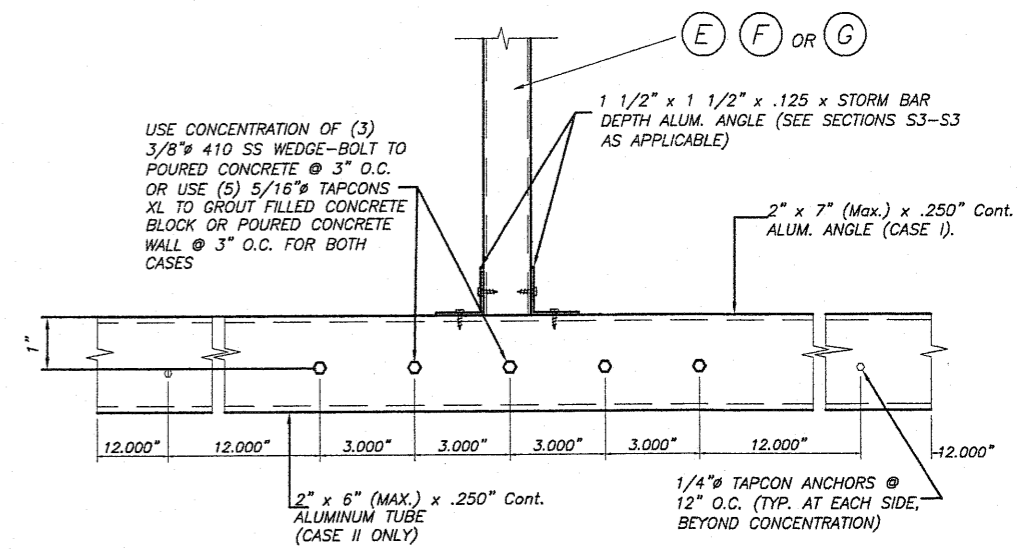
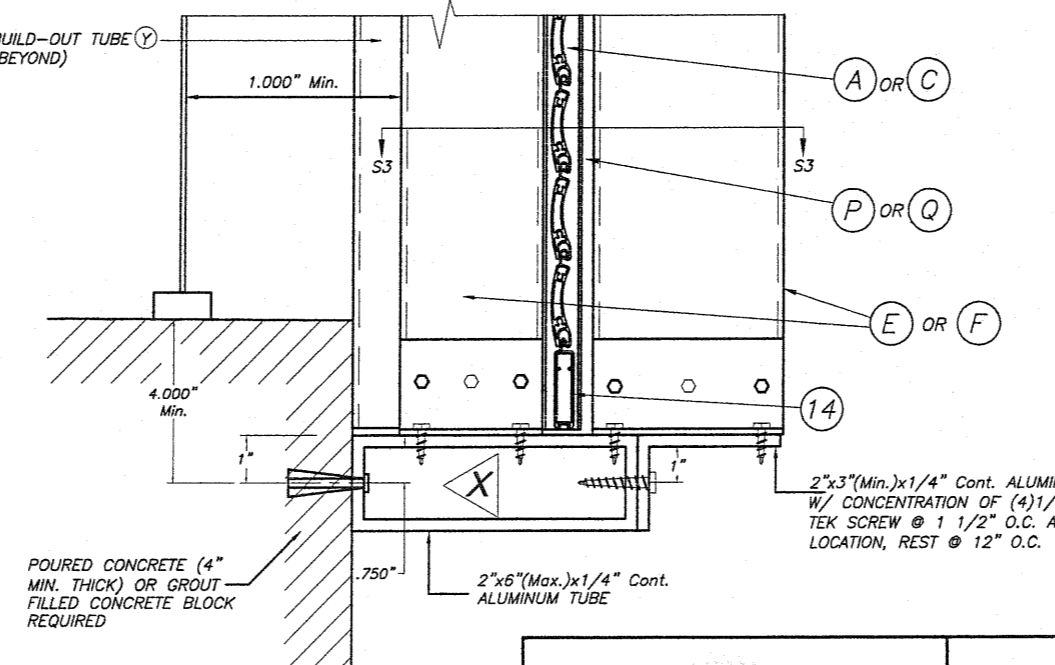
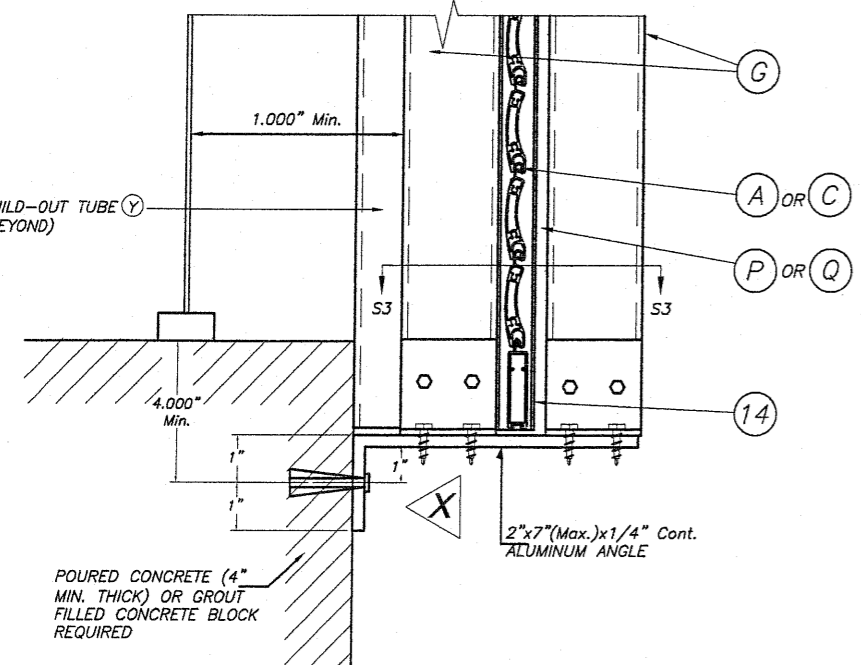
ROLLAC SHUTTERS OF TEXAS, INC.  
 5331 ORANGE STREET  
 PEARLAND, TX 77581  
 PHONE: (800) 880-0922, FAX: (281) 485-0839

