



BUILDING CODE COMPLIANCE OFFICE (BCCO)  
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA  
METRO-DADE FLAGLER BUILDING  
140 WEST FLAGLER STREET, SUITE 1603  
MIAMI, FLORIDA 33130-1563  
(305) 375-2901 FAX (305) 372-6339  
[www.miamidade.gov/buildingcode](http://www.miamidade.gov/buildingcode)

**NOTICE OF ACCEPTANCE (NOA)**

**Rollac Shutter of Texas, Inc.**  
5331 W. Orange Street  
Pearland, Texas 77581

**SCOPE:**

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

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

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

**DESCRIPTION: Roll 55-X Slat End Retention Roll-Up Hurricane Abatement**

**APPROVAL DOCUMENT:** Drawing No. 09-004, titled "Roll 55-X Slat End Retention Roll-Up Hurricane Abatement", sheets 1,2 & 4 through 19 of 19, prepared by Rollac Shutters Of Texas, Inc., dated 01/28/09, signed and sealed by Walter A. Tillit, P. E., on 04/15/09, bearing the Miami-Dade County Product Control Approval stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Division.

**MISSILE IMPACT RATING: Large and Small Missile Impact**

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

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

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

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

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

This NOA consists of this page 1 and evidence page E-1, as well as approval document mentioned above. The submitted documentation was reviewed by **Mohammed Iqbal Shaikh, P. E.**



*J. Gascón*  
*7/22/09*

NOA No. 09-0513.04  
Expiration Date: July 15, 2014  
Approval Date: July 15, 2009  
Page 1

**Rollac Shutter of Texas, Inc.**

**NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED**

**A. DRAWINGS**

1. Manufacturer's parts and sections drawings.
2. Drawing No. **09-004**, titled "Roll 55-X Slat End Retention Roll-Up Hurricane Abatement", sheets 1,2 & 4 through 19 of 19, prepared by Rollac Shutters Of Texas, Inc., dated 01/28/09, signed and sealed by Walter A. Tillit, Jr. P.E. on 04/15/09.

**B. TESTS**

1. Fenestration Testing Laboratory, Inc. Test report # 5873 on Large Missile Impact Test per TAS-201, Cyclical Pressure Test per TAS 203 and Uniform Static Air Per TAS 202 dated 03/04/09, signed and sealed by Carlos Rionda, P.E.
2. Fenestration Testing Laboratory, Inc. Impact Test report # 5894 per TAS-201 on mullion dated 03/04/09, signed and sealed by Carlos Rionda, P.E.

**C. CALCULATIONS**

1. Anchor Calculations and structural analysis, prepared by Tilteco Inc., dated 01/15/09, signed and sealed by Walter A. Tillit Jr., P. E. on 04/16/09

**D. QUALITY ASSURANCE**

1. Miami Dade Building Code Compliance Office (BCCO).

**E. MATERIAL CERTIFICATIONS**

Mill Certificate from Guangcheng Aluminum Co. LTD. Regarding mechanical Properties and chemical composition of slat's extruded aluminum material.

**F. STATEMENTS**

1. Letters of 2007 code compliance and no financial interest, issued by Tilteco Inc. dated 04/24/09, signed and sealed by Walter A. Tillit, Jr.P.E



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**Mohammed Iqbal Shaikh, P.E.**  
**Sr. Building Code Compliance Specialist**  
**NOA No. 09-0513.04**  
**Expiration Date: July 15, 2014**  
**Approval Date: July 15, 2009**

**GENERAL NOTES:**

- ROLL-UP HURRICANE ABATEMENT SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.A.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2007 EDITION OF THE FLORIDA BUILDING CODE. THIS PRODUCT SYSTEM MAY BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES. DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1620 OF THE ABOVE MENTIONED CODE. IN ORDER TO VERIFY THAT COMPONENTS AND ANCHORS ON THIS P.A.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 HURRICANE ABATEMENT ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1626 OF THE ABOVE MENTIONED CODE AS PER FENESTRATION TESTING LAB. REPORTS # 5873 & 5894 AS PER TAS-201, TAS-202 AND TAS-203 PROTOCOLS. SEE NOTES \*, Δ ON SHEETS 12 & 18 FOR ADDITIONAL LIMITATIONS.
- ALL ALUMINUM EXTRUSIONS SHALL BE AS INDICATED ON SHEET 2.
- EVERY OTHER SLAT SHALL INCLUDE WIND LOCKS AT EACH END (SEE COMPONENTS SHEET). EVERY SLAT (A) ADJACENT AND ABOVE BOTTOM SLAT (A1) MUST INCLUDE WIND LOCKS.
- ALL SCREWS (EXCEPT COMPONENT (C1)) TO BE STAINLESS STEEL 304 OR 316 SERIES WITH 50 ksi YIELD STRENGTH AND 90 ksi TENSILE STRENGTH OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018. ALL S.D.S. ARE TEK SCREWS MANUFACTURED BY ITW BUILDEX.
- BOLTS TO BE ASTM A-307, GALVANIZED OR AISI 304 OR 316 SERIES STAINLESS STEEL WITH 36 ksi MINIMUM YIELD STRENGTH.
- 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).
    - 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 (E.D.) 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.

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

- ROLL-UP MECHANISM NOT PART OF THIS APPROVAL, BUT SHALL BE CERTIFIED BY AN INDEPENDENT TESTING AGENCY.
- 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.
- THIS PRODUCT INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.
- THE INSTALLATION CONTRACTOR IS TO SEAL/CAULK ALL PRODUCT COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION. CAULK AND SEAL SHUTTER TRACKS ALL AROUND FULL LENGTH.
- (a) THIS P.A.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.A.D.
- (b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.A.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.A.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.
- (d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.A.D. ENGINEER OF RECORD, ACTING AS A DELEGATED ENGINEER TO THE P.A.D. ENGINEER, SHALL SUBMIT TO THIS LATTER THE SITE SPECIFIC DRAWINGS FOR REVIEW.
- (e) THIS P.A.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.
- A PERMANENT SHUTTER MANUFACTURER'S LABEL SHALL BE PLACED ON THE EXPOSED SURFACE OF THE SIDE RAIL APPROXIMATELY 4" BELOW THE TOP OF SUCH RAIL LABEL SHALL READ AS FOLLOWS:  
**ROLLAC SHUTTER OF TEXAS, INC.**  
**MIAMI, FLORIDA**  
**MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED.**

Approved to comply with the Florida Building Code  
 Date 07/15/09  
 69-0513.04  
 Miami-Dade Product Control  
 By *M. Khair*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

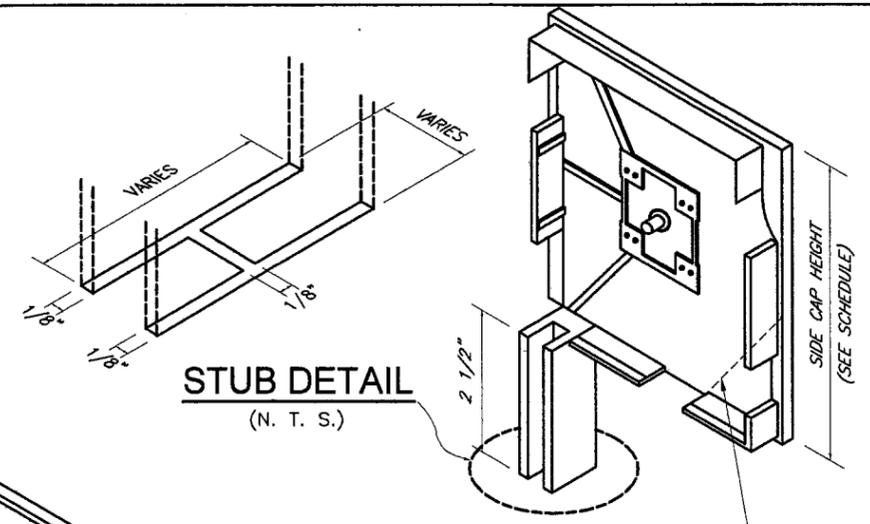
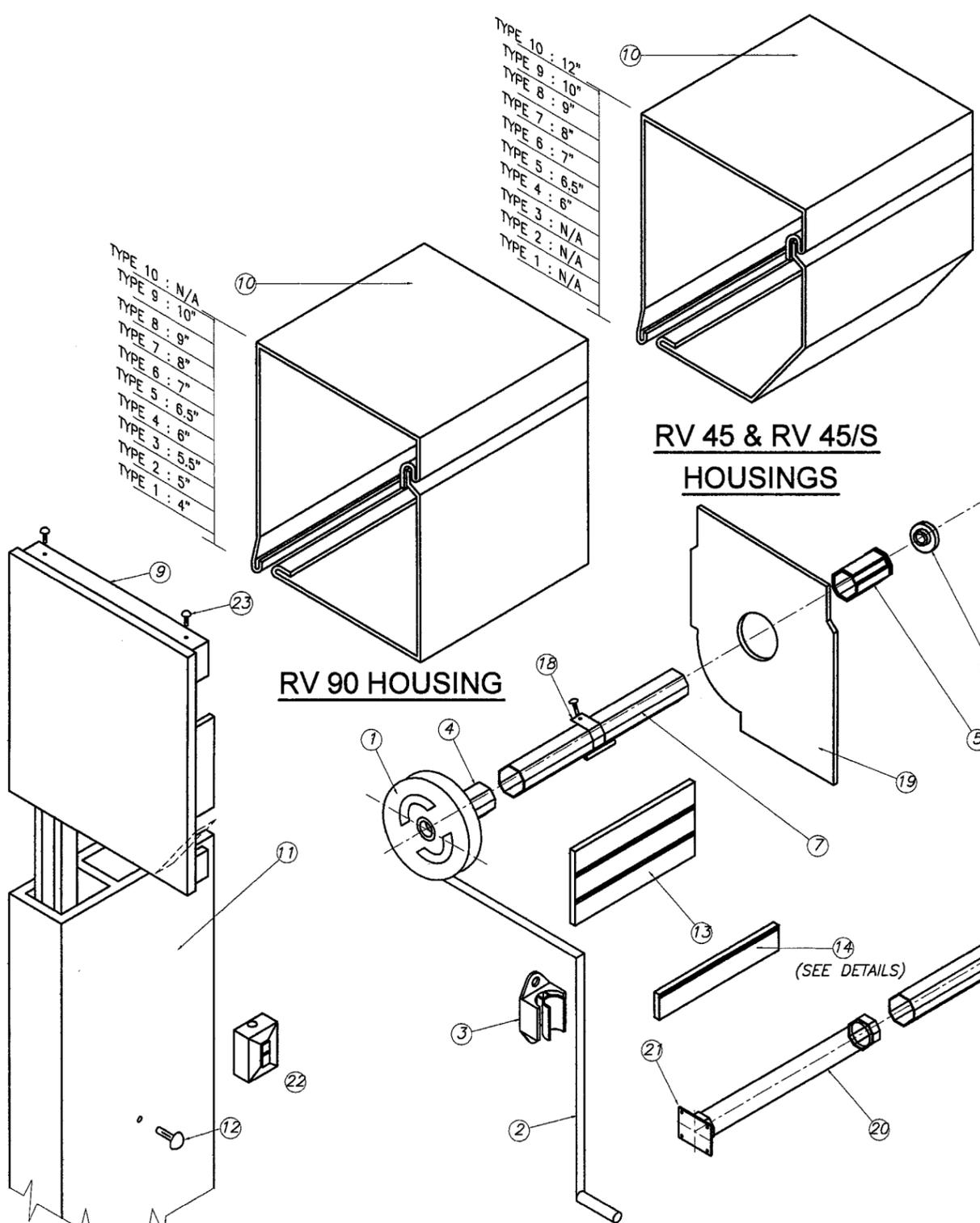
MIAMI-DADE COUNTY	 APR 15 2009 P.E. SEAL/SIGNATURE/DATE	© 2009 TILTECO INC.  TILIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT <b>ROLLAC SHUTTER OF TEXAS, INC.</b> 5931 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839	I.A./R.E. DRAWN BY 01/28/09 DATE 09-004 DRAWING N° SHEET 1 OF 19
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REV N°	DESCRIPTION	DATE	REV N°	DESCRIPTION	DATE
1			3		
2			4		



