



**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) 375-2908**

www.miamidade.gov

NOTICE OF ACCEPTANCE (NOA)

**Rolladen, Inc.
550 Ansin Boulevard
Hallandale, Florida 33009**

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 High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Extruded Aluminum Storm Panels Shutter

APPROVAL DOCUMENT: Drawing No. 94-51, titled " Extruded Aluminum Storm Panel Details ", sheets 1 through 5 of 5, prepared by Al-Farooq Corporation, dated July 7, 1994, last revision #L dated January 27, 2009, signed and sealed by Humayoun Farooq, P.E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Division.

MISSILE IMPACT RATING: Large and Small Missile Impact

LABELING: Each panel shall bear a permanent label with the manufacturer's name or logo, city, state and the 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 **revises & renews** NOA # **08-0313.09** and consists of this page 1, evidence submitted pages E-1, E-2, E-3 & E-4 as well as approval document mentioned above.

The submitted documentation was reviewed by **Helmy A. Makar, P.E., M.S.**



Helmy A. Makar
02/25/2009

**NOA No. 08-0908.12
Expiration Date: 09/16/2014
Approval Date: 02/25/2009
Page 1**

Rolladen, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 97-0721.02

A. DRAWINGS:

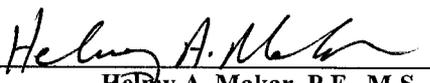
1. *Drawing No. 94-51, Rolladen, Inc., "Storm Panel Details", Sheets 1 through 4 of 4, prepared by Al-Farooq Corporation, dated July 7, 1994, with Revision No. D, dated April 4, 1995, signed and sealed by Humayoun Farooq, P.E.*

B. TESTS:

1. *Test report on Large Missile Impact Test, per PA 201-94, of extruded aluminum storm panels, (50" x 145" panel) prepared by Hurricane Engineering & Testing Inc., Report No. HETI-95-430, dated March 15, 1995, signed and sealed by Hector M. Medina, P.E.*
2. *Test report on Large Missile Impact Test, per PA 201-94, of extruded aluminum storm panels, (50" x 131" panel) prepared by Hurricane Engineering & Testing Inc., Report No. HETI-94-367i, dated December 1, 1994, signed and sealed by Hector M. Medina, P.E.*
3. *Test report on Large Missile Impact Test and Cyclic Wind Pressure Test, per PA 201-94 and PA 203-94, of extruded aluminum storm panels, Samples I, II and IV, (39" x 96.5") and Sample III, (39" x 91") prepared by Hurricane Engineering & Testing Inc., Report No. HETI-94-146, dated June 14, 1994, signed and sealed by Arshad Viqar, P.E.*
4. *Test report on Uniform Static Air Pressure Test, per PA 202-94, of extruded aluminum storm panels, (40" x 97"), prepared by Hurricane Engineering & Testing Inc., Report No: HETI-94-338, dated October 14, signed and sealed by Hector M. Medina, P.E.*
5. *Test report on Uniform Static Air Pressure Test, per PA 202-94, of extruded aluminum storm panels, (39" x 96.5"), prepared by Hurricane Engineering & Testing Inc., Report No: HETI-94-144, dated June 13, 1994, signed and sealed by Arshad Viqar, P.E.*
6. *Test report on Uniform Static Air Pressure Test, per PA 202-94, of extruded aluminum storm panels, Sample I, (39 3/8" x 108"); Sample II, (50" x 131"); and Sample III, (97" x 170"); prepared by Hurricane Engineering & Testing Inc., Report No: HETI-94-367, dated November 9, 1994, signed and sealed by Hector M. Medina, P.E.*

C. CALCULATIONS:

1. *Comparative analysis and anchor calculations, Pages D1, R1-R14, S1-S4, A1-A17, G1-G10 & AP1-AP11, prepared by Al-Farooq Corporation, dated December 21, 1994, signed and sealed by Humayoun Farooq, P.E.*



Helmy A. Makar, P.E., M.S.

Product Control Examiner

NOA No. 08-0908.12

Expiration Date: 09/16/2014

Approval Date: 02/25/2009

Rolladen, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

D. MATERIAL CERTIFICATION:

1. *Certified Inspection Report from mill, prepared by the William L. Bonnell Co., dated July 18, 1994, for aluminum alloy 6063-T6.*
2. *Certified Tensile Test Report No. HETI-94-T11, prepared by Hurricane Engineering & Testing Inc., dated July 29, 1994.*

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 00-0609.07

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. MATERIAL CERTIFICATIONS

1. *None.*

E. STATEMENTS

1. *Letter by Al-Farooq Corporation, dated March 9, 2000, signed and sealed by Humayoun Farooq, P.E., certifying that he is still in the engineering business.*
2. *Letter by Rolladen, Inc., dated May 22, 2000, signed by Terry D. Low, certifying that no changes or alterations have been made to the Product Approval #94-1230.03.*

3. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #03-0527.01

A. DRAWINGS:

1. *Drawing No. 94-51, titled " Storm Panel Details ", sheets 1 through 4 of 4, prepared by Al-Farooq Corporation, dated July 7, 1994, last revision #H dated August 28, 2003, signed and sealed by Humayoun Farooq, P.E. on August 29, 2003.*

B. TESTS:

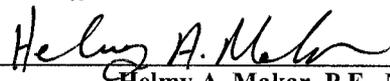
1. *None.*

C. CALCULATIONS:

1. *Anchor calculations, 40 Pages, prepared by Al-Farooq Corporation, dated April 18, 2003, signed and sealed by Humayoun Farooq, P.E.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*



Helmy A. Makar, P.E., M.S.
Product Control Examiner
NOA No. 08-0908.12
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Rolladen, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

E. MATERIAL CERTIFICATION:

1. *None.*

4. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #06-0818.01

A. DRAWINGS:

1. *Drawing No. 94-51, titled " Extruded Aluminum Storm Panel Details ", sheets 1 through 5 of 5, prepared by Al-Farooq Corporation, dated July 7, 1994, last revision #J dated November 28, 2006, signed and sealed by Humayoun Farooq, P.E.*

B. TESTS:

1. *None.*

C. CALCULATIONS:

1. *Anchor calculations, 79 Pages, prepared by Al-Farooq Corporation, dated June 28, 2006, signed and sealed by Humayoun Farooq, P.E.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATION:

1. *None.*

5. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 08-0313.09

A. DRAWINGS:

1. *None.*

B. TESTS:

1. *None.*

C. CALCULATIONS:

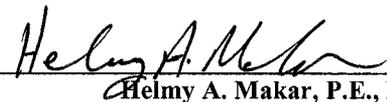
1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATION:

1. *None.*



Helmy A. Makar, P.E., M.S.
Product Control Examiner
NOA No. 08-0908.12
Expiration Date: 09/16/2014
Approval Date: 02/25/2009

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

6. NEW EVIDENCE SUBMITTED

A. DRAWINGS:

1. *Drawing No. 94-51, titled " Extruded Aluminum Storm Panel Details ", sheets 1 through 5 of 5, prepared by Al-Farooq Corporation, dated July 7, 1994, last revision #L dated January 27, 2009, signed and sealed by Humayoun Farooq, P.E., on January 28, 2009.*

B. TESTS:

1. *Test report on Uniform Static Air Pressure Test, per PA 202-94, of extruded aluminum storm panels, (52 1/4" x 150 7/8"), prepared by Hurricane Engineering & Testing Inc., Report No: HETI-08-2110, dated April 30, 2008, signed and sealed by Candido F. Font, P.E.*
2. *Test report on Large Missile Impact Test and Cyclic Wind Pressure Test, per PA 201-94 and PA 203-94, of extruded aluminum storm panels, (52 1/4" x 150 7/8"), prepared by Hurricane Engineering & Testing Inc., Report No. HETI-08-2111, dated April 30, 2008, signed and sealed by Candido F. Font, P.E.*

C. CALCULATIONS:

1. *Anchor calculations, Pages A-1 through A-22, AP-1 through AP-17, C-1 through C-21, prepared by Al-Farooq Corporation, dated August 26, 2008, signed and sealed by Humayoun Farooq, P.E.*