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		

M.C.V./A.G. DRAWN BY  
 03/10/10 DATE  
 10-035 DRAWING No  
 SHEET 6 OF 13



**SECTION S3 - S3**  
SCALE : 1/2" = 1"



**ELEVATION X**  
SCALE : N.T.S.

**CASE I**

**CASE II**

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

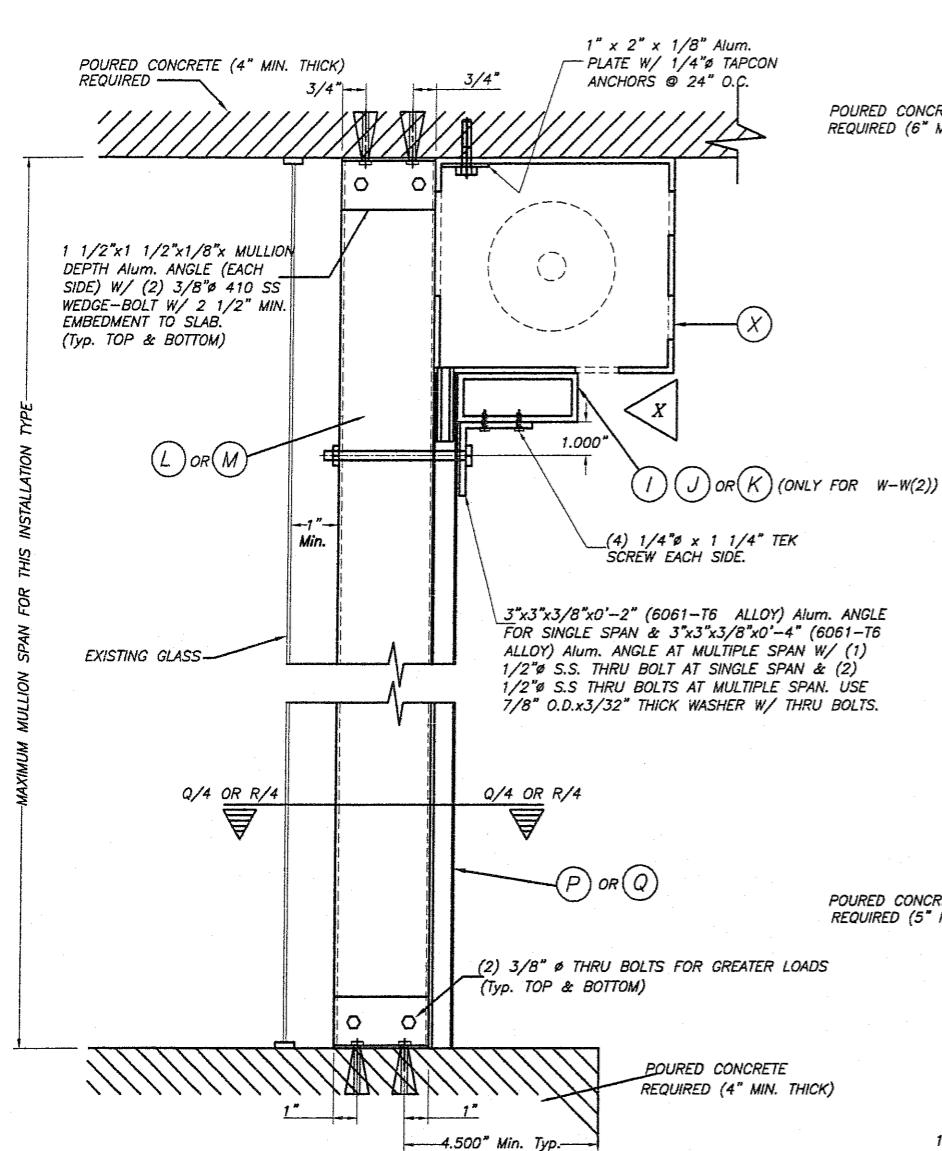
SCALE : 1/4" = 1"

STATE OF TEXAS  
  
 3/14/12  
 P.E. SEAL/SIGNATURE/DATE

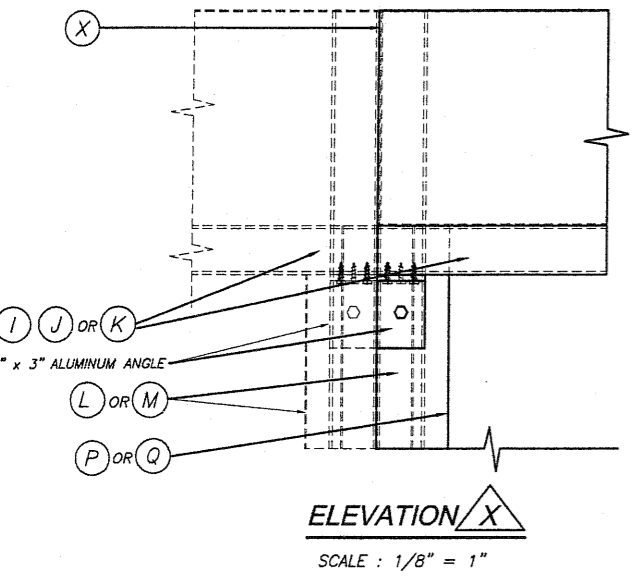
**WALTER A. TILLIT Jr. P.E.**  
 PROFESSIONAL ENGINEER  
 6355 N.W. 36 STREET, STE. 305  
 VIRGINIA GARDENS, FL 33166  
 PHONE (305) 871-1530 FAX (305) 871-1531  
 TEXAS LIC. # 90691  
 FIRM REGISTRATION # F-13790