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

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



**(H1) SIDE CAPS:**  
45° CHAMFER AS APPLICABLE

**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 \*
- ⑩ - HOUSING(FRONT & BOTTOM), 0.040" THICK
- ⑪ - SIDE RAIL
- ⑫ - PLUG-BUTTONS
- ⑬ - ALUMINUM SLATS
- ⑭ - BASE SLAT
- ⑮ - PLASTIC STOPS(OPTIONAL)
- ⑯ - SIDE LOCKS(OPTIONAL)
- ⑰ - STAPLES(OPTIONAL)
- ⑱ - SPRINGLOCK HANGER
- ⑲ - SAFETY PLATES

\* SHALL BE CAPABLE TO SUSTAIN SLAT'S WEIGHT AND ASSURE LIFTING MECHANISM (SEE NOTE 9/1)

**ADDITIONAL COMPONENTS FOR MOTORIZED OPERATED SYSTEM**

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

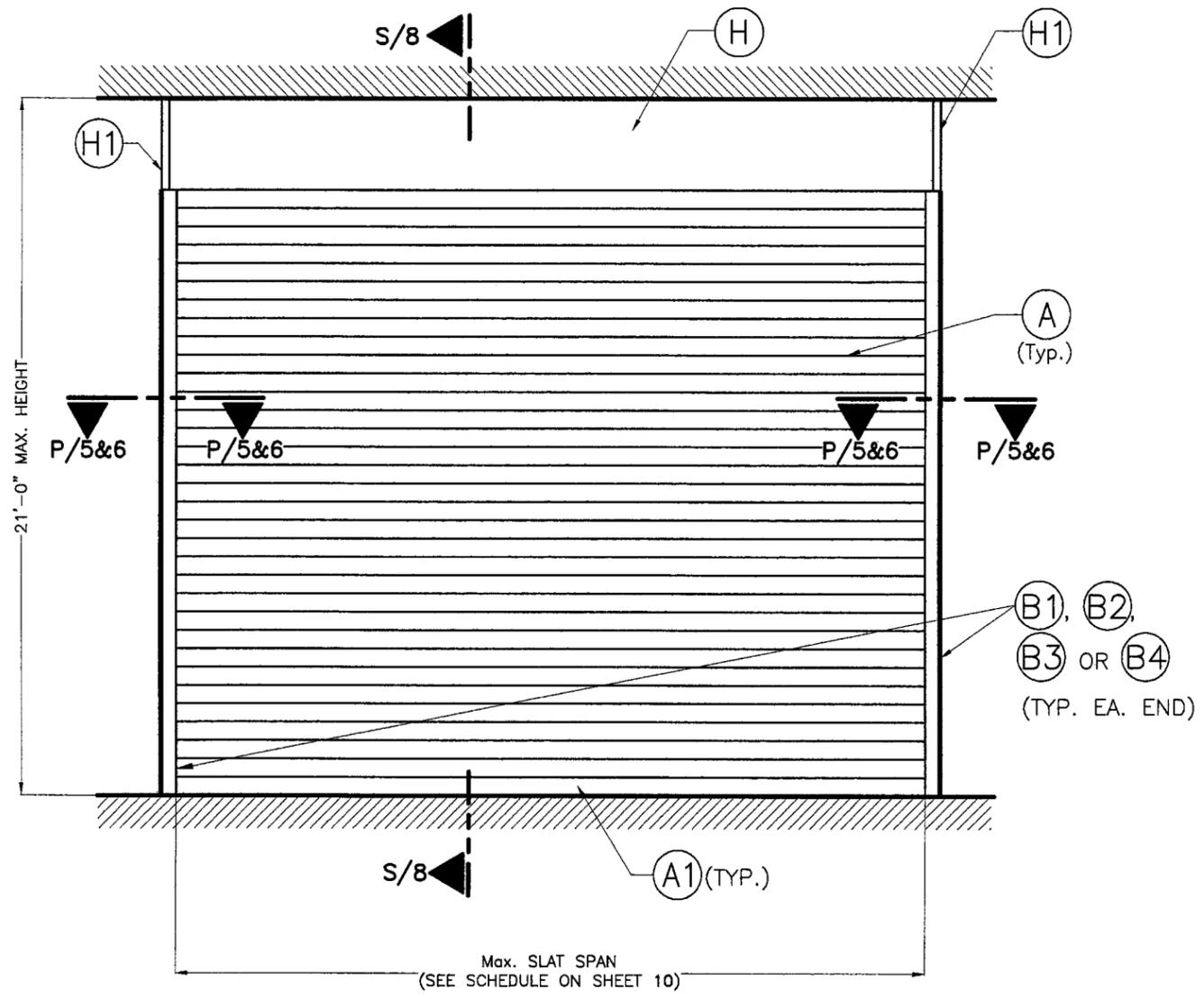
**FASTENERS**  
㉓ - 3/16" ALUMINUM POP RIVETS(6 REQ'D EA. SIDE CAP) : 2 @ TOP, 2 @ REAR, 2@ BOTTOM

Approved as such by with the Florida Building Code  
Date: \_\_\_\_\_  
Name: \_\_\_\_\_  
Miami-Dade Product Control Division  
By: \_\_\_\_\_

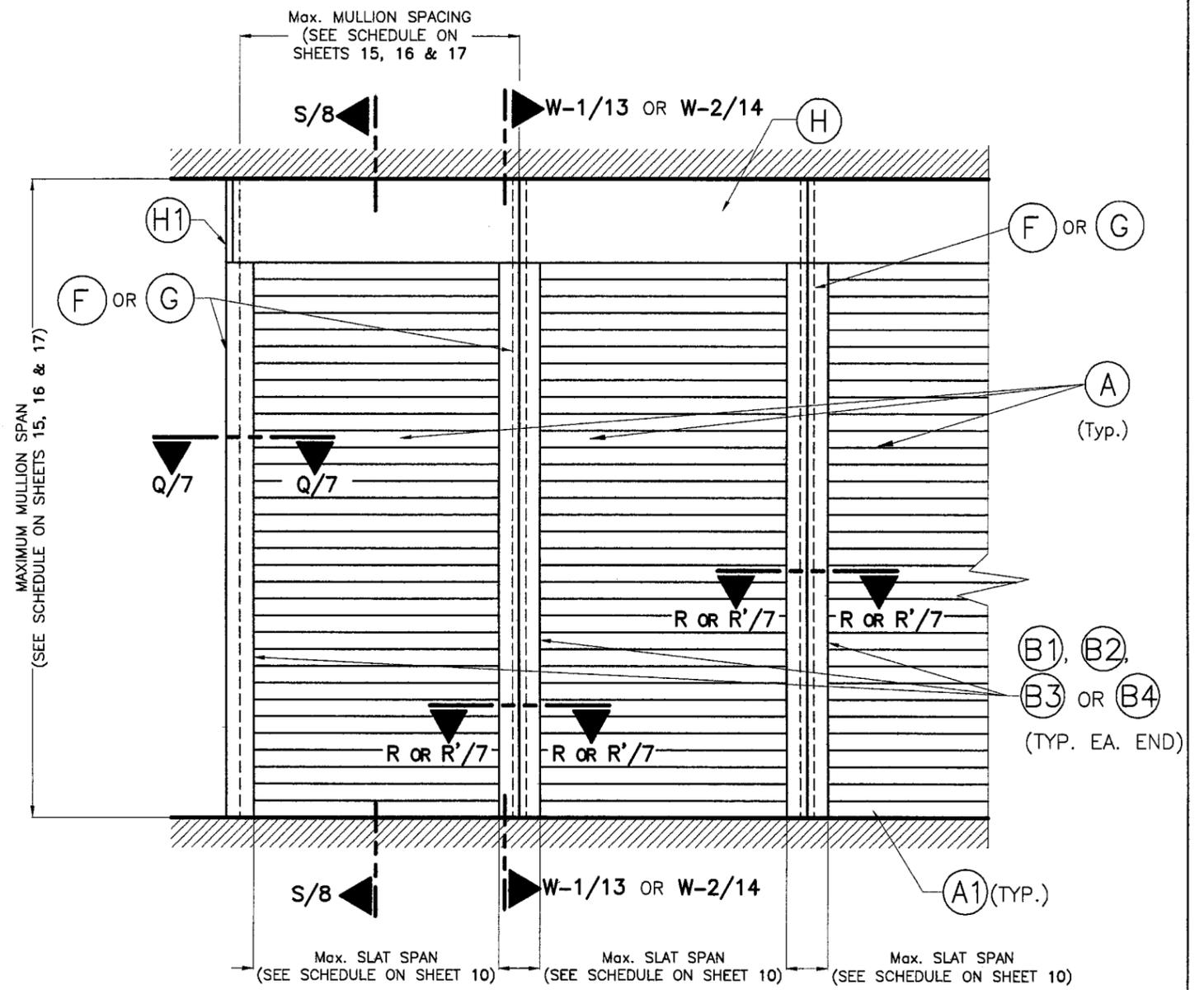
**(H) BOX COMPONENTS AND ASSEMBLY DETAIL END CAP SYSTEM**  
(SEE NOTE 9 ON SHEET 1)

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	© 2009 TILTECO INC. <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	<b>RLL 55-X SLAT END RETENTION</b> <b>ROLL-UP HURRICANE ABATEMENT</b>	I.A./R.E. DRAWN BY																		
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			5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839	<b>09-004</b> DRAWING N°																		
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**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

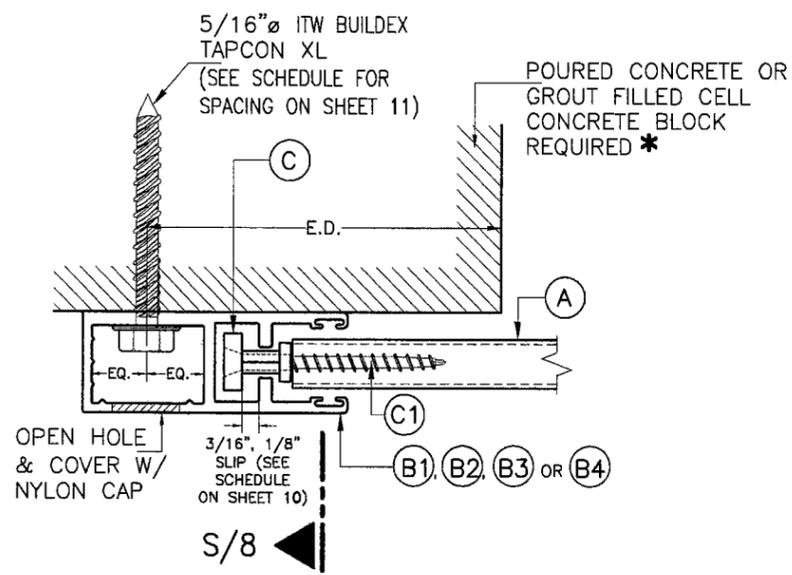


**TYPICAL CONSECUTIVE SINGLE UNIT ELEVATION W/ MULLIONS:  
INSTALLATION INTO POURED CONCRETE**  
NOTES: SEE SHEETS 2 & 3 FOR COMPONENTS NOMENCLATURE.  
N.T.S