D. QUALITY ASSURANCE

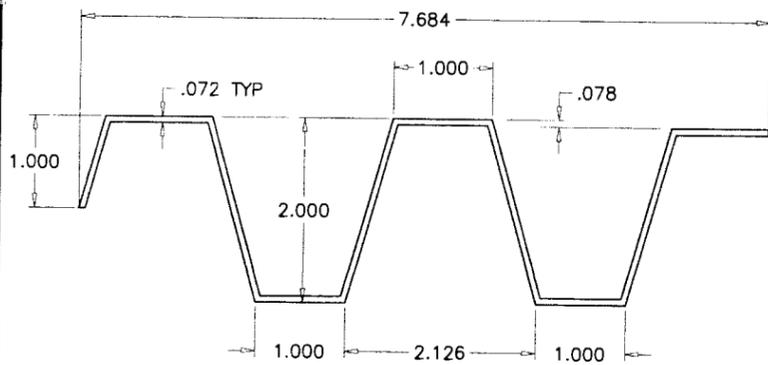
1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATION:

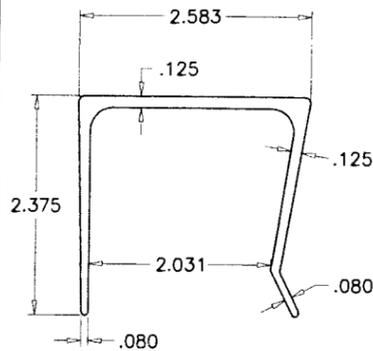
1. *Certified Tensile Test Report No. HETI-08-T123, prepared by Hurricane Engineering & Testing Inc., dated May 30, 2008, signed and sealed by Candido F. Font, P.E.*



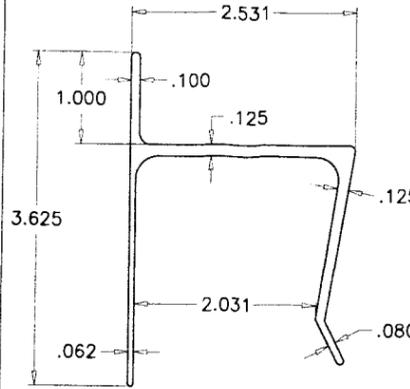
Helmy A. Makar, P.E., M.S.
Product Control Examiner
NOA No. 08-0908.12
Expiration Date: 09/16/2014
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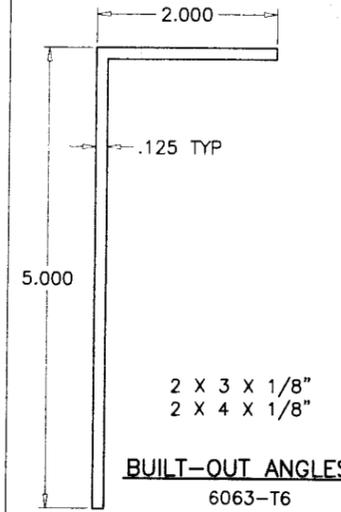
EXTRUDED PANEL (RON 59 A)
ALUMINUM .068
6063-T6



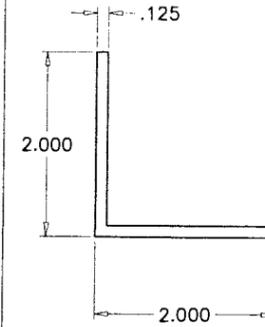
CEILING MOUNT HEADER
6063-T6



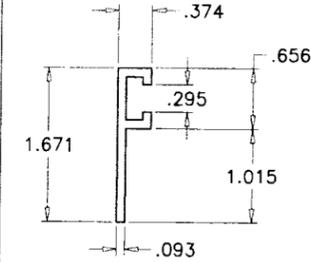
WALL MOUNT HEADER
6063-T6



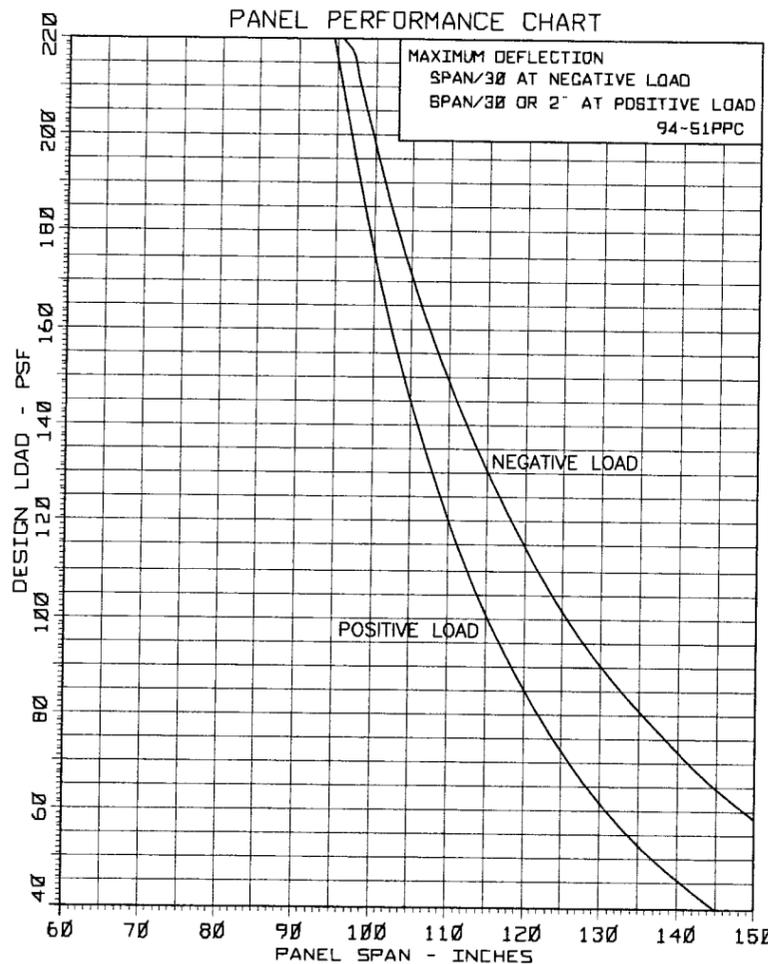
BUILT-OUT ANGLES
6063-T6
2 X 3 X 1/8"
2 X 4 X 1/8"



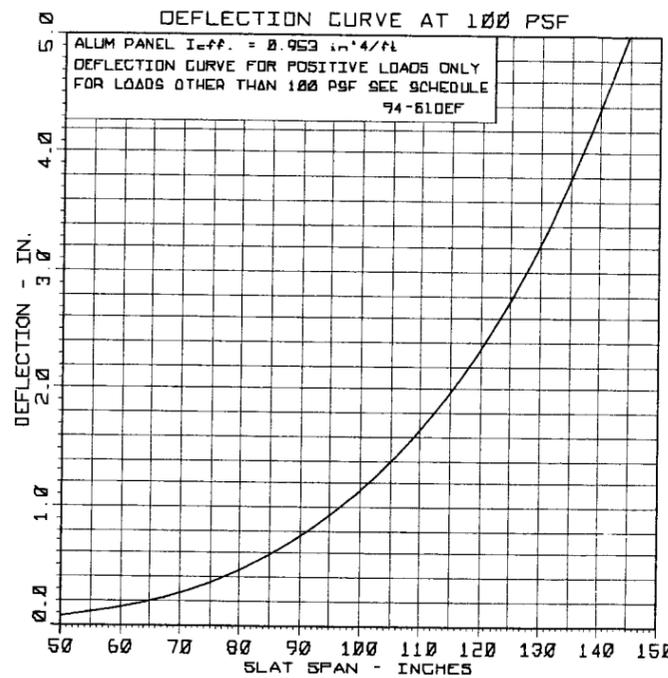
SILL ANGLE
6063-T6



'F' TRACK
6063-T6



USE PANEL PERFORMANCE CHART TO VERIFY PANEL CAPACITY FOR THE REQUIRED DESIGN LOAD FOR THE PARTICULAR LOCATION. USE SPAN DEFLECTION CHART TO CALCULATE SEPARATION FROM GLASS.