<b>TEXAS DEPARTMENT INSURANCE-2006</b>					
ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLS 55-X AND A-200-H SLATS			M.C.V./A.G. DRAWN BY		
<b>ROLLAC SHUTTERS OF TEXAS, INC.</b>			03/10/10 DATE		
5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839			10-035 DRAWING No		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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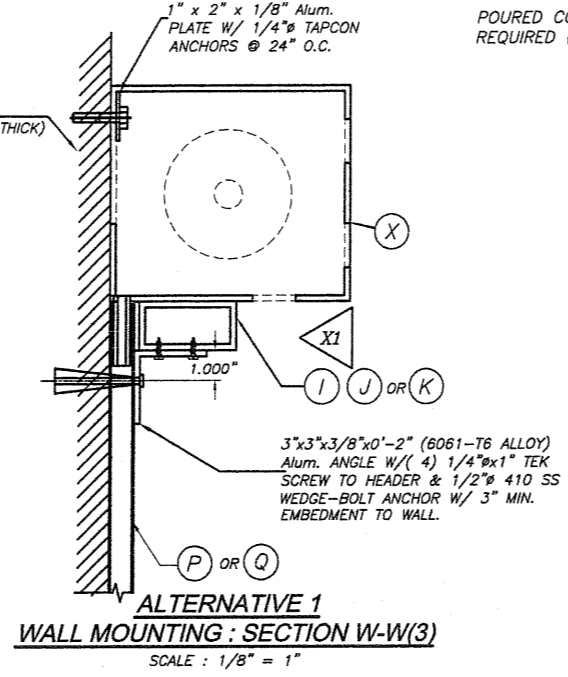




**FLOOR/CEILING MOUNTING:**  
**SECTION W-W (1), W/O HEADER**  
**SECTION W-W (2), W/HEADER**  
 SCALE : 1/8" = 1"

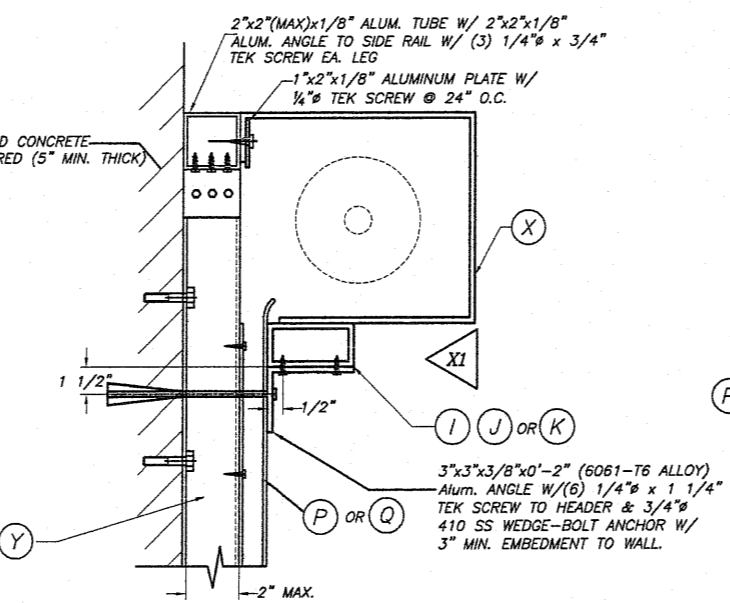


**ELEVATION X**  
 SCALE : 1/8" = 1"



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

**NOTE:**  
 VALID FOR ANY SPAN AND LOAD CONDITION

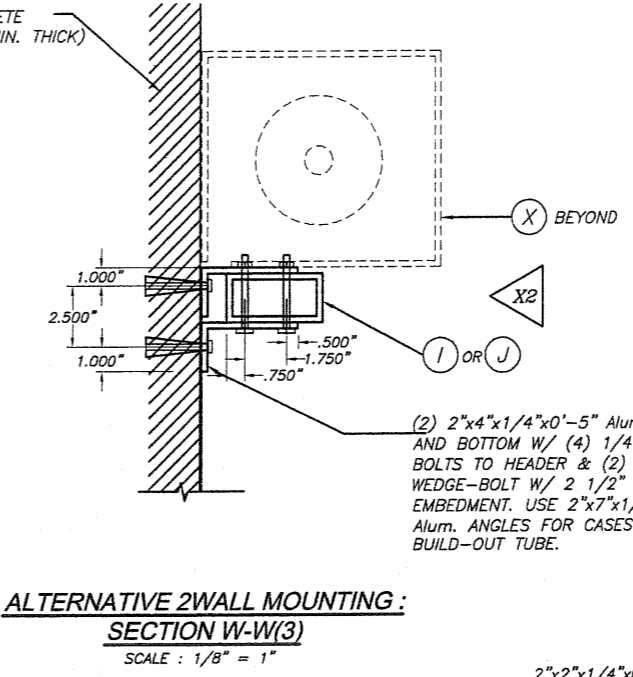


**ALTERNATIVE 2**  
**WALL MOUNTING : SECTION W-W(3)**  
 SCALE : 1/8" = 1"

**NOTE:**  
 INSTALLATION DETAILS SHOWN ON ALTERNATIVES 1 & 2 ARE VALID FOR ANY STORM BAR HEIGHT AND HEADER SPAN CONDITION UNDER 175 psf.