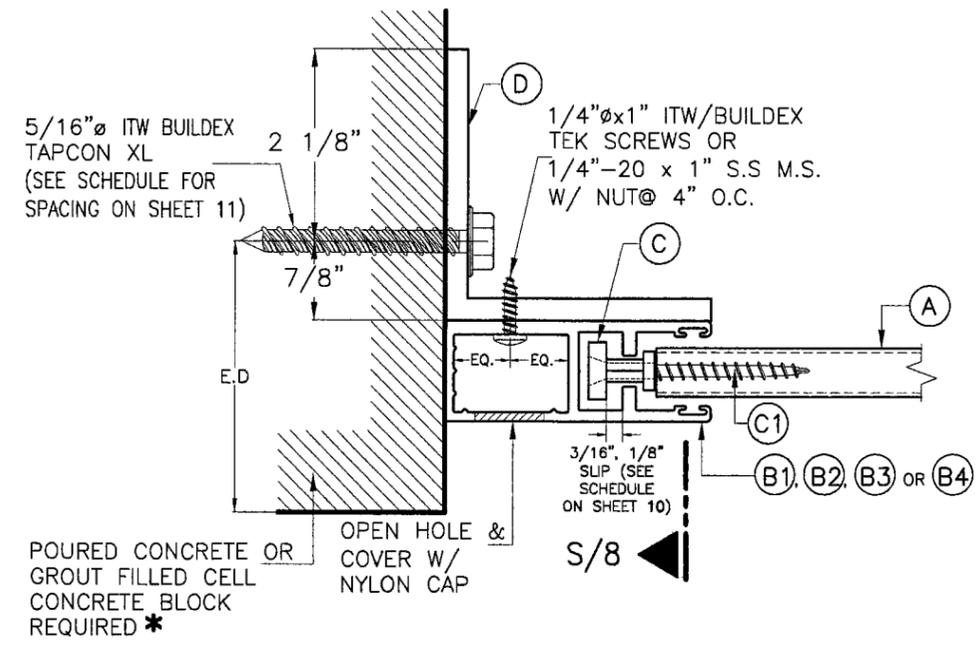
07/15/09  
09-0513.04  
By *M. Khalil*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

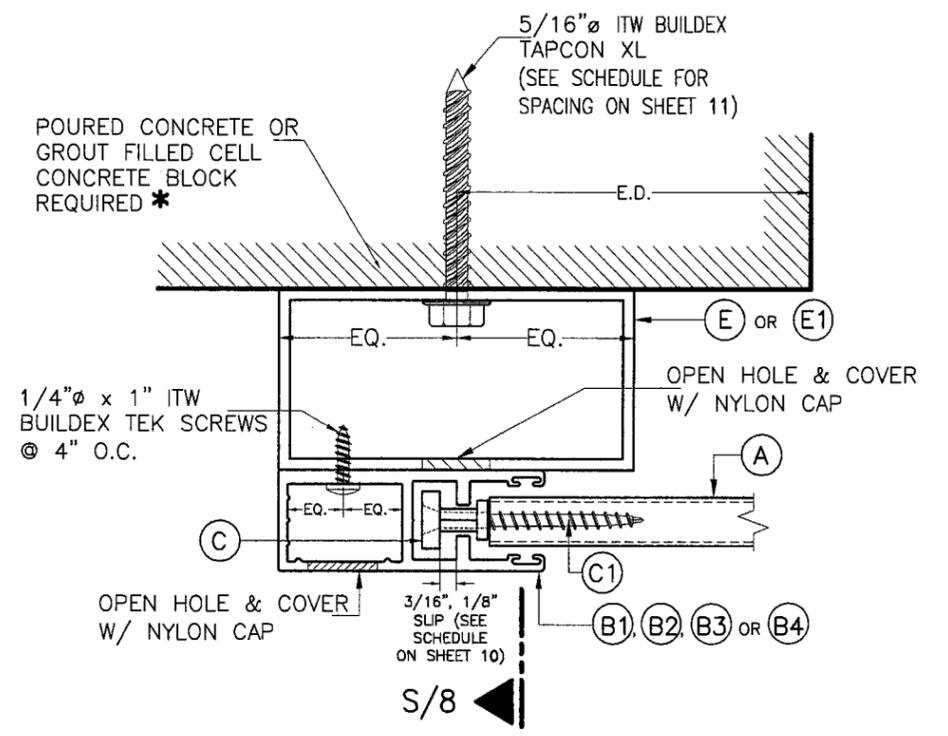
MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC.  <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 5355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL. 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	<b>ROLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT</b>	I.A./R.E. DRAWN BY																		
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REV N°	DESCRIPTION	DATE	REV N°	DESCRIPTION	DATE																	
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2			4																			



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



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



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

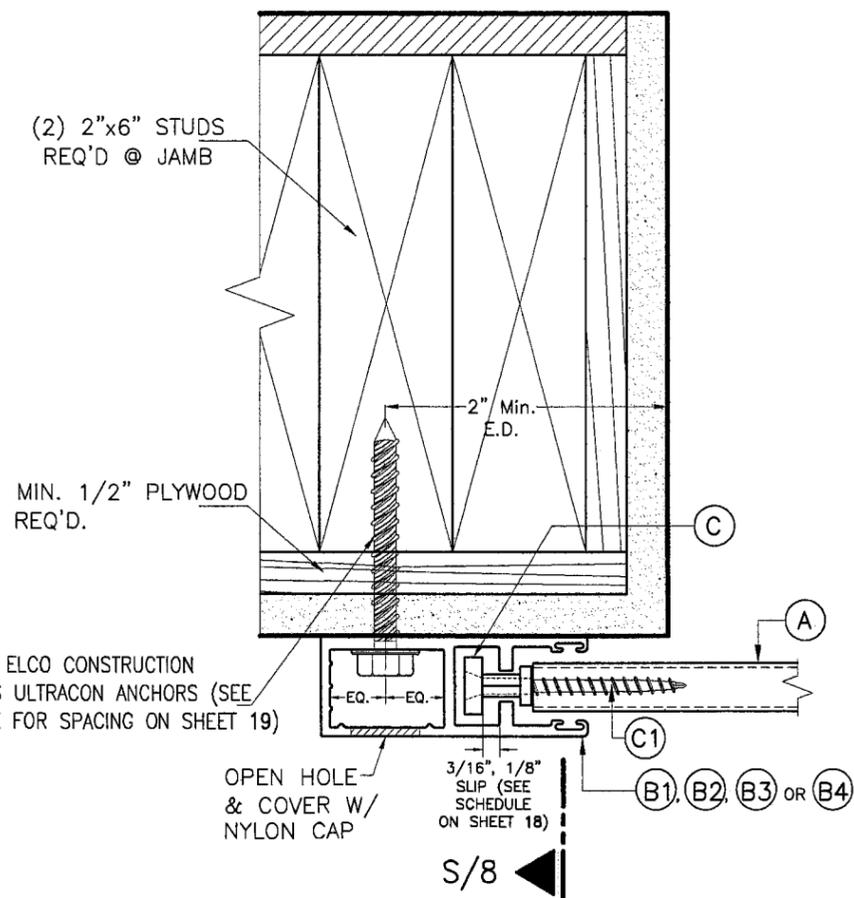
**SIDE RAIL CONNECTIONS  
TO POURED CONCRETE OR GROUT FILLED CELL  
CONCRETE BLOCK**

SCALE: 1/2" = 1"

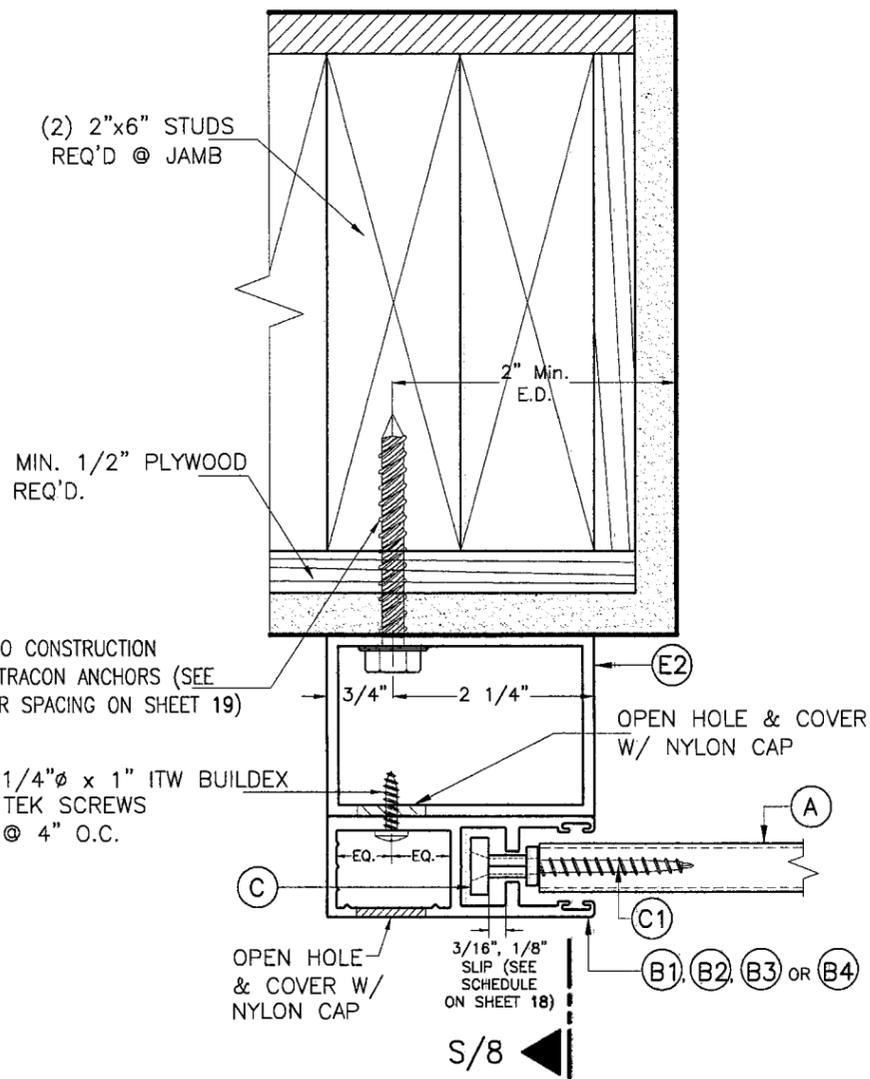
Approved as complying with the  
Florida Building Code  
Date 07/15/09  
NOAP 09-2513-01  
Miami-Dade Technical Center  
Division  
By *M. H. H. H.*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	© 2009 TILTECO INC.  <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 3355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY																		
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**SECTION P-P (1):  
WALL MOUNT**



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

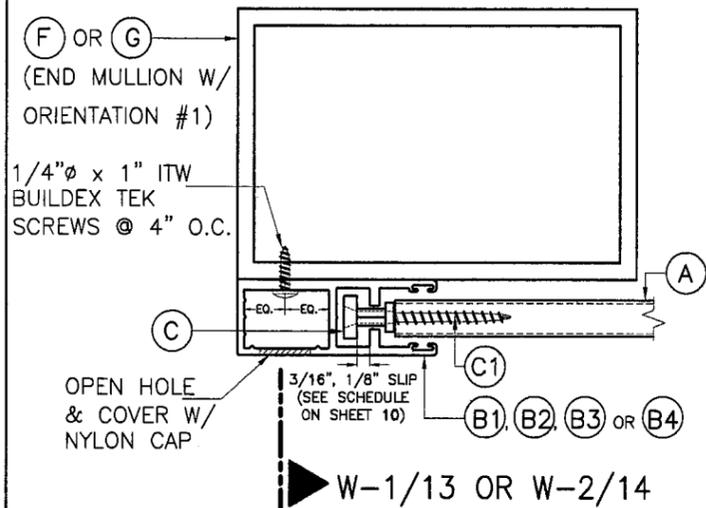
**SIDE RAIL CONNECTIONS  
TO WOOD WALL**

SCALE: 1/2" = 1"

