

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 SHALL 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 WITH ASCE 7-05 STANDARD. IN ORDER TO VERIFY THAT COMPONENTS AND ANCHORS ON THIS P.E.D. AS TESTED WERE NOT OVER STRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS NOT USED IN THEIR ANALYSIS. FASTENERS SPACING TO WOOD HAS BEEN DETERMINED IN ACCORDANCE WITH N.D.S. 2005. 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 INTERNATIONAL AND RESIDENTIAL BUILDING CODE, RESPECTIVELY, AS PER FENESTRATION TESTING LAB. REPORTS # 5908, 5905 AND 6235 AS PER ASTM E 1886-05, E 1996 -05 AND E 330-02 STANDARDS, QUALIFYING INSTALLATIONS FOR WIND ZONES 1, 2, 3 & 4, MISSILE TYPE D, APPLICABLE TO BASIC PROTECTION ONLY. 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. SEE NOTES *, Δ ON SHEETS 12 & 18 FOR ADDITIONAL LIMITATIONS.
2. ALL ALUMINUM EXTRUSIONS SHALL BE AS INDICATED ON SHEET 2.
3. EVERY OTHER SLAT SHALL INCLUDE WIND LOCKS AT EACH END (SEE COMPONENTS SHEET). EVERY SLAT (A) ADJACENT AND ABOVE BOTTOM SLAT (A) MUST INCLUDE WIND LOCKS.
4. ALL SCREWS & BOLTS (EXCEPT COMPONENT (C)) 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.
5. ALL SCREWS & BOLTS (EXCEPT COMPONENT (C)) INSTALLED AT INLAND 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.
6. ANCHORS TO WALL FOR (B1), (B2), (B3) & (B4) SIDE RAILS SHALL BE AS FOLLOWS: (UNLESS OTHERWISE NOTED)
 - (A) TO EXISTING POURED CONCRETE: MIN. $f'c = 2899$ p.s.i. COMPRESSIVE STRENGTH.
 - 5/16"Ø CARBON STEEL TAPCON XL ANCHORS AS MANUFACTURED BY ITW BUILDEX, INC.
 - A.1) MINIMUM EMBEDMENT OF TAPCON XL ANCHORS INTO POURED CONCRETE SHALL BE 2 1/4". NO EMBEDMENT INTO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.
 - A.2) MINIMUM EDGE DISTANCE (E.D.) OF TAPCON XL ANCHORS INTO POURED CONCRETE SHALL BE 4". EDGE DISTANCE IS BEYOND ANY FINISH MATERIAL.
 - A.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN SUBSTRATE BEHIND SUCH PANELS. MINIMUM EMBEDMENT SHALL BE AS INDICATED ON NOTE A.1 ABOVE.
 - (B) TO EXISTING GROUT FILLED CELL CONCRETE BLOCK WALL: ASTM C-90
 - 5/16"Ø CARBON STEEL TAPCON XL ANCHORS, AS MANUFACTURED BY ITW BUILDEX, INC.
 - B.1) MINIMUM EMBEDMENT OF TAPCON XL ANCHORS, INTO THE GROUT FILLED CELL CONCRETE BLOCK UNIT SHALL BE 2 1/4". NO EMBEDMENT INTO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED EMBEDMENT.
 - B.2) MINIMUM EDGE DISTANCE (E.D.) OF TAPCON XL ANCHORS INTO GROUT FILLED CELL CONCRETE BLOCK SHALL BE 4". EDGE DISTANCE IS BEYOND ANY FINISH MATERIAL.
 - B.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN SUBSTRATE BEHIND SUCH PANELS. MINIMUM EMBEDMENT SHALL BE AS INDICATED ON NOTE B.1 ABOVE.
- (C) TO EXISTING WOOD FRAME BUILDING: SOUTHERN PINE #2 W/ $G=0.55$ MIN., DOUGLAS FIR-SOUTH ($G=0.46$) OR SPRUCE PINE-FIR SOUTH, ($G=0.36$). SHEATHING TO BE MIN. 1/2" PLYWOOD OR 7/16" O.S.B. WITH LIMITATIONS AS PER SHEET 18.
 - 5/16"Ø CARBON STEEL ULTRACON ANCHORS, AS MANUFACTURED BY ELCO CONSTRUCTION PRODUCTS.
 - C.1) MINIMUM PENETRATION OF ULTRACON ANCHORS, INTO THE WOOD FRAME UNIT SHALL BE 2 1/2". (MUST INCLUDE 2" THREADED LENGTH) NO PENETRATION INTO STUCCO SHALL BE CONSIDERED AS PART OF THE REQUIRED PENETRATION.
 - C.2) MINIMUM EDGE DISTANCE OF ULTRACON ANCHORS, INTO WOOD SHALL BE 2". EDGE DISTANCE IS BEYOND ANY FINISH MATERIAL.
 - C.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN SUBSTRATE BEHIND SUCH PANELS. MINIMUM THREADED PENETRATION SHALL BE AS INDICATED ON NOTE C.1 ABOVE.

7. ANCHORS SHALL BE INSTALLED FOLLOWING ALL OF THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR'S MANUFACTURER.
8. ANCHORS REQUIRED FOR MULLION CONNECTIONS SHALL BE AS SPECIFIED ON APPLICABLE SECTIONS SHOWN ON SHEETS 13 & 14 RESPECTIVELY.

-3/4"Ø KWIK BOLT TZ EXPANSION ANCHOR TO BE AS MANUFACTURED BY HILTI, INC.

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

ANCHOR	SPACING @ 100%	EDGE DISTANCE @ 100%	EMBEDMENT	
			CONCRETE	GROUT FILLED OR CONCRETE BLOCK
KWIK BOLT TZ	27"	9"	4 3/4" (3000 psi)	-

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, GROUT FILLED CELL CONCRETE BLOCK OR WOOD FRAME BUILDINGS.
10. ROLL-UP MECHANISM NOT PART OF THIS APPROVAL, BUT SHALL BE CERTIFIED BY AN INDEPENDENT TESTING AGENCY.
11. ROLL-UP SHUTTERS INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.
12. 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.
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 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. ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABELING SHALL INDICATE MANUFACTURER'S NAME, PRODUCT NAME & ASTM E-330, E-1886, E-1996 COMPLIANT.



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006
RLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER

ROLLAC SHUTTER OF TEXAS, INC.

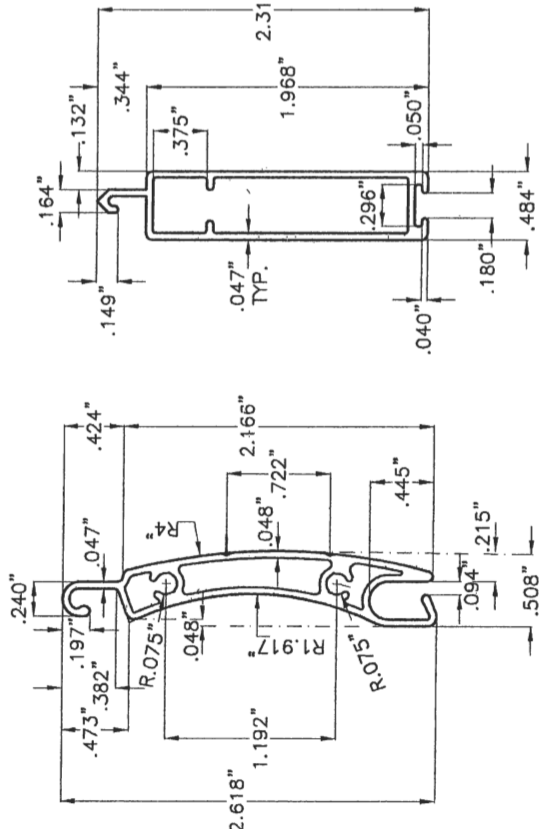
5331 ORANGE STREET
PEARLAND, TX 77581
PH: (281) 485-1911, FAX: (281) 485-0839

REV. #	DESCRIPTION	DATE	REV. #	DESCRIPTION	DATE
1	NOTES 1 & 6C	04/27/10	3	-	-
2	-	-	4	-	-

01/15/09
DATE

09-006
DRAWING N°

SHEET 1 OF 19

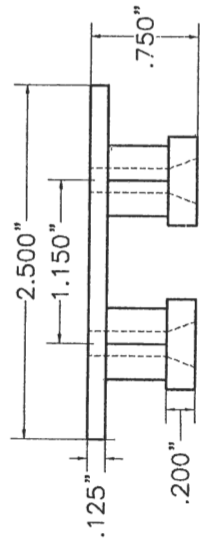


(A) SLAT

6061-T6 OR 6005-T5 ALUMINUM ALLOY
SCALE: 3/4" = 1"

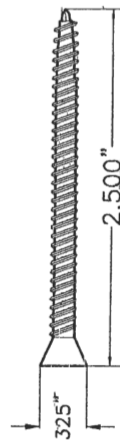
(A1) BOTTOM SLAT

6063-T6 ALUMINUM ALLOY
SCALE: 3/4" = 1"



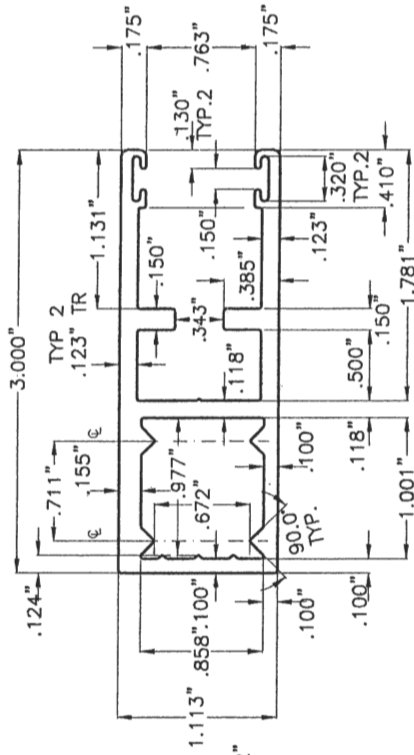
(C) WIND LOCK:

RIGID NYLON Ft_u = 5001 psi.
SCALE: 3/4" = 1"

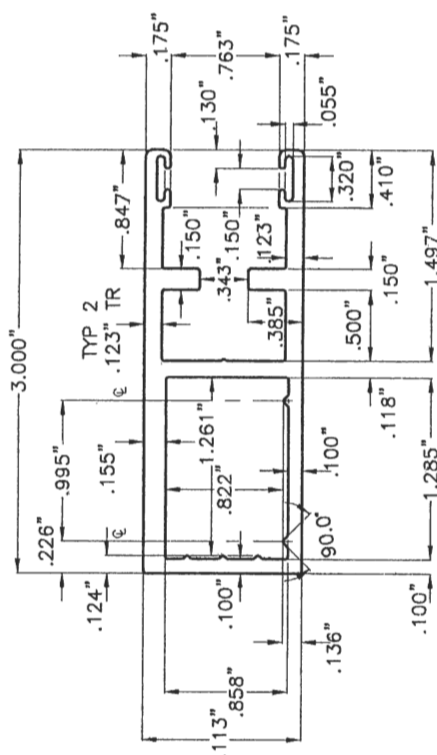


(C1) WIND LOCK SCREW:

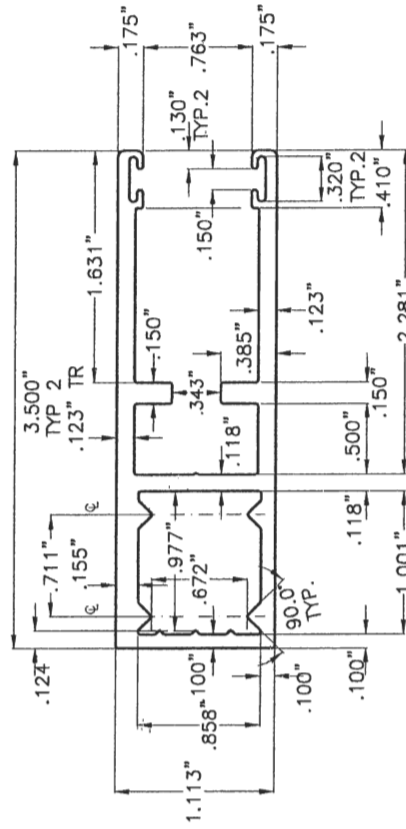
(2) #8-18 x 2 1/2" F.H. S.S. AISI 410 SERIES,
COATED WITH ROLLAC-1000 CHROMED-FREE
ANTI-CORROSION COATING SYSTEM; MANUFACTURED
AND APPLIED BY SUN BELT COATING, LLC
(Min. Ft_y = 121.1 ksi, Min. Ft_u = 164.6 ksi)
SCALE: 3/4" = 1"



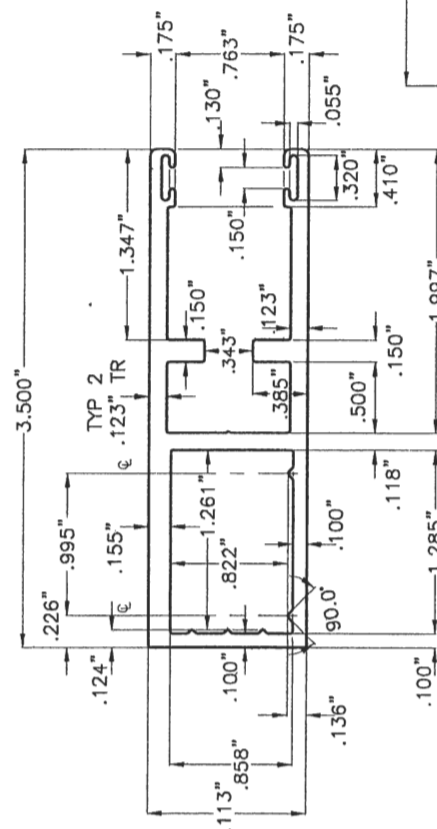
(B1) TYPE 1 SIDE RAIL



(B2) TYPE 2 SIDE RAIL



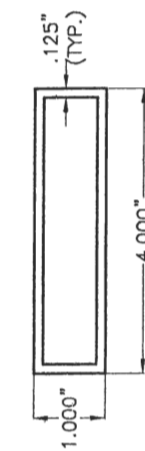
(B3) TYPE 3 SIDE RAIL



(B4) TYPE 4 SIDE RAIL

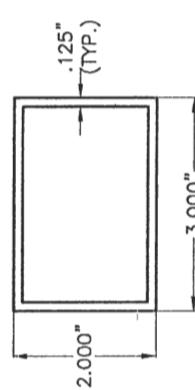
SIDE RAILS:

6005-T5 ALUMINUM ALLOY
SCALE: 3/4" = 1"



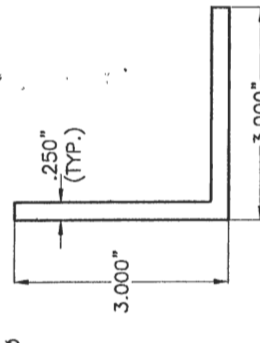
(E1) ALUMINUM BUILD-OUT TUBE

6063-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



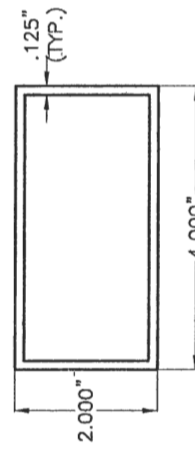
(E2) ALUMINUM BUILD-OUT TUBE

6063-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



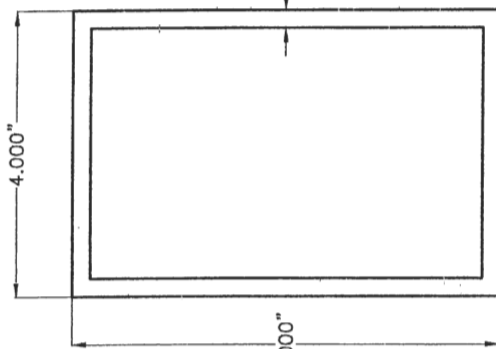
(D) ALUMINUM INSIDE MOUNT ANGLE

6063-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



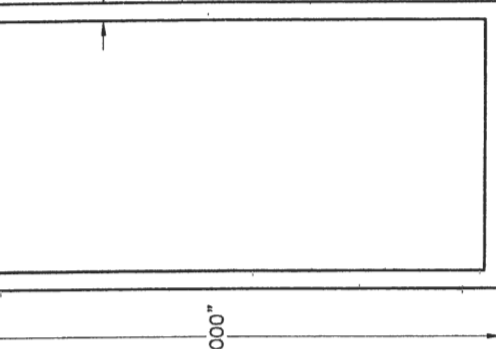
(E) ALUMINUM BUILD-OUT TUBE

6063-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



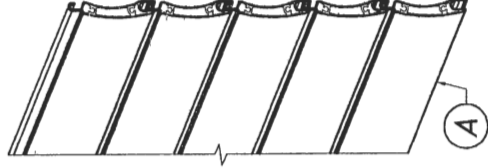
(F) TYPE 1 MULLION

6061-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



(G) TYPE 2 MULLION

6061-T6 ALUMINUM ALLOY
SCALE: 3/8" = 1"



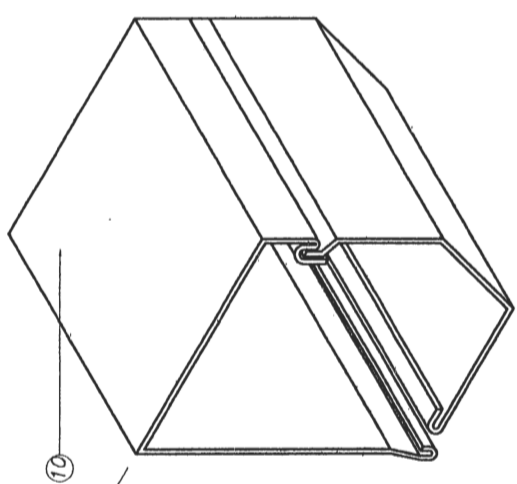
SLAT ASSEMBLY DETAIL:

N.T.S.