MINIMUM SEPARATION FROM GLASS			
INSTALLATIONS ABOVE 30' OF GRADE		SEPARATION FOR INSTALLATIONS UPTO 30 FT. OF GRADE DUE TO LARGE MISSILE IMPACT	
	IN.	PANEL SPAN UPTO	SEPARATION
SHUTTER SPAN = H =	IN.		
DESIGN LOAD = Pd =	PSF		
FACTOR = K = Pd/100 =	IN.	96-1/2"	2-1/4"
READING FROM SPAN DEFLECTION CURVE = D =	IN.	131"	3-3/4"
DEFLECTION AT Pd = K*D =	IN.	150"	4"
MIN. SEPARATION REQD. = K*D+1" =	IN.		

FOR INSTALLATIONS UPTO 30' OF GRADE USE MAXIMUM OF WIND LOAD OR IMPACT LOAD REQUIREMENTS SHOWN ABOVE.
FOR INSTALLATIONS ABOVE 30' OF GRADE IGNORE LARGE MISSILE IMPACT REQUIREMENT.
NOTE: NO PART OF SHUTTER SHALL BE UNDER 30' ABOVE GRADE TO WAIVE LARGE MISSILE IMPACT REQUIREMENT.

DESIGN LOADS SHALL BE CALCULATED AS PER REQUIREMENTS OF ASCE 7-02/04.

GENERAL NOTES

1. THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE 2004/2007 EDITION INCLUDING HIGH VELOCITY HURRICANE ZONE (HVHZ).
2. DESIGN CRITERIA FOR ALUMINUM, MINIMUM MECHANICAL PROPERTIES, AND SAFETY FACTORS ARE IN ACCORDANCE WITH THE "ALUMINUM CONSTRUCTION MANUAL" LATEST EDITION.
3. ALUMINUM ALLOYS: ALL EXTRUSIONS SHALL BE ALLOY AS SHOWN.
4. STEEL SURFACES TO BE PLACED IN CONTACT WITH ALUMINUM SHALL BE GIVEN ONE COAT OF ZINC CHROMATE PRIMER IN ACCORDANCE WITH FEDERAL SPEC. NO. TTP-645, OR BE GALVANIZED.
5. ANCHORS SHALL BE AS SHOWN ON DETAILS. ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
6. ALL BOLTS SHALL BE STAINLESS STEEL, ALUMINUM ALLOY 2024-T4 OR 7075-T6, OR PLATED STEEL. WING NUTS TO BE OF ZINC ALLOY.
7. DESIGN CRITERIA FOR PANELS: MAX DEFLECTION $\leq L/30$ FOR NEGATIVE LOAD AND THE LESSER OF $L/30$ OR 2" FOR POSITIVE LOAD.
8. ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.
9. A LOAD DURATION INCREASE IN ALLOWABLE STRESS IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY.
10. MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF 2004/2007 FLORIDA BLDG. CODE SECTION 2003.8.4.

PRODUCT MARKING

A LABEL SHALL BE AFFIXED AT BOTTOM OF EACH PANEL WITH THE FOLLOWING STATEMENT.

ROLLADEN INC. HALLANDALE, FL.
ALUMINUM STORM PANEL
"MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED"

Engr: DR. HUMAYCUN FAROOQ
STRUCTURES
FLA. PE # 16557
C.A.N. 3538

JAN 28 2009

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 08-0908.12
Expiration Date 09/16/2014
By *Helmy A. M...*
Miami Dade Product Control Division

af c
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
PANELS/94-51RNI-NEW

EXTRUDED ALUMINUM STORM PANEL DETAILS
ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

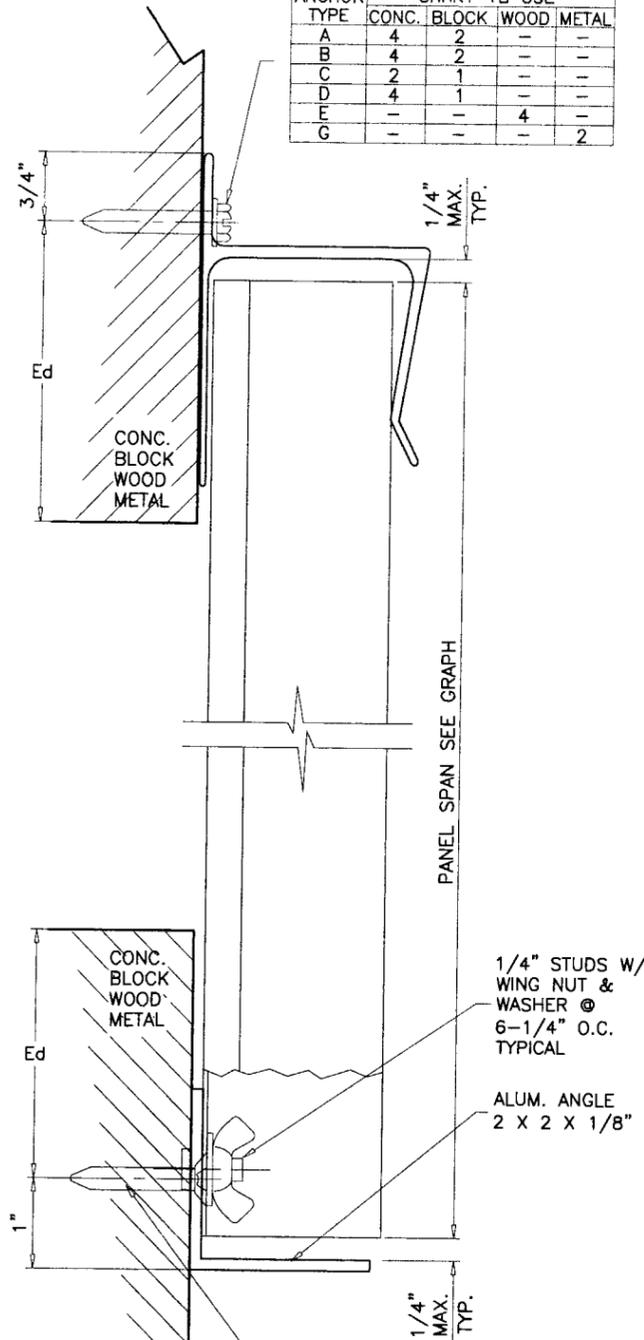
no	date	by	description
H	8.28.03	H	REV. PER BCCO COMMENTS
I	05.02.06	H	UPDATED FOR 2004 FBC
J	11.28.06	H	REV. PER BCCO COMMENTS
K	06.28.08	H	GENERAL REVISION
L	01.27.09	H	REV. PER BCCO COMMENTS

date: 07-07-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
94-51
sheet 1 of 5

WALL MOUNTS

ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	4	2	-	-
B	4	2	-	-
C	2	1	-	-
D	4	1	-	-
F	-	-	4	-
G	-	-	-	2