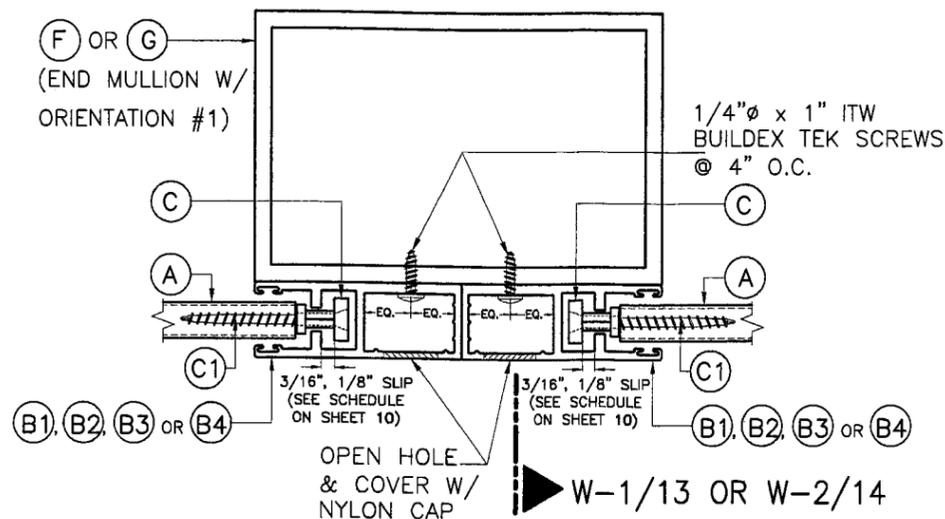
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09-0513.04  
*M. Keith*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

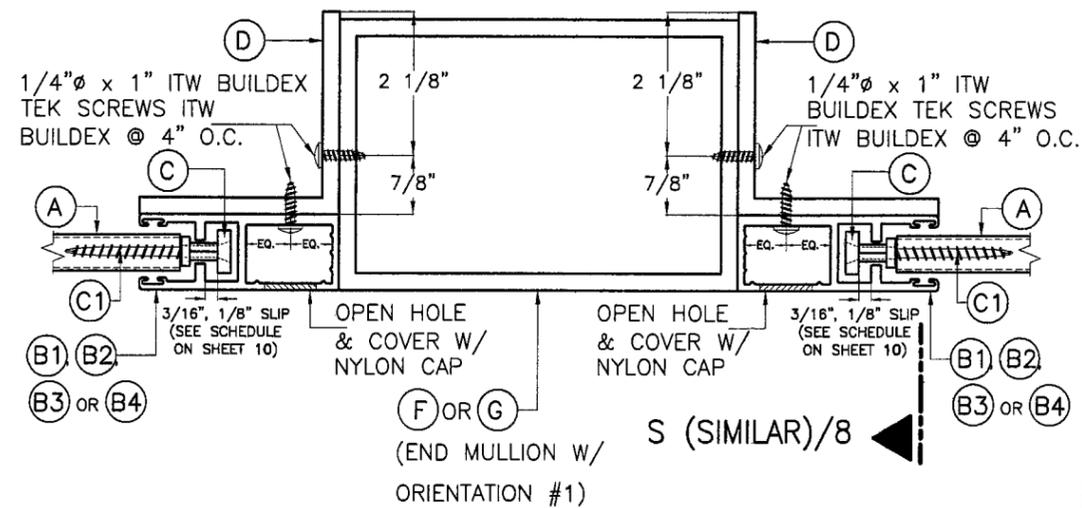
MIAMI-DADE COUNTY   <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC.  <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL. 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT		I.A./R.E. DRAWN BY																	
		ROLLAC SHUTTER OF TEXAS, INC.		01/28/09 DATE																	
		5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839		09-004 DRAWING N°																	
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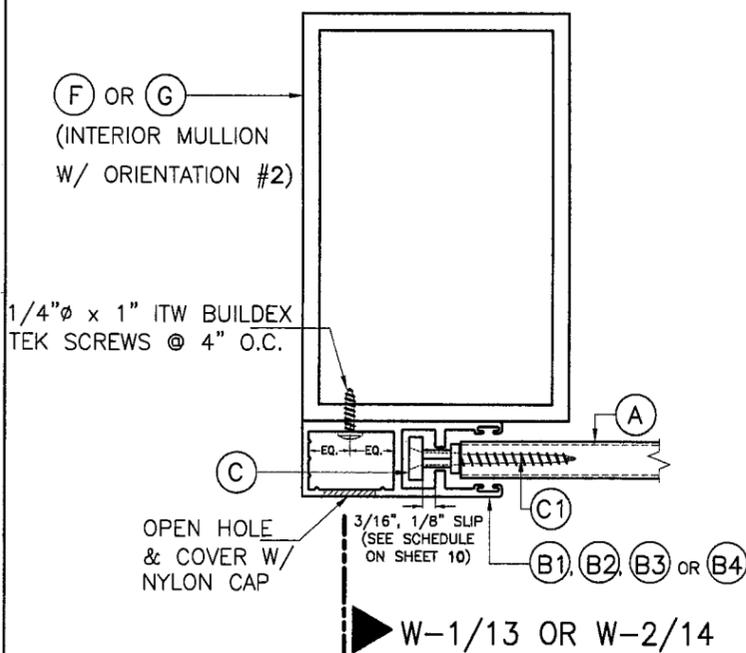
**SECTION Q-Q:  
MULLION MOUNT (FACE MOUNT)**



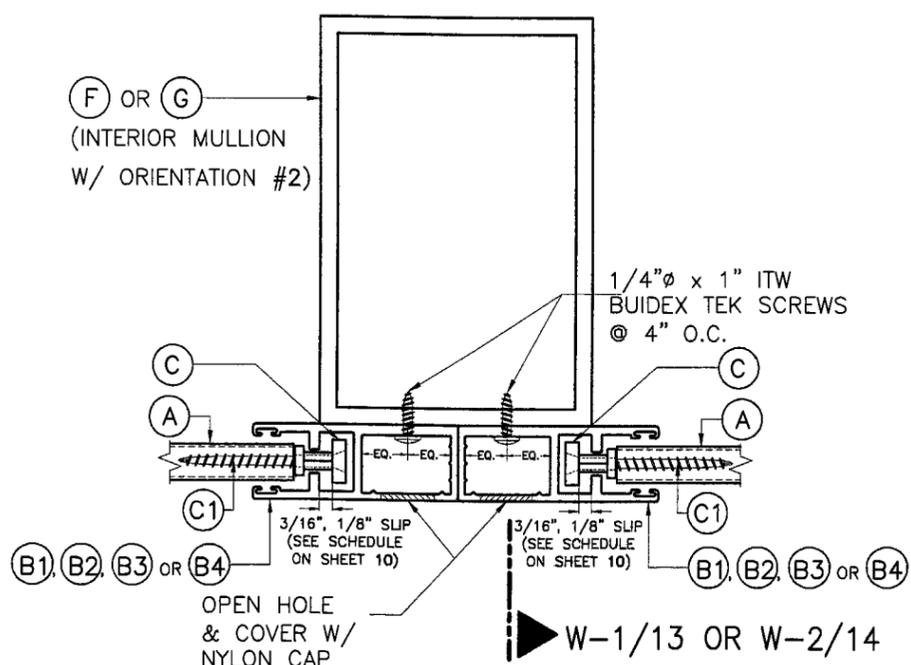
**SECTION R-R:  
MULLION MOUNT (FACE MOUNT)**



