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 Kd=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 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, PER FLORIDA BUILDING CODE PROTOCOLS TAS-201, TAS-202 AND TAS-203.

2. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER, WITH Fy = 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)

   (A) TO EXISTING POURED CONCRETE (f'c=3192 psi Min.):
   -1/4" ø 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" ø 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" ø 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 (fc'=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 INTERNATIONAL 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 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.

14. 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 OF INSURANCE - 2006

STATE OF TEXAS
9/3/15
WALTER A. TILLIT, JR.
90691
LICENSED
PROFESSIONAL ENGINEER

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 DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

DRAWN BY: F.P./A.G.

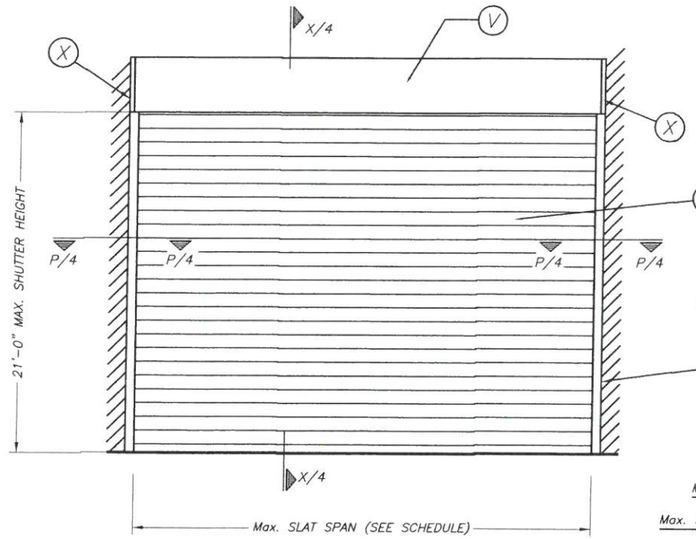
ROLLAC SHUTTERS OF TEXAS, INC.
5331 ORANGE STREET
PEARLAND, TX. 77581
PHONE: (800) 880-0922, FAX: (281) 485-0839

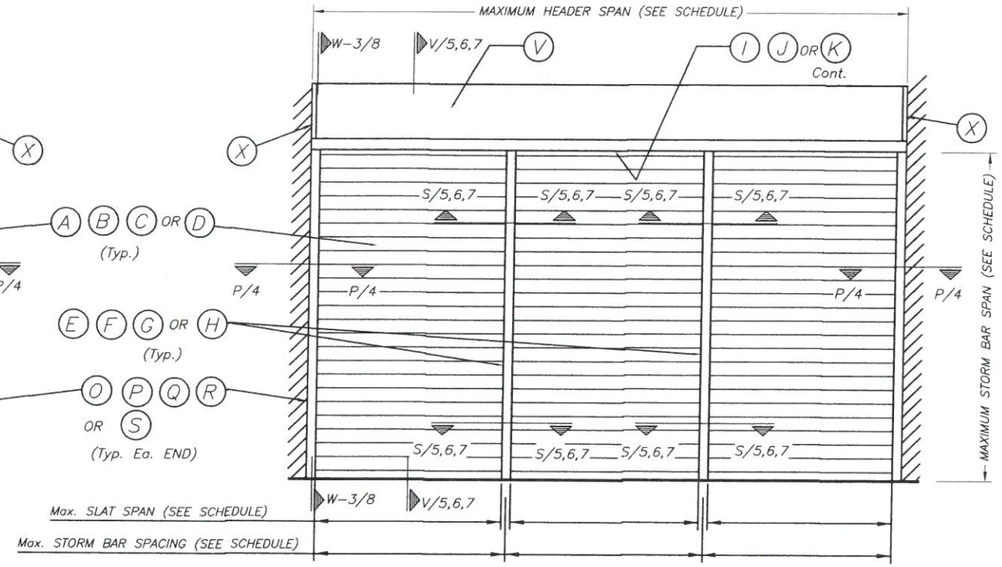
11/29/12
DATE

12-174
DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

SHEET 1 OF 13



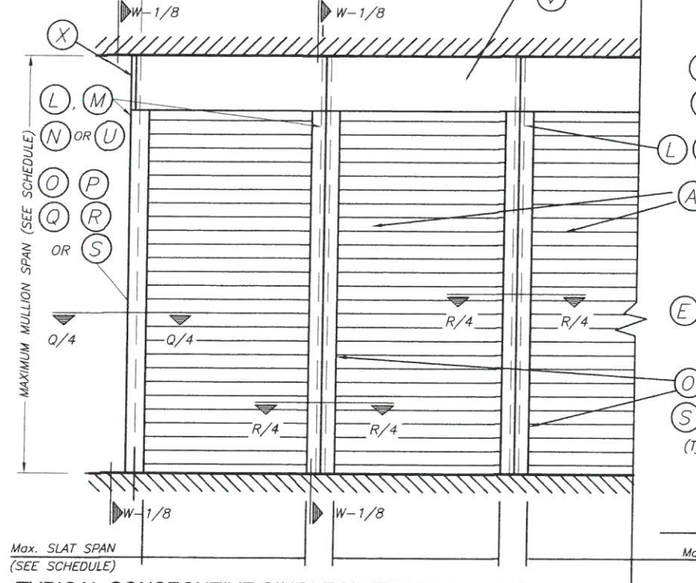


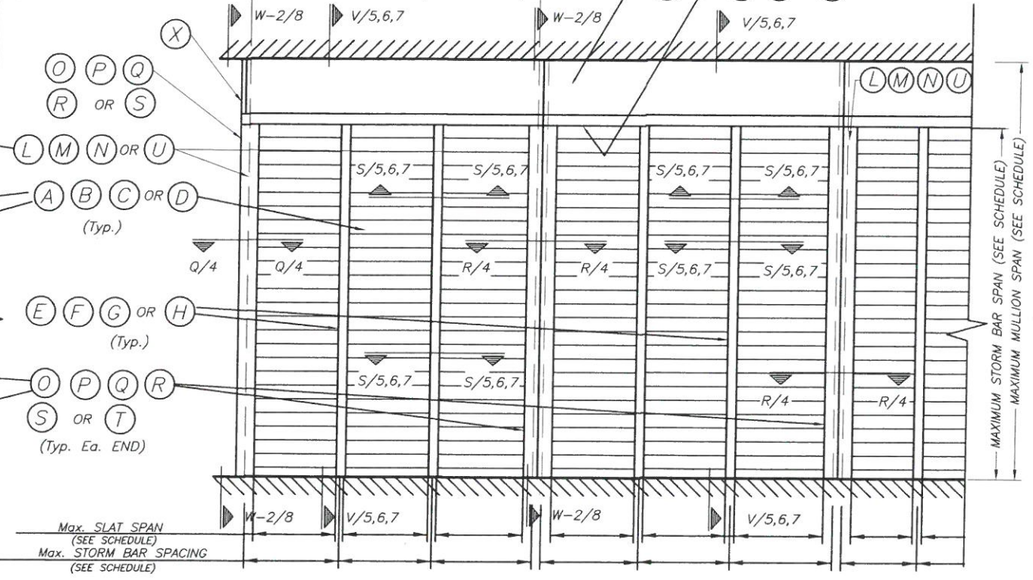
TYPICAL SINGLE UNIT ELEVATION (NO STORM BARS REQUIRED)

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.

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

ROLLAC SHUTTERS OF TEXAS, INC.

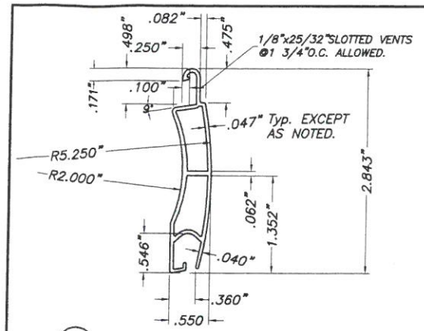
5331 ORANGE STREET
PEARLAND, TX. 77581
PHONE: (800) 880-0922, FAX: (281) 485-0839

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2	SHUTTER HGT.	8/31/15	4		

DRAWN BY: F.P./A.G.

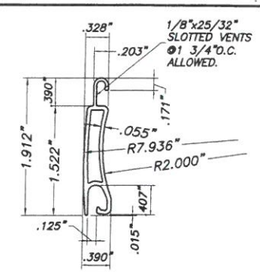
11/29/12 DATE

12-174 DRAWING No



(A) TYPE 1 SLAT:

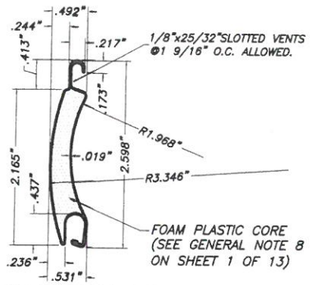
RLL–4 SLAT
EXTRUDED ALUMINUM
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



(B) TYPE 2 SLAT:

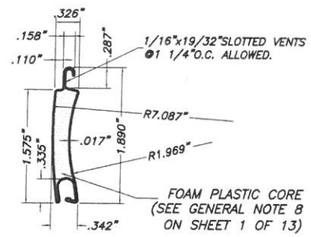
RLL–3 SLAT
EXTRUDED ALUMINUM
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"

NOTE:
TYPE 1 THRU 4 SLATS SHALL BE INSTALLED W/SIDE LOCKS AT EVERY OTHER SLAT.