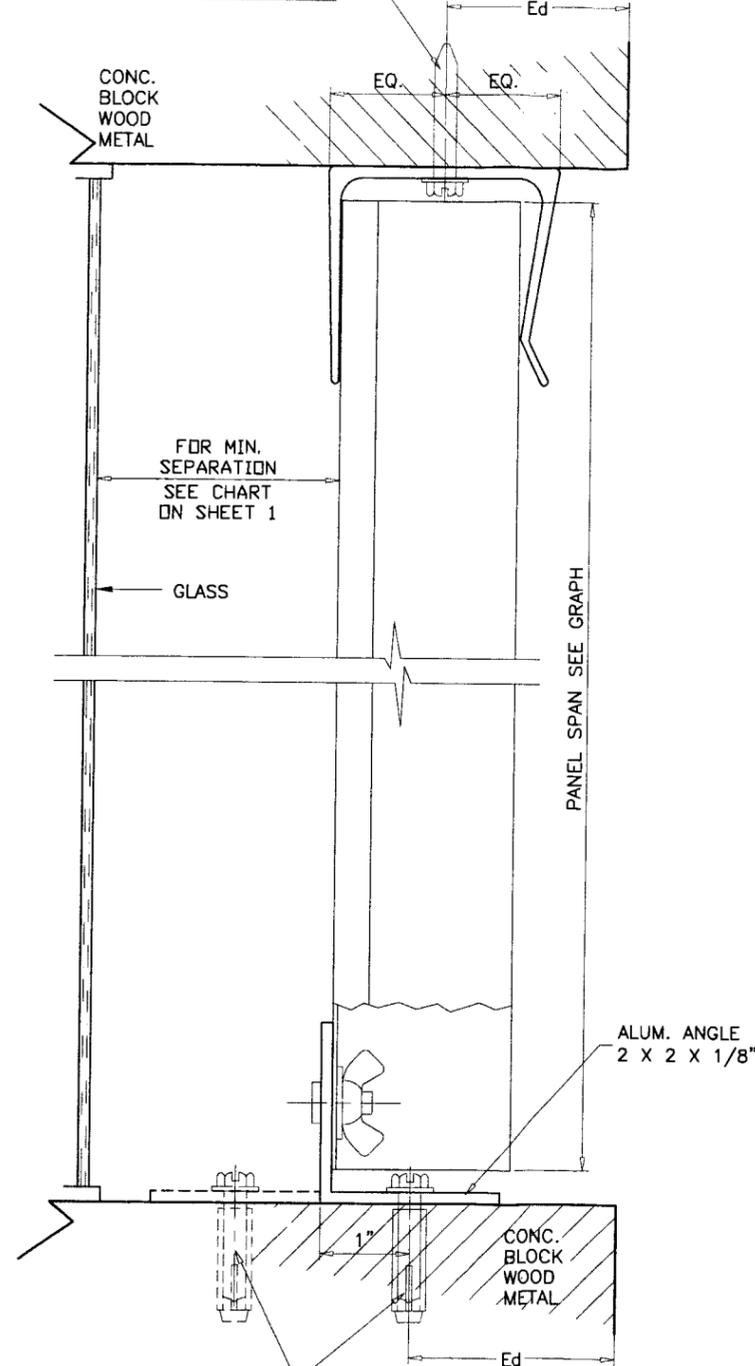


ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	6	4	-	-
B	7	4	-	-
C	5	3	-	-
D	7	3	-	-
F	-	-	7	-
G	-	-	-	5

SECTION A-A

INSIDE MOUNTS

ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	5	3	-	-
B	6	3	-	-
C	3	2	-	-
D	5	3	-	-
F	-	-	5	-
G	-	-	-	4



ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	6	4	-	-
B	6	3	-	-
C	3	3	-	-
D	6	3	-	-
F	-	-	5	-
G	-	-	-	4

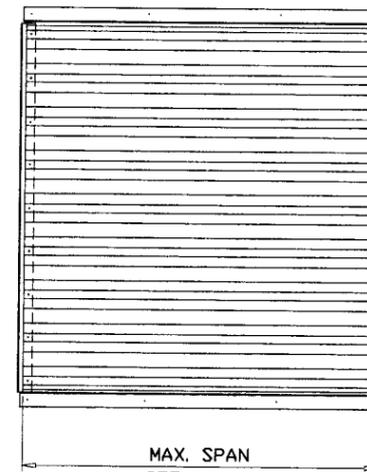
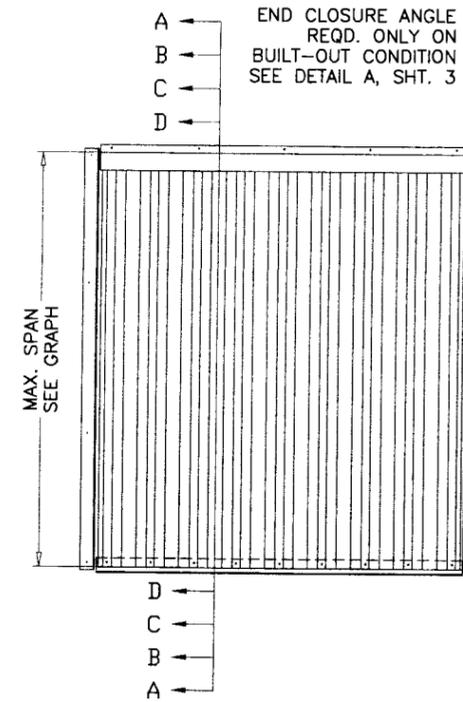
SECTION B-B

ANCHORS: EMBEDMENT & EDGE DISTANCES SHOWN ARE BEYOND THE WALL & FLOOR COVERING (STUCCO, TILES, ETC.)

Ed = TYPICAL EDGE DISTANCE
 CONC. & BLOCK = 12d (12 ANCHOR DIAMETERS)
 WOOD = 5d
 FOR LESSER EDGE DISTANCES SEE SHEET 5 OF 5.

HEADER AND SILL DETAILS CAN BE USED IN ANY COMBINATIONS.

FOR GENERAL NOTES AND EXTRUSION DETAILS SEE SHEET 1 OF 5.
 FOR WOOD INSTALLATIONS SEE SHEET 4 OF 5.



TYPICAL ELEVATION
 PANELS CAN BE INSTALLED VERTICALLY OR HORIZONTALLY USING APPLICABLE ANCHORING DETAILS.

PRODUCT REVISED
 as complying with the Florida Building Code
 Acceptance No 08-0908.12
 Expiration Date 09/16/2014
 By Heba A. M. M.
 Miami Dade Product Control Division

Engr. DR. HUMAYOON FAROOQ
 STRUCTURES
 F.L.A. PE # 16557
 C.A.N. 3538

JAN 28 2009

afC
AL-FAROOQ CORPORATION
 ENGINEERS & PRODUCT DEVELOPMENT
 1235 S.W. 87 AVE
 MIAMI, FLORIDA 33174
 TEL. (305) 264-8100 FAX. (305) 262-6978
 PANELS/94-51RNI-NEW

EXTRUDED ALUMINUM STORM PANEL DETAILS
ROLLADEN INC.
 550 ANSIN BLVD.
 HALLANDALE, FL. 33009
 TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:	no	date	by	description
	I	05.02.06	H	UPDATED FOR 2004 FBC
	J	11.28.06	H	NO CHANGE THIS SHEET
	K	06.28.08	H	GENERAL REVISION
	L	01.27.09	H	NO CHANGE THIS SHEET

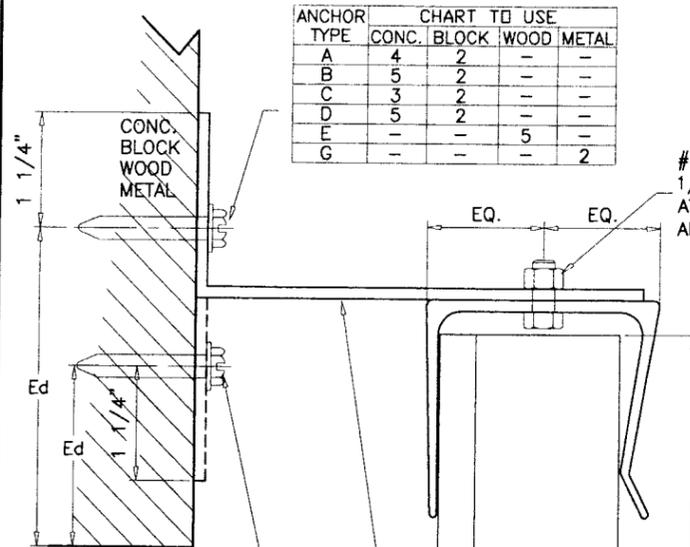
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drawing no.
94-51
 sheet 2 of 5