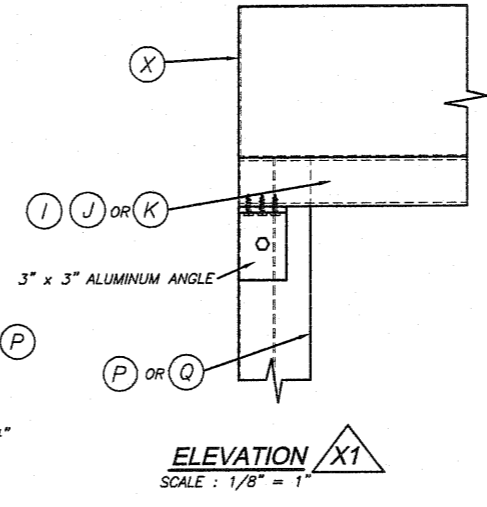
**TYPICAL HEADER CONNECTION AT ENDS:**

**SECTIONS W-W**



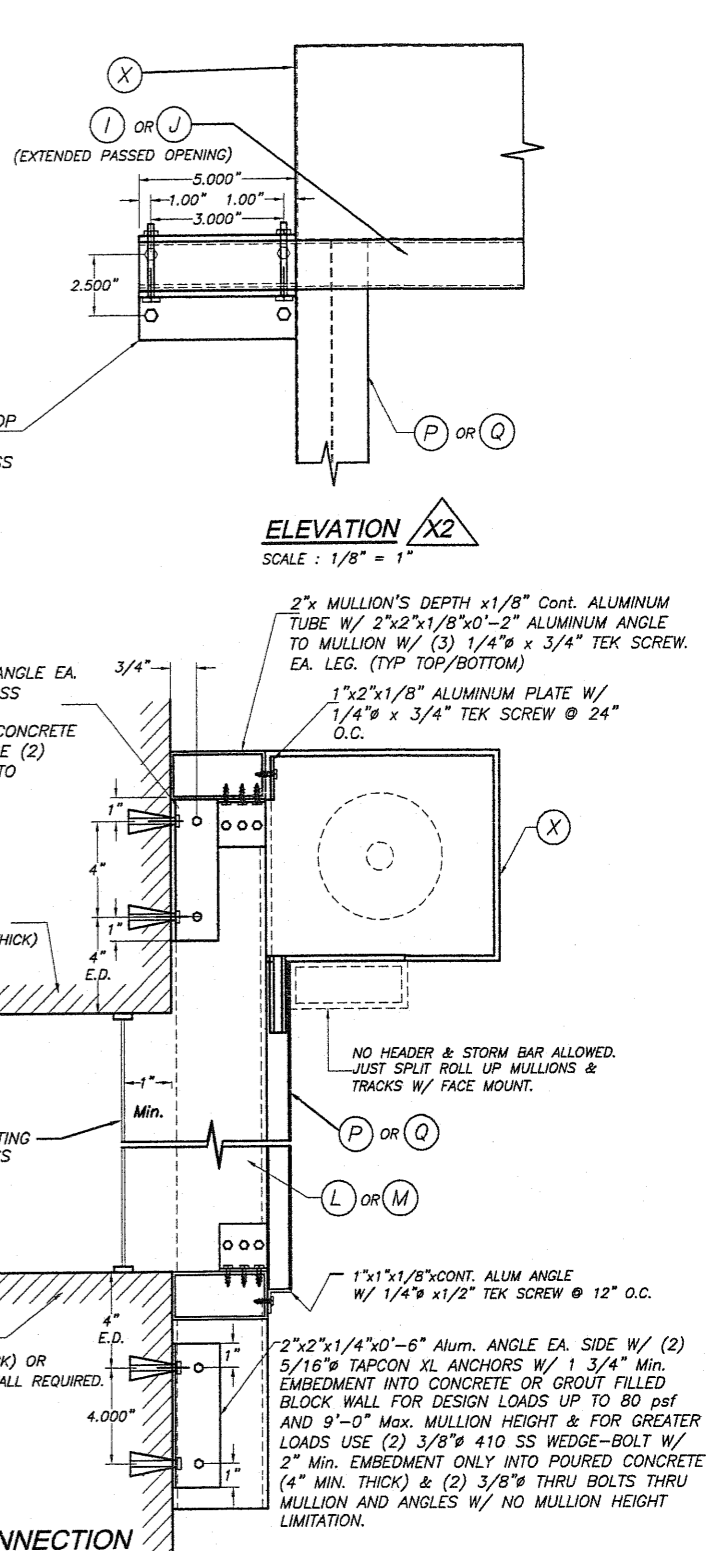
**ALTERNATIVE 2 WALL MOUNTING:**  
**SECTION W-W(3)**  
 SCALE : 1/8" = 1"

**NOTE:**  
 VALID FOR ANY SPAN AND LOAD CONDITION



**ELEVATION X1**  
 SCALE : 1/8" = 1"

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



**ELEVATION X2**  
 SCALE : 1/8" = 1"

**STATE OF TEXAS**

Professional Engineer Seal for Walter A. Tillit Jr., P.E.