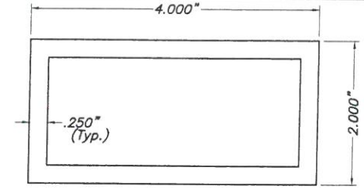
(C) TYPE 3 SLAT:

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



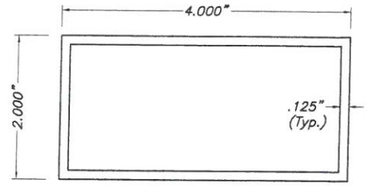
(D) TYPE 4 SLAT:

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



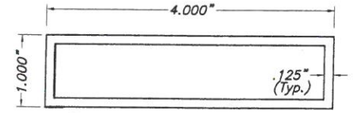
(I) TYPE 1 HEADER:

4" HEAVY EXTRUDED HEADER
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



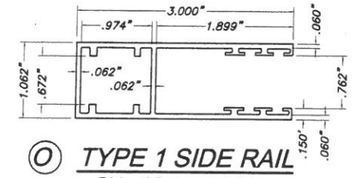
(J) TYPE 2 HEADER:

4" EXTRUDED HEADER
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



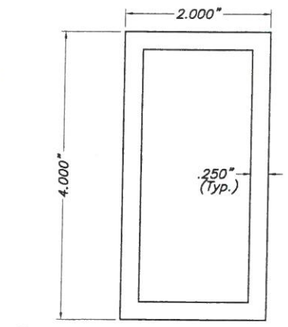
(K) TYPE 3 HEADER:

1"x4" EXTRUDED HEADER
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



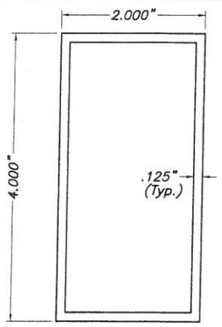
(O) TYPE 1 SIDE RAIL

RLL–25 SIDE RAIL
6063–T5 Alum. ALLOY
SCALE: 1/2" = 1"



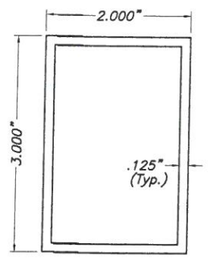
(E) TYPE 1 STORM BAR:

4" HEAVY EXTRUDED STORM BAR
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



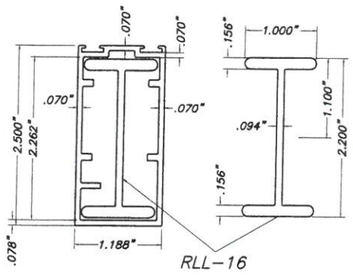
(F) TYPE 2 STORM BAR:

4" EXTRUDED STORM BARS
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



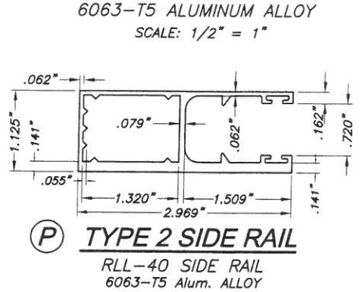
(G) TYPE 3 STORM BAR:

3" EXTRUDED STORM BARS
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



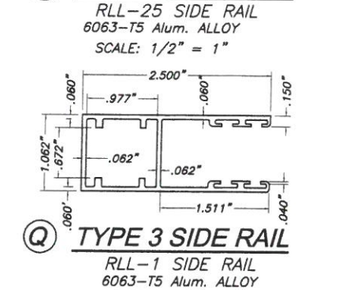
(H) TYPE 4 STORM BAR:

RLL–15 + RLL–16 EXTRUDED STORM BAR
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



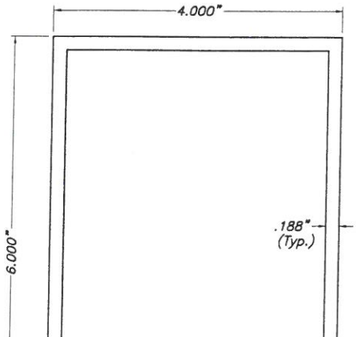
(P) TYPE 2 SIDE RAIL

RLL–40 SIDE RAIL
6063–T5 Alum. ALLOY
SCALE: 1/2" = 1"



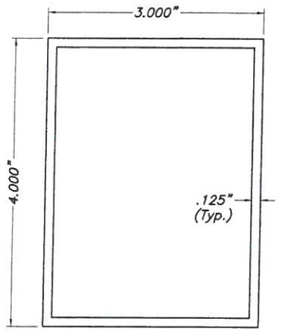
(Q) TYPE 3 SIDE RAIL

RLL–1 SIDE RAIL
6063–T5 Alum. ALLOY
SCALE: 1/2" = 1"



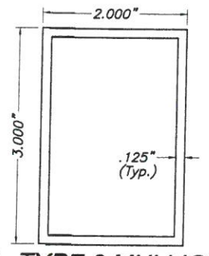
(L) TYPE 1 MULLION:

6" EXTRUDED MULLION
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



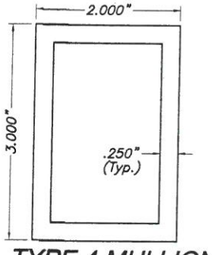
(M) TYPE 2 MULLION:

4" EXTRUDED MULLION
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



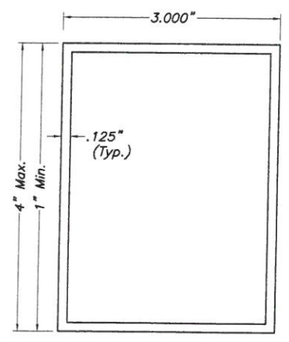
(N) TYPE 3 MULLION:

3" EXTRUDED MULLION
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



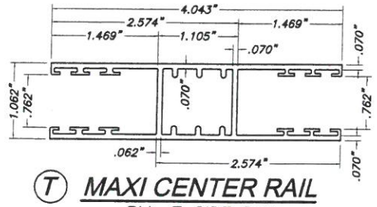
(U) TYPE 4 MULLION:

3" EXTRUDED MULLION
6063–T6 ALUMINUM ALLOY
SCALE: 1/2" = 1"



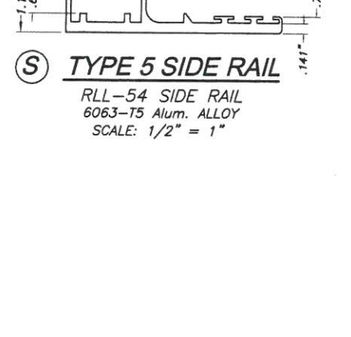
(Y) BUILD-OUT TUBES

3"x4" EXTRUDED TUBE
6063–T5 ALUMINUM ALLOY
SCALE: 1/2" = 1"



(T) MAXI CENTER RAIL

RLL–7 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"

COMPONENTS

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL–4, RLL–3, A–200–H, A–150–H SLATS

DRAWN BY: F.P./A.G.

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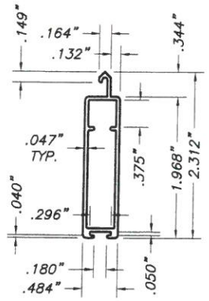
5331 ORANGE STREET
PEARLAND, TX. 77581
PHONE: (800) 880–0922, FAX: (281) 485–0839

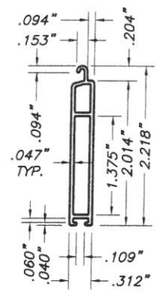
11/29/12 DATE

12–174 DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08–173	11/29/12	3		
2			4		