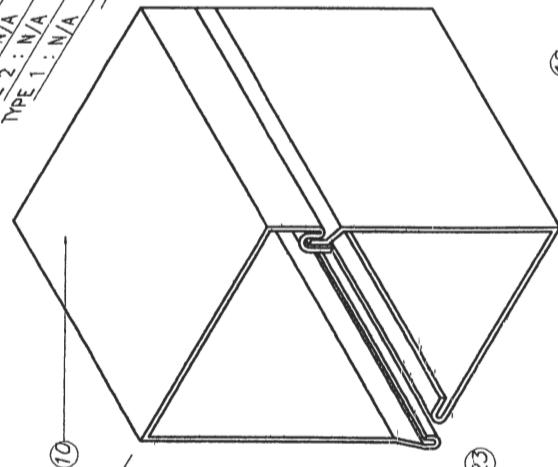
AT EVERY
OTHER SLAT

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

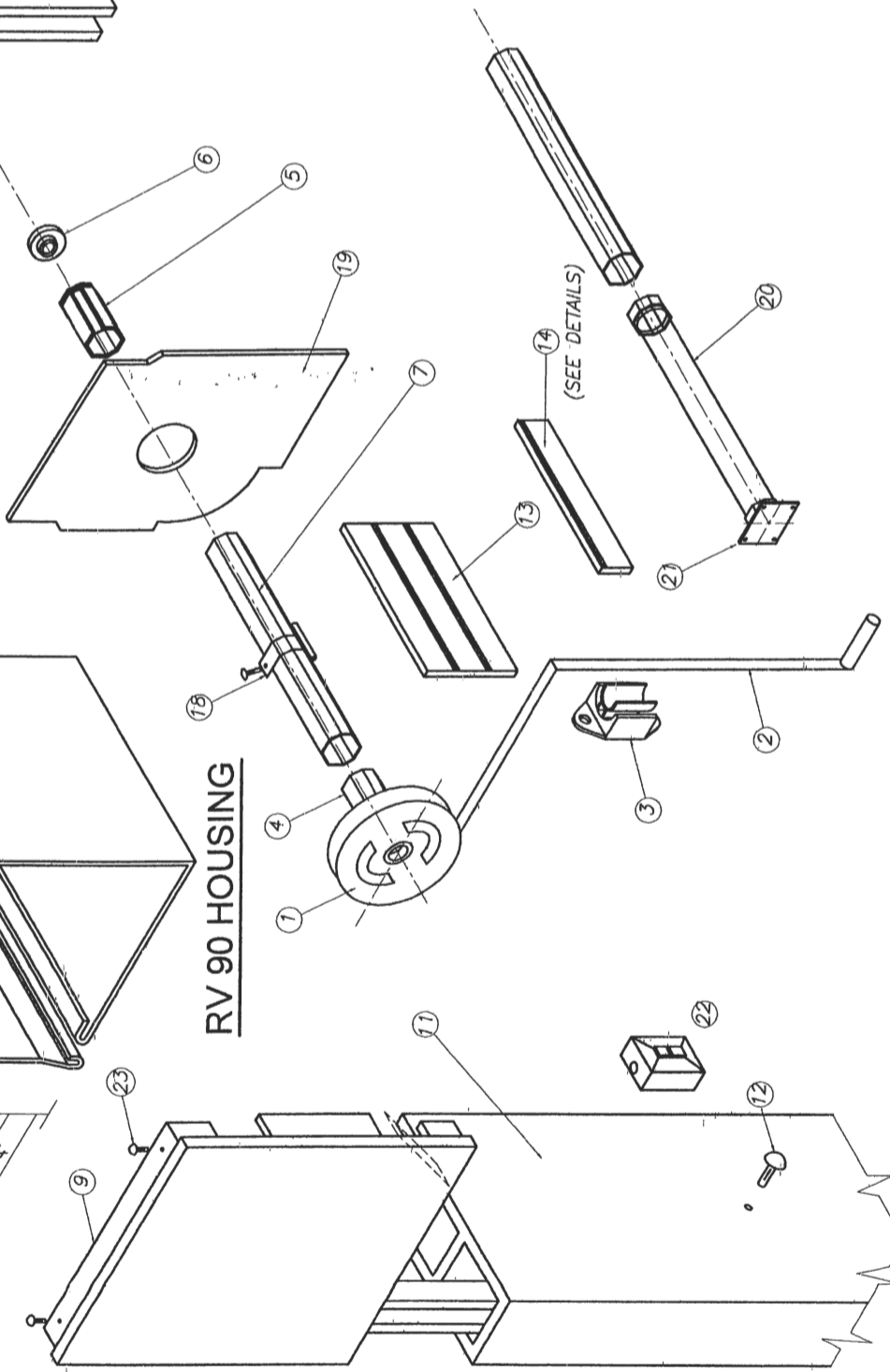
TYPE 10 : N/A
TYPE 9 : 10"
TYPE 8 : 8"
TYPE 7 : 8"
TYPE 6 : 7"
TYPE 5 : 6.5"
TYPE 4 : 6"
TYPE 3 : 5.5"
TYPE 2 : 5"
TYPE 1 : 4"



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



RV 90 HOUSING



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 - SIDE/END CAP *
- 9 - HOUSING(FRONT & BOTTOM), 0.040" THICK
- 10 - SIDE RAIL
- 11 - PLUG-BOTTOMS
- 12 - ALUMINUM SLATS
- 13 - BASE SLAT
- 14 - PLASTIC STOPS(OPTIONAL)
- 15 - SIDE LOCKS(OPTIONAL)
- 16 - STAPLES(OPTIONAL)
- 17 - SPRINGLOCK HANGER
- 18 - SAFETY PLATES
- 19 - ADDITIONAL COMPONENTS FOR MOTORIZED OPERATED SYSTEM
- 20 - TUBULAR MOTOR
- 21 - MOTOR BRACKET
- 22 - SWITCH

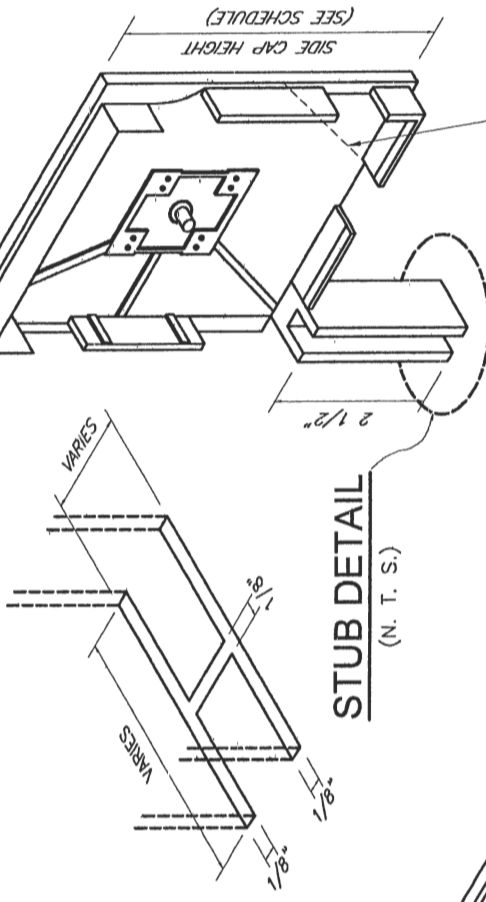
- EASTENERS**
- 23 - 3/16" ALUMINUM POP RIVETS(6- REQ'D EA. SIDE CAP) : 2 @ TOP, 2 @ REAR, 2 @ BOTTOM

* SHALL BE CAPABLE TO SUSTAIN SLAT'S WEIGHT AND ASSURE LIFTING MECHANISM (SEE NOTE 10/1)

(H1) SIDE CAPS:

45° CHAMFER AS APPLICABLE

STUB DETAIL
(N. T. S.)



**(H) BOX COMPONENTS AND ASSEMBLY DETAIL
END CAP SYSTEM**

(SEE NOTE 10 ON SHEET 1)

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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

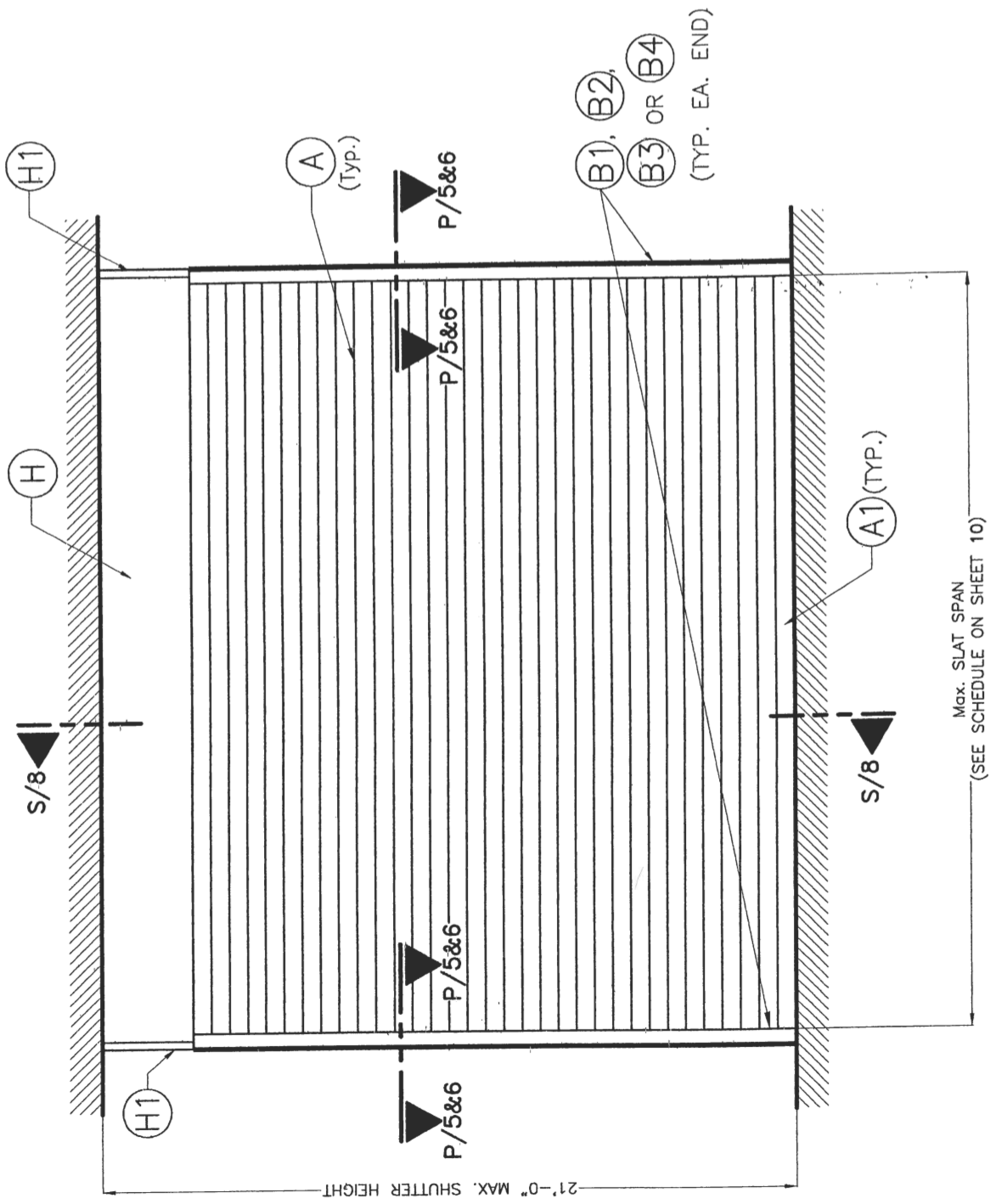
ROLLAC SHUTTER OF TEXAS, INC.
5331 ORANGE STREET
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PH: (281) 485-1911, FAX: (281) 485-0839

**ROLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER**

REV #	DATE	REV #	DATE	DESCRIPTION
1		3		
2		4		

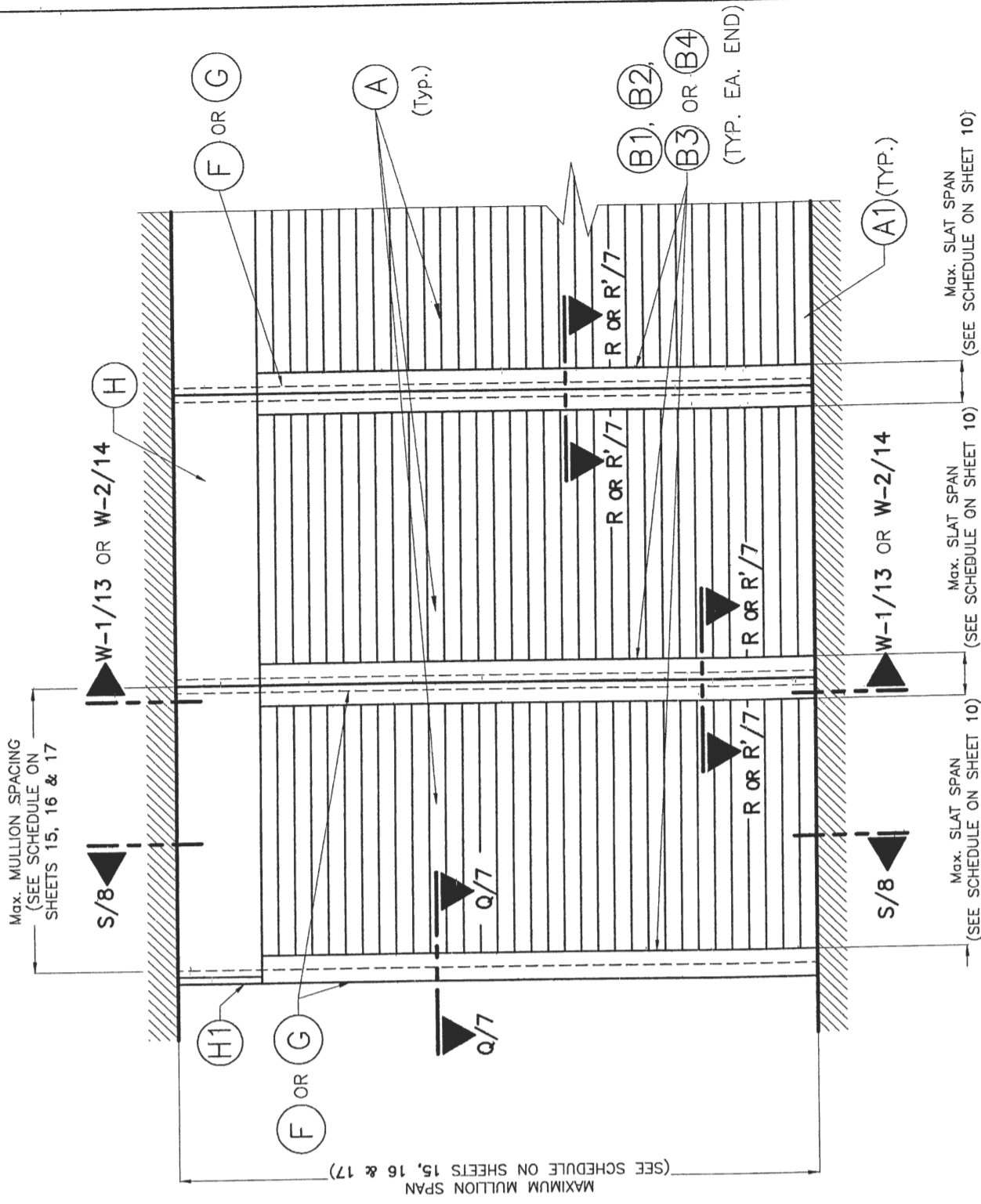
R.E./I.A. DRAWN BY
01/15/09 DATE
09-006 DRAWING N°
SHEET 3 OF 19





**TYPICAL SINGLE UNIT ELEVATION:
INSTALLATION INTO POURED CONCRETE,
GROUT FILLED CELL CONCRETE BLOCK & WOOD**

NOTES: SEE SHEETS 2 & 3 FOR
COMPONENTS NOMENCLATURE.
N.T.S



**TYPICAL CONSECUTIVE SINGLE UNIT ELEVATION W/ MULLIONS:
INSTALLATION INTO POURED CONCRETE**

NOTES: SEE SHEETS 2 & 3 FOR COMPONENTS NOMENCLATURE.
N.T.S



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER

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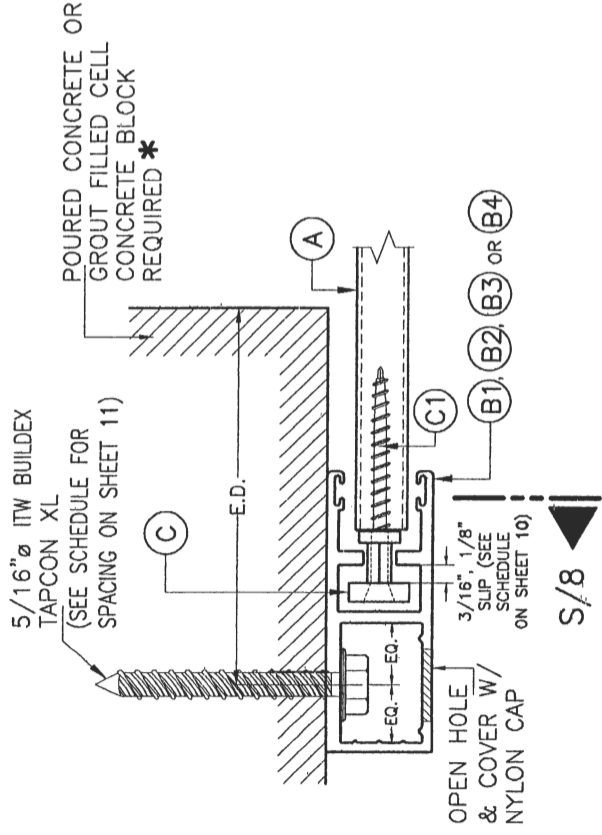
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2			4		

R.E./I.A.
DRAWN BY

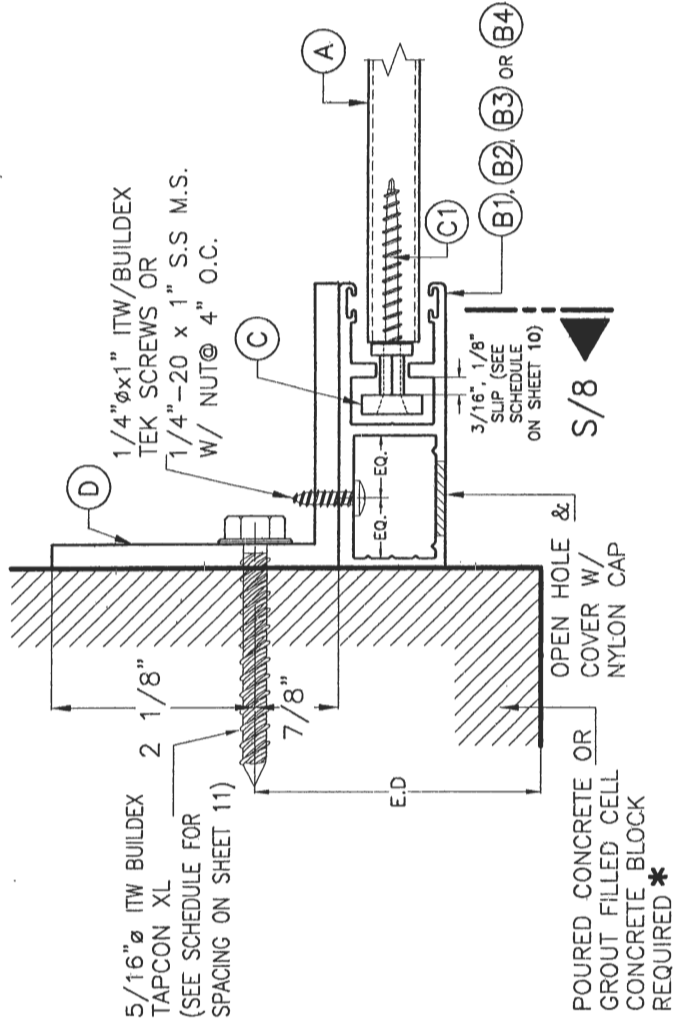
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DATE