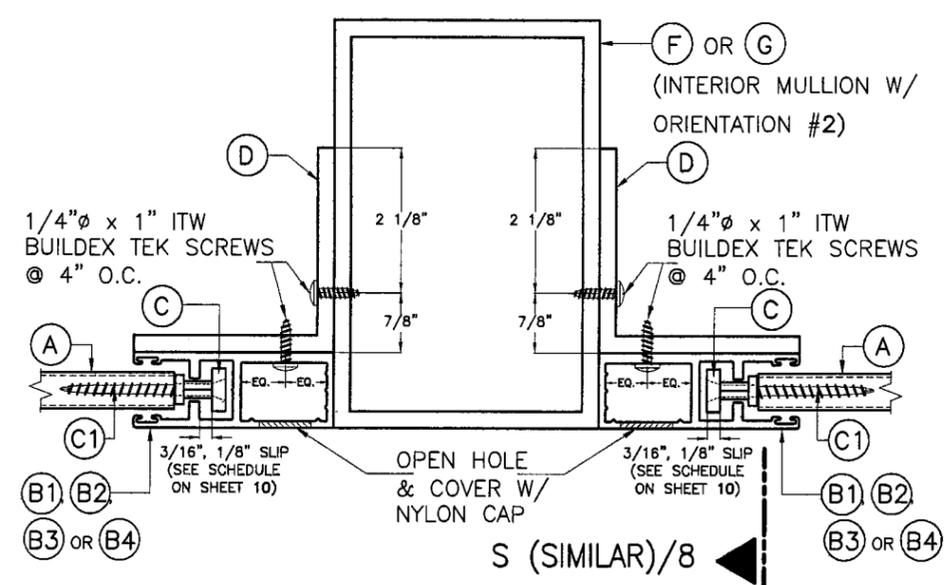
**SECTION R'-R':  
MULLION MOUNT (INSIDE MOUNT)**



**SECTION Q-Q:  
MULLION MOUNT (FACE MOUNT)**



**SECTION R-R:  
MULLION MOUNT (FACE MOUNT)**



**SECTION R'-R':  
MULLION MOUNT (INSIDE MOUNT)**

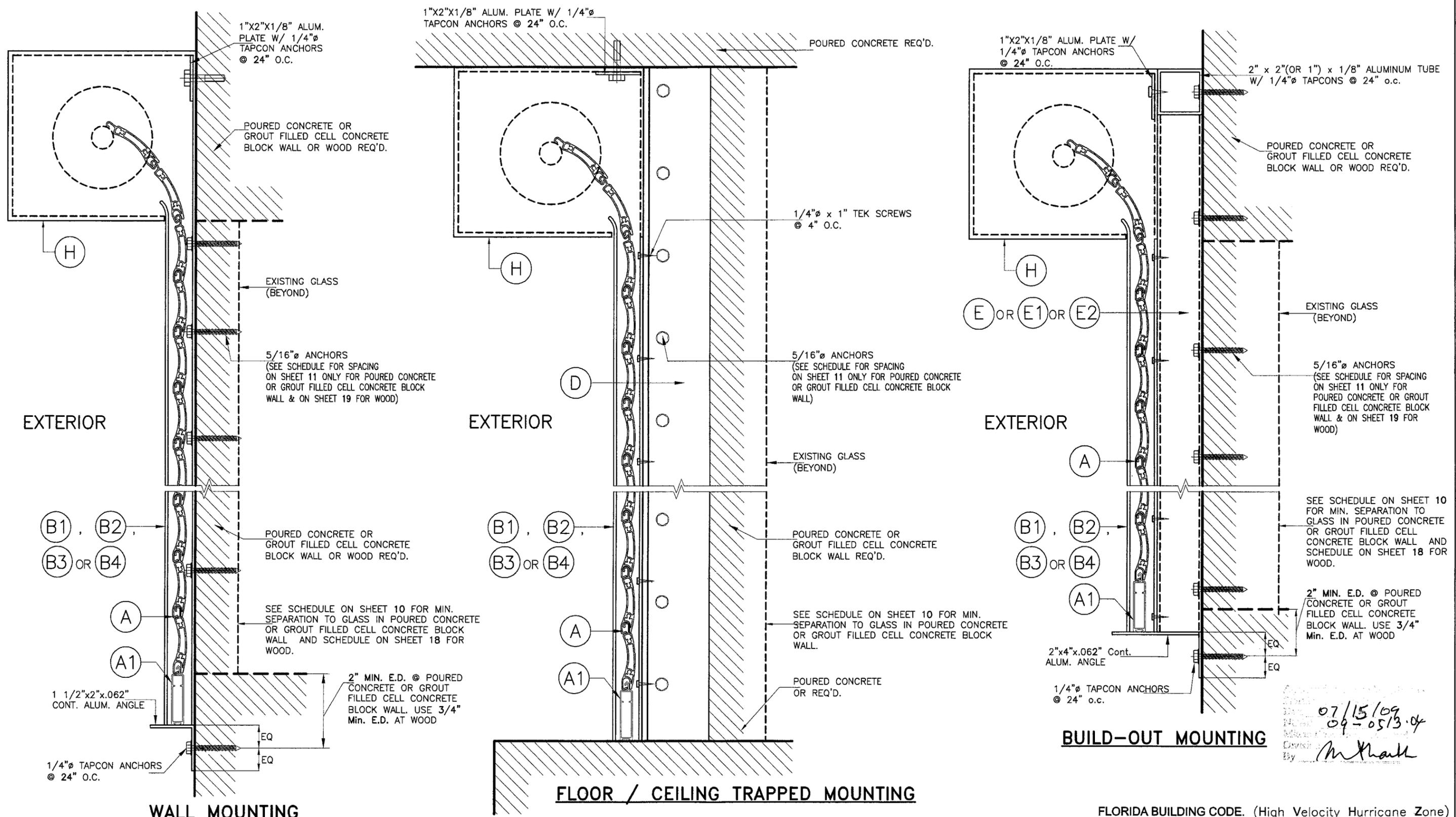
07/15/09  
09-0513-0x  
Div: *M. Hark*

**SIDE RAIL CONNECTION  
TO MULLIONS**

SCALE: 3/8" = 1"

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 09-0513-04  
 Drawn By *M. Hall*

**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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**TYPICAL MANDATORY PROCEDURE FOR VERIFYING PRODUCT'S 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 PRODUCT 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 PRODUCT SPAN "L" (ft) ; THE REQUIRED FINAL SLAT SLIP THAT SLATS MUST BE INSTALLED WITH TO MEET THE REQUIRED LOAD AND DESIRED PRODUCT SPAN.

THE FOLLOWING INFORMATION IS PROVIDED AT CHARTS I THRU III TO PROCEED WITH PRODUCT INSTALLATION VERIFICATION:

- ENTER DESIGN LOAD: SEE STEP (1) ABOVE.
- FOR A SPECIFIC PRODUCT MOUNTING INSTALLATION TYPE, THE FOLLOWING DEFINITIONS FOR SLAT SPAN SHALL BE CONSIDERED:

**LMAX:** THIS IS THE MAXIMUM ALLOWABLE PRODUCT 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 PRODUCT 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 PRODUCT 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 PRODUCTS WITH OR WITHOUT MULLIONS.

**STEP 3:**

OBTAIN INFORMATION ON PRODUCT'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 & PRODUCT SPAN AND OBTAIN MAXIMUM ANCHOR SPACING (INCHES ON CENTERS). SEE GENERAL NOTE 6 ON SHEET 1 FOR ANCHOR SPECS.

**STEP 4:**

IF PRODUCT 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 CHARTS I, II & III ON SHEET 10. IT SHALL BE MEASURED FROM BACK OF SLATS TO GLASS.
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 Ⓣ & Ⓞ, 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 Ⓣ & Ⓞ.

\* 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.

07/15/09  
09-0513.04  
M. Hart

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

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

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

CHART III (ONLY VALID FOR LESS THAN 1/8" SLIP)				USE MAXIMUM POSITIVE LOAD VALUE
USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD				MIN. SEPARATION TO GLASS (in)
DESIGN LOAD (p.s.f.)	MAX. SLAT SPAN L <sub>max</sub> (ft)	REQUIRED MIN. SLAT SPAN L <sub>min</sub> (ft)		
	WALL TRAPPED & BUILD-OUT MOUNT W/ (E) & (E) (SEE NOTES*)	WALL TRAPPED & BUILD-OUT MOUNT W/ (E) & (E) (SEE NOTES*)	WALL TRAPPED & BUILD-OUT MOUNT W/ (E) & (E) (SEE NOTES*)	
30.0	6'-0"	0'-0"		6 1/2"
35.0	5'-9"	0'-0"		
40.0	5'-5"	0'-0"		
45.0	5'-1"	0'-0"		
50.0	4'-10"	0'-0"		
55.0	4'-7"	0'-0"		
60.0	4'-5"	0'-0"		
65.0	4'-3"	0'-0"		
70.0	4'-1"	0'-0"		
75.0	3'-11"	0'-0"		
80.0	3'-10"	0'-0"		
85.0	3'-8"	0'-0"		
90.0	3'-7"	0'-0"		
95.0	3'-6"	0'-0"		
100.0	3'-5"	0'-0"		
105.0	3'-4"	0'-0"		
110.0	3'-3"	0'-0"		
115.0	3'-2"	0'-0"		
120.0	3'-1"	0'-0"		
125.0	3'-1"	0'-0"		
130.0	3'-0"	0'-0"		
135.0	2'-11"	0'-0"		
140.0	2'-11"	0'-0"		
145.0	2'-10"	0'-0"		
150.0	2'-9"	0'-0"		
155.0	2'-9"	0'-0"		
160.0	2'-8"	0'-0"		

- \* 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"Ø ITW BUILDDEX TAPCON XL INTO POURED CONCRETE OR GROUT FILLED CELL CONCRETE BLOCK OR 1/4"Ø 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.

07/15/09  
69-0513.04  
*M. Kule*

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FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

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

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

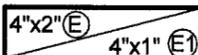
**WALL MOUNT**

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"	6"	8"	8"	7"	8"	4"	5"	3 3/4"	3 3/4"	-	3 3/4"
>31-40	6"	6"	6"	6"	6"	6"	8"	8"	5"	6"	3 3/4"	3 3/4"	3 3/4"	3 3/4"
>41-60	6"	6"	6"	6"	6"	6"	5"	6 1/2"	3 3/4"	4"	3 3/4"	3 3/4"	-	3 3/4"
>61-80	6"	6"	6"	6"	5 1/2"	6"	3 3/4"	4 1/2"	3 3/4"	3 3/4"	-	-	-	-
>81-105	6"	6"	6"	6"	3 3/4"	4 1/2"	3 3/4"	3 3/4"	3 3/4"	3 3/4"	-	-	-	-
>106-120	6"	6"	6"	6"	3 3/4"	4"	3 3/4"	3 3/4"	-	3 3/4"	-	-	-	-
>121-140	6"	6"	6"	6"	3 3/4"	3 3/4"	3 3/4"	3 3/4"	-	-	-	-	-	-
>141-160	6"	6"	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.

Florida  
 Date: 07/15/09  
 NOAH 09-0513-04  
 Miami-Dade Product Control  
 Division  
 By: *M. Thake*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	© 2009 TILTECO INC.  <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY
			ROLLAC SHUTTER OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839	01/28/09 DATE
			09-004 DRAWING N°	SHEET 11 OF 19

**SCHEDULE V:**

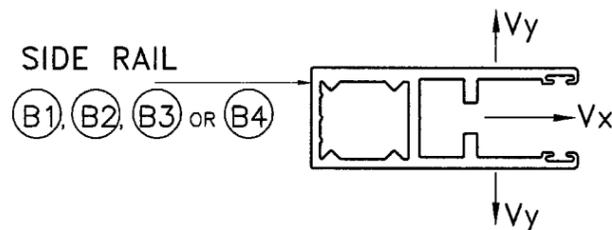
**V<sub>x</sub> FORCES (Lb/ft) & V<sub>y</sub> FORCES (Lb/ft) ACTING AT JAMBS FOR A DESIGN LOAD RANGE SLAT SPAN RANGE FOR POURED CONCRETE OR GROUT FILLED CELL CONCRETE BLOCK WALL BUILDINGS\***

(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 <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>
≤ 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	-	-	-	-	-	-

**\*NOTE:**

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR PERMIT HOLDER TO VERIFY THAT EXISTING STRUCTURE IS DESIGNED TO SUPPORT V<sub>x</sub> AND V<sub>y</sub> FORCES IN POUNDS PER UNIT FOOT OF PRODUCT HEIGHT AT BOTH JAMBS. SEE THIS SHEET FOR V<sub>x</sub> & V<sub>y</sub> VALUES.