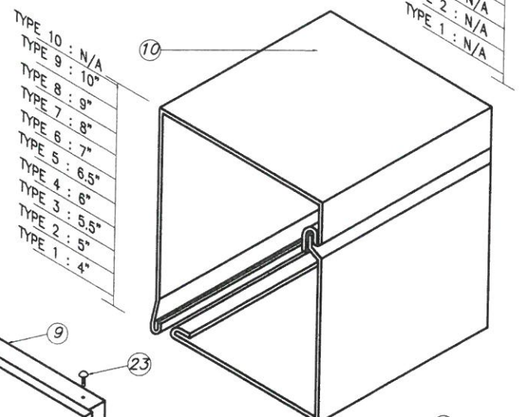


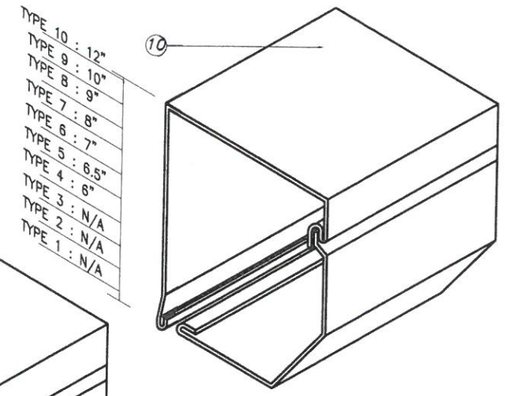
RLL-6
FOR RLL-4 & A-200-H
EXTRUDED ALUMINUM
6063-T5 ALUMINUM ALLOY



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

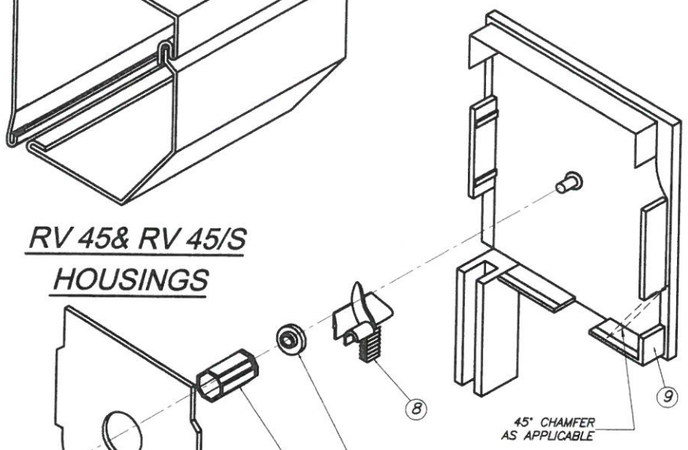
(14) DETAILS

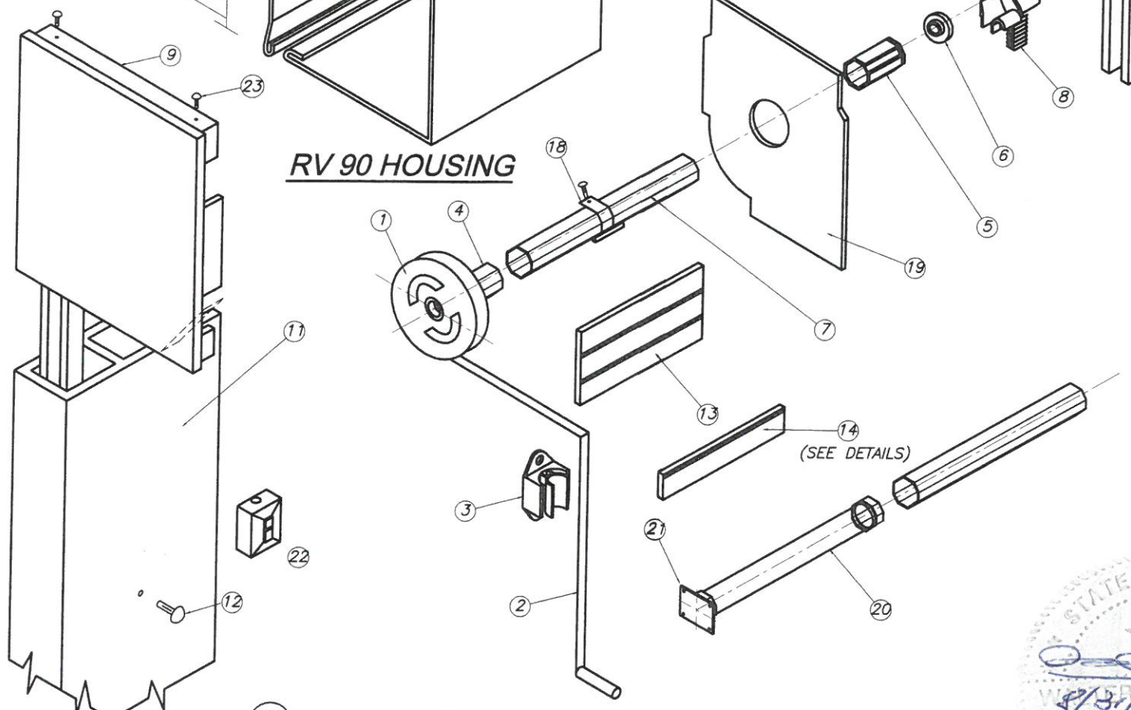




RV 90 HOUSING

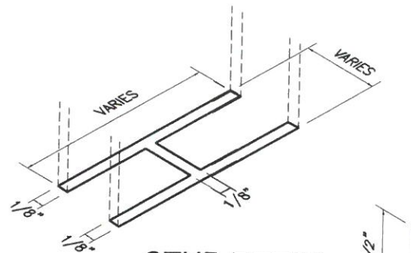
RV 45& RV 45/S HOUSINGS



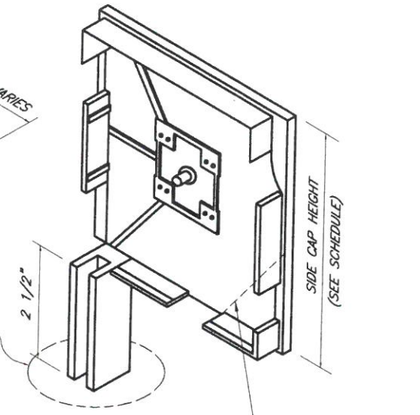


(V) BOX COMPONENTS AND ASSEMBLY DETAIL

(SEE NOTE 11 ON SHEET 1)



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-BUTTOMS
(13) – ALUMINUM SLATS
(14) – BASE SLAT
(15) – PLASTIC STOPS(OPTIONAL)
(16) – SIDE LOCKS(OPTIONAL)
(17) – STAPLES(OPTIONAL)
(18) – SPRINGLOCK HANGER
(19) – SAFETY PLATES

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

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).

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

DRAWN BY: F.P./A.G.

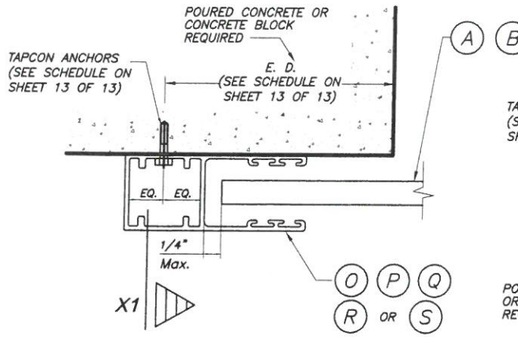
ROLLAC SHUTTERS OF TEXAS, INC.
5331 ORANGE STREET
PEARLAND, TX. 77581
PHONE: (800) 880-0922, FAX: (281) 485-0839

11/29/12
DATE

12-174
DRAWING No

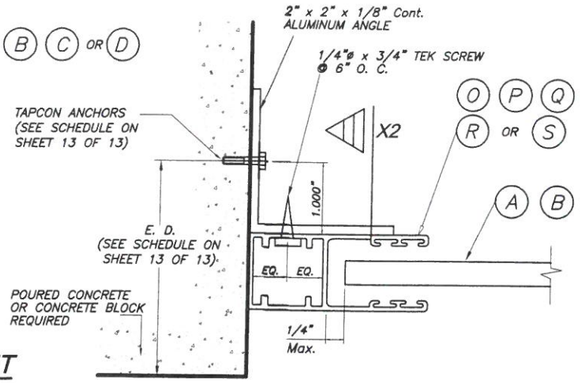
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

SHEET 3 OF 13



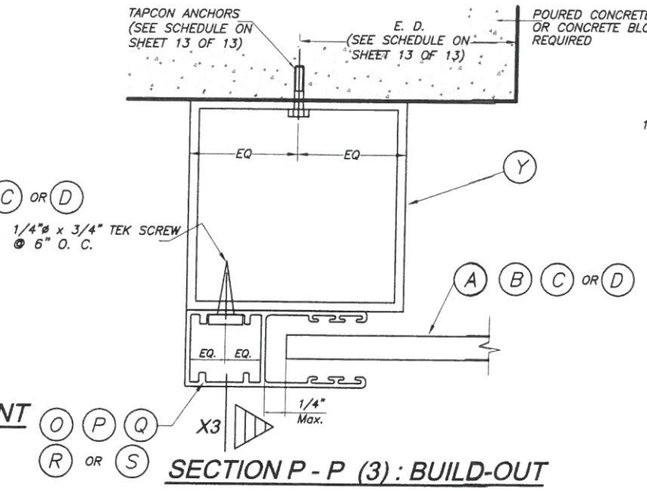
SECTION P - P (1) : WALL MOUNT

N.T.S.



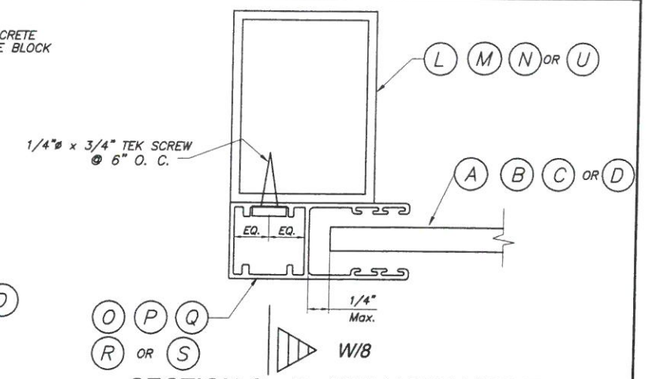
SECTION P - P (2) : SIDE WALL MOUNT

N.T.S.



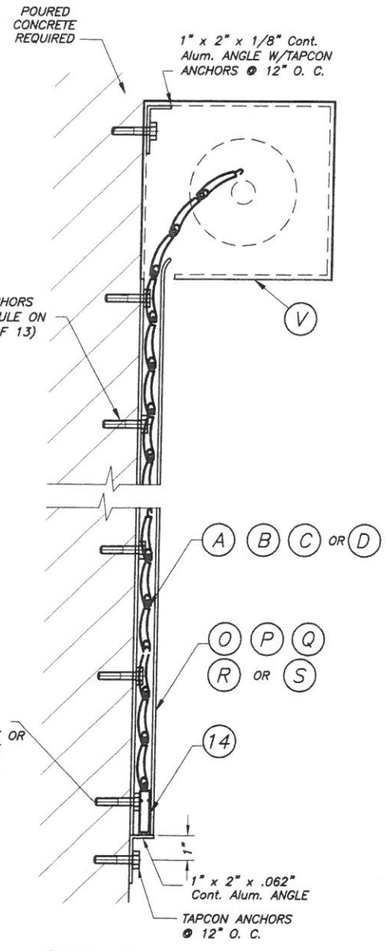
SECTION P - P (3) : BUILD-OUT

N.T.S.



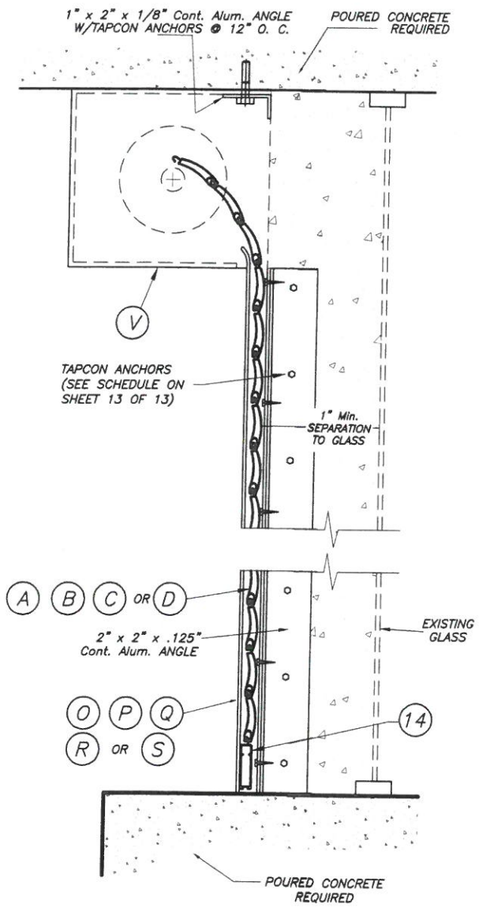
SECTION Q - Q : MULLION MOUNT

N.T.S.