3/14/12

P.E. SEAL/SIGNATURE/DATE

**WALTER A. TILLIT Jr. P.E.**  
 PROFESSIONAL ENGINEER

6355 N.W. 36 STREET, STE. 305  
 VIRGINIA GARDENS, FL 33166  
 PHONE (305) 871-1530 FAX (305) 871-1531

TEXAS LIC. # 90691  
 FIRM REGISTRATION # F-13790

**TEXAS DEPARTMENT INSURANCE-2006**

**ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION**  
 RLL 55-X AND A-200-H SLATS

**ROLLAC SHUTTERS OF TEXAS, INC.**

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

M.C.V./A.G. DRAWN BY

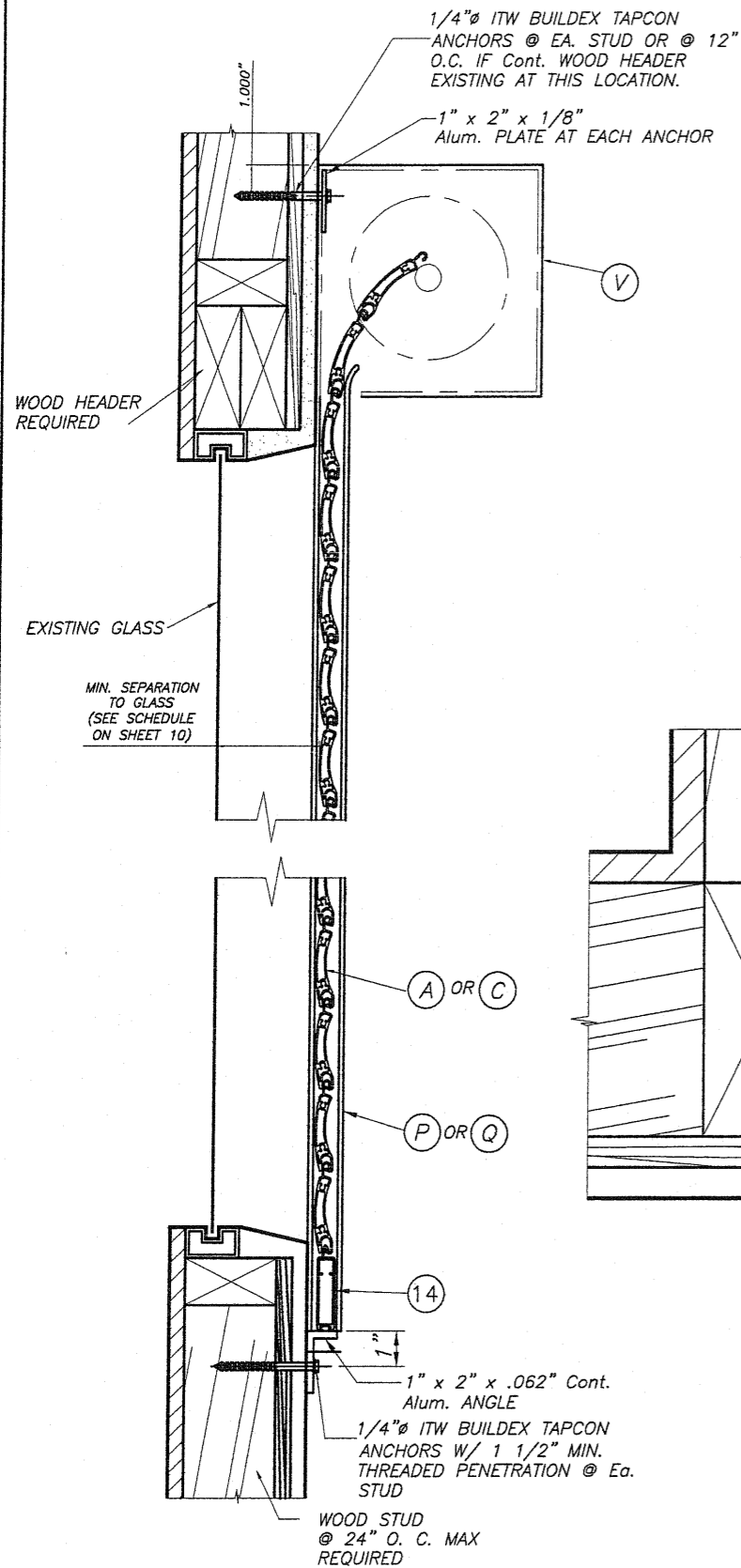
03/10/10 DATE

10-035 DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		

SHEET 8 OF 13

# INSTALLATIONS INTO EXISTING WOOD BUILDINGS

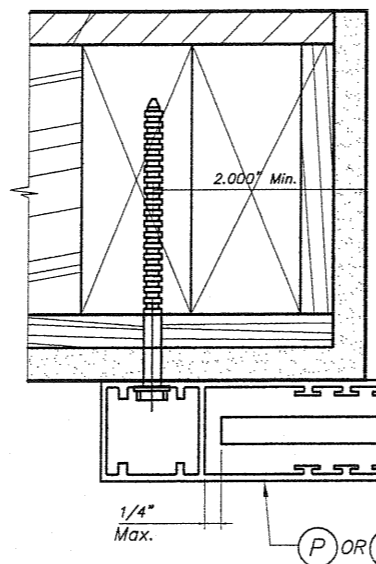


## WALL MOUNTING INSTALLATION SINGLE SPAN CONDITION

N. T. S.

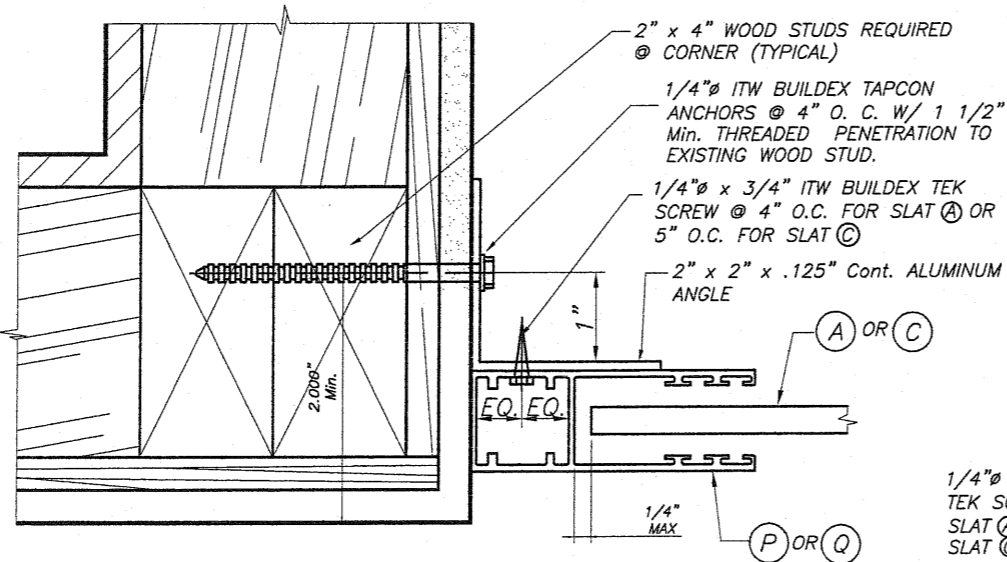
### NOTES:

- INSTALLATIONS ARE ONLY VALID FOR BUILDINGS WITH DESIGN LOAD UP TO 72 p.s.f.
- 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.