BUILT-OUT CONDITION

ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	4	2	-	-
B	5	2	-	-
C	3	2	-	-
D	5	2	-	-
E	-	-	5	-
G	-	-	-	2

#14 SMS OR
1/4"-20 X 1/2" BOLT W/ NUT
AT 9-1/2" O.C. UPTO 115 PSF
AND 6" O.C. ABOVE 115 PSF

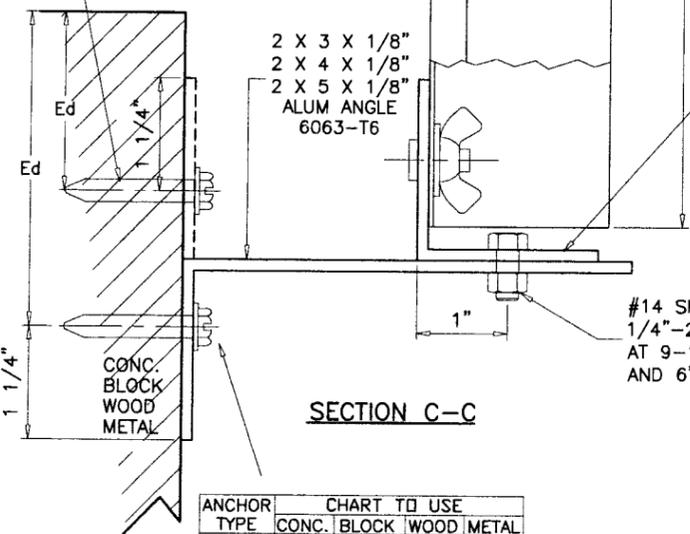


ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	5	3	-	-
B	6	3	-	-
C	3	2	-	-
D	6	2	-	-
E	-	-	6	-
G	-	-	-	3

2 X 3 X 1/8"
2 X 4 X 1/8"
2 X 5 X 1/8"
ALUM. ANGLE
6063-T6

ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	4	-	-	-
B	6	-	-	-
C	1	-	-	-
D	5	-	-	-
E	-	-	5	-
G	-	-	-	1

2 X 3 X 1/8"
2 X 4 X 1/8"
2 X 5 X 1/8"
ALUM. ANGLE
6063-T6

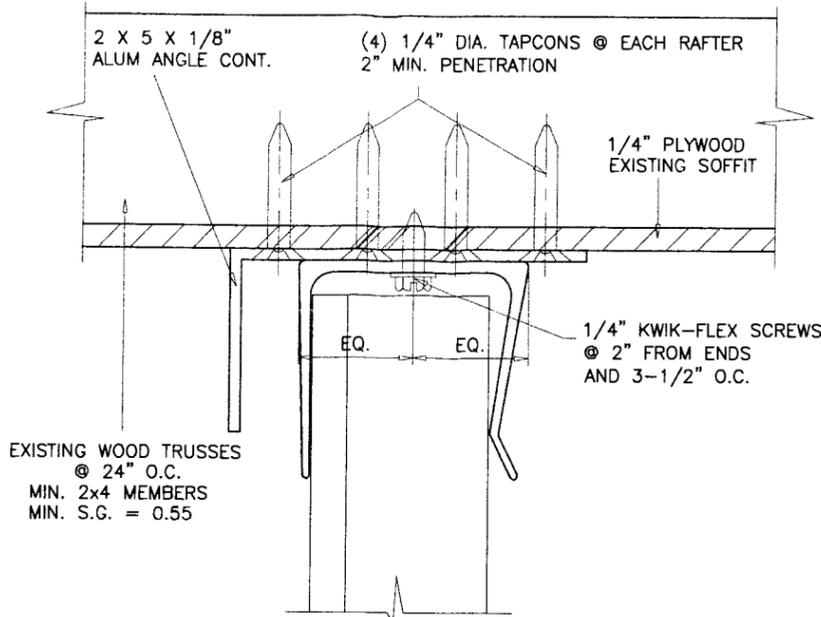


SECTION C-C

ANCHOR TYPE	CHART TO USE			
	CONC.	BLOCK	WOOD	METAL
A	4	1	-	-
B	5	1	-	-
C	2	-	-	-
D	5	-	-	-
E	-	-	4	-
G	-	-	-	2

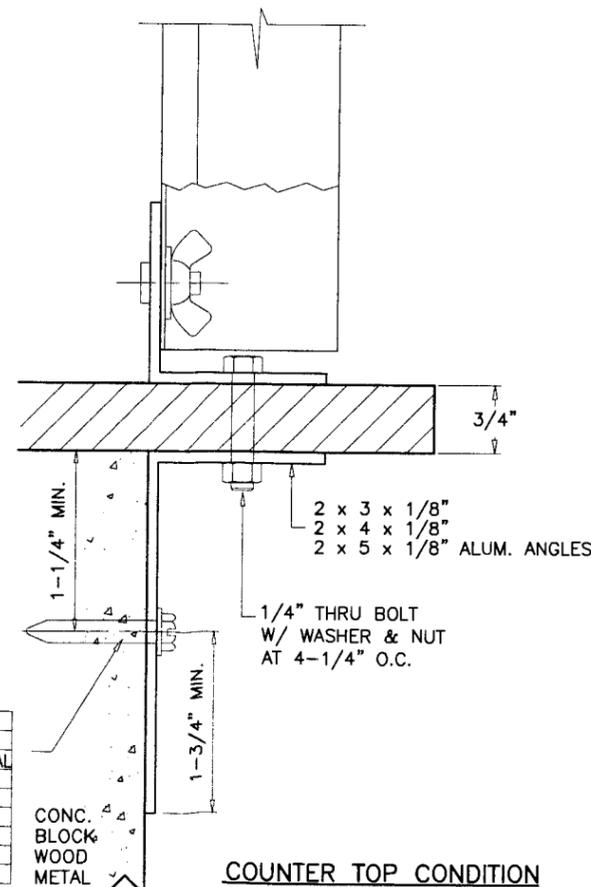
#14 SMS OR
1/4"-20 X 1/2" BOLT W/ NUT
AT 9-1/2" O.C. UPTO 115 PSF
AND 6" O.C. ABOVE 115 PSF

ANCHOR TYPE	ANCHOR SPACING INCHES							
	UPTO 35 PSF				UPTO 42 PSF			
	CONC.	BLK.	WOOD	METAL	CONC.	BLK.	WOOD	METAL
A	9	6.8	-	-	9	5.8	-	-
B	9	6.6	-	-	9	5.6	-	-
C	7.6	5.1	-	-	6.5	4.3	-	-
D	9	5.4	-	-	9	4.6	-	-
E	-	-	9	-	-	-	9	-
G	-	-	-	9	-	-	-	8



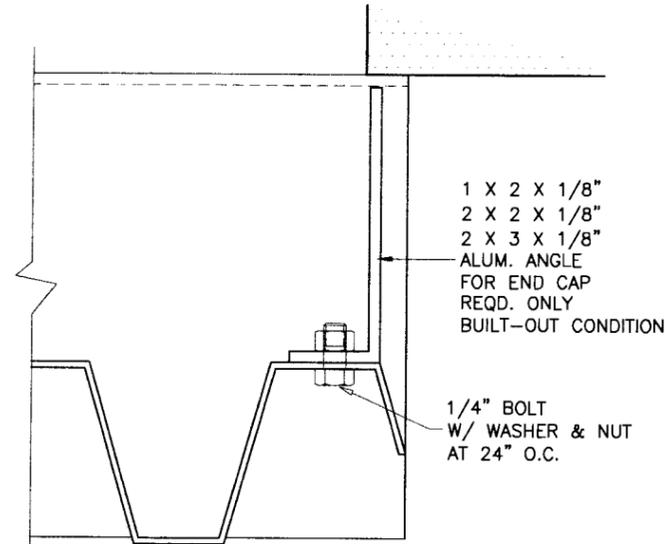
HEADER CONNECTION TO WOOD TRUSSES

FOR SHUTTER HEIGHT OF 108" MAX. DESIGN LOAD = 58 PSF
FOR SHUTTER HEIGHT OF 96" MAX. DESIGN LOAD = 65 PSF
FOR SHUTTER HEIGHT OF 84" MAX. DESIGN LOAD = 75 PSF
FOR SHUTTER HEIGHT OF 72" MAX. DESIGN LOAD = 87 PSF