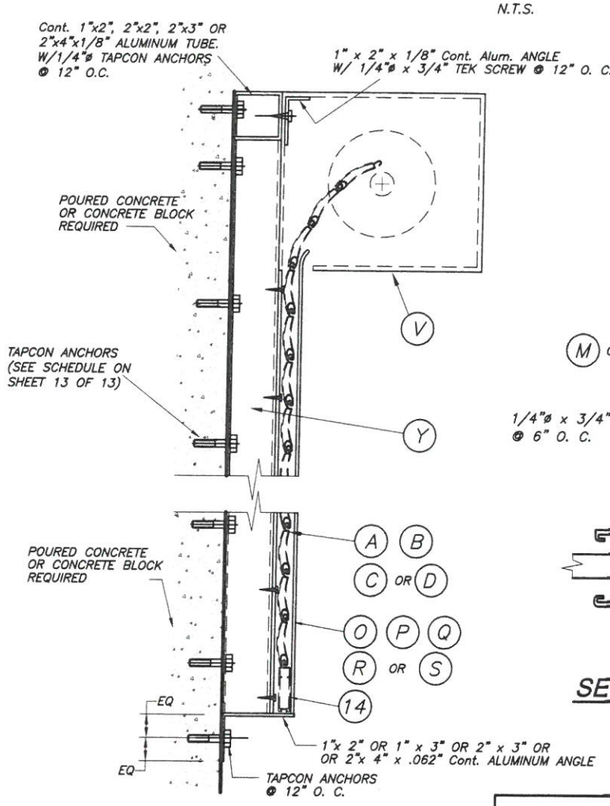
SECTION X - X (1)

N. T. S.



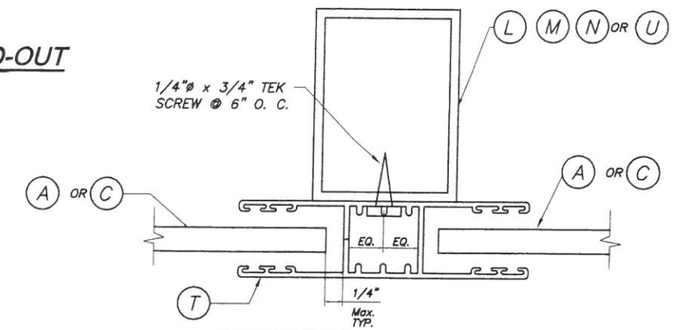
SECTION X -X (2)

N. T. S.



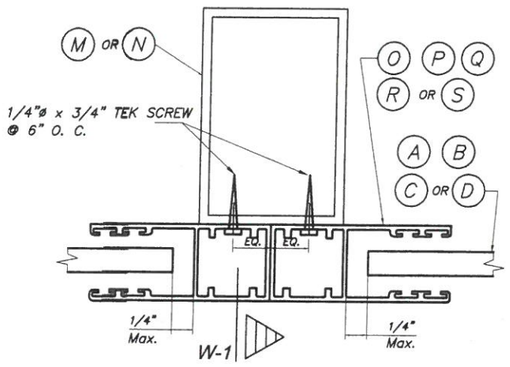
SECTION X - X (3)

N. T. S.



SECTION R - R : MULLION MOUNT

N.T.S.



SECTION R - R : MULLION MOUNT

N.T.S.

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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
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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

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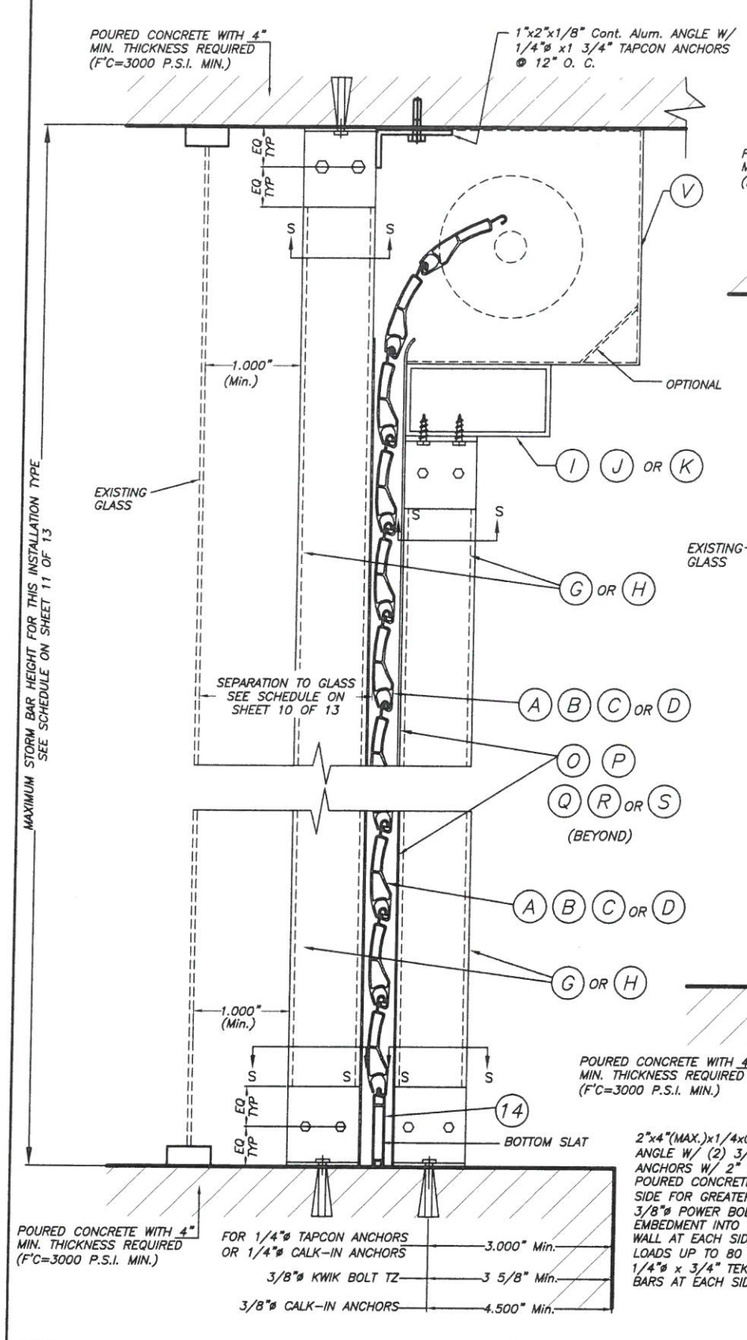
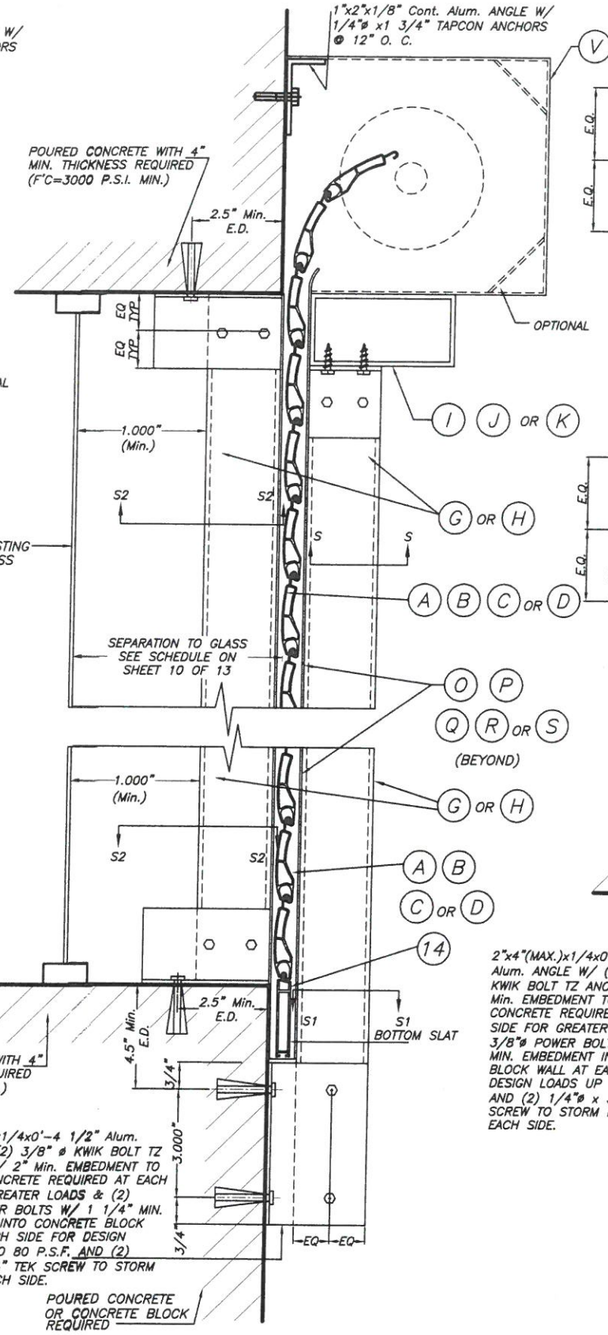
11/29/12 DATE
12-174 DRAWING No

MAXIMUM STORM BAR HEIGHT FOR THIS INSTALLATION TYPE SEE SCHEDULE ON SHEET 11 OF 13





CEILING & FLOOR MOUNTING: SECTION V-V(2) INSTALLATION W/ FIXED OR REMOVABLE STORM BARS W/CONCRETE ANCHORS

(SEE SECTION "S" FOR ANCHOR TYPE REQUIREMENT)

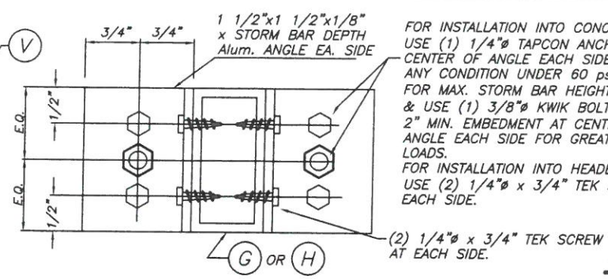
N.T.S.

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

N.T.S.