09-006
DRAWING N°

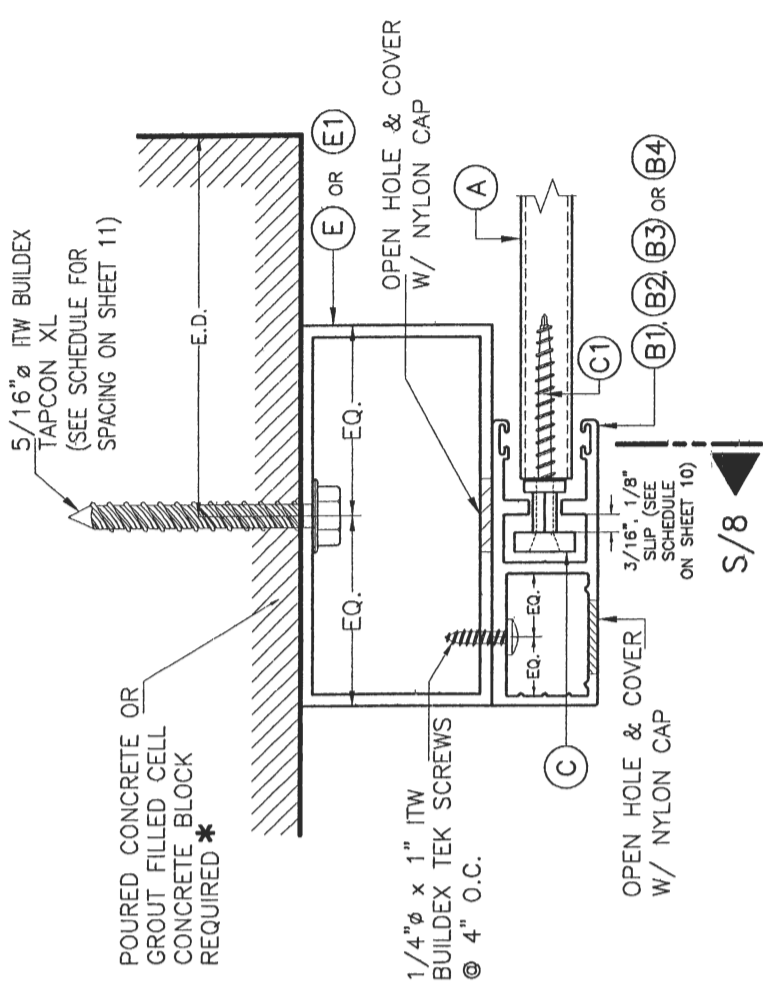
SHEET 4 OF 19



**SECTION P-P (1):
WALL MOUNT**



**SECTION P-P (2):
INSIDE WALL MOUNT**



**SECTION P-P (3):
BUILD-OUT MOUNT**

**SIDE RAIL CONNECTIONS
TO POURED CONCRETE OR GROUT FILLED CELL
CONCRETE BLOCK**

SCALE: 1/2" = 1"



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER

R.E./I.A.
DRAWN BY

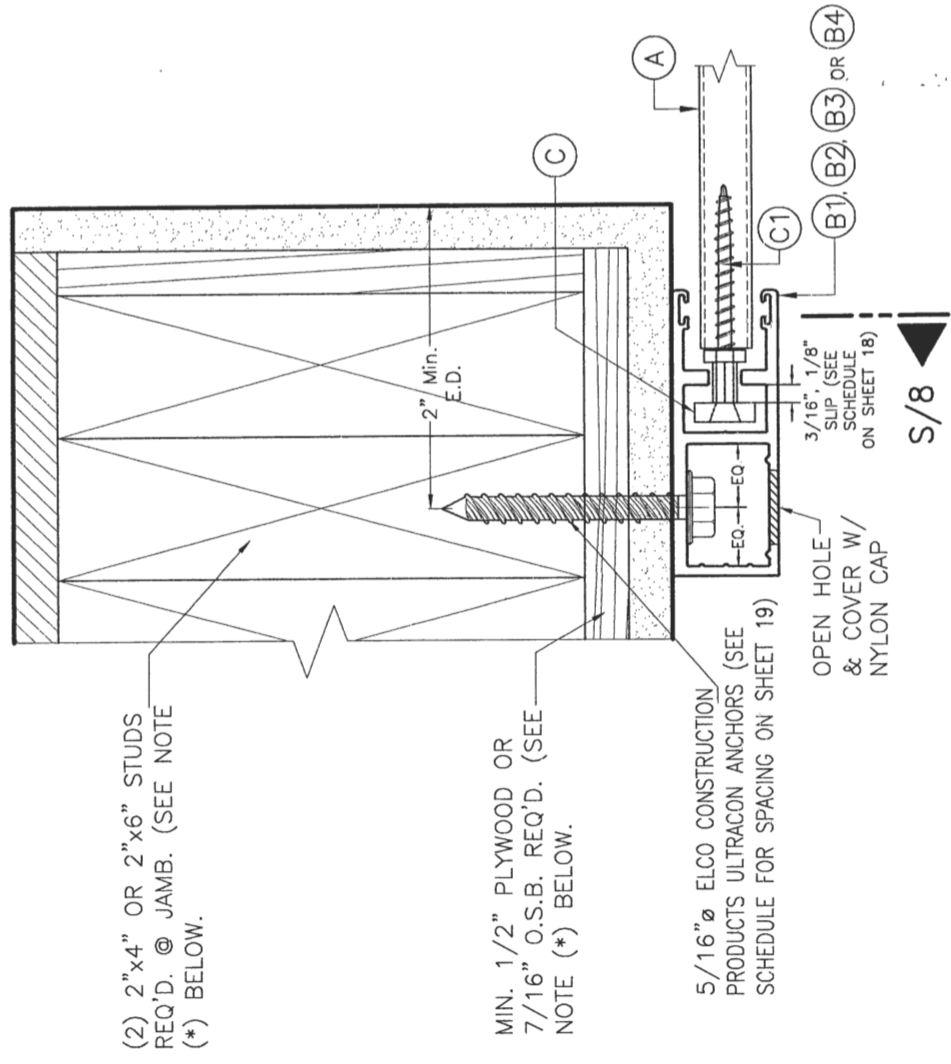
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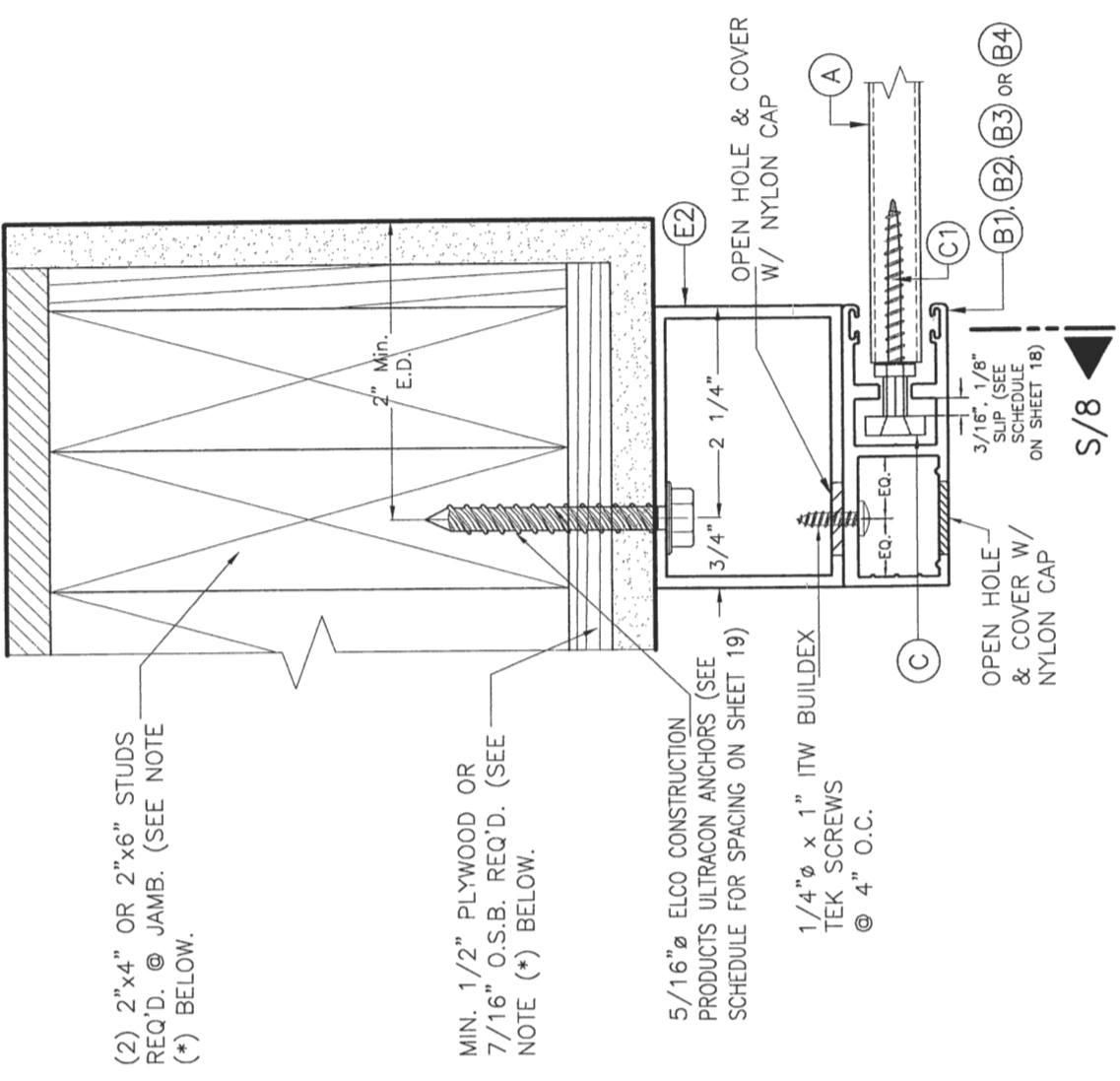
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REV. N°	DATE	REV. N°	DESCRIPTION	DATE
1		3		
2		4		



**SECTION P-P (1):
WALL MOUNT**



**SECTION P-P (2):
BUILD-OUT MOUNT**

**SIDE RAIL CONNECTIONS
TO WOOD WALL**

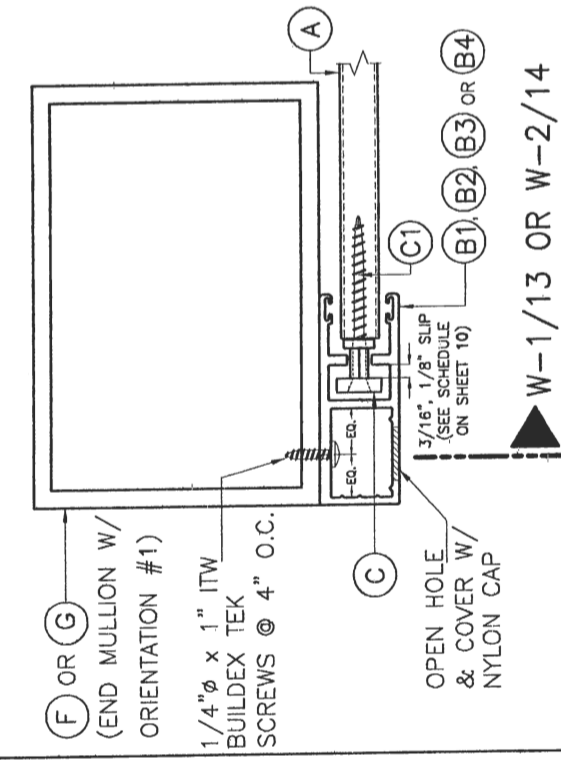
SCALE: 1/2" = 1"

(*) SEE LIMITATIONS FOR SHUTTER SPAN AND DESIGN PRESSURE RATING ON SHEET 18.



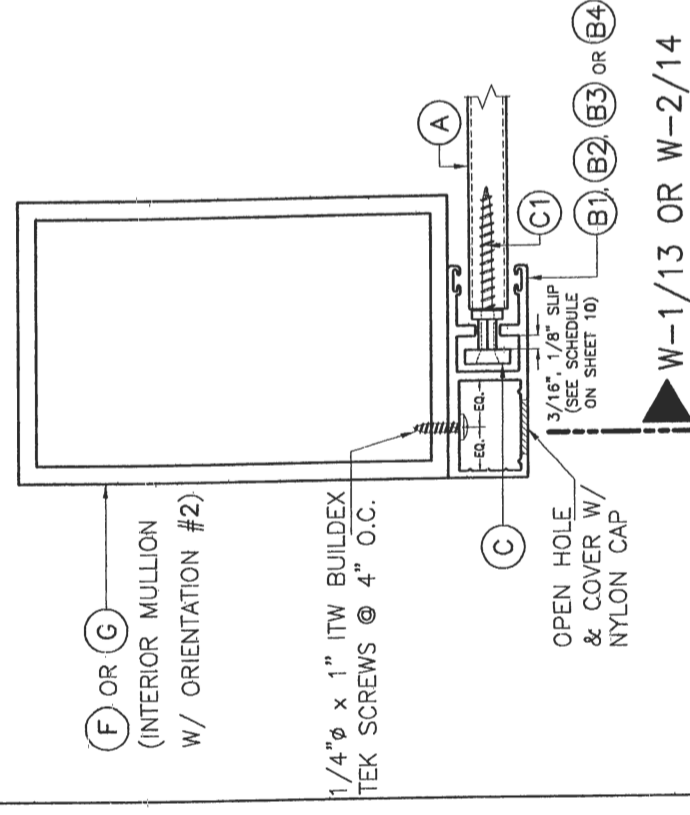
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TEXAS LIC. # 90891

TEXAS DEPARTMENT OF INSURANCE — 2006 RLL 55-X SLAT END RETENTION ROLL-UP SHUTTER		R.E./I.A./M.C.V. DRAWN BY	
		DATE 01/15/09	
ROLLAC SHUTTER OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX, 77581 PH:(281) 485-1911, FAX:(281) 485-0839		DESCRIPTION ADD. 2"x4"/O.S.B.	REV # 3
		DATE 4/27/10	DATE —
REV # 1	DESCRIPTION —	REV # 4	DATE —
REV # 2	DESCRIPTION —	REV # —	DATE —



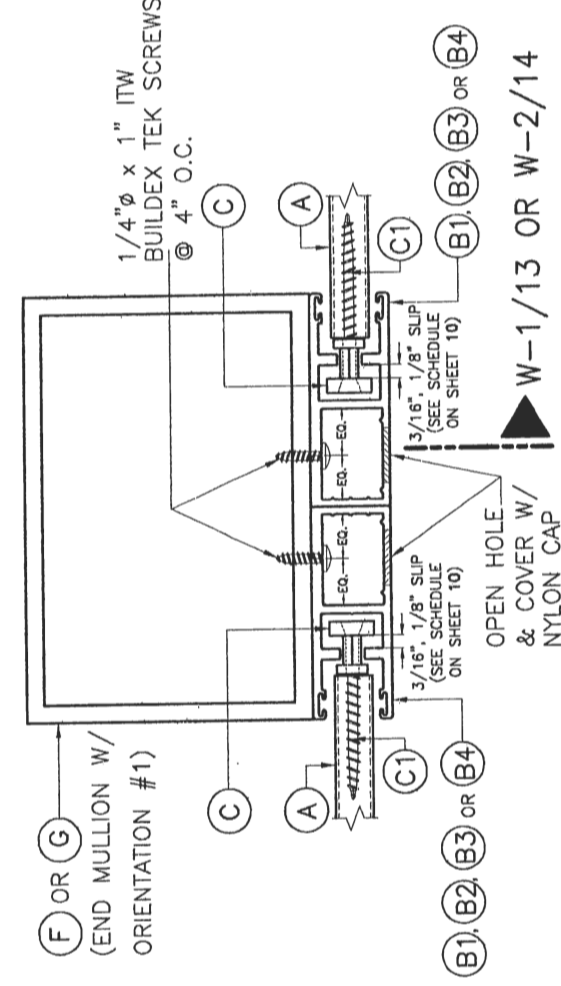
SECTION Q-Q:

MULLION MOUNT (FACE MOUNT)



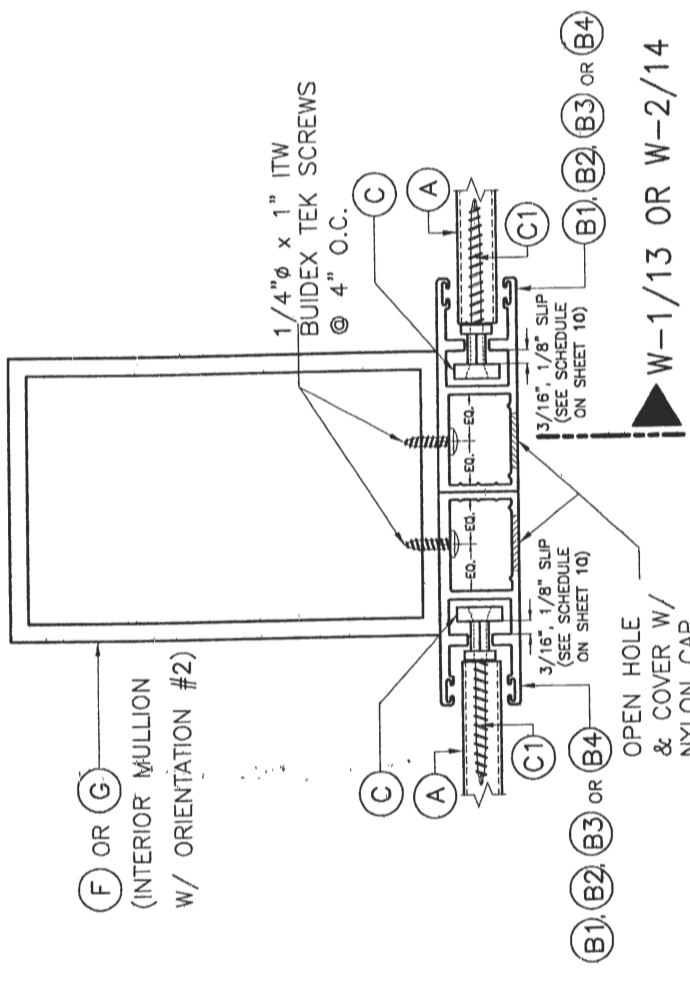
SECTION Q-Q:

MULLION MOUNT (FACE MOUNT)



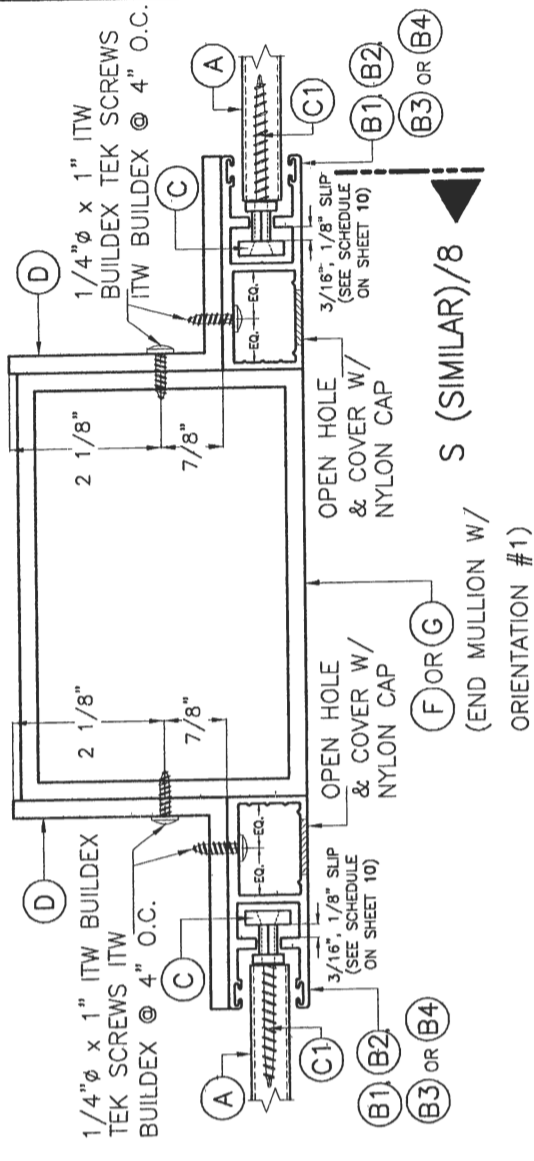
SECTION R-R:

MULLION MOUNT (FACE MOUNT)



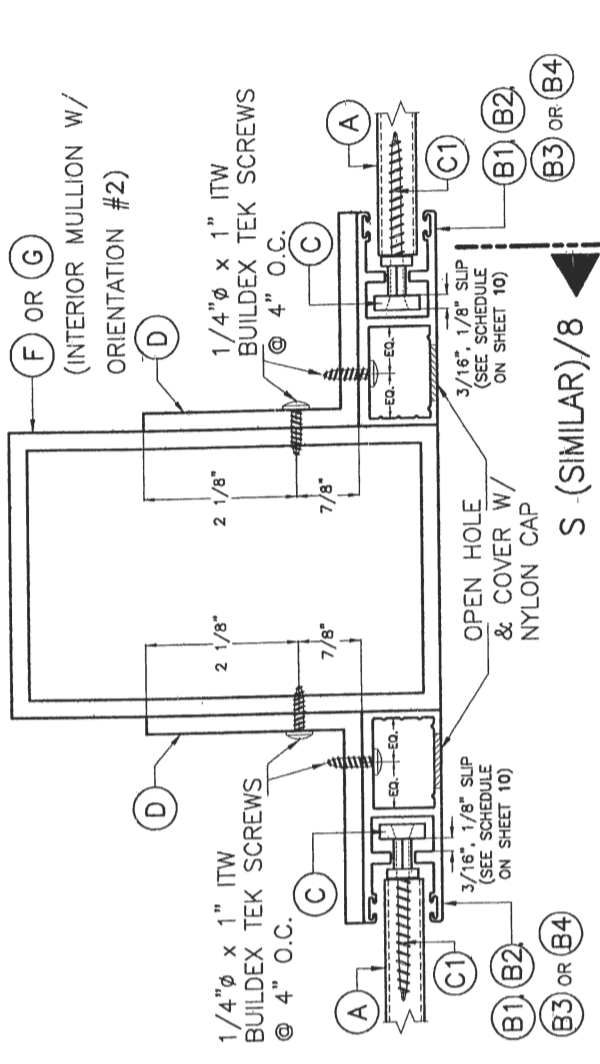
SECTION R-R:

MULLION MOUNT (FACE MOUNT)



SECTION R'-R':

MULLION MOUNT (INSIDE MOUNT)



SECTION R'-R':

MULLION MOUNT (INSIDE MOUNT)

**SIDE RAIL CONNECTION
TO MULLIONS**

SCALE: 3/8" = 1"

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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

RLS 55-X SLAT END RETENTION
ROLL-UP SHUTTER

ROLLAC SHUTTER OF TEXAS, INC.

5331 ORANGE STREET
PEARLAND, TX, 77581
PH: (281) 485-1911, FAX: (281) 485-0839

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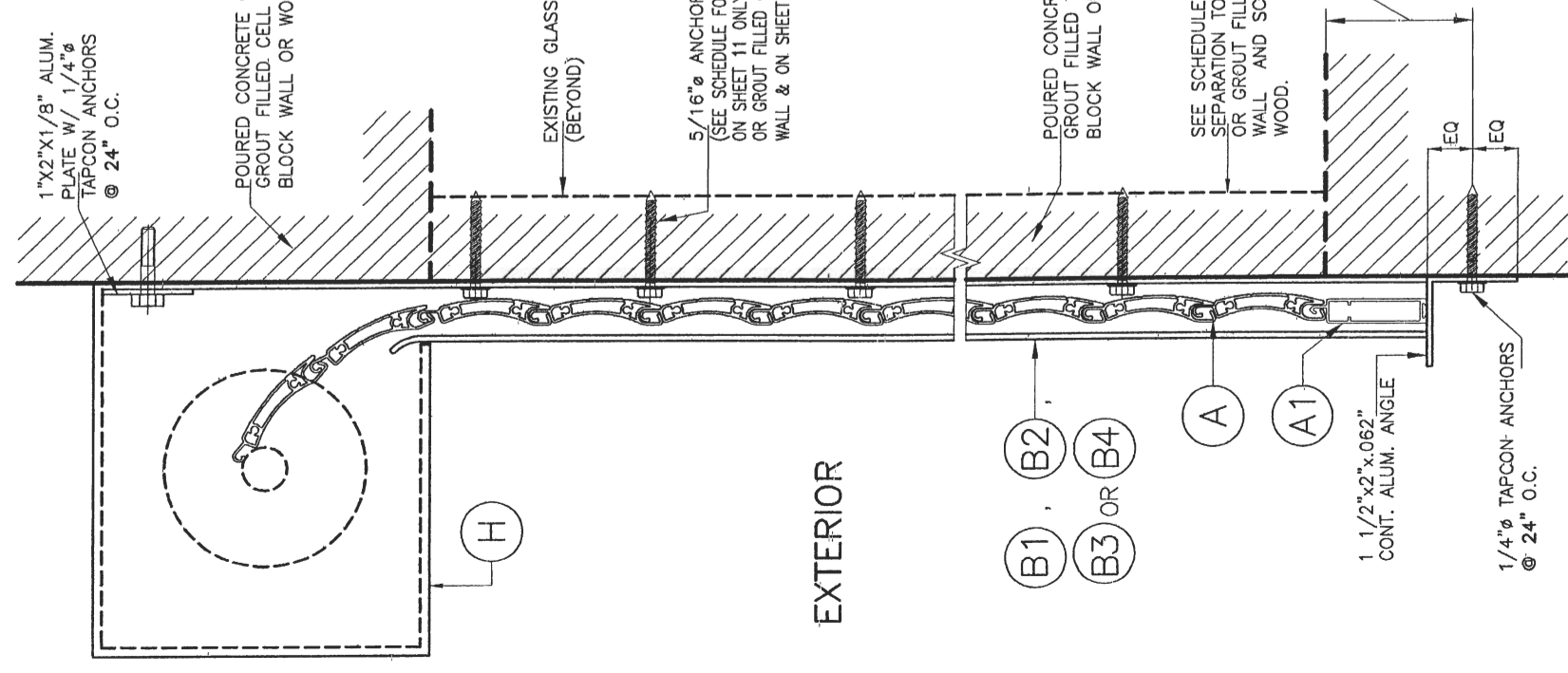
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01/15/09
DATE

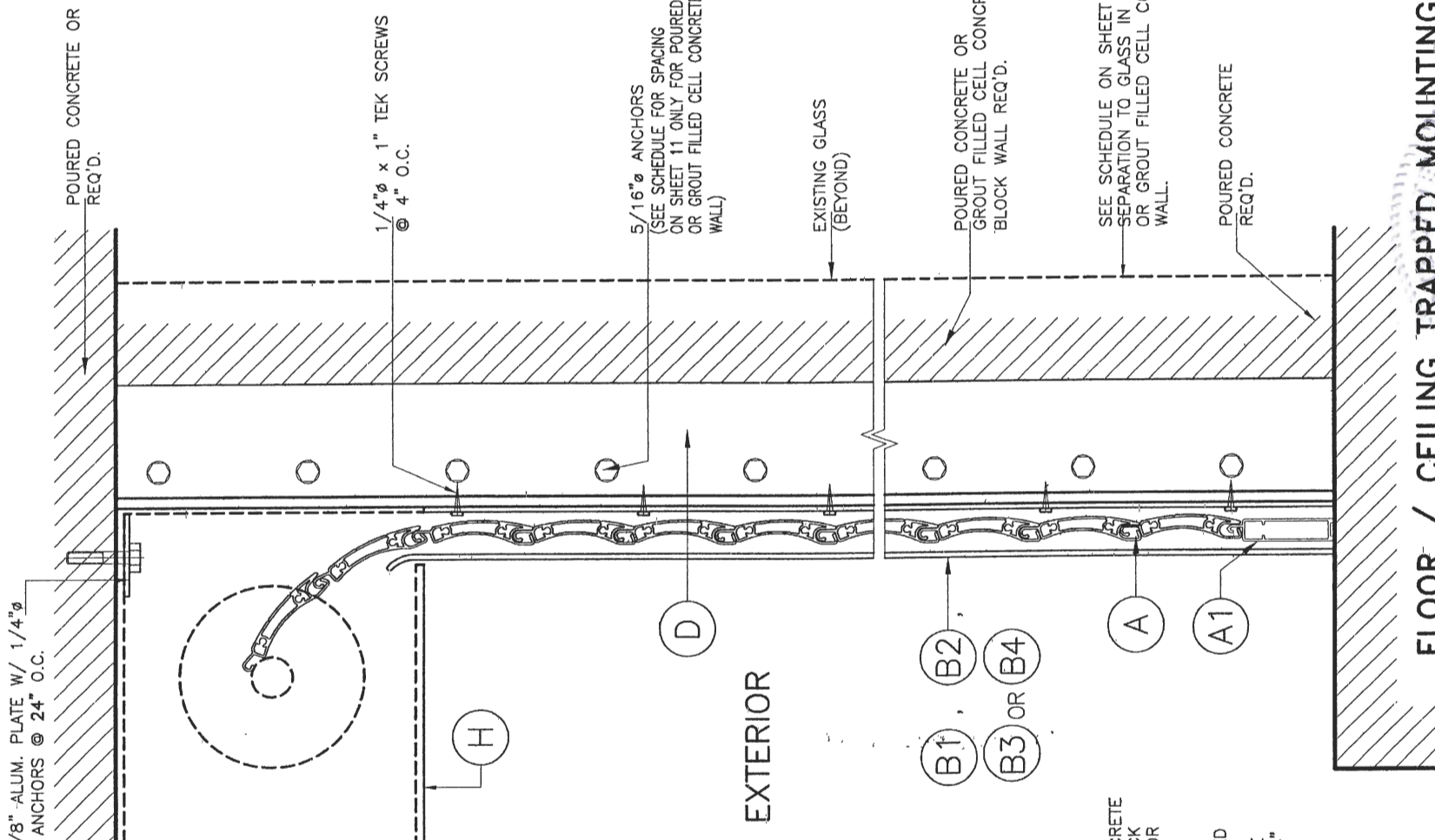
09-006
DRAWING N°

SHEET 7 OF 19

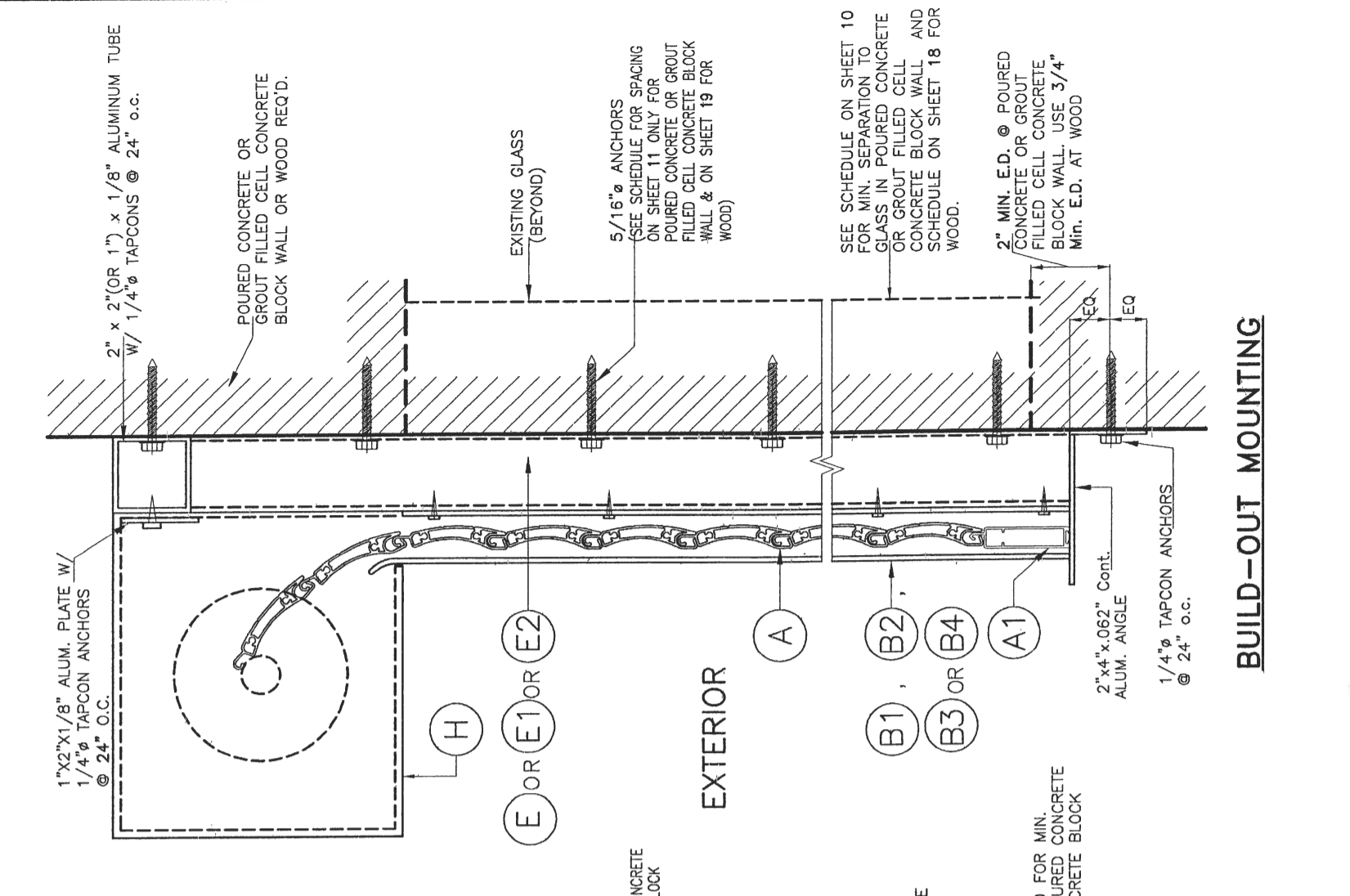




WALL MOUNTING



FLOOR / CEILING TRAPPED MOUNTING



BUILD-OUT MOUNTING

SECTION S-S

N.T.S.

INSTALLATION DETAILS ON EXISTING POURED CONCRETE OR GROUT FILLED CELL CONCRETE BLOCK WALL OR WOOD



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 TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLL 55-X SLAT END RETENTION
 ROLL-UP SHUTTER

ROLLAC SHUTTER OF TEXAS, INC.
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 PEARLAND, TX. 77681
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1		3	
2		4	

R.E./I.A. DRAWN BY
 07/15/09 DATE
 09-006 DRAWING N°
 SHEET 8 OF 19

**TYPICAL MANDATORY PROCEDURE FOR VERIFYING SHUTTER CODE COMPLIANCE
RELATED TO ITS INSTALLATION INTO EXISTING POURED CONCRETE OR
GROUT FILLED CELL CONCRETE BLOCK STRUCTURES (*)**

- STEP 1:** OBTAIN JOB SITE'S DESIGN LOAD (p.s.f.) FOR THE OPENING AND DESIRED SHUTTER SPAN "L" (ft) TO PROTECT IT (SEE GENERAL NOTE #1, ON SHEET 1).
- STEP 2:** ENTER TO CHARTS I THRU III ON SHEET 10 TO DETERMINE, BASED ON AN ASSUMED SLAT SLIP (in); DESIGN LOAD (p.s.f.); AND SHUTTER SPAN "L" (ft); THE REQUIRED FINAL SLAT SLIP THAT SLATS MUST BE INSTALLED WITH TO MEET THE REQUIRED LOAD AND DESIRED SHUTTER SPAN.
- THE FOLLOWING INFORMATION IS PROVIDED AT CHARTS I THRU III TO PROCEED WITH SHUTTER INSTALLATION VERIFICATION:
- ENTER DESIGN LOAD: SEE STEP (1) ABOVE.
 - FOR A SPECIFIC SHUTTER MOUNTING INSTALLATION TYPE, THE FOLLOWING DEFINITIONS FOR SLAT SPAN SHALL BE CONSIDERED:
- LMAX: THIS IS THE MAXIMUM ALLOWABLE SHUTTER SPAN FOR WHICH A GIVEN SLAT SLIP (3/16", 1/8" OR LESS THAN 1/8") MAY BE USED, FOR A GIVEN DESIGN LOAD.
- LMIN: THIS IS THE MINIMUM ALLOWABLE SHUTTER SPAN FOR WHICH A GIVEN SLIP (3/16", 1/8" OR LESS THAN 1/8") MAY BE USED, FOR A GIVEN DESIGN LOAD.
- IN CASE JOB SITE DESIRED SHUTTER SPAN (L) WAS SHORTER THAN LMIN, THEN GO TO THE OTHER CHARTS WITH A SHORTER SLAT SLIP AND VERIFY THAT (L) IS ALLOWED FOR THAT OTHER SHORTER SLIP.
- MINIMUM REQUIRED SEPARATION TO GLASS IS PROVIDED ON CHARTS I, II & III: PROVIDES SEPARATION TO GLASS FOR SHUTTERS WITH OR WITHOUT MULLIONS BASED ON SHUTTER INSTALLATIONS WITHIN WIND ZONES 1 THRU 4, AS DEFINED BY ASTM E 1996-05, SECTION 6.2.2.
- STEP 3:** OBTAIN INFORMATION ON SHUTTER'S SIDE RAIL ANCHOR SPACING REQUIREMENTS FOR CONNECTION TO EXISTING STRUCTURE FROM ANCHOR SCHEDULE IV ON SHEET 11. ENTER SCHEDULE WITH FINALLY DETERMINED SUBSTRATE, MOUNTING TYPE, DESIGN LOAD & SHUTTER SPAN AND OBTAIN MAXIMUM ANCHOR SPACING (INCHES ON CENTERS). SEE GENERAL NOTE 6 ON SHEET 1 FOR ANCHOR SPECS.
- STEP 4:** IF SHUTTER INSTALLATION INCLUDES MULLIONS, THE FOLLOWING MANDATORY ADDITIONAL PROCEDURE IS APPLICABLE.

PROCEDURE 4a: IF MULLIONS ARE USED

1. MINIMUM SEPARATION TO GLASS FOR SLATS IF MULLIONS ARE USED SHALL BE BASED ON INSTALLATIONS PERFORMED WITHIN ASTM WIND ZONES 1 THRU 4 INDICATED ON CHARTS I, II & III ON SHEET 10. IT SHALL BE MEASURED FROM BACK OF SLATS TO GLASS. FOR INSTALLATIONS WITHIN ASTM WIND ZONES 1 THRU 3 WHERE MINIMIZING OF THE PROBABILITY OF BREACHING OF GLASS IS DESIRED EVEN THOUGH IT IS NOT REQUIRED BY THE INTERNATIONAL BUILDING CODE, MINIMUM SEPARATION TO GLASS FOR SLATS SHALL BE IDENTICAL TO WIND ZONE 4 VALUES.
2. ENTER SCHEDULES 1a THRU 2c ON SHEETS 15, 16 & 17 W/ DESIGN LOAD; MAXIMUM MULLION SPACING (MAX., 12' OR 7'), AND DETERMINE MAXIMUM MULLION SPAN (HEIGHT) W/ ALLOWABLE INTERPOLATION IN BETWEEN SPACINGS FOR A GIVEN (F) & (G), MULLION TYPE & MULLION ORIENTATION.
3. SEE SHEETS 13 & 14 FOR REQUIRED MULLION CONNECTION DETAILS AT TOP & BOTTOM FOR FLOOR TO CEILING (TRAPPED) OR WALL MOUNTINGS OF MULLIONS INTO CONCRETE FOR A GIVEN MULLION TYPE (F) & (G).