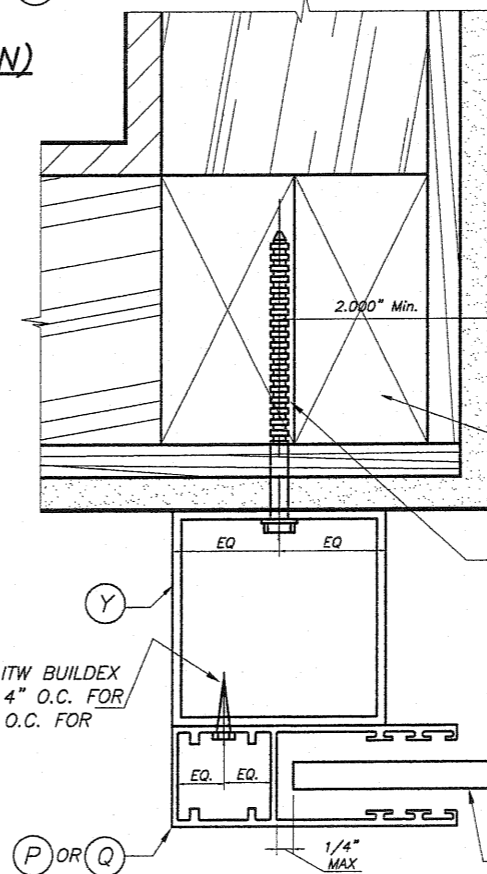
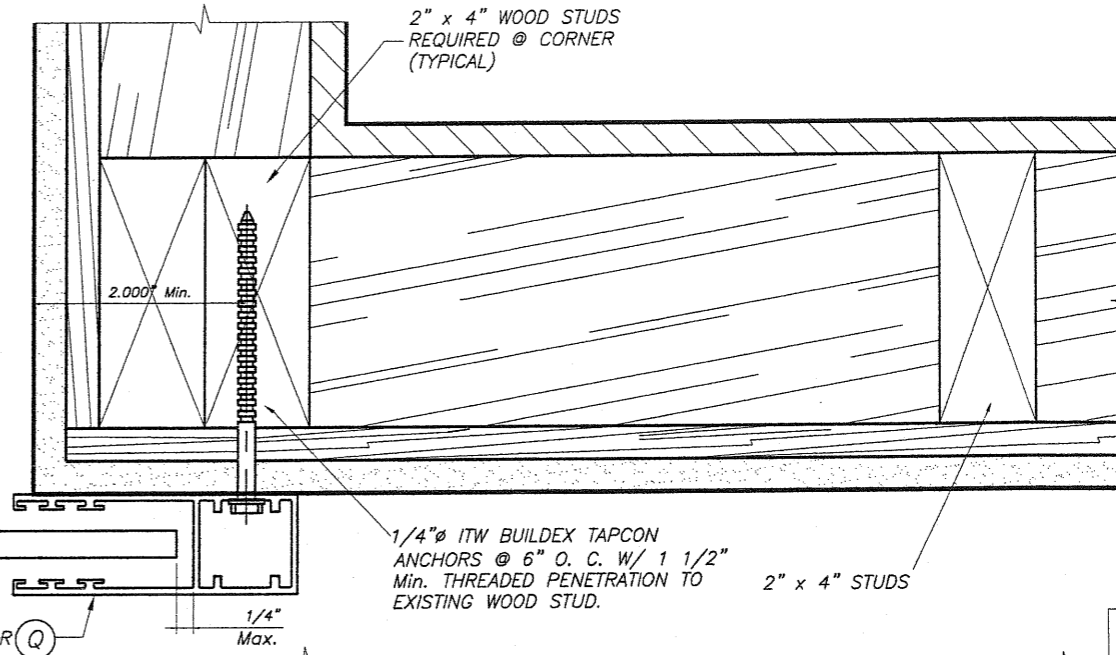
## PLAN A (SECTION) WALL MOUNT

SCALE : 3/8" = 1"



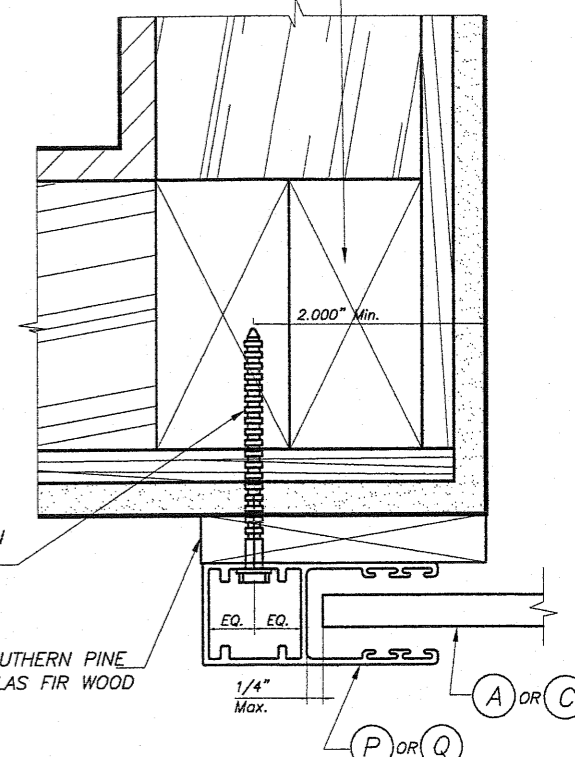
## PLAN B (SECTION) INSIDE MOUNT

SCALE : 3/8" = 1"



## PLAN C BUILD-OUT

SCALE : 3/8" = 1"



## PLAN C BUILD-OUT (OPTION)

SCALE : 3/8" = 1"

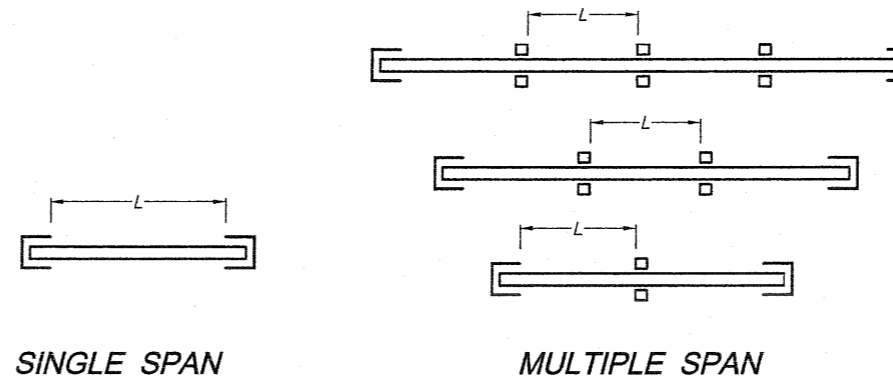
STATE OF TEXAS  
3/14/10  
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TEXAS DEPARTMENT INSURANCE-2006					
WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER			ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RL 55-X AND A-200-H SLATS		M.C.V./A.G. DRAWN BY
6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531			5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		03/10/10 DATE
TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790			ROLLAC SHUTTERS OF TEXAS, INC.		10-035 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		