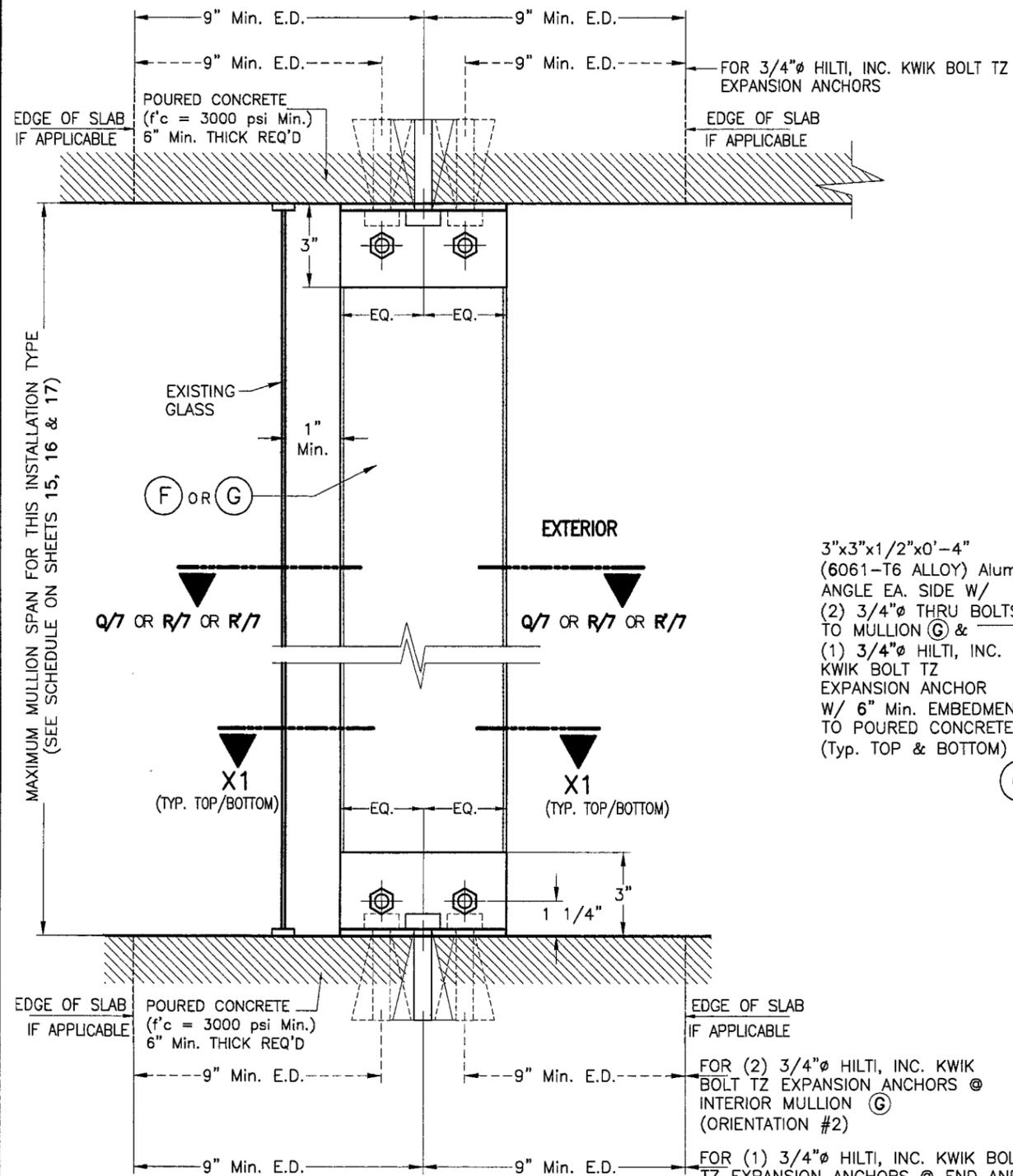


**SLAT SPAN DEFINITION**

*07/15/09  
09-0513.04  
[Signature]*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC. <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 . Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY																		
			<b>ROLLAC SHUTTER OF TEXAS, INC.</b> 5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839	01/28/09 DATE  09-004 DRAWING N°																		
			<table border="1"> <tr> <th>REV N°</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV N°</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </table>	REV N°	DESCRIPTION	DATE	REV N°	DESCRIPTION	DATE	1			3			2			4			SHEET 12 OF 19
REV N°	DESCRIPTION	DATE	REV N°	DESCRIPTION	DATE																	
1			3																			
2			4																			



**FLOOR TO CEILING/TRAPPED MOUNTING:**  
**MULLION (F) OR (G)**  
**SECTION W-1 \***

**END & INTERIOR TRAPPED MOUNTED  
 MULLION INSTALLATION**

SCALE: 3/16" = 1"

MAXIMUM MULLION SPAN FOR THIS INSTALLATION TYPE  
 (SEE SCHEDULE ON SHEETS 15, 16 & 17)

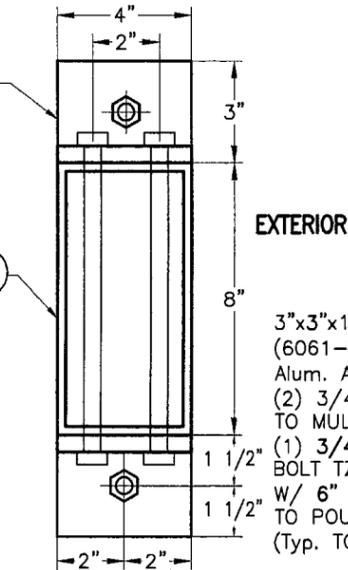
3"x3"x1/2"x0'-4"  
 (6061-T6 ALLOY)  
 Alum. ANGLE EA. SIDE W/  
 (2) 3/4" THRU BOLTS  
 TO MULLION (F) &  
 (1) 3/4" HILTI, INC. KWIK  
 BOLT TZ EXPANSION ANCHOR  
 W/ 6" Min. EMBEDMENT  
 TO POURED CONCRETE  
 (Typ. TOP & BOTTOM)

**SECTION X1-X1 W/ (F) \***  
 (END & INTERIOR MULLION  
 W/ ORIENTATION # 1)

3"x3"x1/2"x0'-6"  
 (6061-T6 ALLOY)  
 Alum. ANGLE EA. SIDE W/  
 (2) 3/4" THRU BOLTS  
 TO MULLION (F) &  
 (1) 3/4" HILTI, INC.  
 KWIK BOLT TZ EXPANSION  
 ANCHOR  
 W/ 6" Min. EMBEDMENT  
 TO POURED CONCRETE  
 (Typ. TOP & BOTTOM)

**ALTERNATIVE SECTION X1-X1 W/ (F) \***  
 (END & INTERIOR MULLION  
 W/ ORIENTATION # 2)

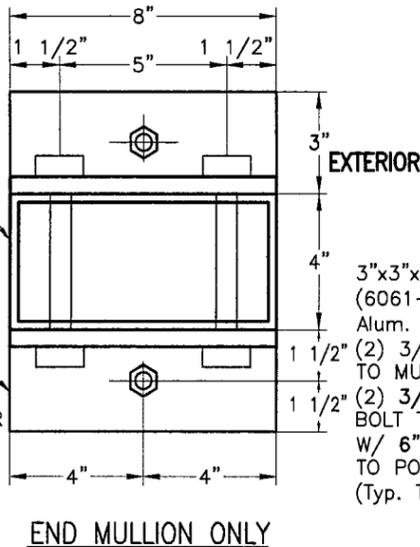
3"x3"x1/2"x0'-4"  
 (6061-T6 ALLOY) Alum.  
 ANGLE EA. SIDE W/  
 (2) 3/4" THRU BOLTS  
 TO MULLION (G) &  
 (1) 3/4" HILTI, INC.  
 KWIK BOLT TZ  
 EXPANSION ANCHOR  
 W/ 6" Min. EMBEDMENT  
 TO POURED CONCRETE  
 (Typ. TOP & BOTTOM)



**SECTION X1-X1 W/ (G) \***  
 (END & INTERIOR MULLION  
 W/ ORIENTATION # 1)

EXTERIOR

3"x3"x1/2"x0'-8"  
 (6061-T6 ALLOY)  
 Alum. ANGLE EA. SIDE W/  
 (2) 3/4" THRU BOLTS  
 TO MULLION (G) &  
 (1) 3/4" HILTI, INC. KWIK  
 BOLT TZ EXPANSION ANCHOR  
 W/ 6" Min. EMBEDMENT  
 TO POURED CONCRETE  
 (Typ. TOP & BOTTOM)

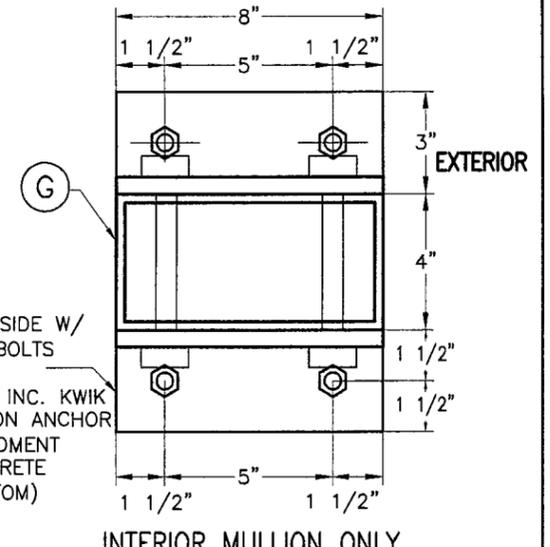


END MULLION ONLY

**ALTERNATIVE SECTION X1-X1 W/ (G) \***  
 (W/ ORIENTATION # 2)

EXTERIOR

3"x3"x1/2"x0'-8"  
 (6061-T6 ALLOY)  
 Alum. ANGLE EA. SIDE W/  
 (2) 3/4" THRU BOLTS  
 TO MULLION (G) &  
 (2) 3/4" HILTI, INC. KWIK  
 BOLT TZ EXPANSION ANCHOR  
 W/ 6" Min. EMBEDMENT  
 TO POURED CONCRETE  
 (Typ. TOP & BOTTOM)



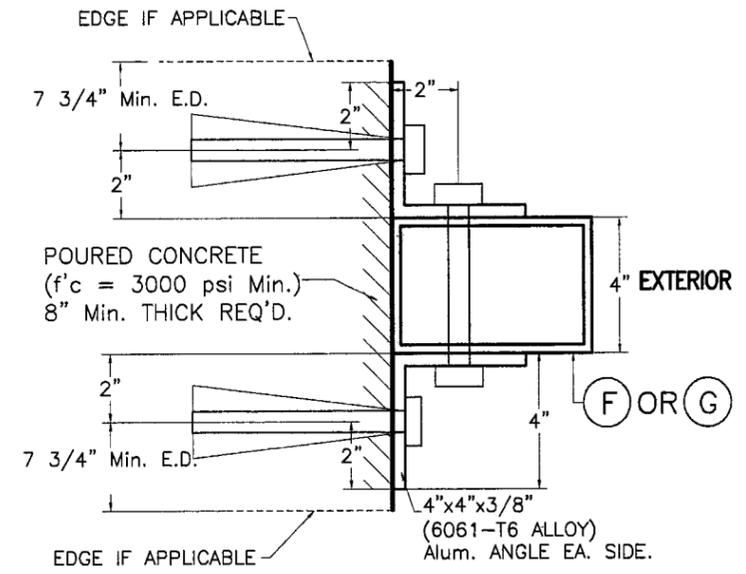
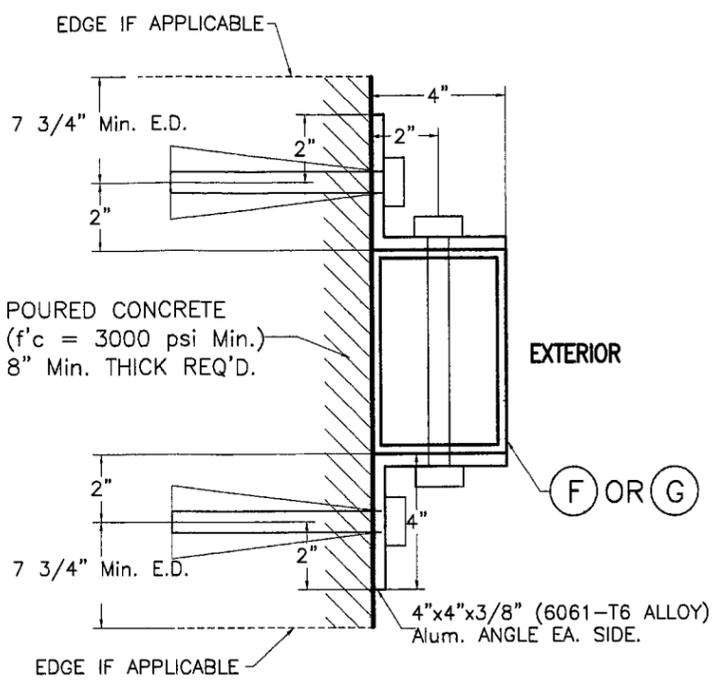
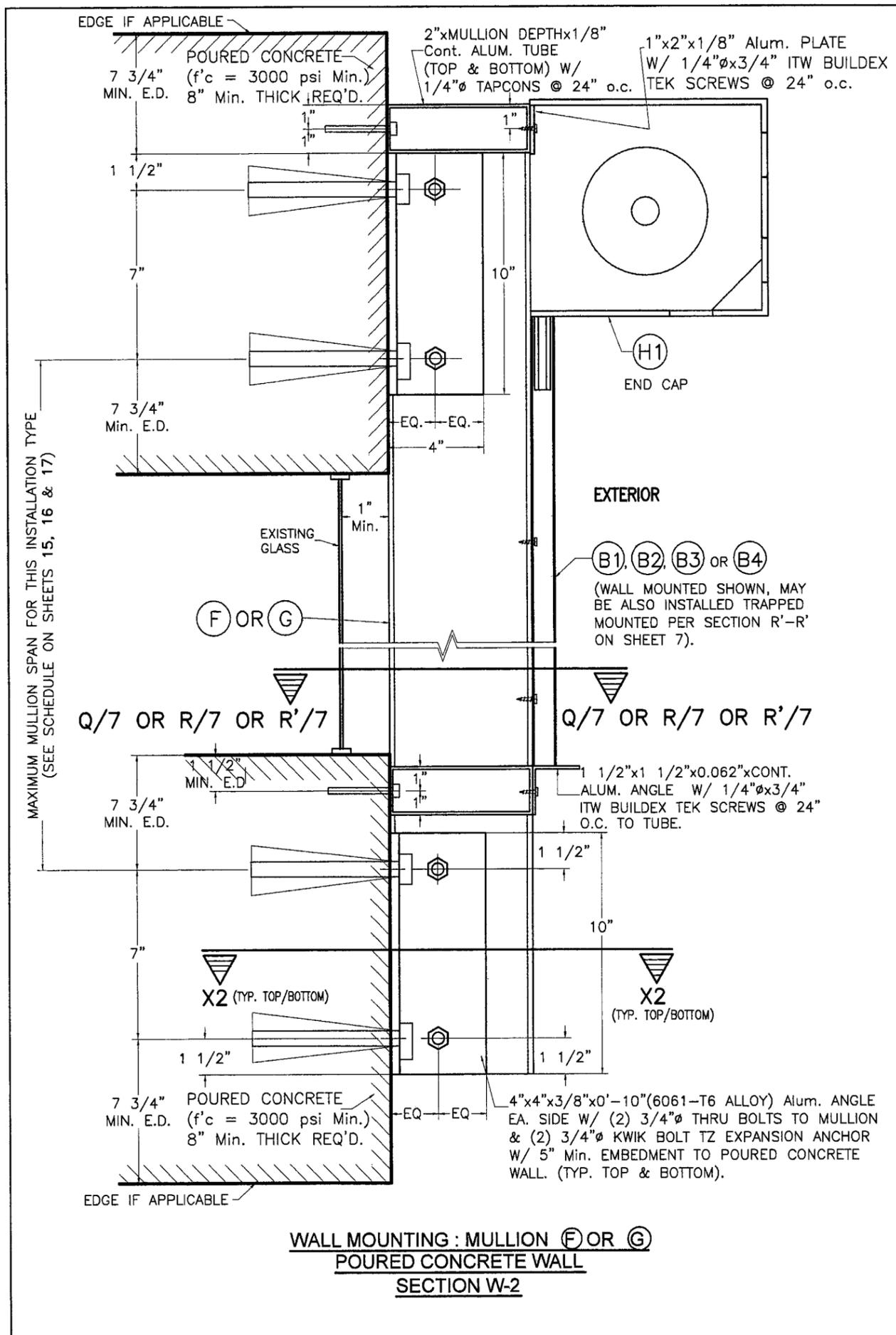
INTERIOR MULLION ONLY