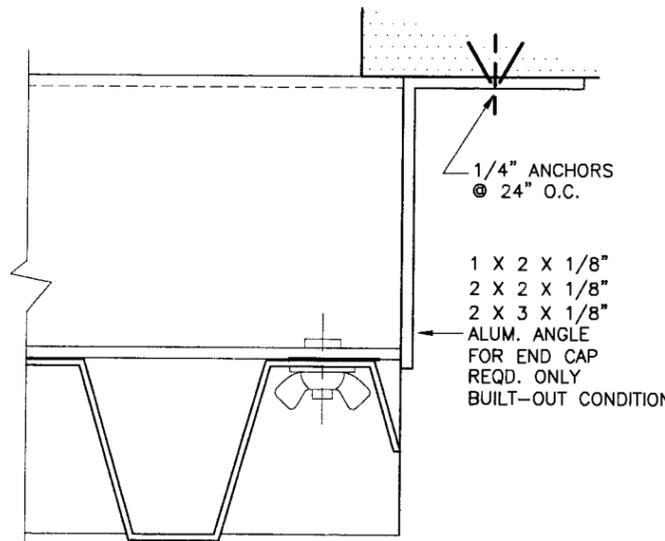
COUNTER TOP CONDITION

(PASS THRU WINDOW)
MAX SHUTTER HEIGHT = 6 FT.



END CAP BUILT-OUT CONDITION

DETAIL 'A'



Engr: DR. HJUMAYGUN FAROOQ
STRUCTURES
FLA. PE # 16357
C.A.N. 3538

JAN 28 2009

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 08-0908.12
Expiration Date 09/16/2014
By *Hamid*
Miami Dade Product Control
Division

af c
AL-FAROOQ CORPORATION
ENGINEERS & PRODUCT DEVELOPMENT
1235 S.W. 87 AVE
MIAMI, FLORIDA 33174
TEL. (305) 264-8100 FAX. (305) 262-6978
PANELS/94-51RNI-NEW

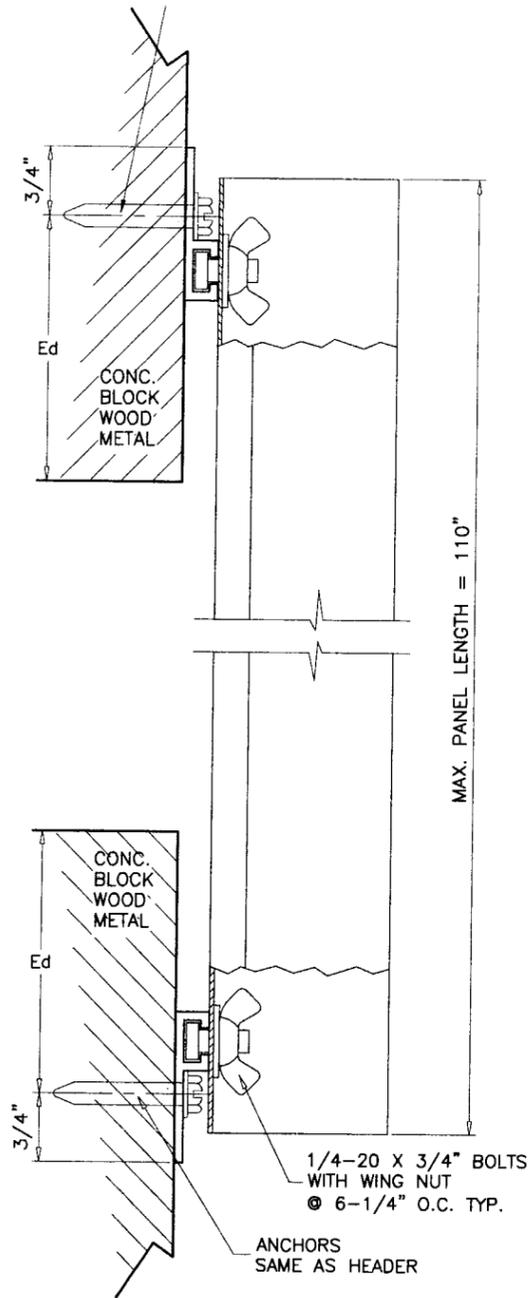
EXTRUDED ALUMINUM STORM PANEL DETAILS
ROLLADEN INC.
550 ANSIN BLVD.
HALLANDALE, FL. 33009
TEL. (954) 757-8591 FAX. (954) 454-1577

revisions:	no	date	by	description
	I	05.02.06	H	UPDATED FOR 2004 FBC
	J	11.28.06	H	REV. PER BCCO COMMENTS
	K	06.28.08	H	GENERAL REVISION
	L	01.27.09	H	NO CHANGE THIS SHEET

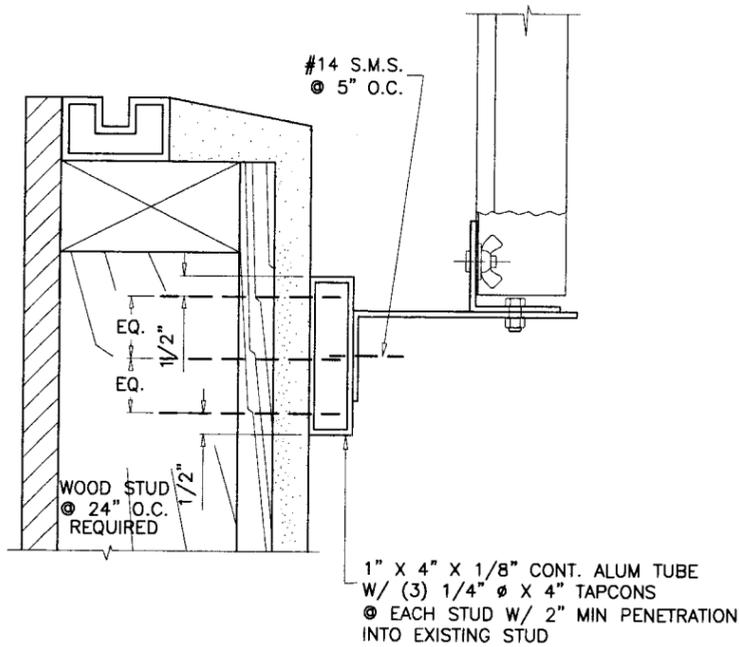
date: 07-07-94
scale: 1/2" = 1"
dr. by: HAMID
chk. by:

drawing no.
94-51
sheet 3 of 5

ANCHOR TYPE	SPACING INCHES					
	UPTO 50 PSF			UPTO 70 PSF		
	CONC.	BLK.	WOOD METAL	CONC.	BLK.	WOOD METAL
A	9	6.3	-	9	4.7	-
B	9	6.2	-	9	4.5	-
C	7.1	4.7	-	5.3	3.5	-
D	9	5	-	9	3.7	-
E	-	-	9	-	-	9
G	-	-	-	7	-	5.1