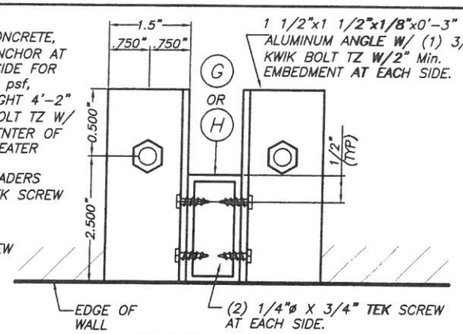
SECTION V - V

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



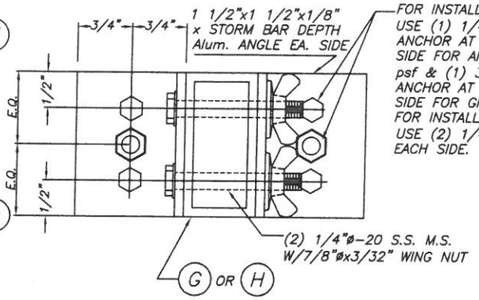
SECTION S - S (FOR FIXED STORM BAR)

SCALE : 1/2" = 1"



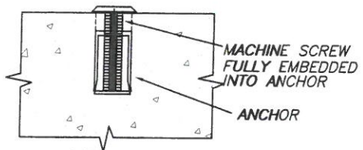
SECTION S2 - S2

SCALE : 1/4" = 1"



SECTION S - S (FOR REMOVABLE STORM BAR)

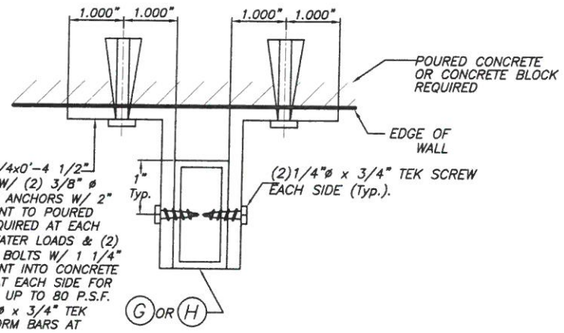
SCALE : 1/2" = 1"



DETAIL A

SCALE : 1/2" = 1"

* 1/4"ø-20 OR 3/8"ø-16 MACHINE SCREWS USED JOINTLY W/ 1/4"øx7/8" OR 3/8"øx1 1/4" CALK-IN ANCHORS RESPECTIVELY SHALL BE LEFT TOGETHER W/ ANCHORS AT THE TIME STORM BARS ARE REMOVED. (SEE DET. A).



SECTION S1 - S1

SCALE : N. T. S.

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

11/29/12 DATE

12-174 DRAWING No

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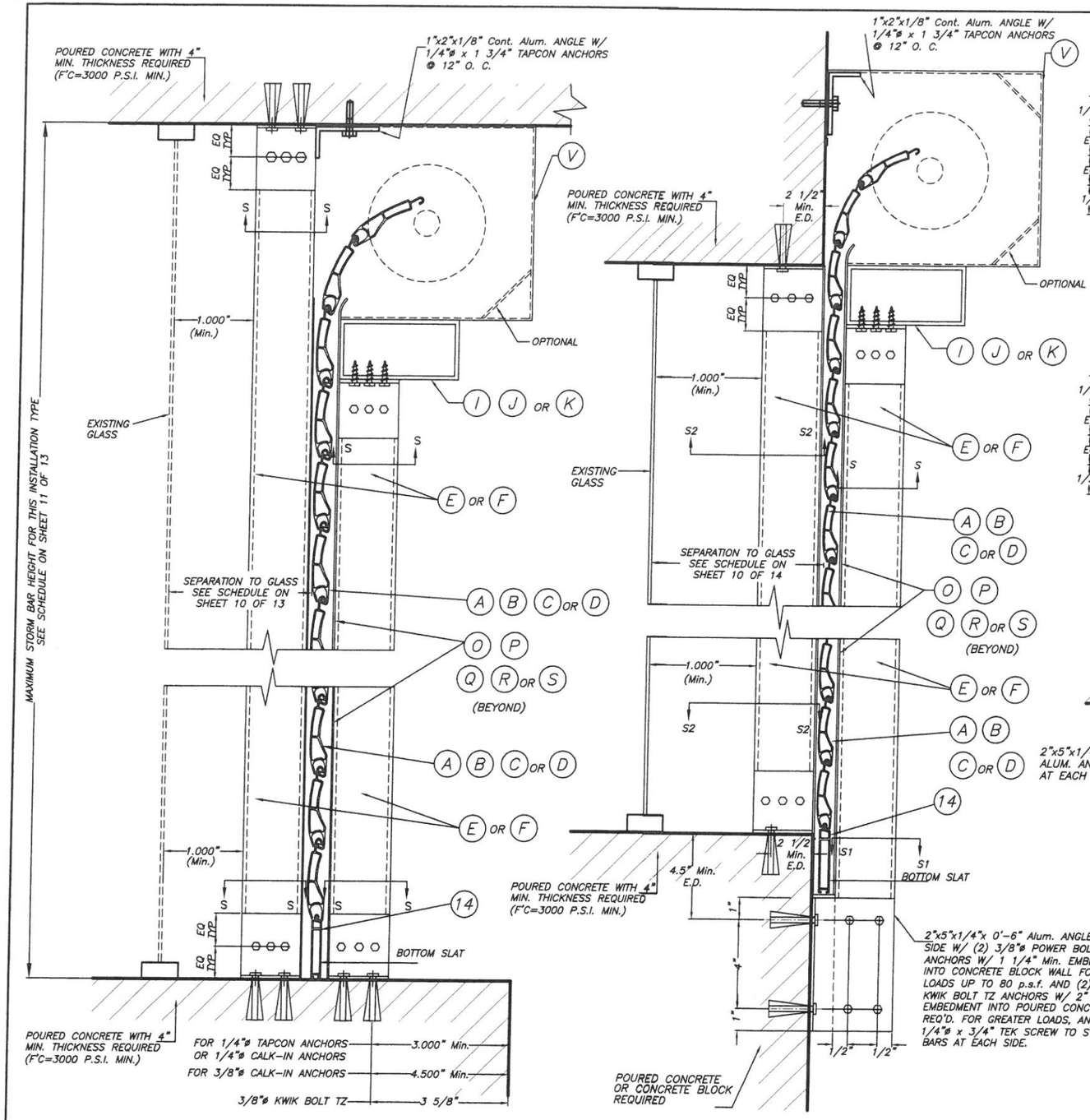
1	OLD 08-173	11/29/12	3		
2			4		



CEILING & FLOOR MOUNTING: SECTION V-V(2) INSTALLATION W/ FIXED OR REMOVABLE STORM BARS W/CONCRETE ANCHORS

(SEE SECTION "S" FOR ANCHOR TYPE REQUIREMENT)

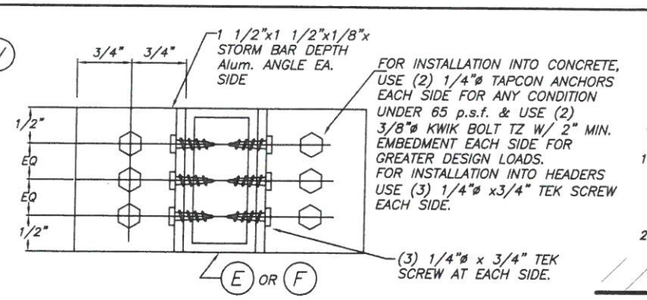
SCALE : N.T.S.

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

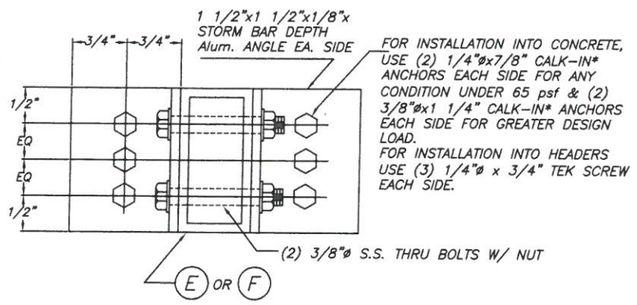
SCALE : N.T.S.

SECTION V - V



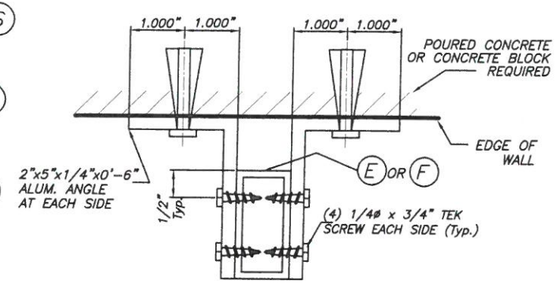
SECTION S - S (FOR FIXED STORM BAR)

SCALE : N.T.S.



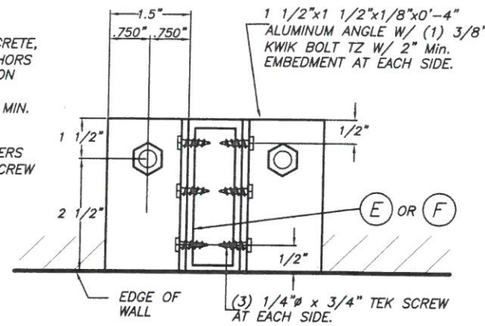
SECTION S - S (FOR REMOVABLE STORM BAR)

SCALE : N.T.S.



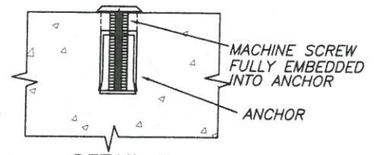
SECTION S1 - S1

SCALE : N. T. S.



SECTION S2 - S2

SCALE : N.T.S.



DETAIL A

SCALE : 1/2" = 1"

* 1/4" ø-20 OR 3/8" ø-16 MACHINE SCREWS USED JOINTLY W/ 1/4" ø x 7/8" OR 3/8" ø x 1 1/4" CALK-IN ANCHORS RESPECTIVELY SHALL BE LEFT TOGETHER W/ ANCHORS AT THE TIME STORM BARS ARE REMOVED. (SEE DET. A).