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

APPROVED FOR CONSTRUCTION  
 Date: 07/15/09  
 09-0513-04  
 NOA  
 Miami  
 Division  
 By: *M. Shak*

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	©2009 TILTECO INC. <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 8355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY																		
		ROLLAC SHUTTER OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX, 77581 PH:(281) 486-1911, FAX:(281) 485-0839	01/28/09 DATE																		
APR 15 2009 P.E. SEAL/SIGNATURE/DATE		99-004 DRAWING N°	SHEET 13 OF 19																		
<table border="1"> <thead> <tr> <th>REV #</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV #</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>		REV #	DESCRIPTION	DATE	REV #	DESCRIPTION	DATE	1			3			2			4				
REV #	DESCRIPTION	DATE	REV #	DESCRIPTION	DATE																
1			3																		
2			4																		



**SECTION X2-X2 W/ (F) OR (G) \***  
 (END & INTERIOR MULLION W/ ORIENTATION # 1)  
 (6"x4" OR 8"x4")

**ALTERNATIVE SECTION X2-X2 W/ (F) OR (G) \***  
 (END & INTERIOR MULLION W/ ORIENTATION # 2)  
 (4"x6" OR 4"x8")

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

**END & INTERIOR WALL MOUNTED MULLION INSTALLATION**

SCALE: 1/8" = 1"

07/15/09  
 09-05/13.04  
 M. Hall

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

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

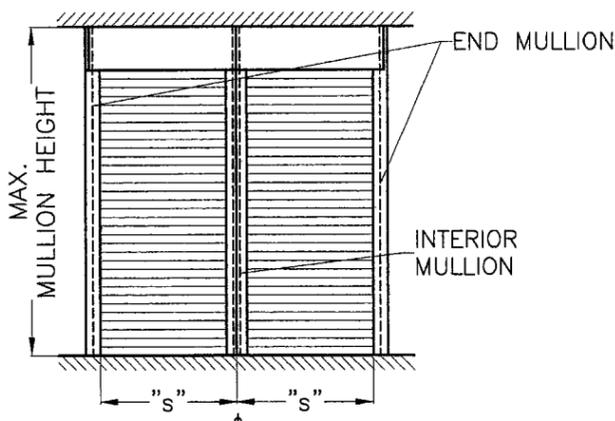
MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC.  <b>TILLIT TESTING &amp; ENGINEERING COMPANY</b> 6365 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	<b>ROLLAC SHUTTER OF TEXAS, INC.</b> 5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839		I.A./R.E. DRAWN BY																
			<b>RLL 55-X SLAT END RETENTION          ROLL-UP HURRICANE ABATEMENT</b>		01/28/09 DATE																
			<b>09-004</b> DRAWING N°		SHEET 14 OF 19																
		<table border="1"> <thead> <tr> <th>REV N°</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV N°</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>	REV N°	DESCRIPTION		DATE	REV N°	DESCRIPTION	DATE	1			3			2			4		
REV N°	DESCRIPTION	DATE	REV N°	DESCRIPTION	DATE																
1			3																		
2			4																		

**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			
		ORIENTATION #1 (≡) ‡		ORIENTATION #2 (⊥) ‡		ORIENTATION #1 (≡) ‡		ORIENTATION #2 (⊥) ‡	
		END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	19'-8"	6'-9"	9'-9"	6'-2"	12'-0"	8'-1"	10'-7"	7'-1"	12'-0"
35.0	18'-3"	6'-7"	9'-6"	6'-1"	11'-9"	7'-10"	10'-4"	6'-11"	12'-0"
40.0	16'-8"	6'-7"	9'-5"	6'-1"	11'-7"	7'-10"	10'-2"	6'-11"	12'-0"
45.0	15'-3"	6'-7"	9'-3"	6'-1"	11'-6"	7'-10"	10'-1"	6'-11"	12'-0"
50.0	14'-3"	6'-7"	9'-2"	6'-0"	11'-4"	7'-9"	10'-0"	6'-11"	12'-0"
55.0	13'-3"	6'-7"	9'-1"	6'-1"	11'-3"	7'-10"	9'-11"	6'-11"	12'-0"
60.0	12'-6"	6'-7"	9'-0"	6'-0"	11'-2"	7'-9"	9'-10"	6'-11"	12'-0"
65.0	11'-11"	6'-6"	8'-11"	6'-0"	11'-1"	7'-9"	9'-8"	6'-11"	12'-0"
70.0	11'-5"	6'-6"	8'-10"	6'-0"	10'-11"	7'-8"	9'-7"	6'-10"	12'-0"
75.0	10'-11"	6'-6"	8'-9"	6'-0"	10'-10"	7'-8"	9'-6"	6'-10"	12'-0"
80.0	10'-5"	6'-6"	8'-9"	6'-0"	10'-9"	7'-8"	9'-6"	6'-10"	12'-0"
85.0	10'-0"	6'-5"	8'-8"	6'-0"	10'-8"	7'-8"	9'-5"	6'-10"	12'-0"
90.0	9'-6"	6'-6"	8'-8"	6'-0"	10'-8"	7'-9"	9'-5"	6'-11"	12'-0"
95.0	9'-3"	6'-6"	8'-7"	6'-0"	10'-7"	7'-8"	9'-4"	6'-10"	12'-0"
100.0	8'-11"	6'-6"	8'-6"	6'-0"	10'-7"	7'-8"	9'-3"	6'-11"	12'-0"
105.0	8'-9"	6'-5"	8'-5"	5'-11"	10'-5"	7'-7"	9'-2"	6'-10"	12'-0"
110.0	8'-6"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"
115.0	8'-3"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"
120.0	8'-0"	6'-5"	8'-4"	5'-11"	10'-3"	7'-7"	9'-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"
130.0	7'-8"	6'-5"	8'-3"	5'-11"	10'-0"	7'-7"	8'-11"	6'-10"	12'-0"
135.0	7'-6"	6'-4"	8'-2"	5'-11"	9'-10"	7'-6"	8'-10"	6'-9"	12'-0"
140.0	7'-3"	6'-5"	8'-2"	5'-11"	9'-9"	7'-7"	8'-10"	6'-10"	12'-0"
145.0	7'-2"	6'-4"	8'-1"	5'-11"	9'-7"	7'-6"	8'-10"	6'-10"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	9'-5"	7'-6"	8'-9"	6'-10"	12'-0"
155.0	6'-10"	6'-4"	8'-0"	5'-11"	9'-4"	7'-6"	8'-9"	6'-10"	12'-0"
160.0	6'-9"	6'-4"	8'-0"	5'-11"	9'-2"	7'-6"	8'-8"	6'-9"	12'-0"

**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			
		ORIENTATION #1 (≡) ‡		ORIENTATION #2 (⊥) ‡		ORIENTATION #1 (≡) ‡		ORIENTATION #2 (⊥) ‡	
		END	INTERIOR	END	INTERIOR	END	INTERIOR	END	INTERIOR
30.0	19'-8"	6'-9"	9'-9"	6'-2"	12'-0"	8'-1"	10'-7"	7'-1"	12'-0"
35.0	18'-3"	6'-7"	9'-6"	6'-1"	11'-9"	7'-10"	10'-4"	6'-11"	12'-0"
40.0	16'-8"	6'-7"	9'-5"	6'-1"	11'-7"	7'-10"	10'-2"	6'-11"	12'-0"
45.0	15'-3"	6'-7"	9'-3"	6'-1"	11'-6"	7'-10"	10'-1"	6'-11"	12'-0"
50.0	14'-3"	6'-7"	9'-2"	6'-0"	11'-4"	7'-9"	10'-0"	6'-11"	12'-0"
55.0	13'-3"	6'-7"	9'-1"	6'-1"	11'-3"	7'-10"	9'-11"	6'-11"	12'-0"
60.0	12'-6"	6'-7"	9'-0"	6'-0"	11'-2"	7'-9"	9'-10"	6'-11"	12'-0"
65.0	11'-11"	6'-6"	8'-11"	6'-0"	11'-1"	7'-9"	9'-8"	6'-11"	12'-0"
70.0	11'-5"	6'-6"	8'-10"	6'-0"	10'-11"	7'-8"	9'-7"	6'-10"	12'-0"
75.0	10'-11"	6'-6"	8'-9"	6'-0"	10'-10"	7'-8"	9'-6"	6'-10"	12'-0"
80.0	10'-5"	6'-6"	8'-9"	6'-0"	10'-9"	7'-8"	9'-6"	6'-10"	12'-0"
85.0	10'-0"	6'-5"	8'-8"	6'-0"	10'-8"	7'-8"	9'-5"	6'-10"	12'-0"
90.0	9'-6"	6'-6"	8'-8"	6'-0"	10'-8"	7'-9"	9'-5"	6'-11"	12'-0"
95.0	9'-3"	6'-6"	8'-7"	6'-0"	10'-7"	7'-8"	9'-4"	6'-10"	12'-0"
100.0	8'-11"	6'-6"	8'-6"	6'-0"	10'-7"	7'-8"	9'-3"	6'-11"	12'-0"
105.0	8'-9"	6'-5"	8'-5"	5'-11"	10'-5"	7'-7"	9'-2"	6'-10"	12'-0"
110.0	8'-6"	6'-5"	8'-5"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"
115.0	8'-3"	6'-5"	8'-4"	5'-11"	10'-4"	7'-7"	9'-1"	6'-10"	12'-0"
120.0	8'-0"	6'-5"	8'-4"	5'-11"	10'-3"	7'-7"	9'-0"	6'-10"	12'-0"
125.0	7'-10"	6'-4"	8'-3"	5'-11"	10'-3"	7'-7"	9'-0"	6'-10"	12'-0"
130.0	7'-8"	6'-5"	8'-3"	5'-11"	10'-2"	7'-7"	8'-11"	6'-10"	12'-0"
135.0	7'-6"	6'-4"	8'-2"	5'-11"	10'-1"	7'-6"	8'-10"	6'-9"	12'-0"
140.0	7'-3"	6'-5"	8'-2"	5'-11"	10'-1"	7'-7"	8'-10"	6'-10"	12'-0"
145.0	7'-2"	6'-4"	8'-1"	5'-11"	10'-0"	7'-6"	8'-10"	6'-10"	12'-0"
150.0	7'-0"	6'-4"	8'-1"	5'-11"	10'-0"	7'-6"	8'-9"	6'-10"	12'-0"
155.0	6'-10"	6'-4"	8'-0"	5'-11"	9'-11"	7'-6"	8'-9"	6'-10"	12'-0"
160.0	6'-9"	6'-4"	8'-0"	5'-11"	9'-11"	7'-6"	8'-8"	6'-9"	12'-5"