'F' TRACK INSTALLATION
 LIMIT MAX. DESIGN LOADS TO ±70 PSF
 LIMIT MAX. SHUTTER HEIGHT TO 110 INCHES

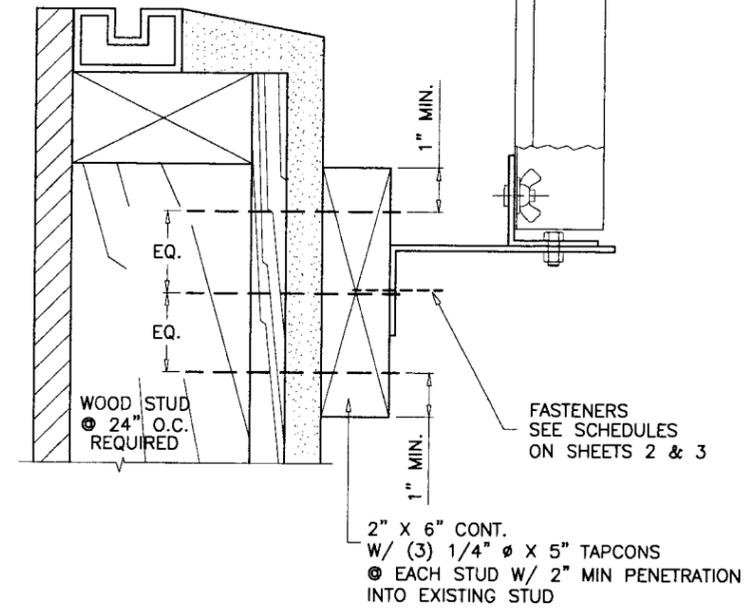
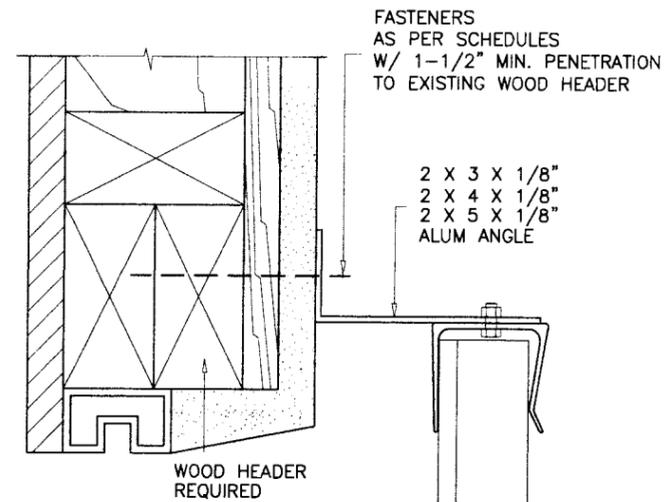


INSTALLATION DETAIL ON EXISTING WOOD STUDS SCALE: 1/4"=1"

FOR SHUTTER HEIGHT OF 120" MAX. DESIGN LOAD = 52 PSF
 FOR SHUTTER HEIGHT OF 108" MAX. DESIGN LOAD = 58 PSF
 FOR SHUTTER HEIGHT OF 96" MAX. DESIGN LOAD = 65 PSF
 FOR SHUTTER HEIGHT OF 84" MAX. DESIGN LOAD = 75 PSF

ABOVE DETAILS SHOWS CONNECTION OF 2X6 BUCK & 1X4 ALUM TUBE TO WOOD STUDS TO PROVIDE A CONTINUOUS SURFACE FOR SHUTTER INSTALLATION.

FOR INSTALLATION DETAILS OF HEADER/SILL TO CONTINUOUS WOOD MEMBERS SEE SHEETS 2 & 3.



Engr. DR. HUMAYOUN FAROOQ
 STRUCTURES
 FLA. PE # 16557
 C.A.N. 3538
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 Miami Dade Product Control
 Division

