



NON-HVHZ

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

www.buildingcodeonline.com

NOTICE OF ACCEPTANCE (NOA)

Folding Shutter Corporation
7089 Hemstreet Place
West Palm Beach, Florida 33413

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 only in the **NON-High Velocity Hurricane Zone (NON-HVHZ)** 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 **NON-HVHZ** of the Florida Building Code.

DESCRIPTION: "Titan II" Aluminum Accordion Shutter

APPROVAL DOCUMENT: Drawing No. 1475, titled "Titan II NON-HVHZ Folding Shutter", sheets 1 through 5 of 5, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated April 04, 2006, signed and sealed by W. W. Schaefer, P.E. on April 04, 2006 bearing the Miami-Dade County Product Control Approval stamp with the Notice of Acceptance number and approval date by 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 the following statement: "**NON-HVHZ** 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 **NON-HVHZ** 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, evidence submitted pages E-1 through E-4 as well as approval document mentioned above.

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



NOA No 06-0407.07
Expiration Date: 04/09/2011
Approval Date: 05/18/2006
Page 1

Folding Shutter Corporation

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 94-0916.10

A. TESTS:

1. *Test report on Uniform Static Air Pressure Test of Accordion Shutter, prepared by Hurricane Engineering & Testing, Inc., Report No.HETI-94-191, dated 07/15/94, signed and sealed by Arshad Viqar, P.E.*
2. *Test report on Large Missile Impact Test and Cyclic Wind Pressure Test of accordion shutter, prepared by Hurricane Engineering & Testing, Inc., Report No. HETI-94-195, dated 07/16/94, signed and sealed by Arshad Viqar, P.E.*

B. DRAWINGS:

1. *Drawing No. 94-63 "Accordion Shutter Details", sheets 1 and 2 of 2, prepared by Al-Farooq Corporation, dated 08/25/94, revised on 10/05/94, signed and sealed by Humayoun Farooq, P.E.*

C. MATERIAL CERTIFICATION:

1. *Mill Certified Test Report issued by William L. Bonnell Co., Inc. dated 09/13/94 with chemical composition and mechanical properties for aluminum alloy 6063-T6.*
2. *Tensile Test Report No. HETI-94-T20, prepared by Hurricane Engineering & Testing Inc. dated 09/15/94*

D. CALCULATIONS:

1. *Anchor analysis dated 10/06/94, Pages 1 thru 10 of 10, prepared by Al-Farooq Corp., signed and sealed by Humayoun Farooq, P.E.*

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 96-1112.02

A. DRAWINGS:

1. *Drawing prepared by Al-Farooq Corporation titled "Titan II Folding Shutter", Drawing No. 94-63, dated 08/25/94, revision E dated 03/19/98, sheets 1 through 5 of 5, signed and sealed by Humayoun Farooq, P.E.*

B. TESTS:

1. *Test report on Uniform Static Air Pressure Test of accordion shutter, prepared by Hurricane Engineering & Testing, Inc., Report No.HETI-96-542, dated 04/17/96, signed and sealed by Hector M. Medina, P.E.*
2. *Test report on Large Missile Impact Test and Cyclic Wind Pressure Test of accordion shutter, prepared by Hurricane Engineering & Testing, Inc., Report No.HETI-96-541, dated 04/03/96, signed and sealed by Hector M. Medina, P.E.*



Helmy A. Makar, P. E.
Product Control Examiner
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Expiration Date: 04/09/2011
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3. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of accordion shutter, prepared by Hurricane Test Laboratory, Inc., Report No. 0143-0806-97, dated 08/08/97, signed and sealed by Timothy S. Marshall, P.E.*

C. CALCULATIONS:

1. *Anchor analysis dated 09/30/96, prepared by Al-Farooq Corp., signed and sealed by Humayoun Farooq, P.E.*
2. *Anchor analysis dated 12/22/97, prepared by Al-Farooq Corp., signed and sealed by Humayoun Farooq, P.E.*
3. *Anchor analysis dated 03/19/98, prepared by Al-Farooq Corp., signed and sealed by Humayoun Farooq, P.E.*

3. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 01-0118.03

A. DRAWINGS:

1. *None.*

B. TESTS:

1. *None.*

C. CALCULATIONS:

1. *None.*

D. MATERIAL CERTIFICATION:

1. *None.*

4. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 02-1224.03

A. DRAWINGS

1. *Drawing No. 1173, titled "Titan II Folding Shutter", sheets 1 through 5 of 5, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated October 03, 2002, signed and sealed by Warren W. Schaefer, P.E. on June 05, 2003.*