***** PROCEDURE PER STEPS 1 THRU 3 IS SIMILAR FOR INSTALLATIONS INTO WOOD FRAME STRUCTURES. SEE SHEETS 18 & 19 FOR LIMITATIONS APPLICABLE TO INSTALLATIONS INTO WOOD FRAME STRUCTURES.



TEXAS DEPARTMENT OF INSURANCE - 2006		R.E./I.A. DRAWN BY	01/15/09 DATE
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WALTER A. TILLIT JR. P.E. PROFESSIONAL ENGINEER		5355 N.W. 36TH. ST., STE. 305 VIRGINIA GARDENS, FL 33166 PHONE : (305) 871-1530 , FAX : (305) 871-1531	
TEXAS LIC. # 90691		DESCRIPTION	REV #
ROLL 55-X SLAT END RETENTION ROLL-UP SHUTTER		DATE	DATE
		1	3
		2	4

SLAT PERFORMANCE CHARTS I, II & III:

VALID FOR INSTALLATION INTO POURED CONCRETE, GROUT FILLED CELL CONCRETE BLOCK OR MULLIONS

FOR A GIVEN DESIGN LOAD (p.s.f.) AND SHUTTER MOUNT CONDITION

CHART I (ONLY VALID FOR 3/16" SLIP)

DESIGN LOAD (p.s.f.)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						USE MAXIMUM POSITIVE LOAD VALUE	
	MAX. SLAT SPAN			REQUIRED MIN. SLAT SPAN	MIN. SEPARATION TO GLASS (in)		WIND ZONE	
	WALL MOUNT (SEE NOTES*)	TRAPPED MOUNT (SEE NOTES*)	BUILD-OUT MOUNT W/ (E) (SEE NOTES*)		BUILD-OUT MOUNT W/ (E) (SEE NOTES*)	WIND ZONE 1, 2 & 3		
30.0	19'-8"	19'-8"	16'-6"	13'-11"	6'-6"	1"	12.00"	
35.0	18'-3"	18'-3"	14'-11"	12'-7"	6'-3"	1"	12.00"	
40.0	16'-8"	16'-8"	13'-7"	11'-6"	6'-0"	1"	12.00"	
45.0	15'-3"	15'-3"	12'-6"	10'-9"	5'-9"	1"	12.00"	
50.0	14'-3"	14'-3"	11'-8"	10'-0"	5'-7"	1"	12.00"	
55.0	13'-3"	13'-3"	11'-0"	9'-6"	5'-6"	1"	12.00"	
60.0	12'-6"	12'-6"	10'-4"	9'-0"	5'-4"	1"	12.00"	
65.0	11'-11"	11'-11"	9'-10"	8'-6"	5'-3"	1"	9 3/4"	
70.0	11'-5"	11'-5"	9'-5"	8'-2"	5'-1"	1"	9 3/4"	
75.0	10'-11"	10'-11"	9'-0"	7'-11"	5'-0"	1"	9 3/4"	
80.0	10'-5"	10'-5"	8'-8"	7'-7"	4'-11"	1"	9 3/4"	
85.0	10'-0"	10'-0"	8'-3"	7'-4"	4'-10"	1"	9 3/4"	
90.0	9'-6"	9'-6"	8'-0"	7'-1"	4'-9"	1"	9 3/4"	
95.0	9'-3"	9'-2"	7'-9"	6'-11"	4'-8"	1"	9 3/4"	
100.0	8'-11"	8'-10"	7'-6"	6'-9"	4'-7"	1"	9 3/4"	
105.0	8'-9"	8'-6"	7'-3"	6'-6"	4'-6"	1"	9 3/4"	
110.0	8'-6"	8'-3"	7'-1"	6'-5"	4'-6"	1"	9 3/4"	
115.0	8'-3"	8'-0"	6'-11"	6'-3"	4'-5"	1"	9 3/4"	
120.0	8'-0"	7'-9"	6'-9"	6'-1"	4'-5"	1"	9 3/4"	
125.0	7'-10"	7'-6"	6'-7"	6'-0"	4'-4"	1"	9 3/4"	
130.0	7'-8"	7'-5"	6'-5"	5'-10"	4'-3"	1"	9 3/4"	
135.0	7'-6"	7'-2"	6'-3"	5'-9"	4'-3"	1"	9 3/4"	
140.0	7'-3"	7'-0"	6'-2"	5'-8"	4'-2"	1"	9 3/4"	
145.0	7'-2"	6'-10"	6'-0"	5'-6"	4'-2"	1"	9 3/4"	
150.0	7'-0"	6'-8"	6'-0"	5'-5"	4'-1"	1"	9 3/4"	
155.0	6'-10"	6'-6"	5'-10"	5'-4"	4'-1"	1"	9 3/4"	
160.0	6'-9"	6'-5"	5'-9"	5'-3"	4'-1"	1"	7"	

CHART II (ONLY VALID FOR 1/8" SLIP)

DESIGN LOAD (p.s.f.)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						USE MAXIMUM POSITIVE LOAD VALUE	
	MAX. SLAT SPAN			REQUIRED MIN. SLAT SPAN	MIN. SEPARATION TO GLASS (in)		WIND ZONE	
	WALL MOUNT (SEE NOTES*)	TRAPPED MOUNT (SEE NOTES*)	BUILD-OUT MOUNT W/ (E) (SEE NOTES*)		BUILD-OUT MOUNT W/ (E) (SEE NOTES*)	WIND ZONE 1, 2 & 3		
30.0	18'-3"	18'-3"	15'-0"	12'-7"	6'-2"	1"	12.00"	
35.0	16'-4"	16'-4"	13'-5"	11'-5"	5'-10"	1"	12.00"	
40.0	14'-11"	14'-11"	12'-3"	10'-5"	5'-8"	1"	12.00"	
45.0	13'-9"	13'-9"	11'-4"	9'-9"	5'-6"	1"	12.00"	
50.0	12'-9"	12'-9"	10'-7"	9'-1"	5'-4"	1"	12.00"	
55.0	12'-0"	12'-0"	9'-11"	8'-7"	5'-2"	1"	12.00"	
60.0	11'-4"	11'-4"	9'-5"	8'-2"	5'-0"	1"	9 3/4"	
65.0	10'-9"	10'-9"	8'-11"	7'-10"	4'-11"	1"	9 3/4"	
70.0	10'-2"	10'-2"	8'-6"	7'-6"	4'-10"	1"	9 3/4"	
75.0	9'-9"	9'-9"	8'-2"	7'-2"	4'-9"	1"	9 3/4"	
80.0	9'-4"	9'-4"	7'-10"	6'-11"	4'-8"	1"	9 3/4"	
85.0	9'-0"	9'-0"	7'-7"	6'-9"	4'-7"	1"	9 3/4"	
90.0	8'-8"	8'-8"	7'-4"	6'-6"	4'-6"	1"	9 3/4"	
95.0	8'-5"	8'-5"	7'-1"	6'-4"	4'-5"	1"	9 3/4"	
100.0	8'-2"	8'-2"	6'-10"	6'-2"	4'-4"	1"	9 3/4"	
105.0	7'-11"	7'-10"	6'-8"	6'-0"	4'-4"	1"	9 3/4"	
110.0	7'-8"	7'-8"	6'-6"	5'-10"	4'-3"	1"	9 3/4"	
115.0	7'-6"	7'-5"	6'-4"	5'-9"	4'-2"	1"	9 3/4"	
120.0	7'-3"	7'-2"	6'-2"	5'-7"	4'-2"	1"	9 3/4"	
125.0	7'-1"	7'-0"	6'-1"	5'-6"	4'-1"	1"	9 3/4"	
130.0	6'-11"	6'-10"	5'-11"	5'-5"	4'-1"	1"	9 3/4"	
135.0	6'-9"	6'-8"	5'-10"	5'-3"	4'-0"	1"	7"	
140.0	6'-8"	6'-6"	5'-8"	5'-2"	4'-0"	1"	7"	
145.0	6'-6"	6'-4"	5'-7"	5'-1"	3'-11"	1"	7"	
150.0	6'-5"	6'-2"	5'-6"	5'-0"	3'-11"	1"	7"	
155.0	6'-3"	6'-1"	5'-5"	4'-11"	3'-10"	1"	7"	
160.0	6'-2"	5'-11"	5'-4"	4'-10"	3'-10"	1"	7"	

CHART III (ONLY VALID FOR LESS THAN 1/8" SLIP)

DESIGN LOAD (p.s.f.)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD				USE MAXIMUM POSITIVE LOAD VALUE	
	MAX. SLAT SPAN L _{max} (ft)	REQUIRED MIN. SLAT SPAN L _{req} (ft)	MIN. SEPARATION TO GLASS (in)		WIND ZONE	
			WIND ZONE 1, 2 & 3	WIND ZONE 4		
30.0	6'-0"	0'-0"	1"	1"	1"	7"
35.0	5'-9"	0'-0"	1"	1"	1"	7"
40.0	5'-5"	0'-0"	1"	1"	1"	7"
45.0	5'-1"	0'-0"	1"	1"	1"	7"
50.0	4'-10"	0'-0"	1"	1"	1"	7"
55.0	4'-7"	0'-0"	1"	1"	1"	7"
60.0	4'-5"	0'-0"	1"	1"	1"	7"
65.0	4'-3"	0'-0"	1"	1"	1"	7"
70.0	4'-1"	0'-0"	1"	1"	1"	7"
75.0	3'-11"	0'-0"	1"	1"	1"	7"
80.0	3'-10"	0'-0"	1"	1"	1"	7"
85.0	3'-8"	0'-0"	1"	1"	1"	7"
90.0	3'-7"	0'-0"	1"	1"	1"	7"
95.0	3'-6"	0'-0"	1"	1"	1"	7"
100.0	3'-5"	0'-0"	1"	1"	1"	7"
105.0	3'-4"	0'-0"	1"	1"	1"	7"
110.0	3'-3"	0'-0"	1"	1"	1"	7"
115.0	3'-2"	0'-0"	1"	1"	1"	7"
120.0	3'-1"	0'-0"	1"	1"	1"	7"
125.0	3'-1"	0'-0"	1"	1"	1"	7"
130.0	3'-0"	0'-0"	1"	1"	1"	7"
135.0	2'-11"	0'-0"	1"	1"	1"	7"
140.0	2'-11"	0'-0"	1"	1"	1"	7"
145.0	2'-10"	0'-0"	1"	1"	1"	7"
150.0	2'-9"	0'-0"	1"	1"	1"	7"
155.0	2'-9"	0'-0"	1"	1"	1"	7"
160.0	2'-8"	0'-0"	1"	1"	1"	7"

- * NOTES:**
- ABOVE INDICATED MAX. SLAT SPANS MAY BE USED AS LONG AS ANCHOR SPACING SCHEDULES ON SHEET 11 INDICATE THAT A SPACING IS AVAILABLE FOR THE CORRESPONDING SLAT SPAN AND DESIGN LOAD.
 - REQUIRES SIDE RAILS FASTENED TO EXISTING STRUCTURE WITH 5/16" ITW BUILDDEX TAPCON XL INTO POURED CONCRETE OR GROUT FILLED CELL CONCRETE BLOCK OR 1/4" TEK SCREWS AT MULLIONS CONNECTION VALID FOR WALL MOUNTED, INSIDE MOUNTED, AND BUILD-OUT MOUNTED.
 - MAXIMUM SLAT SPANS FOR INTERMEDIATE LOADS MAY BE DETERMINED BY LINEAR INTERPOLATION BETWEEN END VALUES.



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1			3		
2			4		

MAX. ANCHOR'S SPACING SCHEDULE IV FOR A GIVEN PRODUCT MOUNTING TYPE W/ Ø 5/16" ITW BUILDEX

TAPCON XL ANCHORS TO POURED CONCRETE WALL OR GROUT FILLED CELL CONCRETE BLOCK WALL, DESIGN LOAD & SLAT SPAN RANGE

WALL MOUNT

DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE									
	0' to 4'	> 4' to 5'	> 5' to 6'	> 6' to 7'	> 7' to 9'	> 9' to 12'	> 12' to 16'	> 16' to 19'-8"		
≤ 30.0	6.0"	6.0"	6.0"	8"	8"	7"	4 1/2"	4"		
>31-40	6.0"	6.0"	6.0"	8"	8"	5"	4"	3 3/4"		
>41-60	6.0"	6.0"	6.0"	8"	5 1/2"	4"	4"	-		
>61-80	6.0"	6.0"	6.0"	6"	4"	3 3/4"	-	-		
>81-105	6.0"	6.0"	6.0"	4 1/2"	3 3/4"	3 3/4"	-	-		
>106-120	6.0"	6.0"	5 1/2"	4"	3 3/4"	-	-	-		
>121-140	6.0"	6.0"	4 1/2"	3 3/4"	3 3/4"	-	-	-		
>141-160	6.0"	6.0"	4"	3 3/4"	3 3/4"	-	-	-		

TRAPPED MOUNT

DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE									
	0' to 4'	> 4' to 5'	> 5' to 6'	> 6' to 7'	> 7' to 9'	> 9' to 12'	> 12' to 16'	> 16' to 19'-8"		
≤ 30.0	6"	6"	6"	8"	8"	6 1/2"	4 1/2"	4"		
>31-40	6"	6"	6"	8"	7 1/2"	5"	4"	4"		
>41-60	6"	6"	6"	7 1/2"	5"	3 3/4"	3 3/4"	-		
>61-80	6"	6"	6"	5 1/2"	4"	3 3/4"	-	-		
>81-105	6"	6"	6"	4"	3 3/4"	3 3/4"	-	-		
>106-120	6"	6"	5 1/2"	4"	3 3/4"	-	-	-		
>121-140	6"	6"	1/2"	3 3/4"	3 3/4"	-	-	-		
>141-160	6"	6"	4"	3 3/4"	-	-	-	-		

4" x 2" OR 4" x 1" BUILD-OUT MOUNT



DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE									
	0' to 4'	> 4' to 5'	> 5' to 6'	> 6' to 7'	> 7' to 9'	> 9' to 12'	> 12' to 16'	> 16' to 19'-8"		
≤ 30.0	6"	6"	6"	8"	7"	4"	5 3/4"	3 3/4"		
>31-40	6"	6"	6"	8"	5"	3 3/4"	3 3/4"	3 3/4"		
>41-60	6"	6"	6"	5"	3 3/4"	3 3/4"	3 3/4"	-		
>61-80	6"	6"	5 1/2"	3 3/4"	3 3/4"	3 3/4"	-	-		
>81-105	6"	6"	3 3/4"	4 1/2"	3 3/4"	3 3/4"	-	-		
>106-120	6"	6"	3 3/4"	3 3/4"	3 3/4"	3 3/4"	-	-		
>121-140	6"	6"	3 3/4"	3 3/4"	3 3/4"	3 3/4"	-	-		
>141-160	6"	6"	3 3/4"	3 3/4"	3 3/4"	3 3/4"	-	-		



SLAT SPAN DEFINITION

NOTE:

MAX. SPAN FOR SLAT FOR A GIVEN DESIGN LOAD SHALL NEVER EXCEED MAX. SLAT SPAN INDICATED ON SLAT PERFORMANCE CHART ON SHEET 10.



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006
RLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER
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PH: (281) 485-1911, FAX: (281) 485-0839

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

SCHEDULE V:

V_x FORCES (Lb/ft) & V_y FORCES (Lb/ft) ACTING AT JAMBS FOR A DESIGN LOAD RANGE SLAT SPAN RANGE FOR POURED CONCRETE OR GROUT FILLED CELL CONCRETE BLOCK WALL BUILDINGS*

(USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD)

DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE															
	0' to 4'		>4' to 5'		> 5' to 6'		> 6' to 7'		> 7' to 9'		> 9' to 12'		> 12' to 16'		>16' to 19'-8"	
	V _x	V _y	V _x	V _y	V _x	V _y	V _x	V _y	V _x	V _y	V _x	V _y	V _x	V _y	V _x	V _y
≤ 30.0	10	60	10	75	191	90	141	105	528	135	979	180	1523	240	2011	295
>31-40	10	80	10	100	20	120	319	140	764	180	1314	240	1994	320	2106	333
>41-60	10	120	10	150	312	180	658	210	1219	270	1955	360	2073	375	-	-
>61-80	10	153	26	197	585	240	983	280	1656	360	2094	417	-	-	-	-
>81-105	10	175	58	241	914	315	1375	368	2088	459	2088	425	-	-	-	-
>106-120	10	185	67	265	1106	360	1605	420	2061	480	-	-	-	-	-	-
>121-140	10	204	67	292	1358	420	1907	490	2036	508	-	-	-	-	-	-
>141-160	10	213	96	327	1606	480	2059	540	2055	525	-	-	-	-	-	-



SLAT SPAN DEFINITION

*** NOTE:**
 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR PERMIT HOLDER TO VERIFY THAT EXISTING STRUCTURE IS DESIGNED TO SUPPORT V_x AND V_y FORCES IN POUNDS PER UNIT FOOT OF SHUTTER HEIGHT AT BOTH JAMBS. SEE THIS SHEET FOR V_x & V_y VALUES.