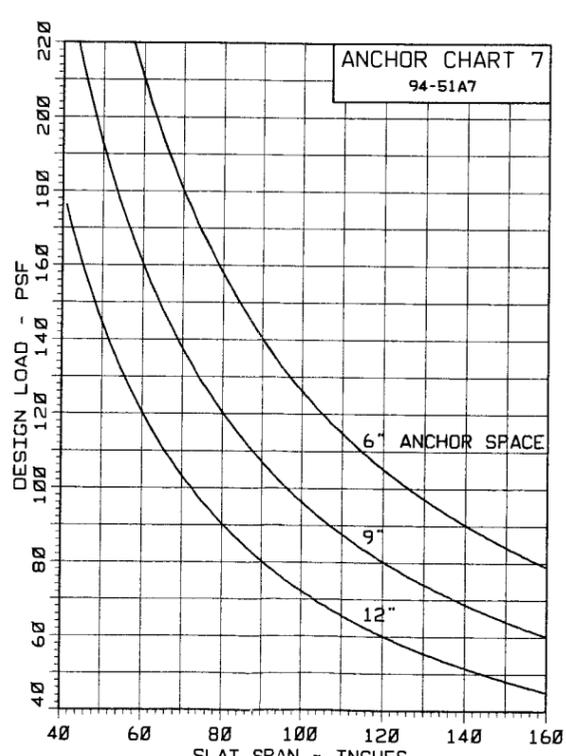
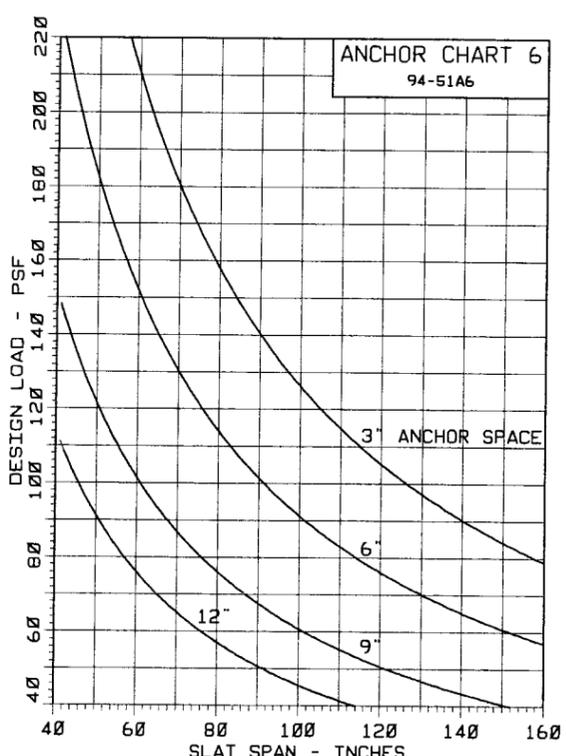
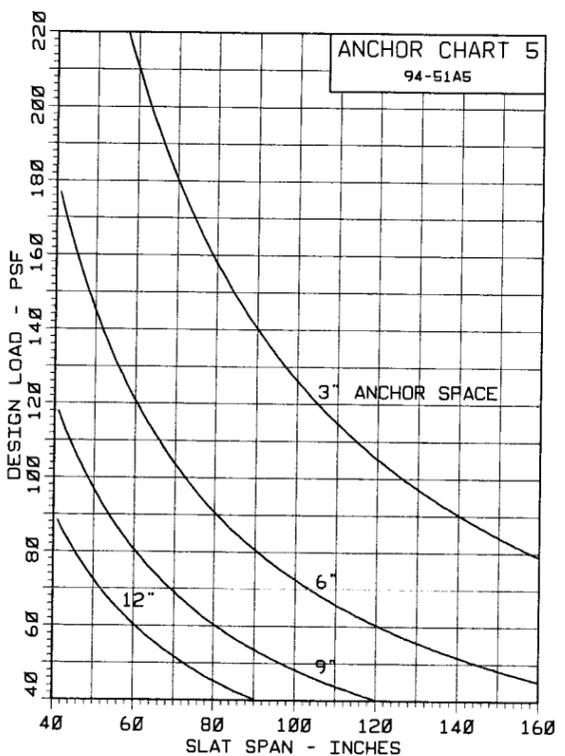
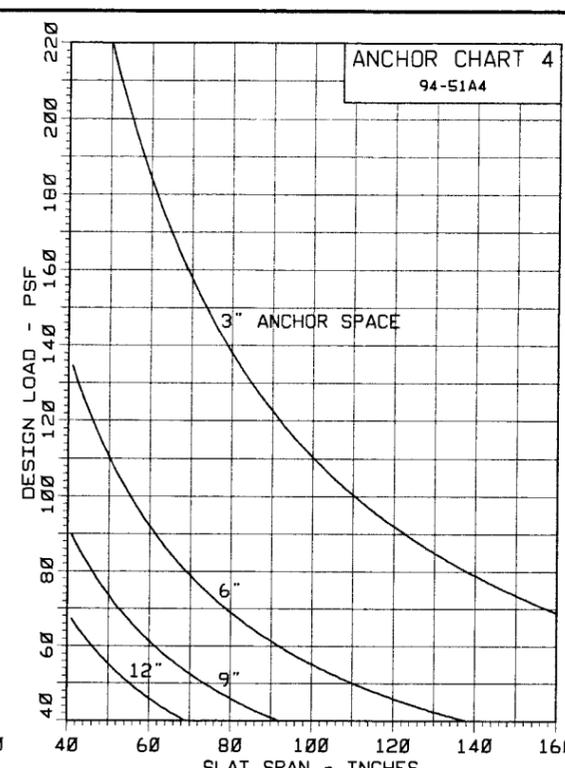
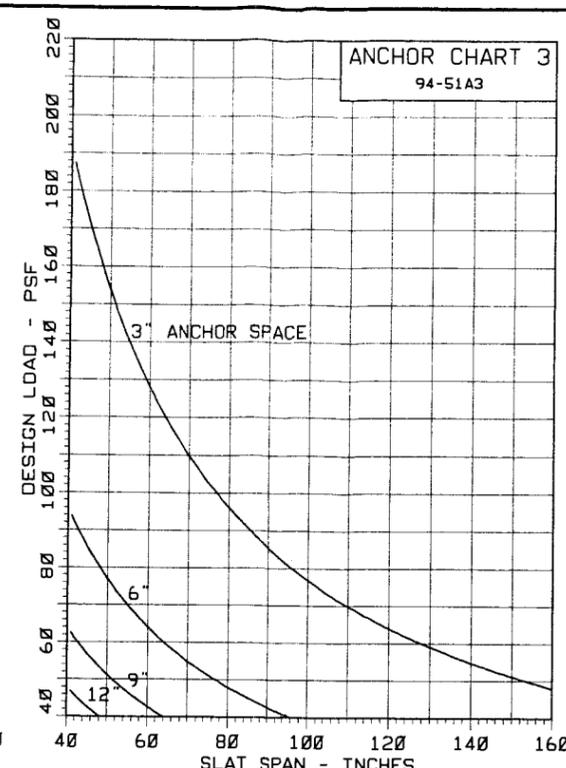
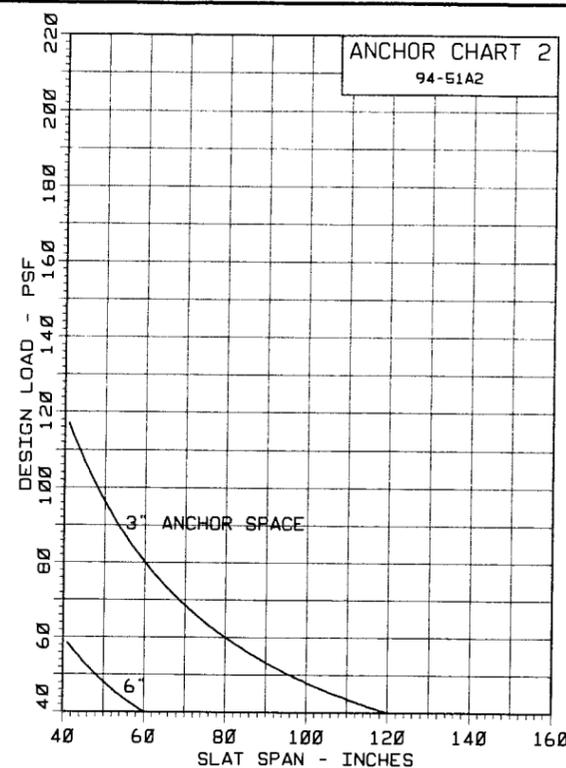
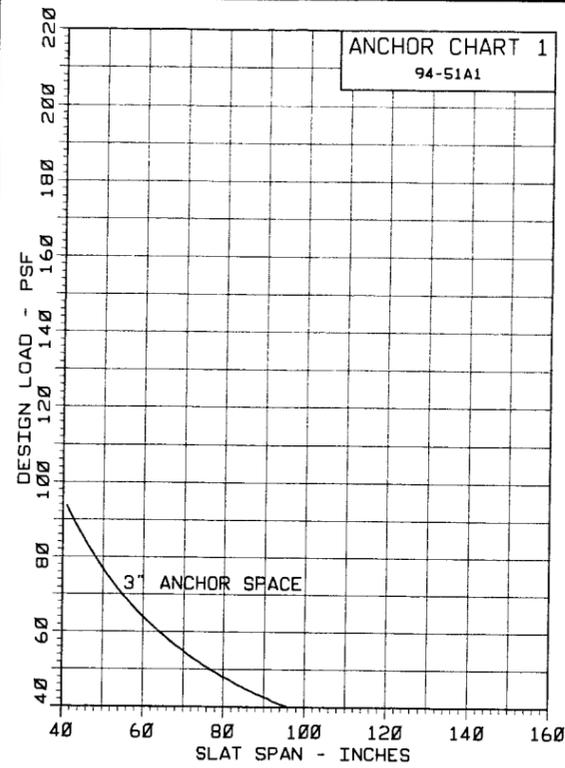
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TYPICAL ANCHORS:

- ANCHOR (A) = 1/4" DIA. ULTRACON (BY ELCO)
1-3/4" EMBEDMENT INTO 3000 PSI CONC.
1-1/4" EMBEDMENT INTO C-90 BLOCK
- ANCHOR (B) = 1/4" DIA. KWIKCON II (BY HILTI)
1-3/4" EMBEDMENT INTO 3000 PSI CONC.
1-1/4" EMBEDMENT INTO C-90 BLOCK
- ANCHOR (C) = 1/4" ZAMAK NAILIN
1" EMBED. INTO 3000 PSI CONC. OR BLOCK
- ANCHOR (D) = 1/4" RAWL CALK-IN
TOTAL ANCHOR BODY INTO 3000 PSI CONC.
OR C-90 BLOCK
- ANCHOR (E) = 1/4" DIA. LAG SCREWS
1-1/2" MIN PENETRATION INTO WOOD(S.G.=0.55)
- ANCHOR (G) = 1/4" DIA. KWIK-FLEX SELF DRILLING SCREWS
INTO METAL STRUCTURES
(STEEL OR ALUMINUM 1/8" MIN. THICK.)

NOTE: ANCHORS EMBEDMENT SHOWN IS BEYOND WALL & FLOOR COVERINGS (STUCCO, TILES, ETC.)

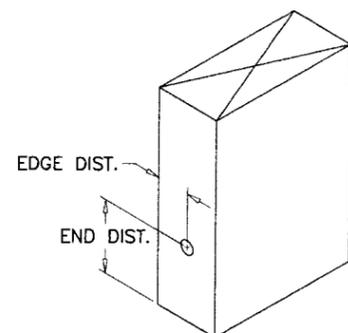
FASTENER SPACING IN MASONRY

CHARTS ARE BASED ON TYPICAL EDGE DISTANCE = 12d.
FOR LESSER EDGE DISTANCE DECREASE SPACING BY
MULTIPLYING WITH THE FACTOR BELOW

EDGE DIST.	12d=3"	10d=2-1/2"	8d=2"	6d=1-1/2"	5d=1-1/4"
FACTOR	1.00	0.86	0.71	0.57	0.50

EXAMPLE: FOR 3" EDGE DIST. SPACING = 9" O.C. (FROM CHART)
FOR 2" EDGE DIST. SPACING = 9 X .71 = 6.3 O.C.

TYPICAL EDGE DISTANCE IN WOOD = 3/4"
TYPICAL END DISTANCE IN WOOD = 1"
NO REDUCTION FACTOR IS REQUIRED



USE CHARTS 1 THRU 7 TO VERIFY ANCHOR REQUIREMENTS AND STRESS LIMITATIONS OF LOAD/SPAN COMBINATIONS FOR HEADER AND SILL.

Engr: DR. HUMAYOON FAROOQ
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Miami Dad Product Control Division

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