8/31/15

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PROFESSIONAL ENGINEER
6355 N.W. 36 STREET, STE. 305
VIRGINIA GARDENS, FL 33166
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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
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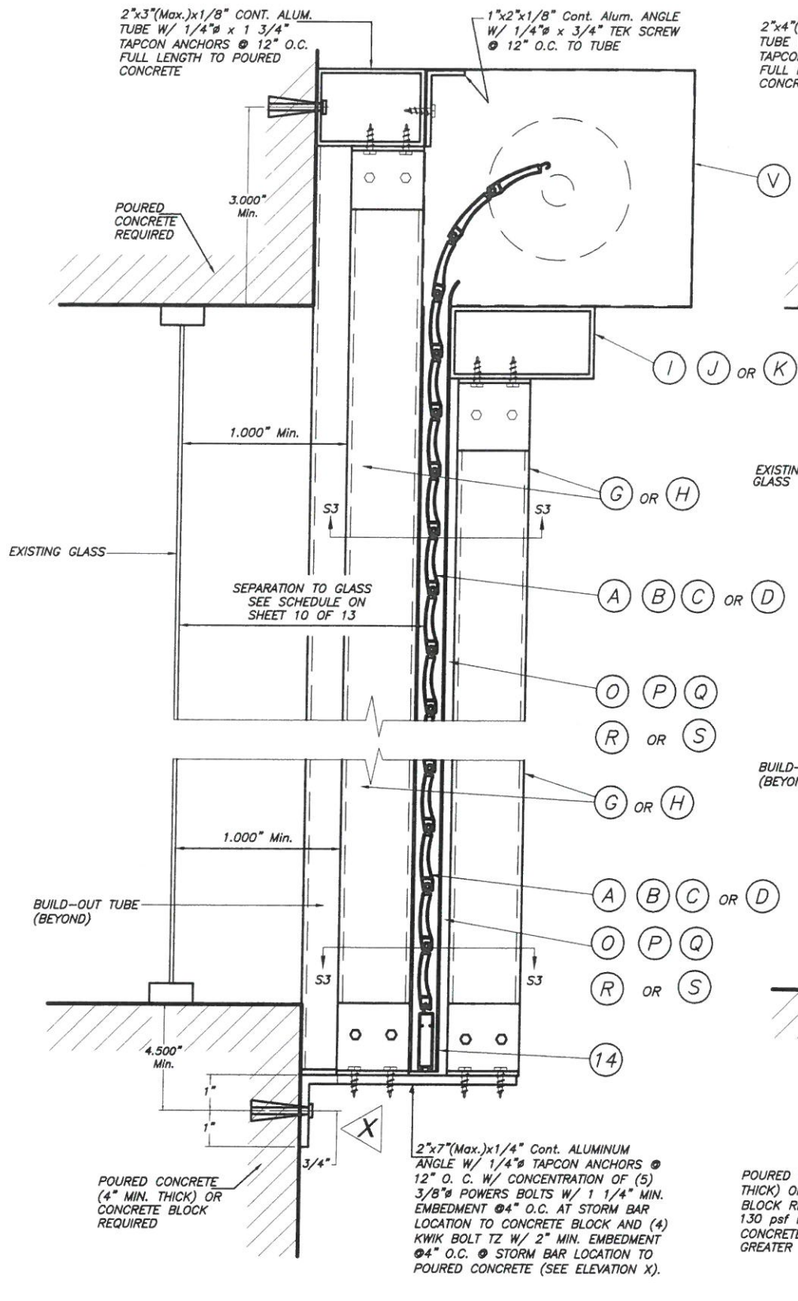
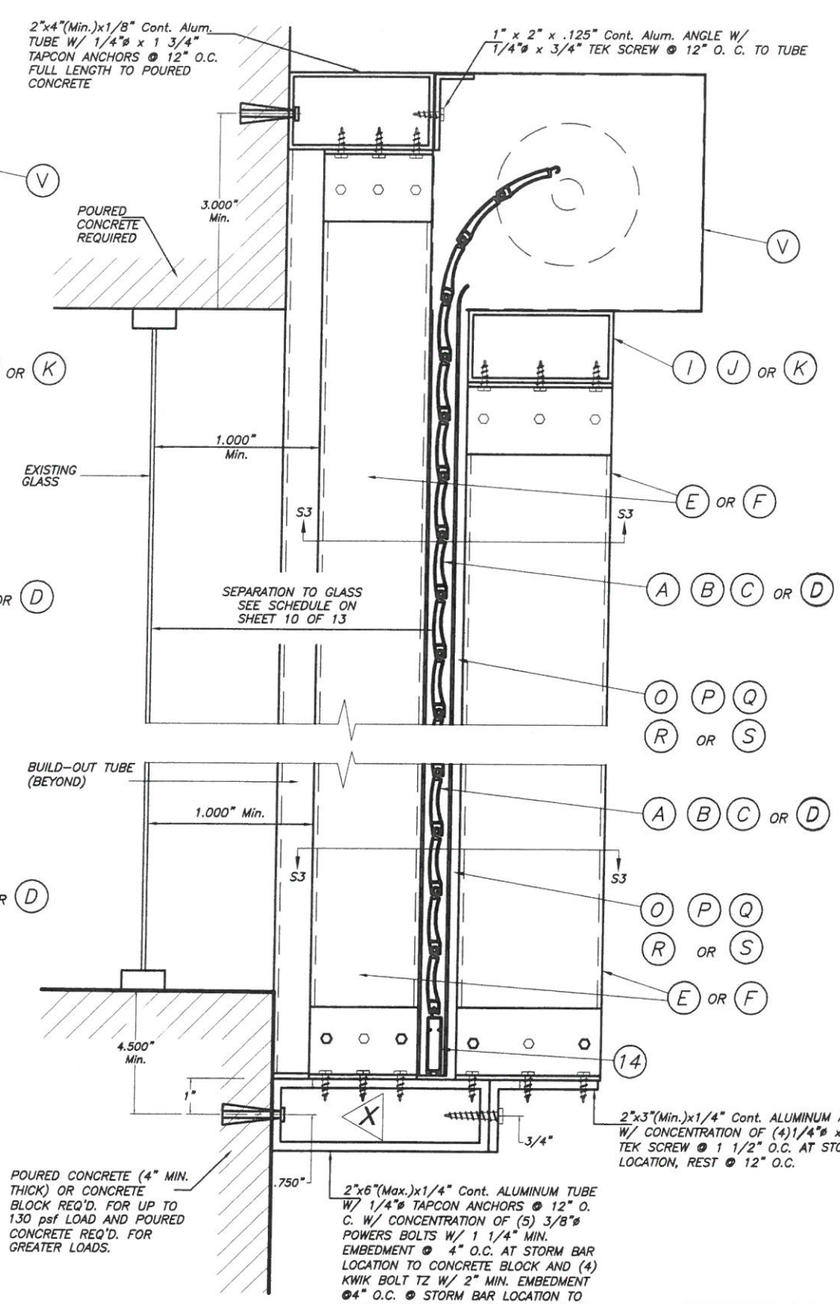
2			4		

DRAWN BY: F.P./A.G.
11/29/12 DATE
12-174 DRAWING No
SHEET 6 OF 13



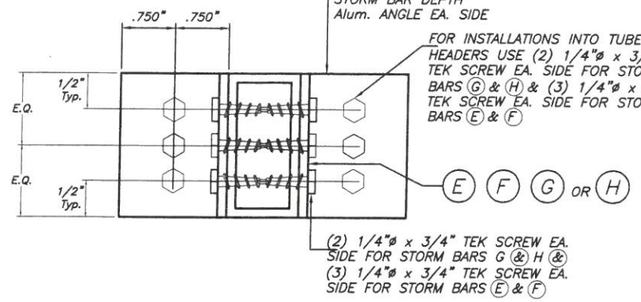
CASE I



CASE II

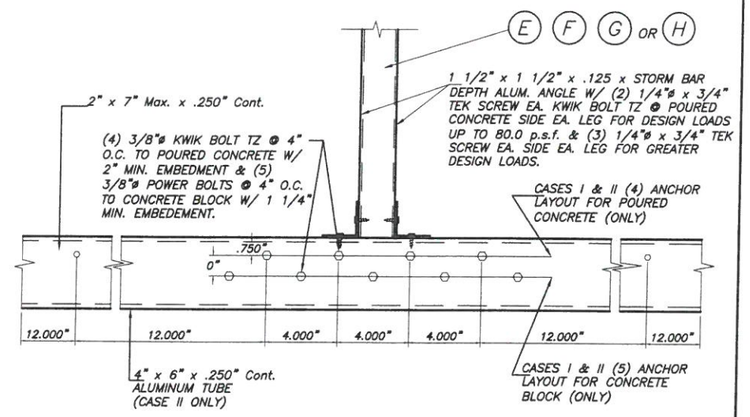
STORM BAR CONNECTION AT BUILD-OUT INSTALLATION : SECTIONS V - V (3)

SCALE : 1/4" = 1"



SECTION S3 - S3

SCALE : 1/2" = 1"



ELEVATION X

SCALE : N.T.S.

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PROFESSIONAL ENGINEER
6355 N.W. 36 STREET, STE. 305
VIRGINIA GARDENS, FL 33166
PHONE (305) 871-1530 FAX (305) 871-1531
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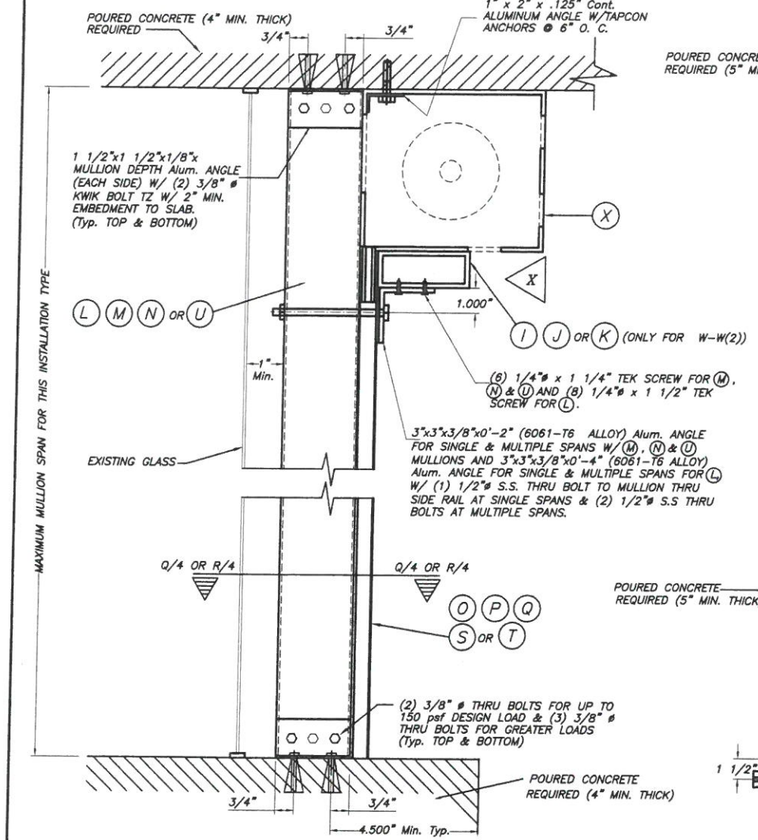
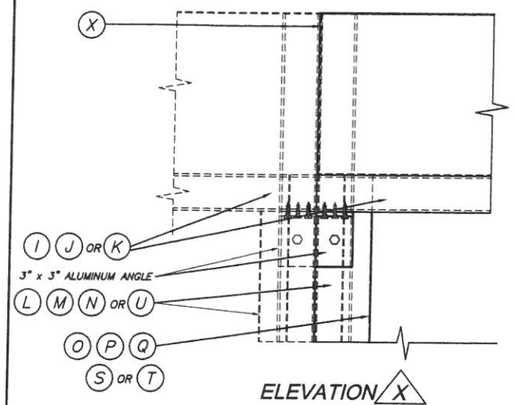
2			4		