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 TEXAS LIC. # 90691

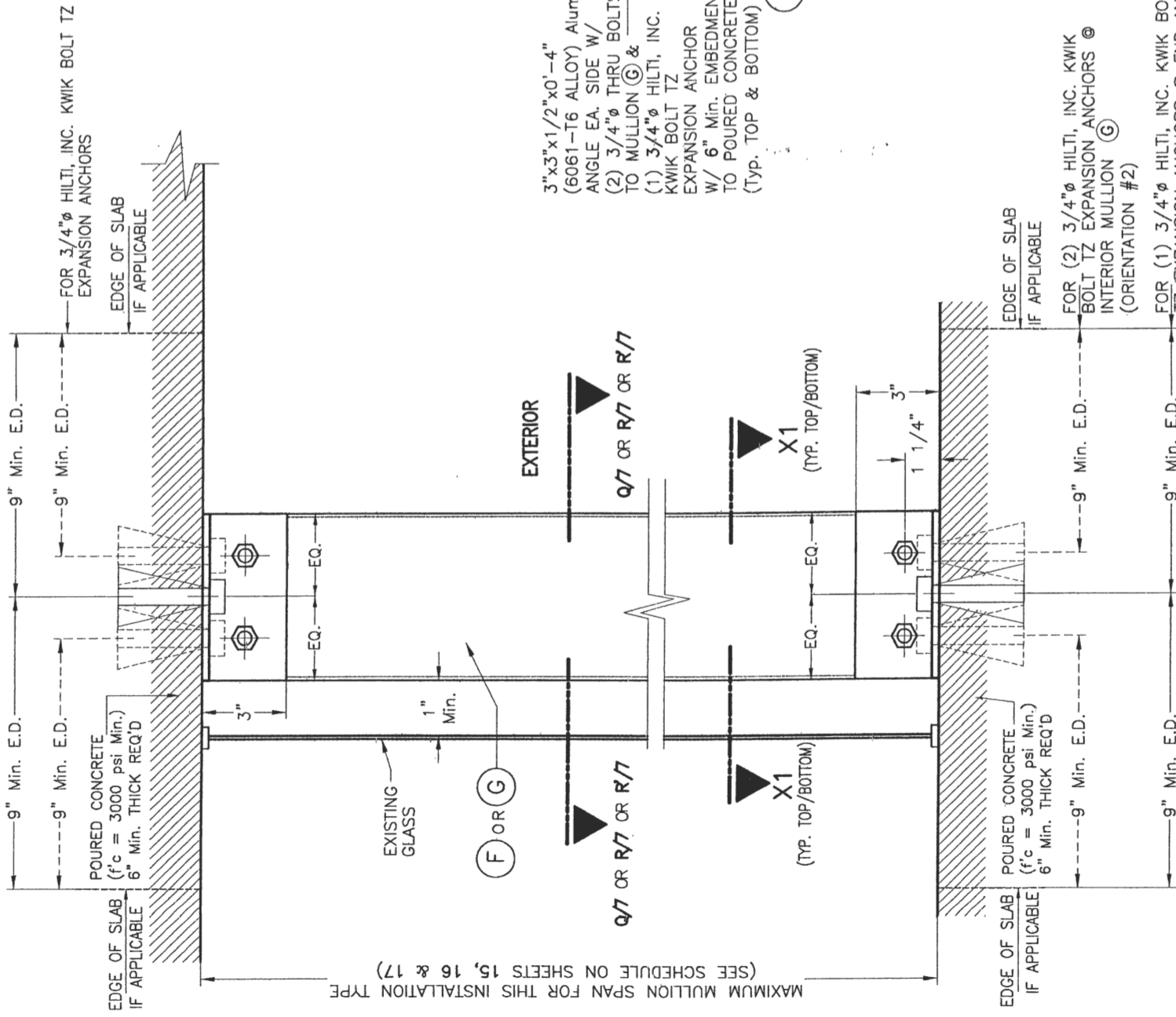
TEXAS DEPARTMENT OF INSURANCE - 2006

ROLLAC SHUTTER OF TEXAS, INC.
 5331 ORANGE STREET
 PEARLAND, TX 77581
 PH: (281) 485-1811, FAX: (281) 485-0839

ROLL 55-X SLAT END RETENTION ROLL-UP SHUTTER

REV #	DESCRIPTION	DATE	REV #	DESCRIPTION	DATE
1			3		
2			4		

R.E./I.A. DRAWN BY
 01/15/09 DATE
 09-006 DRAWING N°
 SHEET 12 OF 19

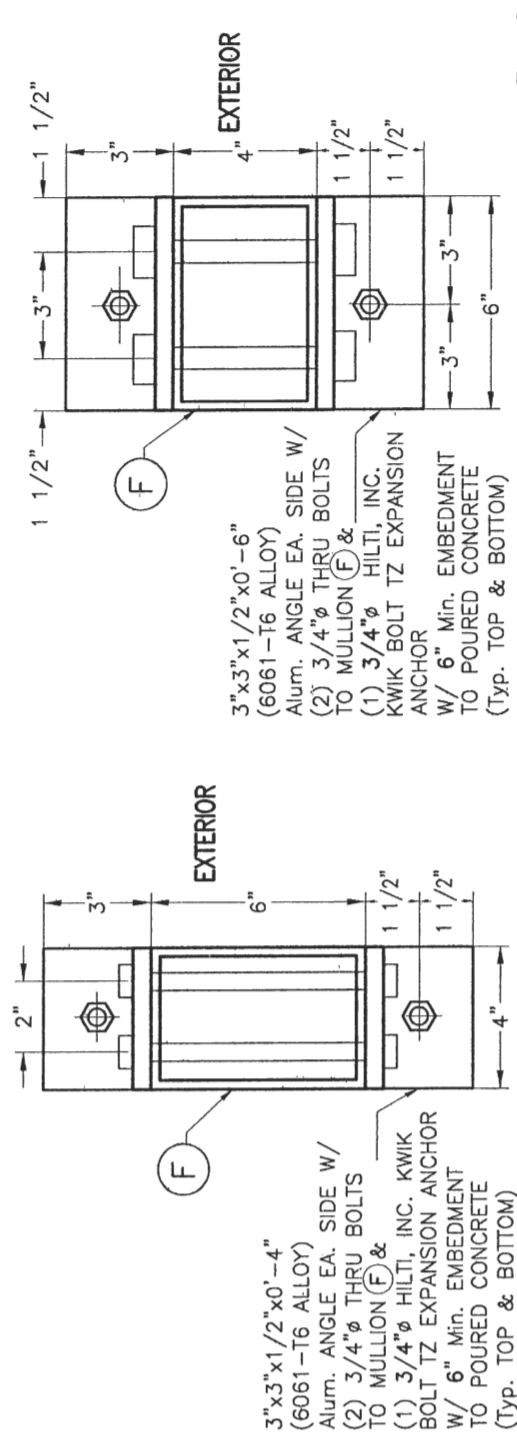


FLOOR TO CEILING / TRAPPED MOUNTING:

MULLION (F) OR (G)
SECTION W-1 *

END & INTERIOR TRAPPED MOUNTED MULLION INSTALLATION

SCALE: 3/16" = 1"

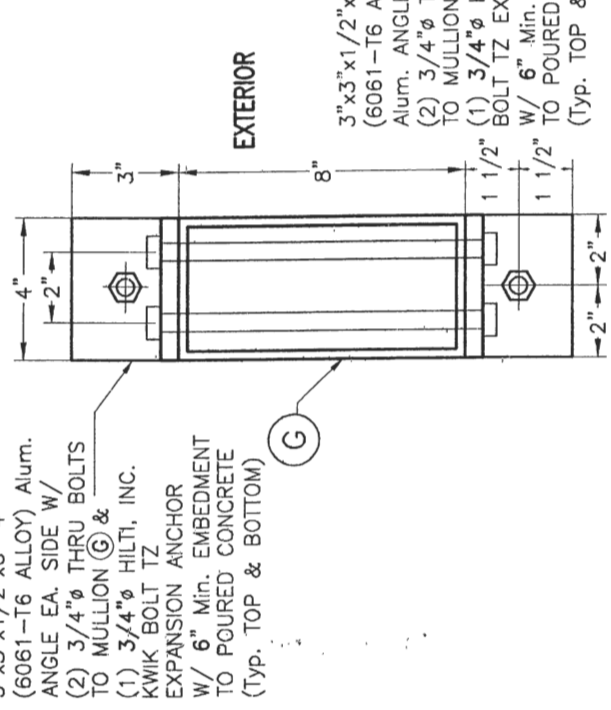


SECTION X1-X1 W/ (F) *

(END & INTERIOR MULLION
W/ ORIENTATION # 1)

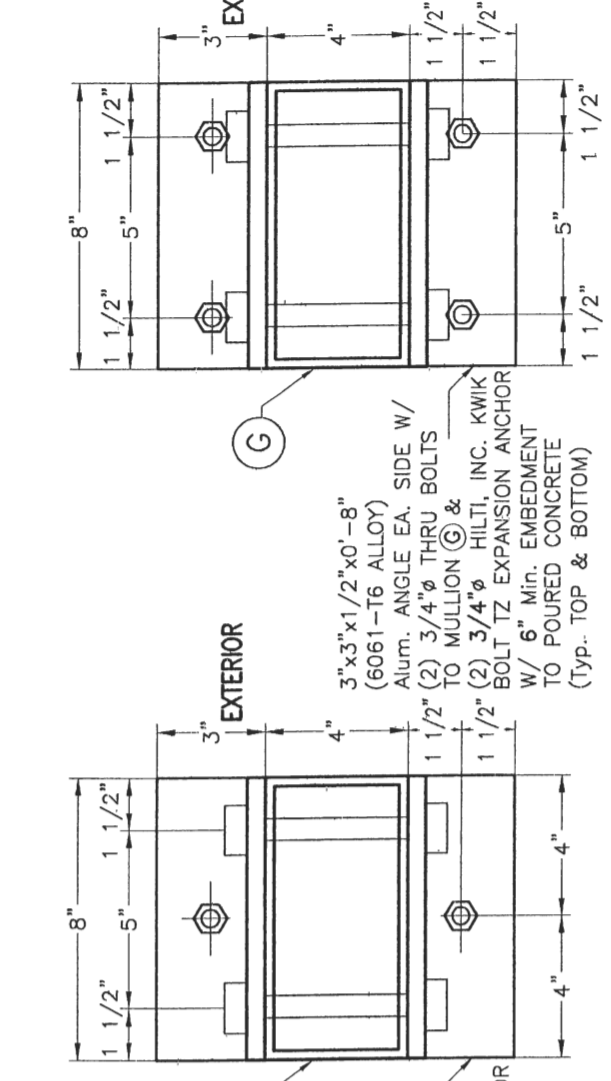
ALTERNATIVE SECTION X1-X1 W/ (F) *

(END & INTERIOR MULLION
W/ ORIENTATION # 2)



SECTION X1-X1 W/ (G) *

(END & INTERIOR MULLION
W/ ORIENTATION # 1)



ALTERNATIVE SECTION X1-X1 W/ (G) *

(W/ ORIENTATION # 2)

* SIDE RAILS (B1), (B2), (B3) OR (B4) AND BOX NOT SHOWN FOR CLARITY.

POURED CONCRETE (f'c = 3000 psi Min.)
6" Min. THICK REQ'D

FOR (2) 3/4" HILTI, INC. KWIK BOLT
BOLT TZ EXPANSION ANCHORS @
INTERIOR MULLION (G)
(ORIENTATION #2)

FOR (1) 3/4" HILTI, INC. KWIK BOLT
TZ EXPANSION ANCHORS @ END AND
INTERIOR MULLION (F) & (G)
(ORIENTATION #1), END AND INTERIOR
MULLION (F) (ORIENTATION #2) AND
END MULLION (G) (ORIENTATION #2)

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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006		R.E./I.A. DRAWN BY
ROLL 55-X SLAT END RETENTION ROLL-UP SHUTTER		01/15/09 DATE
ROLLAC SHUTTER OF TEXAS, INC.		09-006 DRAWING N°
REV #	DATE	DESCRIPTION
1		
2		
3		

EDGE IF APPLICABLE

POURED CONCRETE
(f'c = 3000 psi Min.)
8" Min. THICK REQ'D.

7 3/4" MIN. E.D.

1 1/2"

7"

7 3/4" MIN. E.D.

1" Min.

EXISTING GLASS

FLOOR

Q/7 OR R/7 OR R'/7

MIN. E.D.

7 3/4"

1 1/2"

7"

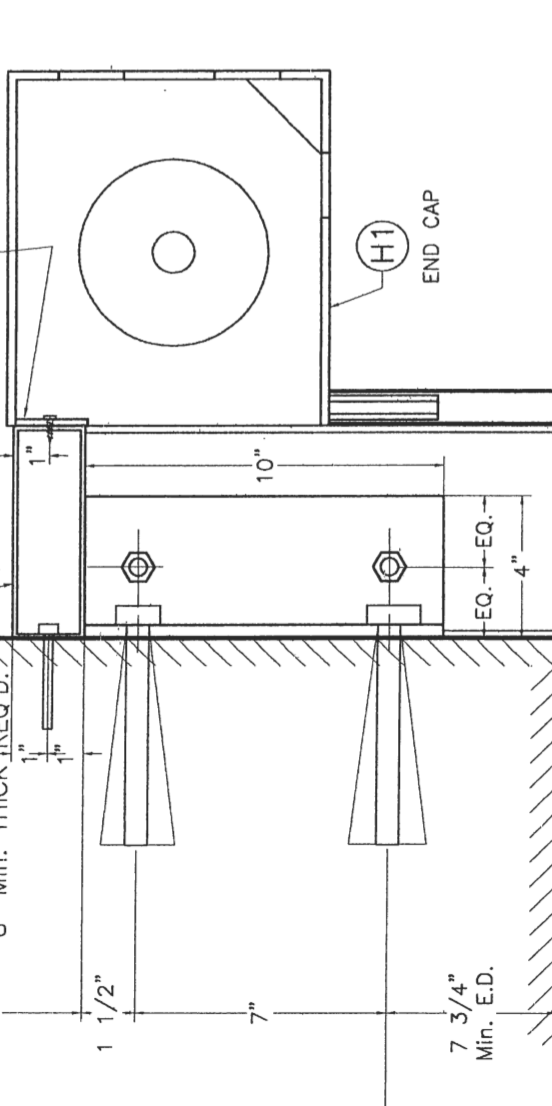
7 3/4" MIN. E.D.

EDGE IF APPLICABLE

2" X MULLION DEPTH X 1/8" Cont. ALUM. TUBE (TOP & BOTTOM) W/ 1/4" TAPCONS @ 24" o.c.

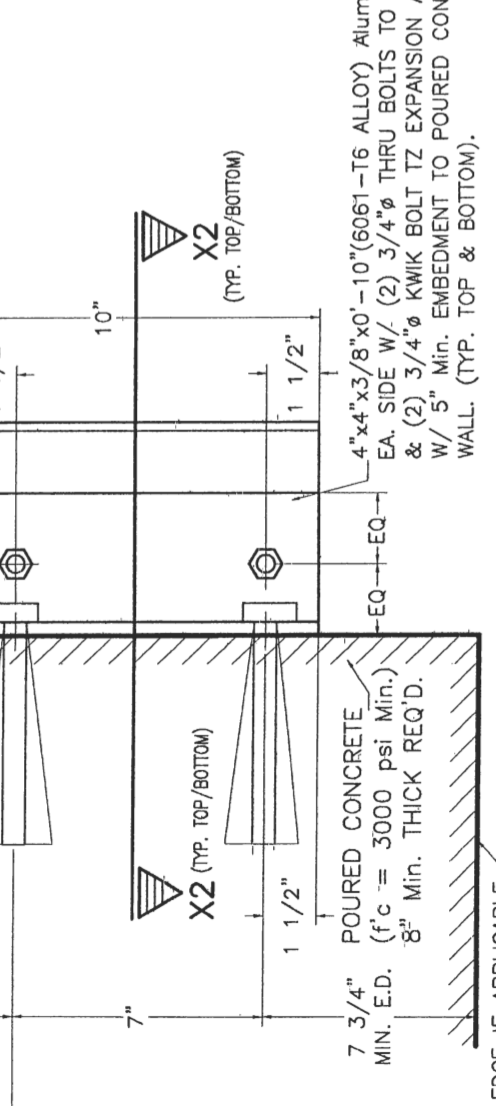
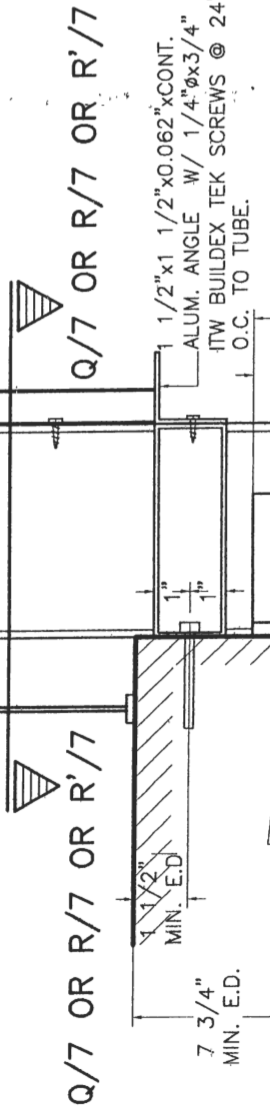
1" X 2" X 1/8" Alum. PLATE W/ 1/4" Ø X 3/4" ITW BUILDLEX TEK SCREWS @ 24" o.c.

H1 END CAP

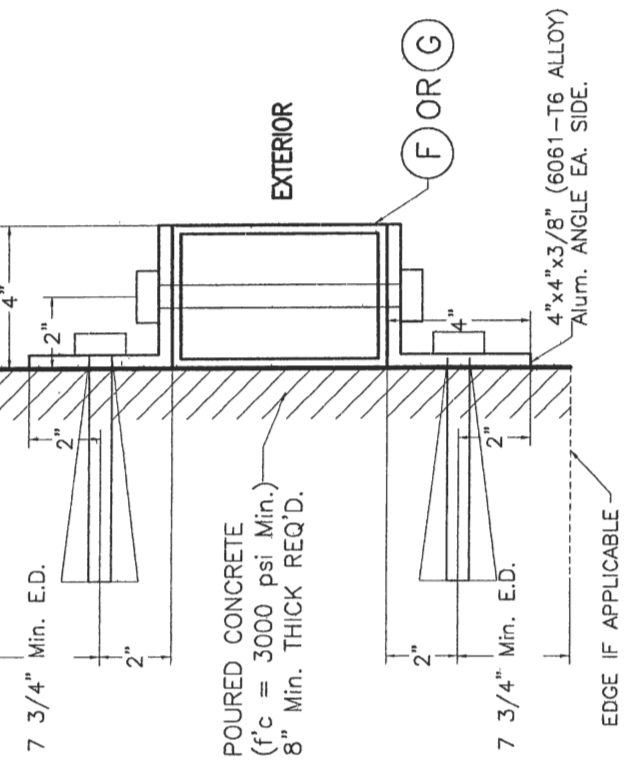


EXTERIOR

(B1), (B2), (B3) OR (B4)
(WALL MOUNTED SHOWN, MAY BE ALSO INSTALLED TRAPPED MOUNTED PER SECTION R'-R' ON SHEET 7).

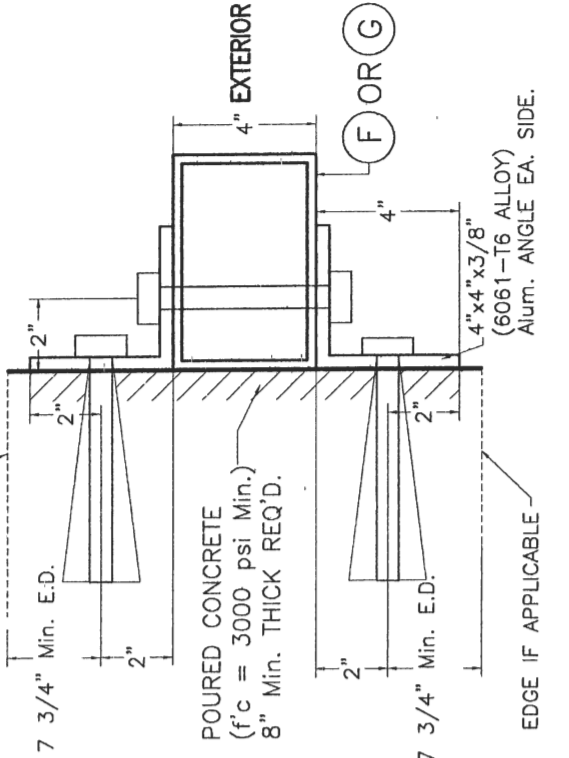


WALL MOUNTING: MULLION (F) OR (G)
POURED CONCRETE WALL
SECTION W-2



SECTION X2-X2 W/ (F) OR (G) *
(END & INTERIOR MULLION W/ ORIENTATION # 1)
(6" X 4" OR 8" X 4")

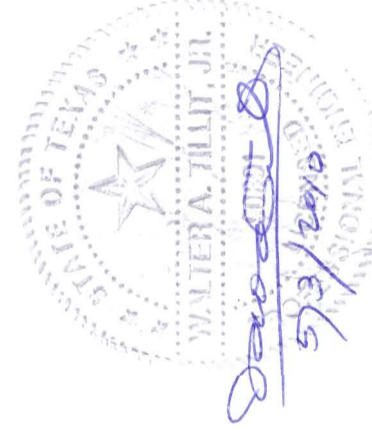
* SIDE RAILS (B1), (B2), (B3) OR (B4) NOT SHOWN FOR CLARITY.