**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 PRODUCT.

07/15/09  
09-0513.04  
M Hall

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC. <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th. St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone : (305) 871-1530 , Fax : (305) 871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	<b>RLL 55-X SLAT END RETENTION</b> <b>ROLL-UP HURRICANE ABATEMENT</b>	I.A./R.E. DRAWN BY																		
			<b>ROLLAC SHUTTER OF TEXAS, INC.</b> 5331 ORANGE STREET PEARLAND, TX. 77581 PH:(281) 485-1911, FAX:(281) 485-0839	01/28/09 DATE  09-004 DRAWING N°																		
		<table border="1"> <thead> <tr> <th>REV #</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV #</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>		REV #	DESCRIPTION	DATE	REV #	DESCRIPTION	DATE	1			3			2			4			SHEET 15 OF 19
REV #	DESCRIPTION	DATE	REV #	DESCRIPTION	DATE																	
1			3																			
2			4																			



# SLAT PERFORMANCE CHARTS Ib, IIb & IIIb:

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

CHART <b>Ib</b> : (ONLY VALID FOR 3/16" SLIP)								
DESIGN LOAD (p.s.f.)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						MIN. SLAT SPAN "L <sub>MIN.</sub> " (ft)	USE MAXIMUM POSITIVE LOAD VALUE
	MAX. SLAT SPAN "L <sub>MAX.</sub> " (ft)							
	WALL MOUNT (SEE NOTES Δ)			BUILD-OUT MOUNT W/ (SEE NOTES Δ)			WALL & BUILD-OUT MOUNT W/ (SEE NOTES Δ)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)
	G=0.55*	G=0.46*	G=0.36*	G=0.55*	G=0.46*	G=0.36*		
30.0	11'-11"	11'-5"	10'-3"	10'-2"	9'-4"	8'-4"	6'-6"	
35.0	11'-1"	10'-5"	-	9'-4"	8'-7"	-	6'-3"	
40.0	10'-3"	9'-7"	-	8'-8"	8'-0"	-	6'-0"	
45.0	9'-7"	-	-	8'-2"	-	-	5'-9"	
50.0	9'-0"	-	-	7'-9"	-	-	5'-7"	
55.0	8'-6"	-	-	7'-4"	-	-	5'-6"	
60.0	8'-2"	-	-	7'-1"	-	-	5'-4"	

CHART <b>IIb</b> : (ONLY VALID FOR 1/8" SLIP)								
DESIGN LOAD (p.s.f.)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD						REQUIRED MIN. SLAT SPAN "L <sub>MIN.</sub> " (ft)	USE MAXIMUM POSITIVE LOAD VALUE
	MAX. SLAT SPAN "L <sub>MAX.</sub> " (ft)							
	WALL MOUNT (SEE NOTES Δ)			BUILD-OUT MOUNT W/ (SEE NOTES Δ)			WALL & BUILD-OUT MOUNT W/ (SEE NOTES Δ)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)
	G=0.55*	G=0.46*	G=0.36*	G=0.55*	G=0.46*	G=0.36*		
30.0	10'-8"	10'-3"	9'-4"	9'-2"	8'-6"	7'-8"	6'-2"	
35.0	10'-0"	9'-5"	-	8'-6"	7'-10"	-	5'-10"	
40.0	9'-3"	8'-8"	-	7'-11"	7'-4"	-	5'-8"	
45.0	8'-8"	-	-	7'-5"	-	-	5'-6"	
50.0	8'-2"	-	-	7'-1"	-	-	5'-4"	
55.0	7'-8"	-	-	6'-8"	-	-	5'-2"	
60.0	7'-5"	-	-	6'-6"	-	-	5'-0"	

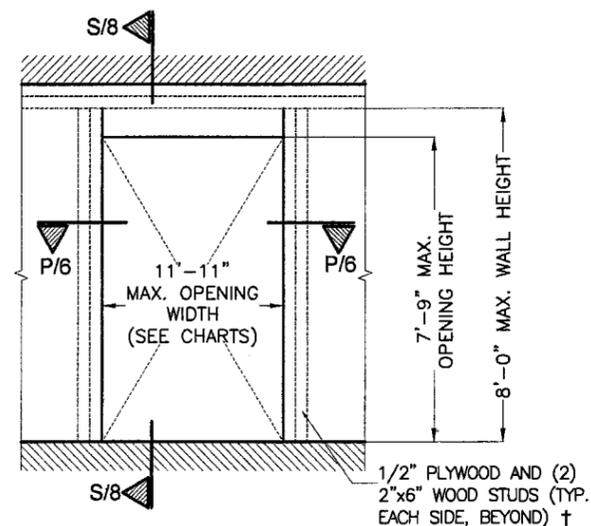
CHART <b>IIIb</b> : (LESS THAN 1/8" SLIP)				
DESIGN LOAD (psf)	USE MAXIMUM VALUE BETWEEN POSITIVE AND NEGATIVE LOAD		MIN. SLAT SPAN "L <sub>MIN.</sub> " (FT)	USE MAXIMUM POSITIVE LOAD VALUE
	MAX. SLAT SPAN "L <sub>MAX.</sub> " (FT)			
	WALL & BUILD-OUT MOUNT W/ (SEE NOTES Δ)		WALL & BUILD-OUT MOUNT W/ (SEE NOTES Δ)	REQUIRED MIN. SEPARATION TO GLASS MEASURED TO BACK OF SLAT (in)
	G=0.36*	G=0.46*		
30.0	6'-0"	-	-	-
35.0	5'-9"	-	-	-
40.0	5'-5"	-	-	-
45.0	5'-1"	-	0'-0"	6 1/2"
50.0	4'-10"	-	-	-
55.0	4'-7"	-	-	-
60.0	4'-5"	-	-	-

\*: 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

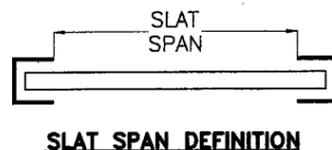
### Δ NOTES:

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 FLORIDA BUILDING CODE. MIN. WALL LENGTH AT EITHER SIDE OF OPENING MUST BE 33 INCHES.
2. INSTALLATIONS VALID ONLY FOR PRODUCT WITHOUT MULLIONS

## INSTALLATIONS INTO WOOD FRAME STRUCTURES



DETAIL 1 (ELEVATION)



Approved by Florida Building Code  
 Date: 07/15/09  
 NOA#: 08-0513.09  
 Division: Miami-Dade  
 By: M. Khalil

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	APR 15 2009 P.E. SEAL/SIGNATURE/DATE	©2009 TILTECO INC. <b>TILTECO INC.</b> TILLET TESTING & ENGINEERING COMPANY 6355 N.W. 36th St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone: (305) 871-1530, Fax: (305) 871-1531 e-mail: tilteco@aol.com EB-006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY
			ROLLAC SHUTTER OF TEXAS, INC. 5331 ORANGE STREET PEARLAND, TX 77581 PH: (281) 485-1911, FAX: (281) 485-0839	01/28/09 DATE
REV #    DESCRIPTION    DATE    REV #    DESCRIPTION    DATE		09-004 DRAWING N°		
1 2		SHEET 18 OF 19		

**MAX. ANCHOR'S SPACING SCHEDULE VI FOR A GIVEN PRODUCT MOUNTING TYPE W/ ø 5/16" ITW BUILDEX  
TAPCON XL ANCHORS TO WOOD GRADE, DESIGN LOAD (psf) AND SLAT SPAN RANGE \***

**WALL MOUNT  
TO 2"x6" WOOD STUD WITH MINIMUM 1/2" PLYWOOD**

(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 9' *	> 9' to 10' *	> 10' to 11'-11" **
SOUTHERN PINE #2 (G=0.55)	≤ 30.0	6"	6"	6"	6"	6"	4"	3"
	40	6"	6"	6"	6"	4"	3"	3"
	50	6"	6"	6"	6"	3"	-	-
	60	6"	6"	6"	4"	3"	-	-
DOUGLAS-FIR-SOUTH (G=0.46)	≤ 30.0	6"	6"	6"	6"	5"	4"	3"
	40	6"	6"	6"	6"	4"	3"	-
SPRUCE PINE-FIR-SOUTH (G=0.36)	≤ 30.0	6"	6"	6"	6"	4"	3"	3"

**BUILD-OUT MOUNT  
TO 2"x6" WOOD STUD WITH MINIMUM 1/2" PLYWOOD**

(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 9' *	> 9' to 10' *	> 10' to 11'-11" **
		BUILD-OUT MOUNT W/ E2						
SOUTHERN PINE #2 (G=0.55)	≤ 30.0	6"	6"	6"	6"	4"	3"	-
	40	6"	6"	6"	6"	3"	-	-
	50	6"	6"	6"	4"	3"	-	-
	60	6"	6"	6"	3"	3"	-	-
DOUGLAS-FIR-SOUTH (G=0.46)	≤ 30.0	6"	6"	6"	6"	3"	3"	-
	40	6"	6"	6"	5"	3"	-	-
SPRUCE PINE-FIR-SOUTH (G=0.36)	≤ 30.0	6"	6"	6"	6"	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.

Approved for use with the  
Florida Building Code  
Date: 07/15/09  
NOA: 08-0513.04  
Miami Building Dept.  
Division: Electrical  
Signature: [Handwritten]

FLORIDA BUILDING CODE. (High Velocity Hurricane Zone)

MIAMI-DADE COUNTY	 <b>APR 15 2009</b> P.E. SEAL/SIGNATURE/DATE	© 2009 TILTECO INC.  <b>TILTECO INC.</b> TILLIT TESTING & ENGINEERING COMPANY 6565 N.W. 36th St., Ste. 305 - VIRGINIA GARDENS, FL 33166 Phone: (305) 871-1530, Fax: (305) 871-1531 e-mail: tilteco@aol.com EB-006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167	RLL 55-X SLAT END RETENTION ROLL-UP HURRICANE ABATEMENT	I.A./R.E. DRAWN BY																		
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