DRAWN BY: F.P./A.G.
11/29/12 DATE
12-174 DRAWING No
SHEET 7 OF 13



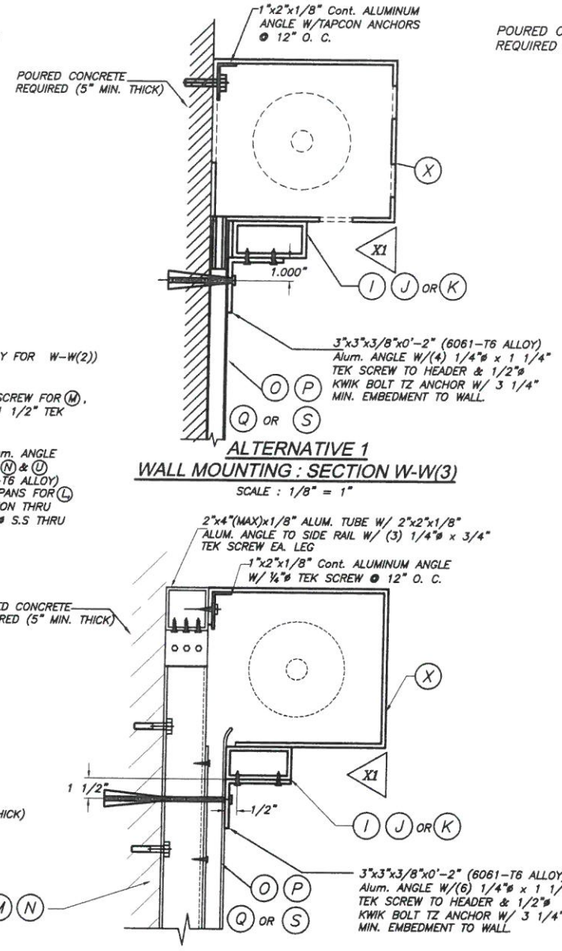
FLOOR/CEILING MOUNTIN : SECTION W-W (1), W/O HEADER SECTION W-W (2), W/HEADER

SCALE : 1/8" = 1"



ELEVATION X

SCALE : 1/8" = 1"



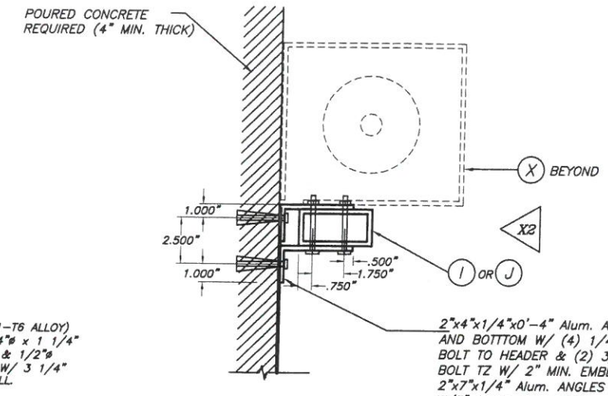
ALTERNATIVE 1 WALL MOUNTING : SECTION W-W(3)

SCALE : 1/8" = 1"

ALTERNATIVE 2 WALL MOUNTING : SECTION W-W(3)

SCALE : 1/8" = 1"

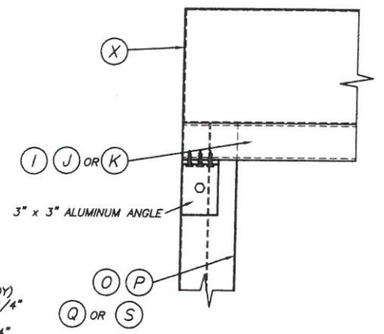
NOTE:
INSTALLATION DETAILS SHOWN ON ALTERNATIVES 1 & 2 ARE VALID FOR ANY STORM BAR HEIGHT AND HEADER SPAN CONDITION UNDER 175 psf.



ALTERNATIVE 3 WALL MOUNTING : SECTION W-W(3)

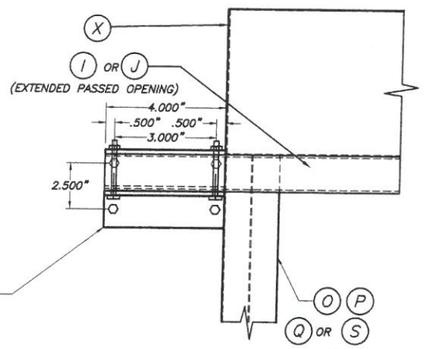
SCALE : 1/8" = 1"

NOTE:
VALID FOR ANY SPAN AND LOAD CONDITION



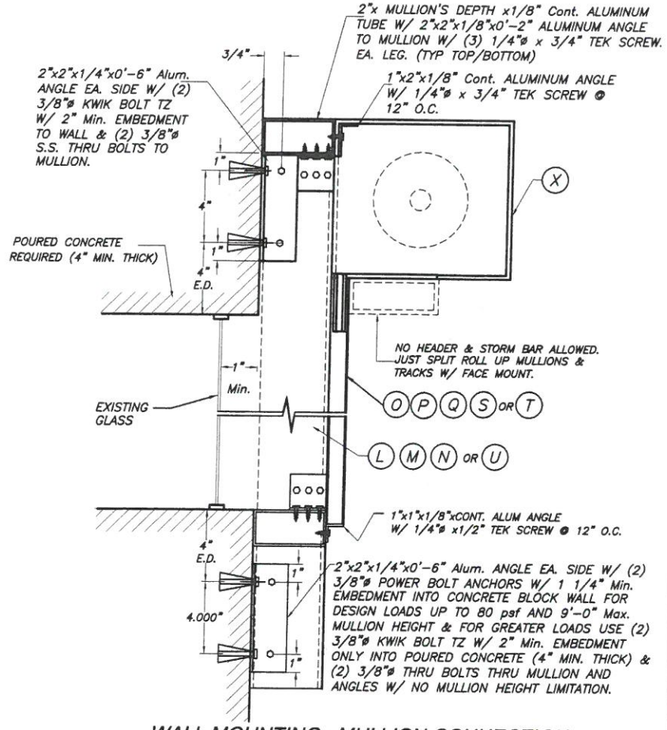
ELEVATION X1

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"

TYPICAL HEADER CONNECTION AT ENDS: SECTIONS W-W

STATE OF TEXAS
8/29/12
WALTER A. TILLIT, JR.
90691
LICENSED
PROFESSIONAL ENGINEER

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

DRAWN BY: F.P./A.G.

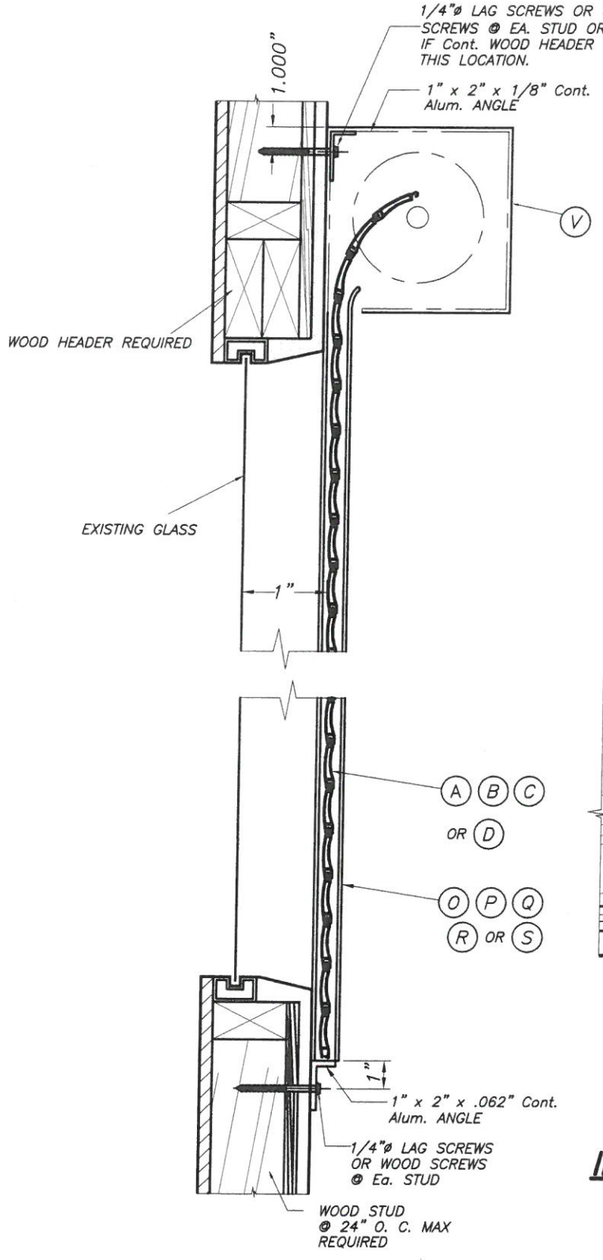
ROLLAC SHUTTERS OF TEXAS, INC.
5331 ORANGE STREET
PEARLAND, TX. 77581
PHONE: (800) 880-0922, FAX: (281) 485-0839