ALTERNATIVE SECTION X2-X2 W/ (F) OR (G) *
(END & INTERIOR MULLION W/ ORIENTATION # 2)
(4" X 6" OR 4" X 8")

END & INTERIOR WALL MOUNTED MULLION INSTALLATION

SCALE: 1/8" = 1"



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

RLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER

ROLLAC SHUTTER OF TEXAS, INC.

5331 ORANGE STREET
PEARLAND, TX 77581
PH: (281) 465-1911, FAX: (281) 485-0839

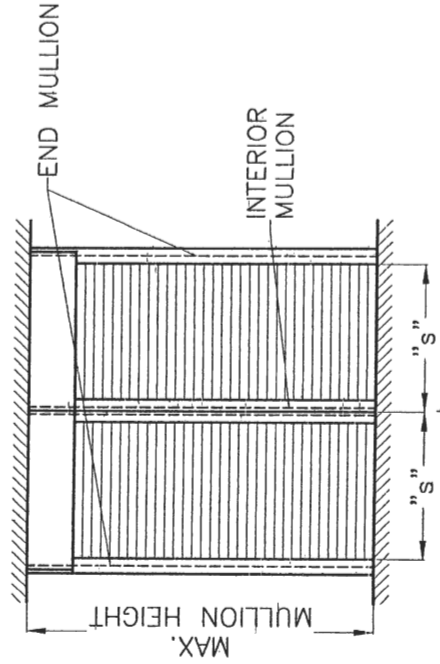
REV. # 1 2 3 4
DATE DESCRIPTION

R.E./I.A. DRAWN BY
DATE 01/15/09
09-006 DRAWING N°

SCHEDULE 1a

FLOOR TO CEILING (TRAPPED) MOUNTING
MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A MAX. MULLION SPACING (ft.) *
VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPACING (ft.) *	MAXIMUM MULLION SPAN (ft.)									
		ⓕ 4"x6"x1/4" MULLION					ⓐ 4"x8"x1/4" MULLION				
		END	INTERIOR	END	INTERIOR	ORIENTATION #1 (ⓕ) ‡	END	INTERIOR	END	INTERIOR	ORIENTATION #2 (ⓐ) ‡
30.0	19'-8"	6'-9"	9'-9"	6'-2"	12'-0"	8'-1"	10'-7"	7'-1"	12'-0"	7'-1"	12'-0"
35.0	18'-3"	6'-7"	9'-6"	6'-1"	11'-9"	7'-10"	10'-4"	6'-11"	12'-0"	6'-11"	12'-0"
40.0	16'-8"	6'-7"	9'-5"	6'-1"	11'-7"	7'-10"	10'-2"	6'-11"	12'-0"	6'-11"	12'-0"
45.0	15'-3"	6'-7"	9'-3"	6'-1"	11'-6"	7'-10"	10'-1"	6'-11"	12'-0"	6'-11"	12'-0"
50.0	14'-3"	6'-7"	9'-2"	6'-0"	11'-4"	7'-9"	10'-0"	6'-11"	12'-0"	6'-11"	12'-0"
55.0	13'-3"	6'-7"	9'-1"	6'-0"	11'-3"	7'-10"	9'-11"	6'-11"	12'-0"	6'-11"	12'-0"
60.0	12'-6"	6'-7"	9'-0"	6'-0"	11'-2"	7'-9"	9'-10"	6'-11"	12'-0"	6'-11"	12'-0"
65.0	11'-11"	6'-6"	8'-11"	6'-0"	11'-1"	7'-9"	9'-8"	6'-11"	12'-0"	6'-11"	12'-0"
70.0	11'-5"	6'-6"	8'-10"	6'-0"	10'-11"	7'-8"	9'-7"	6'-10"	12'-0"	6'-10"	12'-0"
75.0	10'-11"	6'-6"	8'-9"	6'-0"	10'-10"	7'-8"	9'-6"	6'-10"	12'-0"	6'-10"	12'-0"
80.0	10'-5"	6'-6"	8'-9"	6'-0"	10'-9"	7'-8"	9'-6"	6'-10"	12'-0"	6'-10"	12'-0"
85.0	10'-0"	6'-5"	8'-8"	6'-0"	10'-8"	7'-8"	9'-5"	6'-10"	12'-0"	6'-10"	12'-0"
90.0	9'-6"	6'-6"	8'-8"	6'-0"	10'-8"	7'-9"	9'-5"	6'-11"	12'-0"	6'-11"	12'-0"
95.0	9'-3"	6'-6"	8'-7"	6'-0"	10'-7"	7'-8"	9'-4"	6'-10"	12'-0"	6'-10"	12'-0"
100.0	8'-11"	6'-6"	8'-6"	6'-0"	10'-7"	7'-8"	9'-3"	6'-11"	12'-0"	6'-11"	12'-0"
105.0	8'-9"	6'-5"	8'-5"	5'-11"	10'-5"	7'-7"	9'-2"	6'-10"	12'-0"	6'-10"	12'-0"
110.0	8'-6"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"	6'-10"	12'-0"
115.0	8'-3"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"	6'-10"	12'-0"
120.0	8'-0"	6'-5"	8'-4"	5'-11"	10'-3"	7'-7"	9'-0"	6'-10"	12'-0"	6'-10"	12'-0"
125.0	7'-10"	6'-5"	8'-3"	5'-11"	10'-2"	7'-7"	9'-0"	6'-10"	12'-0"	6'-10"	12'-0"
130.0	7'-8"	6'-5"	8'-3"	5'-11"	10'-0"	7'-7"	8'-11"	6'-10"	12'-0"	6'-10"	12'-0"
135.0	7'-6"	6'-4"	8'-2"	5'-11"	9'-10"	7'-6"	8'-10"	6'-9"	12'-0"	6'-9"	12'-0"
140.0	7'-3"	6'-5"	8'-2"	5'-11"	9'-9"	7'-7"	8'-10"	6'-10"	12'-0"	6'-10"	12'-0"
145.0	7'-2"	6'-4"	8'-1"	5'-11"	9'-7"	7'-6"	8'-10"	6'-10"	12'-0"	6'-10"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	9'-5"	7'-6"	8'-9"	6'-10"	12'-0"	6'-10"	12'-0"
155.0	6'-10"	6'-4"	8'-0"	5'-11"	9'-4"	7'-6"	8'-9"	6'-10"	12'-0"	6'-10"	12'-0"
160.0	6'-9"	6'-4"	8'-0"	5'-11"	9'-2"	7'-6"	8'-8"	6'-9"	12'-0"	6'-9"	12'-0"



* MAXIMUM MULLION SPACING SHALL BE SUCH THAT MAX SLAT SPAN FOR THAT DESIGN LOAD SHALL NOT BE EXCEEDED.
 ‡ MULLION ORIENTATION IS AS SEEN FROM THE OUTSIDE (EXTERIOR) OF SHUTTER.

SCHEDULE 2a

WALL MOUNTING
MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A MAX. MULLION SPACING (ft.) *
VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPACING (ft.) *	MAXIMUM MULLION SPAN (ft.)									
		ⓕ 4"x6"x1/4" MULLION					ⓐ 4"x8"x1/4" MULLION				
		END	INTERIOR	END	INTERIOR	ORIENTATION #1 (ⓕ) ‡	END	INTERIOR	END	INTERIOR	ORIENTATION #2 (ⓐ) ‡
30.0	19'-8"	6'-9"	9'-9"	6'-2"	12'-0"	8'-1"	10'-7"	7'-1"	12'-0"	7'-1"	12'-0"
35.0	18'-3"	6'-7"	9'-6"	6'-1"	11'-9"	7'-10"	10'-4"	6'-11"	12'-0"	6'-11"	12'-0"
40.0	16'-8"	6'-7"	9'-5"	6'-1"	11'-7"	7'-10"	10'-2"	6'-11"	12'-0"	6'-11"	12'-0"
45.0	15'-3"	6'-7"	9'-3"	6'-1"	11'-6"	7'-10"	10'-1"	6'-11"	12'-0"	6'-11"	12'-0"
50.0	14'-3"	6'-7"	9'-2"	6'-0"	11'-4"	7'-9"	10'-0"	6'-11"	12'-0"	6'-11"	12'-0"
55.0	13'-3"	6'-7"	9'-1"	6'-0"	11'-3"	7'-10"	9'-11"	6'-11"	12'-0"	6'-11"	12'-0"
60.0	12'-6"	6'-7"	9'-0"	6'-0"	11'-2"	7'-9"	9'-10"	6'-11"	12'-0"	6'-11"	12'-0"
65.0	11'-11"	6'-6"	8'-11"	6'-0"	11'-1"	7'-9"	9'-8"	6'-11"	12'-0"	6'-11"	12'-0"
70.0	11'-5"	6'-6"	8'-10"	6'-0"	10'-11"	7'-8"	9'-7"	6'-10"	12'-0"	6'-10"	12'-0"
75.0	10'-11"	6'-6"	8'-9"	6'-0"	10'-10"	7'-8"	9'-6"	6'-10"	12'-0"	6'-10"	12'-0"
80.0	10'-5"	6'-6"	8'-9"	6'-0"	10'-9"	7'-8"	9'-6"	6'-10"	12'-0"	6'-10"	12'-0"
85.0	10'-0"	6'-5"	8'-8"	6'-0"	10'-8"	7'-8"	9'-5"	6'-10"	12'-0"	6'-10"	12'-0"
90.0	9'-6"	6'-6"	8'-8"	6'-0"	10'-8"	7'-9"	9'-5"	6'-11"	12'-0"	6'-11"	12'-0"
95.0	9'-3"	6'-6"	8'-7"	6'-0"	10'-7"	7'-8"	9'-4"	6'-10"	12'-0"	6'-10"	12'-0"
100.0	8'-11"	6'-6"	8'-6"	6'-0"	10'-7"	7'-8"	9'-3"	6'-11"	12'-0"	6'-11"	12'-0"
105.0	8'-9"	6'-5"	8'-5"	5'-11"	10'-5"	7'-7"	9'-2"	6'-10"	12'-0"	6'-10"	12'-0"
110.0	8'-6"	6'-5"	8'-5"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"	6'-10"	12'-0"
115.0	8'-3"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"	6'-10"	12'-0"
120.0	8'-0"	6'-5"	8'-4"	5'-11"	10'-3"	7'-7"	9'-0"	6'-10"	12'-0"	6'-10"	12'-0"
125.0	7'-10"	6'-4"	8'-3"	5'-11"	10'-2"	7'-7"	9'-0"	6'-10"	12'-0"	6'-10"	12'-0"
130.0	7'-8"	6'-5"	8'-3"	5'-11"	10'-0"	7'-7"	8'-11"	6'-10"	12'-0"	6'-10"	12'-0"
135.0	7'-6"	6'-4"	8'-2"	5'-11"	9'-10"	7'-6"	8'-10"	6'-9"	12'-0"	6'-9"	12'-0"
140.0	7'-3"	6'-5"	8'-2"	5'-11"	9'-9"	7'-7"	8'-10"	6'-10"	12'-0"	6'-10"	12'-0"
145.0	7'-2"	6'-4"	8'-1"	5'-11"	9'-7"	7'-6"	8'-10"	6'-10"	12'-0"	6'-10"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	9'-5"	7'-6"	8'-9"	6'-10"	12'-0"	6'-10"	12'-0"
155.0	6'-10"	6'-4"	8'-0"	5'-11"	9'-4"	7'-6"	8'-9"	6'-10"	12'-0"	6'-10"	12'-0"
160.0	6'-9"	6'-4"	8'-0"	5'-11"	9'-2"	7'-6"	8'-8"	6'-9"	12'-0"	6'-9"	12'-0"

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLLAC SHUTTER OF TEXAS, INC.

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TEXAS LIC. # 90691

**ROLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER**

R.E./I.A. DRAWN_BY
DATE 01/15/09
09-006 DRAWING N°

REV. N°	DATE	DESCRIPTION
1		
2		
3		
4		

SHEET 15 OF 19

SCHEDULE 1b

FLOOR TO CEILING (TRAPPED) MOUNTING

MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A 12'-0" MAX. MULLION SPACING (ft.) *

VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPAN (ft.)											
	ⓕ 4"x6"x1/4" MULLION						ⓐ 4"x8"x1/4" MULLION					
	ORIENTATION #1 (ⓕ) ‡		ORIENTATION #2 (ⓐ) ‡		ORIENTATION #1 (ⓐ) ‡		ORIENTATION #2 (ⓐ) ‡		ORIENTATION #1 (ⓐ) ‡		ORIENTATION #2 (ⓐ) ‡	
	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	9'-6"	11'-6"	8'-3"	12'-0"	11'-4"	12'-0"	9'-0"	12'-0"	11'-4"	12'-0"	9'-0"	12'-0"
35.0	8'-10"	10'-11"	7'-10"	12'-0"	10'-5"	11'-11"	8'-6"	12'-0"	10'-5"	11'-11"	8'-6"	12'-0"
40.0	8'-3"	10'-5"	7'-6"	12'-0"	9'-9"	11'-4"	9'-6"	12'-0"	9'-9"	11'-4"	9'-6"	12'-0"
45.0	7'-9"	10'-1"	7'-2"	12'-0"	9'-3"	10'-11"	9'-1"	12'-0"	9'-3"	10'-11"	9'-1"	12'-0"
50.0	7'-4"	9'-8"	6'-9"	12'-0"	8'-9"	10'-7"	8'-9"	12'-0"	8'-9"	10'-7"	8'-9"	12'-0"
55.0	7'-0"	9'-5"	6'-6"	11'-8"	8'-4"	10'-3"	8'-6"	12'-0"	8'-4"	10'-3"	8'-6"	12'-0"
60.0	6'-9"	9'-2"	6'-3"	11'-4"	8'-0"	9'-11"	8'-3"	12'-0"	8'-0"	9'-11"	8'-3"	12'-0"
65.0	6'-6"	8'-11"	6'-0"	11'-0"	7'-8"	9'-8"	8'-0"	12'-0"	7'-8"	9'-8"	8'-0"	12'-0"

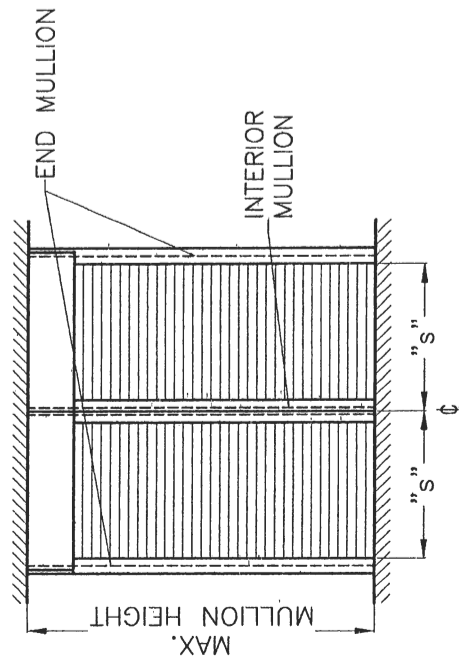
SCHEDULE 2b

WALL MOUNTING

MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A 12'-0" MAX. MULLION SPACING (ft.) *

VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPAN (ft.)											
	ⓕ 4"x6"x1/4" MULLION						ⓐ 4"x8"x1/4" MULLION					
	ORIENTATION #1 (ⓕ) ‡		ORIENTATION #2 (ⓐ) ‡		ORIENTATION #1 (ⓐ) ‡		ORIENTATION #2 (ⓐ) ‡		ORIENTATION #1 (ⓐ) ‡		ORIENTATION #2 (ⓐ) ‡	
	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	8'-3"	11'-6"	8'-3"	12'-0"	11'-4"	12'-0"	9'-0"	12'-0"	11'-4"	12'-0"	9'-0"	12'-0"
35.0	7'-10"	10'-11"	7'-10"	12'-0"	10'-5"	11'-11"	8'-6"	12'-0"	10'-5"	11'-11"	8'-6"	12'-0"
40.0	7'-6"	10'-5"	7'-6"	12'-0"	9'-9"	11'-4"	9'-6"	12'-0"	9'-9"	11'-4"	9'-6"	12'-0"
45.0	7'-2"	10'-1"	7'-2"	12'-0"	9'-3"	10'-11"	9'-1"	12'-0"	9'-3"	10'-11"	9'-1"	12'-0"
50.0	6'-9"	9'-8"	6'-9"	12'-0"	8'-9"	10'-7"	8'-9"	12'-0"	8'-9"	10'-7"	8'-9"	12'-0"
55.0	6'-6"	9'-5"	6'-6"	11'-8"	8'-4"	10'-3"	8'-6"	12'-0"	8'-4"	10'-3"	8'-6"	12'-0"
60.0	6'-3"	9'-2"	6'-3"	11'-4"	8'-0"	9'-11"	8'-3"	12'-0"	8'-0"	9'-11"	8'-3"	12'-0"
65.0	6'-0"	8'-11"	6'-0"	11'-0"	7'-8"	9'-8"	8'-0"	12'-0"	7'-8"	9'-8"	8'-0"	12'-0"



MULLION SPACING: "S"

* MAXIMUM MULLION SPACING SHALL BE SUCH THAT MAX SLAT SPAN FOR THAT DESIGN LOAD SHALL NOT BE EXCEEDED.

‡ MULLION ORIENTATION IS AS SEEN FROM THE OUTSIDE (EXTERIOR) OF SHUTTER.