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

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

DESIGN PRESSURE RATING (p.s.f.)	TYPE 1 SLAT RLL 55-X		TYPE 2 SLAT A-200-H SLAT	
	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS	MAXIMUM SLAT SPAN	MINIMUM SEPARATION TO GLASS
	SINGLE & MULTIPLE	SINGLE & MULTIPLE UNIT WIND ZONES 1-3	SINGLE & MULTIPLE UNIT	SINGLE & MULTIPLE UNIT WIND ZONES 1-3
25.0	7'-0"	1"	6'-0"	1"
30.0	7'-0"	1"	5'-9"	1"
35.0	7'-0"	1"	5'-4"	1"
40.0	7'-0"	1"	5'-0"	1"
45.0	6'-7"	1"	4'-8"	1"
50.0	6'-3"	1"	4'-5"	1"
55.0	6'-0"	1"	4'-3"	1"
60.0	5'-8"	1"	4'-1"	1"
65.0	5'-6"	1"	3'-11"	1"
70.0	5'-3"	1"	3'-9"	1"
72.0	5'-2 1/2"	1"	3'-8"	1"
75.0	-	-	3'-8"	1"
80.0	-	-	3'-6"	1"
85.0	-	-	3'-5"	1"
90.0	-	-	3'-4"	1"
95.0	-	-	3'-3"	1"
100.0	-	-	3'-2"	1"
105.0	-	-	3'-1"	1"
110.0	-	-	3'-0"	1"
115.0	-	-	2'-11"	1"
120.0	-	-	2'-11"	1"
125.0	-	-	2'-10"	1"
130.0	-	-	2'-9"	1"
135.0	-	-	2'-9"	1"
140.0	-	-	2'-8"	1"
145.0	-	-	2'-7"	1"
150.0	-	-	2'-7"	1"
155.0	-	-	2'-6"	1"
160.0	-	-	2'-6"	1"
165.0	-	-	2'-5"	1"
170.0	-	-	2'-5"	1"
175.0	-	-	2'-5"	1"
180.0	-	-	2'-4"	1"
185.0	-	-	2'-4"	1"
190.0	-	-	2'-3"	1"
195.0	-	-	2'-3"	1"



**SPAN LAYOUT**

**NOTES:** -MINIMUM SEPARATION TO GLASS FOR SINGLE AND MULTIPLE UNITS SHALL BE MEASURED FROM BACK OF SLAT TO GLASS.  
 -WIND ZONES 1 THRU 3 AS DEFINED BY SECTION 6.2.2 OF ASTM E-1996-05

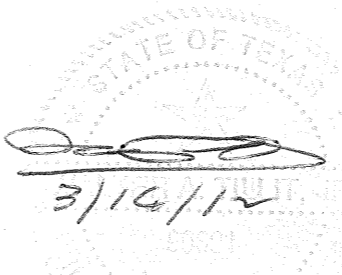
 P.E. SEAL/SIGNATURE/DATE	<b>TEXAS DEPARTMENT INSURANCE-2006</b>																				
	WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER  6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531  TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790	ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS  <b>ROLLAC SHUTTERS OF TEXAS, INC.</b>  5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839	M.C.V./A.G. DRAWN BY  03/10/10 DATE  10-035 DRAWING No																		
<table border="1"> <tr> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </table>	REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	1			3			2			4			SHEET 10 OF 13		
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE																
1			3																		
2			4																		

**STORM BAR LOADING CHART. MAXIMUM 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 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"			
	* 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'
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"
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"

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

  
 3/14/12  
 P.E. SEAL/SIGNATURE/DATE

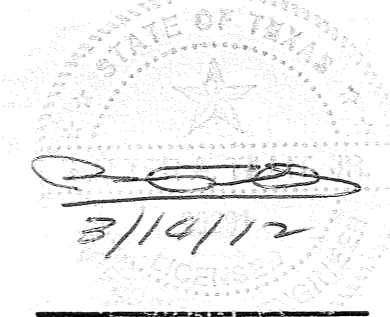
<b>TEXAS DEPARTMENT INSURANCE-2006</b>					
WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER  6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531  TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790			ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS  <b>ROLLAC SHUTTERS OF TEXAS, INC.</b>  5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839		M.C.V./A.G. DRAWN BY  03/10/10 DATE  <b>10-035</b> DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		
SHEET 11 OF 13					

**HEADER LOADING CHART**

**MAXIMUM 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 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"

  
 3/10/12  
 P.E. SEAL/SIGNATURE/DATE

<b>TEXAS DEPARTMENT INSURANCE-2006</b>					
WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER 6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531 TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790				ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS M.C.V./A.G. DRAWN BY	
ROLLAC SHUTTERS OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839				03/10/10 DATE 10-035 DRAWING No	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1			3		
2			4		