11/29/12 DATE

12-174 DRAWING No

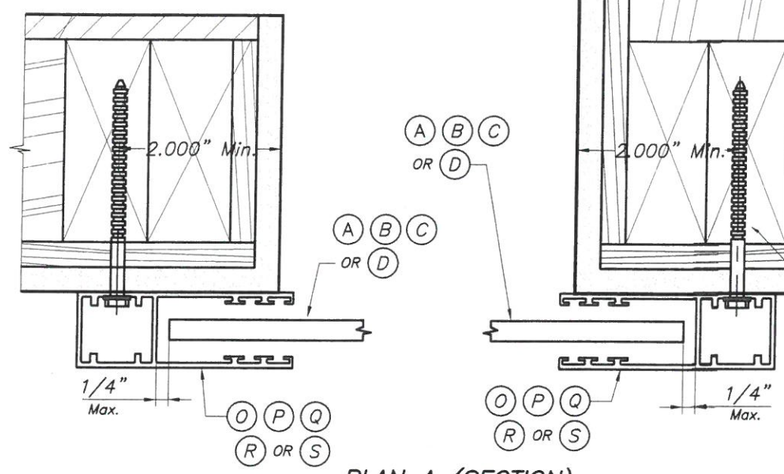
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

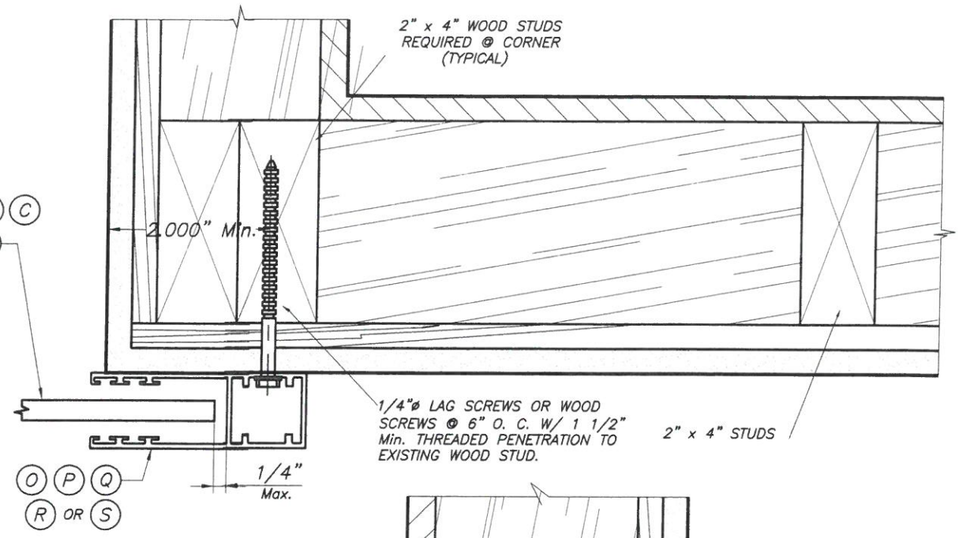
SHEET 8 OF 13



WALL MOUNTING INSTALLATION SINGLE SPAN CONDITION

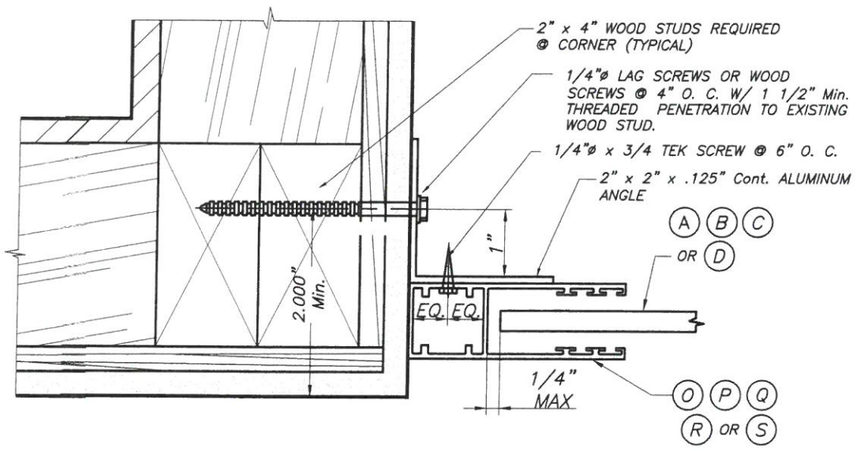
N. T. S.





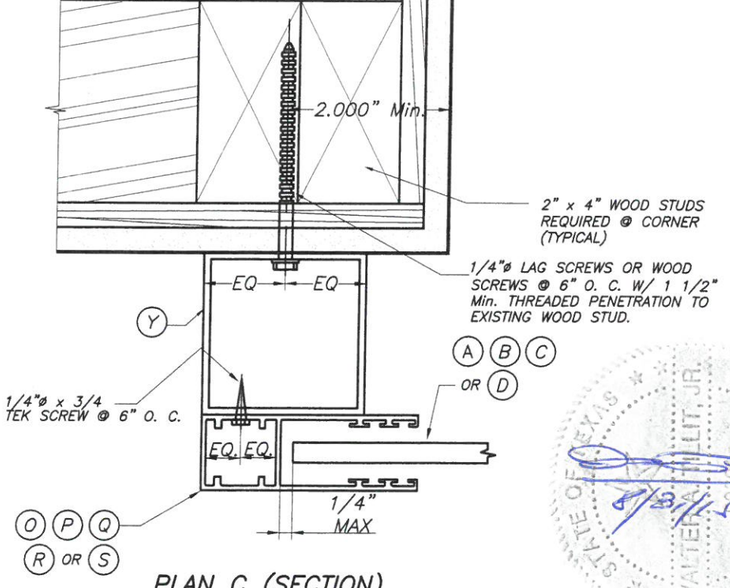
PLAN A (SECTION) WALL MOUNT

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 DESIGN LOAD 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".

STATE OF TEXAS * WALTER A. TILLIT, JR. * 90691 * LICENSED PROFESSIONAL ENGINEER
8/31/12

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PROFESSIONAL ENGINEER
6355 N.W. 36 STREET, STE. 305
VIRGINIA GARDENS, FL 33166
PHONE (305) 871-1530 FAX (305) 871-1531
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FIRM REGISTRATION # F-13790

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

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11/29/12 DATE

12-174 DRAWING No

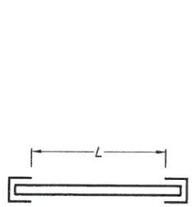
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

SHEET 9 OF 13

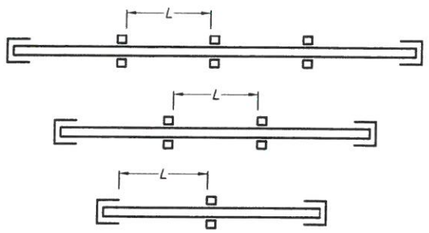
SLAT PERFORMANCE CHART
MAXIMUM DESIGN PRESSURE RATING "W" (p. s. f.) AND CORRESPONDING MAXIMUM SLAT SPAN "L"

(USE MAXIMUM VALUES BETWEEN POSITIVE AND NEGATIVE LOAD)

DESIGN LOAD "W" (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"	–	–



SINGLE SPAN



MULTIPLE SPAN

SPAN LAYOUT

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) : ONLY UP TO 120 p.s.f. 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)

STATE OF TEXAS
WALTER A. TILLIT, JR.
93591
LICENSED
PROFESSIONAL ENGINEER
8/2/13

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL–4, RLL–3, A–200–H, A–150–H SLATS

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REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08–173	11/29/12	3		
2			4		

DRAWN BY: F.P./A.G.

11/29/12 DATE

12–174 DRAWING No

STORM BAR LOADING CHART MAXIMUM DESIGN PRESSURE RATING "W" (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 LOAD "W" (p.s.f.)	(E) TYPE 1 STORM BAR 2" x 4" x 1/4"				(F) TYPE 2 STORM BAR 2" x 4" x 1/8"				(G) TYPE 3 STORM BAR 2" x 3" x 1/8"				(H) 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.

11/29/15

TEXAS DEPARTMENT OF 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 DEBRI REGION
RLL-4, RLL-3, A-200-H, A-150-H SLATS

DRAWN BY: F.P./A.G.

ROLLAC SHUTTERS OF TEXAS, INC.

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

11/29/12 DATE

12-174 DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

HEADER LOADING CHART

MAXIMUM DESIGN PRESSURE RATING "W" (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 DESIGN LOAD "W" (p.s.f.)	(I) TYPE 1 HEADER 2" x 4" X 1/4"			(J) TYPE 2 HEADER 2" x 4" X 1/8"		(K) 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"

TEXAS DEPARTMENT OF INSURANCE – 2006

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11/29/12
DATE

12-174
DRAWING No

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 08-173	11/29/12	3		
2			4		

MULLION LOADING CHART
MAXIMUM DESIGN PRESSURE RATING "W" (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 LOAD "W" (p.s.f.)	(L) TYPE 1 MULLION 4" x 6" x 3/16"			(M) TYPE 2 MULLION 3" x 4" x 1/8"			(N) TYPE 3 MULLION 2" x 3" x 1/8"			(U) 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 DESIGN LOAD "W" (p.s.f.)		SLAT TYPE 1 ((A)) (RLL-4)					
		(Q) (RLL-25) AND (S) (RLL-54) SIDE RAILS			(P) (RLL-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 DESIGN LOAD "W" (p.s.f.)		SLAT TYPE 2 ((B)) (RLL-3)		
		(R) (RLL-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 DESIGN LOAD "W" (p.s.f.)		SLAT TYPE 3 ((C)) (A-200-H)					
		(Q) (RLL-25) SIDE RAIL			(Q) (RLL-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 DESIGN LOAD "W" (p.s.f.)		SLAT TYPE 4 ((D)) (A-150-H)		
		(R) (RLL-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.

8/31/12

TEXAS DEPARTMENT OF INSURANCE - 2006

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DRAWN BY: F.P./A.G.

11/29/12 DATE

12-174 DRAWING No

SHEET 13 OF 13