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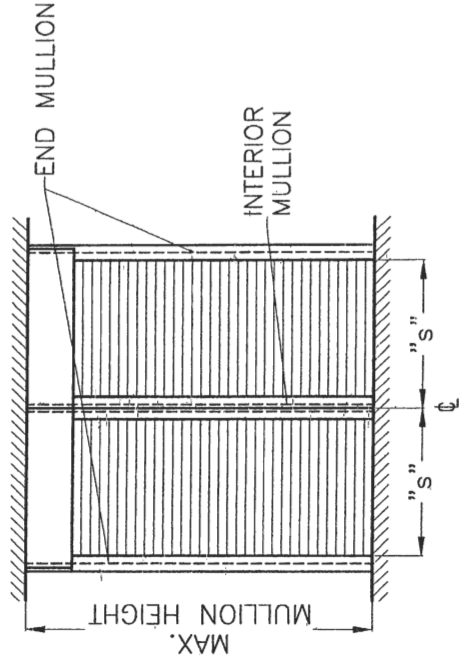
TEXAS DEPARTMENT OF INSURANCE - 2006
 RLL 55-X SLAT END RETENTION
 ROLL-UP SHUTTER
ROLLAC SHUTTER OF TEXAS, INC.
 5331 ORANGE STREET
 PEARLAND, TX. 77581
 PH: (281) 485-1911, FAX: (281) 485-0839
 R.E./I.A. DRAWN BY
 01/15/09 DATE
 09-006 DRAWING N°
 SHEET 16 OF 19

SCHEDULE 1c

FLOOR TO CEILING (TRAPPED) MOUNTING

MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A 7'-0" MAX. MULLION SPACING (ft.) *
VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPACING (ft) *	MAXIMUM MULLION SPAN (ft.)					
		ⓕ 4"x6"x1/4" MULLION			ⓐ 4"x8"x1/4" MULLION		
		ORIENTATION #1 (ⓕ) †	ORIENTATION #2 (ⓐ) †	ORIENTATION #1 (ⓕ) †	ORIENTATION #2 (ⓐ) †	ORIENTATION #2 (ⓐ) †	
END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
35.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
40.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
45.0	7'-0"	12'-0"	11'-1"	12'-0"	12'-0"	12'-0"	12'-0"
50.0	7'-0"	12'-0"	11'-7"	10'-5"	12'-0"	11'-3"	12'-0"
55.0	7'-0"	11'-7"	11'-3"	9'-10"	12'-0"	10'-8"	12'-0"
60.0	7'-0"	10'-11"	10'-11"	9'-5"	12'-0"	10'-3"	12'-0"
65.0	7'-0"	10'-4"	10'-8"	9'-1"	12'-0"	11'-7"	12'-0"
70.0	7'-0"	9'-10"	10'-5"	8'-9"	12'-0"	11'-3"	12'-0"
75.0	7'-0"	9'-5"	10'-2"	8'-6"	12'-0"	11'-2"	12'-0"
80.0	7'-0"	9'-1"	9'-11"	8'-3"	12'-0"	10'-8"	12'-0"
85.0	7'-0"	8'-9"	9'-9"	8'-0"	12'-0"	10'-4"	12'-0"
90.0	7'-0"	8'-5"	9'-7"	7'-10"	11'-10"	10'-0"	12'-0"
95.0	7'-0"	8'-2"	9'-5"	7'-8"	11'-7"	9'-8"	12'-0"
100.0	7'-0"	7'-10"	9'-3"	7'-5"	11'-5"	9'-5"	12'-0"
105.0	7'-0"	7'-9"	9'-1"	7'-2"	11'-3"	9'-1"	12'-0"
110.0	7'-0"	7'-6"	8'-11"	7'-0"	11'-1"	8'-11"	12'-0"
115.0	7'-0"	7'-4"	8'-10"	6'-10"	10'-11"	8'-8"	12'-0"
120.0	7'-0"	7'-2"	8'-8"	6'-8"	10'-9"	8'-6"	12'-0"
125.0	7'-0"	7'-0"	8'-7"	6'-6"	10'-7"	8'-3"	12'-0"
130.0	7'-0"	6'-10"	8'-5"	6'-5"	10'-6"	8'-1"	12'-0"
135.0	7'-0"	6'-9"	8'-4"	6'-3"	10'-4"	7'-11"	12'-0"
140.0	7'-0"	6'-7"	8'-3"	6'-2"	10'-1"	7'-9"	12'-0"
145.0	7'-0"	6'-6"	8'-2"	6'-0"	10'-9"	7'-8"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	10'-5"	7'-6"	12'-0"



MULLION SPACING: "S"

* MAXIMUM MULLION SPACING SHALL BE SUCH THAT MAX SLAT SPAN FOR THAT DESIGN LOAD SHALL NOT BE EXCEEDED.

† MULLION ORIENTATION IS AS SEEN FROM THE OUTSIDE (EXTERIOR) OF SHUTTER.



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TEXAS LIC. # 90891

SCHEDULE 2c

WALL MOUNTING

MAX. SPAN (ft.) FOR END AND INTERIOR MULLION FOR A GIVEN DESIGN LOAD (p.s.f.) AND A 7'-0" MAX. MULLION SPACING (ft.) *
VALID ONLY FOR INSTALLATIONS INTO CONCRETE

DESIGN LOAD (p.s.f.)	MAXIMUM MULLION SPACING (ft) *	MAXIMUM MULLION SPAN (ft.)					
		ⓕ 4"x6"x1/4" MULLION			ⓐ 4"x8"x1/4" MULLION		
		ORIENTATION #1 (ⓕ) †	ORIENTATION #2 (ⓐ) †	ORIENTATION #1 (ⓕ) †	ORIENTATION #2 (ⓐ) †	ORIENTATION #2 (ⓐ) †	
END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
35.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
40.0	7'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"	12'-0"
45.0	7'-0"	12'-0"	11'-1"	12'-0"	12'-0"	12'-0"	12'-0"
50.0	7'-0"	12'-0"	11'-7"	10'-5"	12'-0"	12'-0"	12'-0"
55.0	7'-0"	11'-7"	11'-3"	9'-10"	12'-0"	12'-0"	12'-0"
60.0	7'-0"	10'-11"	10'-11"	9'-5"	12'-0"	12'-0"	12'-0"
65.0	7'-0"	10'-4"	10'-8"	9'-1"	12'-0"	12'-0"	12'-0"
70.0	7'-0"	9'-10"	10'-5"	8'-9"	12'-0"	12'-0"	12'-0"
75.0	7'-0"	9'-5"	10'-2"	8'-6"	12'-0"	12'-0"	12'-0"
80.0	7'-0"	9'-1"	9'-11"	8'-3"	12'-0"	12'-0"	12'-0"
85.0	7'-0"	8'-9"	9'-9"	8'-0"	12'-0"	12'-0"	12'-0"
90.0	7'-0"	8'-5"	9'-7"	7'-10"	11'-10"	10'-0"	12'-0"
95.0	7'-0"	8'-2"	9'-5"	7'-8"	11'-7"	9'-8"	12'-0"
100.0	7'-0"	7'-10"	9'-3"	7'-5"	11'-5"	9'-5"	12'-0"
105.0	7'-0"	7'-9"	9'-1"	7'-2"	11'-3"	9'-1"	12'-0"
110.0	7'-0"	7'-6"	8'-11"	7'-0"	11'-1"	8'-11"	12'-0"
115.0	7'-0"	7'-4"	8'-10"	6'-10"	10'-11"	8'-8"	12'-0"
120.0	7'-0"	7'-2"	8'-8"	6'-8"	10'-9"	8'-6"	12'-0"
125.0	7'-0"	7'-0"	8'-7"	6'-6"	10'-7"	8'-3"	12'-0"
130.0	7'-0"	6'-10"	8'-5"	6'-5"	10'-6"	8'-1"	12'-0"
135.0	7'-0"	6'-9"	8'-4"	6'-3"	10'-4"	7'-11"	12'-0"
140.0	7'-0"	6'-7"	8'-3"	6'-2"	10'-3"	7'-9"	12'-0"
145.0	7'-0"	6'-6"	8'-2"	6'-0"	10'-1"	7'-8"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	10'-0"	7'-6"	12'-0"

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLL 55-X SLAT END RETENTION
 ROLL-UP SHUTTER

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

ROLLAC SHUTTER OF TEXAS, INC.

5331 ORANGE STREET
 PEARLAND, TX. 77581
 P.H:(281) 486-1911, FAX:(281) 486-0839

01/15/09-
 DATE

REV. # 1 2 3 4

DESCRIPTION DATE REV. # DESCRIPTION DATE

09-006
 DRAWING N°

SHEET 17 OF 19

SLAT PERFORMANCE CHARTS Ib, Iib & IIib:

FOR A GIVEN DESIGN LOAD (p.s.f.) AND SHUTTER MOUNT CONDITION PER DETAIL 1 BELOW

CHART Ib: (ONLY VALID FOR 3/16" SLIP)

SHEATHING & STUDS REQUIREMENTS	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						USE MAXIMUM POSITIVE LOAD VALUE	
	DESIGN PRESSURE RATING (p.s.f.)	MAX. SLAT SPAN "LMAX." (ft)		REQUIRED MIN. SLAT SPAN "LMIN." (ft)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)	WIND ZONES 1-3	WIND ZONE 4	
		WALL MOUNT (SEE NOTES Δ)	BUILD-OUT MOUNT W/ (SEE NOTES Δ)					
1/2" PLYWOOD W/ 2"x6" STUDS	30.0	11'-11"	11'-5"	11'-11"	9'-4"	8'-4"	6'-6"	9 3/4"
	35.0	11'-11"	10'-5"	-	11'-11"	8'-7"	6'-3"	
	40.0	11'-11"	9'-7"	-	10'-11"	8'-0"	6'-0"	
	45.0	11'-11"	-	-	10'-0"	-	5'-9"	
	50.0	11'-11"	-	-	9'-6"	-	5'-7"	
	55.0	11'-11"	-	-	8'-11"	-	5'-6"	
7/16" O.S.B. W/ 2"x6" OR 2"x4" STUDS	30.0	10'-0"	10'-0"	10'-0"	9'-4"	8'-4"	6'-6"	8 7/8"
	35.0	10'-0"	10'-0"	-	10'-0"	8'-7"	6'-3"	
	40.0	10'-0"	9'-7"	-	10'-0"	8'-0"	6'-0"	
	45.0	10'-0"	-	-	10'-0"	-	5'-9"	
	50.0	10'-0"	-	-	9'-6"	-	5'-7"	
	55.0	10'-0"	-	-	8'-11"	-	5'-6"	

CHART Iib: (ONLY VALID FOR 1/8" SLIP)

SHEATHING & STUDS REQUIREMENTS	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						USE MAXIMUM POSITIVE LOAD VALUE	
	DESIGN PRESSURE RATING (p.s.f.)	MAX. SLAT SPAN "LMAX." (ft)		REQUIRED MIN. SLAT SPAN "LMIN." (ft)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)	WIND ZONES 1-3	WIND ZONE 4	
		WALL MOUNT (SEE NOTES Δ)	BUILD-OUT MOUNT W/ (SEE NOTES Δ)					
1/2" PLYWOOD W/ 2"x6" STUDS	30.0	10'-8"	10'-3"	9'-4"	10'-8"	8'-6"	7'-8"	9 3/4"
	35.0	10'-8"	9'-5"	-	10'-8"	7'-10"	-	
	40.0	10'-8"	8'-8"	-	9'-10"	7'-4"	-	
	45.0	10'-8"	-	-	9'-0"	-	5'-6"	
	50.0	10'-8"	-	-	8'-7"	-	5'-4"	
	55.0	10'-8"	-	-	8'-1"	-	5'-2"	
7/16" O.S.B. W/ 2"x6" OR 2"x4" STUDS	30.0	10'-0"	10'-0"	9'-4"	10'-0"	8'-6"	7'-8"	8 7/8"
	35.0	10'-0"	10'-0"	-	10'-0"	7'-10"	-	
	40.0	10'-0"	9'-7"	-	10'-0"	7'-4"	-	
	45.0	10'-0"	-	-	10'-0"	-	5'-9"	
	50.0	10'-0"	-	-	9'-6"	-	5'-7"	
	55.0	10'-0"	-	-	8'-1"	-	5'-2"	

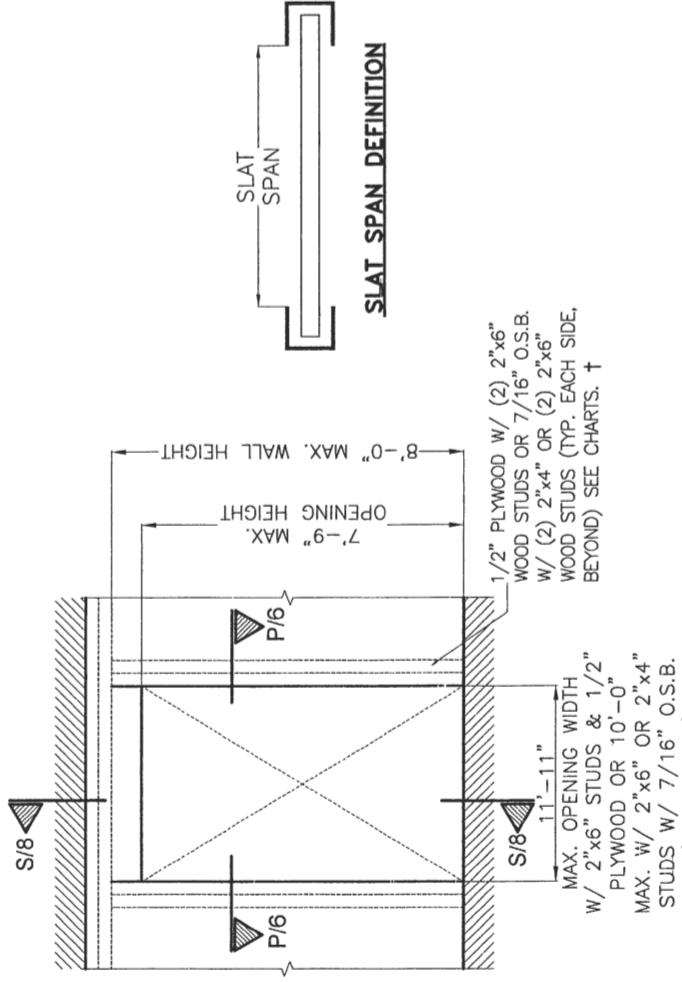
CHART IIib: (LESS THAN 1/8" SLIP)

SHEATHING & STUDS REQUIREMENTS	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD			USE MAXIMUM POSITIVE LOAD VALUE	
	DESIGN PRESSURE RATING (p.s.f.)	MAX. SLAT SPAN "LMAX." (FT)	MIN. SLAT SPAN "LMIN." (FT)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)	WIND ZONES WIND ZONE 1-3
1/2" PLYWOOD W/ 2"x6" STUDS	30.0	6'-0"	-	-	-
	35.0	5'-9"	-	-	-
	40.0	5'-5"	-	-	-
	45.0	5'-1"	0'-0"	1"	7"
	50.0	4'-10"	-	-	-
	55.0	4'-7"	-	-	-
7/16" O.S.B. W/ 2"x6" OR 2"x4" STUDS	30.0	6'-0"	-	-	-
	35.0	5'-9"	-	-	-
	40.0	5'-5"	-	-	-
	45.0	5'-1"	0'-0"	1"	7"
	50.0	4'-10"	-	-	-
	55.0	4'-7"	-	-	-

*: G=0.55, APPLICABLE TO SOUTHERN YELLOW PINE #2 WOOD GRADE
 G=0.46, APPLICABLE TO DOUGLAS FIR-SOUTH WOOD GRADE
 G=0.36, APPLICABLE TO SPRUCE PINE-FIR SOUTH WOOD GRADE

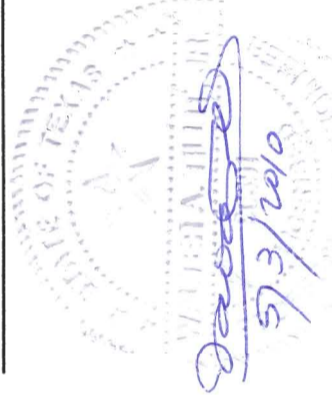
Δ NOTES:

1. ABOVE INDICATED MAX. SLAT SPANS MAY BE USED AS LONG AS ANCHOR SPACING SCHEDULES ON SHEET 19 INDICATE THAT A SPACING IS AVAILABLE FOR THE CORRESPONDING SLAT SPAN AND DESIGN LOAD.
- †: WOOD FRAME WALL TO BE BUILT STRICTLY IN ACCORDANCE WITH SPECS GIVEN ON DETAIL 1 AND PROVISIONS FROM CHAPTER 23 OF THE INTERNATIONAL BUILDING CODE. MIN. WALL LENGTH AT EITHER SIDE OF OPENING MUST BE 33 INCHES.
2. INSTALLATIONS VALID ONLY FOR SHUTTERS WITHOUT MULLIONS.



INSTALLATIONS INTO WOOD FRAME STRUCTURES

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TEXAS DEPARTMENT OF INSURANCE - 2006
 RLL 55-X SLAT END RETENTION
 ROLL-UP SHUTTER
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 5931 ORANGE STREET
 PEARLAND, TX, 77581
 PH: (281) 485-1911, FAX: (281) 485-0839
 DATE: 01/15/09
 DRAWING N°: 09-006
 SHEET 18 OF 19

MAX. ANCHOR'S SPACING SCHEDULE VI FOR A GIVEN PRODUCT MOUNTING TYPE W/ Ø 5/16" ELCO CONSTRUCTION PRODUCTS ULTRACON ANCHORS TO WOOD GRADE, DESIGN LOAD (psf) AND SLAT SPAN RANGE *

WALL MOUNT

TO 2"x6" WOOD STUD WITH MINIMUM 1/2" PLYWOOD
OR 2"x4"/2"x6" WOOD STUDS WITH MINIMUM 7/16" O.S.B.

(SEE DETAIL 1 ON SHEET 18)

WOOD GRADE	DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE							
		0' to 4' *	> 4' to 5' *	> 5' to 6' *	> 6' to 7' *	> 7' to 8' *	> 8' to 10' *	> 10' to 11'-11" **	
SOUTHERN PINE #2 (G=0.55)	≤ 30.0	6"	6"	6"	6"	6"	6"	6"	
	40	6"	6"	6"	6"	6"	6"	5"	
	50	6"	6"	6"	6"	6"	5"	4"	
	60	6"	6"	6"	6"	5"	4"	3"	
DOUGLAS-FIR-SOUTH (G=0.46)	≤ 30.0	6"	6"	6"	6"	5"	4"	3"	
	40	6"	6"	6"	6"	3"	3"	-	
SPRUCE PINE-FIR-SOUTH (G=0.36)	≤ 30.0	6"	6"	6"	6"	4"	3"	3"	

*** NOTE:**
MAX. SPAN FOR SLAT FOR A GIVEN DESIGN LOAD SHALL **NEVER** EXCEED MAX. SLAT SPAN INDICATED ON SLAT PERFORMANCE CHARTS ON SHEET 18.

BUILD-OUT MOUNT

TO 2"x6" WOOD STUD WITH MINIMUM 1/2" PLYWOOD
OR 2"x4"/2"x6" WOOD STUDS WITH MINIMUM 7/16" O.S.B.

(SEE DETAIL 1 ON SHEET 18)

WOOD GRADE	DESIGN LOAD RANGE (p.s.f.)	SLAT SPAN RANGE							
		0' to 4' *	> 4' to 5' *	> 5' to 6' *	> 6' to 7' *	> 7' to 8' *	> 8' to 10' *	> 10' to 11'-11" **	
SOUTHERN PINE #2 (G=0.55)	≤ 30.0	6"	6"	6"	6"	6"	5"	3"	
	40	6"	6"	6"	6"	4"	3"	3"	
	50	6"	6"	6"	6"	3"	3"	-	
	60	6"	6"	6"	4"	3"	-	-	
DOUGLAS-FIR-SOUTH (G=0.46)	≤ 30.0	6"	6"	6"	6"	3"	3"	3"	
	40	6"	6"	6"	5"	3"	-	-	
SPRUCE PINE-FIR-SOUTH (G=0.36)	≤ 30.0	6"	6"	6"	6"	3"	-	-	



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TEXAS LIC. # 90691

TEXAS DEPARTMENT OF INSURANCE - 2006

ROLL 55-X SLAT END RETENTION
ROLL-UP SHUTTER

ROLLAC SHUTTER OF TEXAS, INC.
5331 ORANGE STREET
PEARLAND, TX, 77581
PH: (281) 485-1911, FAX: (281) 485-0839

REV. #	DESCRIPTION	DATE	REV. #	DESCRIPTION	DATE
1	ADD. 2"x4"/O.S.B.	4/27/10	3	-	-
2	-	-	4	-	-

R.E./I.A./M.C.V.
DRAWN BY
01/15/09
DATE
09-006
DRAWING N°
SHEET 19 OF 19