**MULLION LOADING CHART**  
**MAXIMUM 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 DESIGN PRESSURE RATING (psf)	LTYPE 1 MULLION (4"x6"x1/4")			M TYPE 2 MULLION (4"x4"x1/4")		
	MULLION SPACING			MULLION SPACING		
	≤ 4'-0"	4' TO 5'	5' TO 8'	≤ 4'-0"	4' TO 5'	5' TO 8'
30 OR LESS	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	11'-10"
35	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	11'-3"
40	12'-0"	12'-0"	12'-0"	11'-9"	12'-0"	10'-9"
45	12'-0"	12'-0"	12'-0"	11'-4"	12'-0"	10'-4"
50	12'-0"	12'-0"	12'-0"	10'-11"	11'-8"	10'-0"
55	12'-0"	12'-0"	12'-0"	10'-7"	11'-3"	9'-8"
60	12'-0"	12'-0"	12'-0"	10'-3"	11'-0"	9'-5"
65	12'-0"	12'-0"	12'-0"	10'-0"	10'-8"	9'-2"
70	12'-0"	12'-0"	12'-0"	9'-9"	10'-5"	8'-11"
75	12'-0"	12'-0"	12'-0"	9'-7"	10'-2"	8'-8"
80	12'-0"	12'-0"	11'-10"	9'-4"	10'-0"	8'-6"
85	12'-0"	12'-0"	11'-7"	9'-2"	9'-9"	8'-4"
90	12'-0"	12'-0"	11'-4"	9'-0"	9'-7"	8'-2"
95	12'-0"	12'-0"	11'-2"	8'-10"	9'-5"	8'-1"
100	12'-0"	12'-0"	10'-11"	8'-8"	9'-3"	7'-11"
105	11'-10"	12'-0"	10'-9"	8'-6"	9'-1"	7'-9"
110	11'-8"	12'-0"	10'-7"	8'-5"	9'-0"	7'-8"
115	11'-6"	12'-0"	10'-5"	8'-3"	8'-10"	7'-7"
120	11'-4"	12'-0"	10'-4"	8'-2"	8'-8"	7'-5"
125	11'-2"	11'-11"	10'-2"	8'-1"	8'-7"	7'-4"
130	11'-0"	11'-9"	10'-0"	7'-11"	8'-6"	7'-3"
135	10'-11"	11'-7"	9'-11"	7'-10"	8'-4"	7'-2"
140	10'-9"	11'-5"	9'-10"	7'-9"	8'-3"	7'-1"
145	10'-7"	11'-4"	9'-8"	7'-8"	8'-2"	7'-0"
150	10'-6"	11'-2"	9'-7"	7'-7"	8'-1"	6'-11"
155	10'-5"	11'-1"	9'-6"	7'-6"	8'-0"	6'-10"
160	10'-3"	10'-11"	9'-4"	7'-5"	7'-11"	6'-9"
165	10'-11"	9'-9"	7'-8"	8'-2"	7'-4"	5'-9"
170	10'-9"	9'-7"	7'-7"	8'-1"	7'-2"	5'-8"
175	10'-7"	9'-5"	7'-6"	7'-11"	7'-1"	5'-7"
180	10'-5"	9'-4"	7'-4"	7'-10"	7'-0"	5'-6"
185	10'-3"	9'-2"	7'-3"	7'-9"	6'-11"	5'-6"
190	10'-2"	9'-1"	7'-2"	7'-7"	6'-10"	5'-5"
195	10'-0"	9'-0"	7'-1"	7'-6"	6'-9"	5'-4"

**SIDE RAIL ANCHOR SCHEDULE. MAXIMUM DESIGN PRESSURE RATING**  
**(p. s. f.) AND CORRESPONDING MAXIMUM ANCHOR SPACING(in) \* FOR**  
**SIDE RAILS (P) & (Q) CONNECTION TO POURED CONCRETE OR**  
**CONCRETE BLOCK WALL \***

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

SLAT TYPE 1 (A)  
(RL 55-X)

Design PRESSURE RATING (psf)	SUBSTRATE	FASTENERS' SPACING "spcg" (in o.c.)					
		P (RL-40) SIDE RAIL			Q (RL-1) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT	WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT
45 OR LESS	POURED CONCRETE	8"	8"	6"	8"	7.5"	6"
	CONCRETE BLOCK	7.5"	5.5"	6"	7.5"	6"	6"
> 45 to 72	POURED CONCRETE	8"	8"	6"	8"	7.5"	6"
	CONCRETE BLOCK	5.5"	4"	6"	5.5"	5"	6"

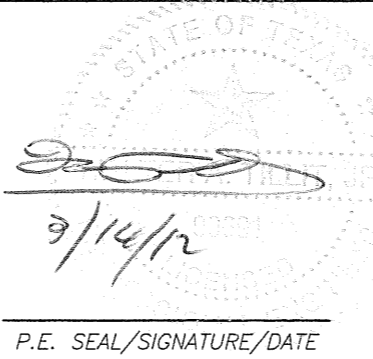
SLAT TYPE 2 (C)  
(A-200-H)

Design PRESSURE RATING (psf)	SUBSTRATE	FASTENERS' SPACING "spcg" (in o.c.)					
		P (RL-40) SIDE RAIL			Q (RL-1) SIDE RAIL		
		WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT	WALL MOUNT	INSIDE MOUNT	BUILD-OUT MOUNT
80 OR LESS	POURED CONCRETE	7"	8"	8"	7"	8"	8"
	CONCRETE BLOCK	7"	5.5"	8"	7"	6.5"	8"
> 80 to 120	POURED CONCRETE	7"	8"	8"	7"	8"	8"
	CONCRETE BLOCK	6.5"	4.5"	8"	6.5"	5.5"	8"
> 120 to 150	POURED CONCRETE	7"	8"	8"	7"	8"	8"
	CONCRETE BLOCK	5"	4"	8"	5"	4.5"	8"
> 150 to 195	POURED CONCRETE	6"	6"	6"	6"	6"	6"
	CONCRETE BLOCK	4.5"	3.5"	6"	4.5"	4"	6"

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

MAXIMUM ANCHOR SPACING IS VALID FOR 3" EDGE DISTANCE.

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

 P.E. SEAL/SIGNATURE/DATE	TEXAS DEPARTMENT INSURANCE--2006																		
	WALTER A. TILLIT Jr. P.E. PROFESSIONAL ENGINEER  6355 N.W. 36 STREET, STE. 305 VIRGINIA GARDENS, FL 33166 PHONE (305) 871-1530 FAX (305) 871-1531  TEXAS LIC. # 90691 FIRM REGISTRATION # F-13790	ROLL-UP SHUTTER/WIND BORNE DEBRIS REGION RLL 55-X AND A-200-H SLATS  <b>ROLLAC SHUTTERS OF TEXAS, INC.</b>  5331 ORANGE STREET PEARLAND, TX 77581 PHONE: (800) 880-0922, FAX: (281) 485-0839	M.C.V./A.G. DRAWN BY  03/10/10 DATE  10-035 DRAWING No																
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