B. TESTS

1. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of accordion shutter, prepared by Hurricane Test Laboratory, Inc., Report No. 0143-0408-02, dated 11/12/02, signed and sealed by Vinu J. Abraham, P.E.*



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C. CALCULATIONS

1. *Anchor analysis, 12 Pages, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated October 15, 2002, signed and sealed by Warren W. Schaefer, P.E.*

D. MATERIAL CERTIFICATIONS

1. *Tensile Test Report No. 2KM-1334, prepared by QC Metallurgical, Inc., dated December 06, 2002.*

5. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 04-1103.01

A. DRAWINGS

1. *Drawing No. 1173, titled "Titan II Folding Shutter", sheets 1 through 5 of 5, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated October 03, 2002, last revision A, signed and sealed by Warren W. Schaefer, P.E. on October 28, 2004.*

B. TESTS

1. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test and Uniform Static Air Pressure Test of accordion shutter, prepared by Hurricane Test Laboratory, Inc., Report No. 0143-0408-02, dated 05/07/04, signed and sealed by Vinu J. Abraham, P.E.*

C. QUALITY ASSURANCE

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

D. CALCULATIONS

1. *None.*

E. MATERIAL CERTIFICATIONS

1. *Tensile Test Report No. 2KM-1334, prepared by QC Metallurgical, Inc., dated December 06, 2002.*

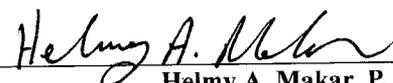
6. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 05-0119.01

A. DRAWINGS

1. *Drawing No. 1173, titled "Titan II Folding Shutter", sheets 1 through 5 of 5, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated October 03, 2002, last revision A, signed and sealed by Warren W. Schaefer, P.E. on January 05, 2005.*

B. TESTS

1. *None.*



Helmy A. Makar, P. E.
Product Control Examiner
NOA No 06-0407.07
Expiration Date: 04/09/2011
Approval Date: 05/18/2006

Folding Shutter Corporation

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

C. QUALITY ASSURANCE

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

D. CALCULATIONS

1. *Design analysis and Anchor calculations, 50 Pages, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated January 04, 2005, signed and sealed by Warren W. Schaefer, P.E.*

E. MATERIAL CERTIFICATIONS

1. *None.*

7. NEW EVIDENCE SUBMITTED (NON-HVHZ) from NOA #05-0908.01

A. DRAWINGS

1. *Drawing No. 1475, titled "Titan II NON-HVHZ Folding Shutter", sheets 1 through 5 of 5, prepared by W. W. Schaefer Engineering & Consulting, P.A., dated April 04, 2006, signed and sealed by W. W. Schaefer, P.E. on April 04, 2006.*

B. TESTS

1. *None.*

C. QUALITY ASSURANCE

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

D. CALCULATIONS

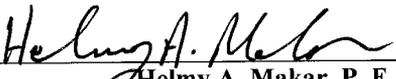
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E. MATERIAL CERTIFICATIONS

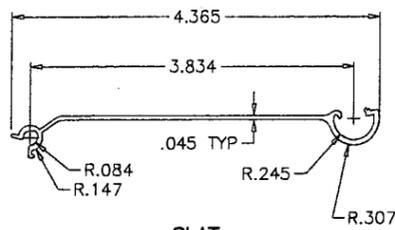
1. *None.*

F. NOTE

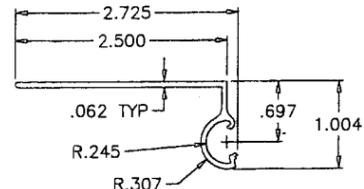
1. *The only change in NOA#06-0407.07 for NON-HVHZ from NOA #05-0908.01 is the Shutter Glass Separation.*



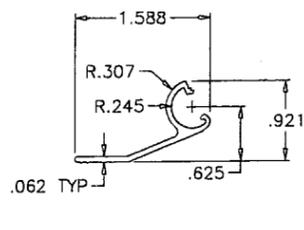
Helmy A. Makar, P. E.
Product Control Examiner
NOA No 06-0407.07
Expiration Date: 04/09/2011
Approval Date: 05/18/2006



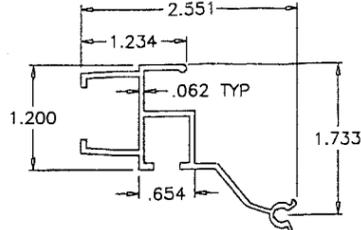
SLAT
6063-T6



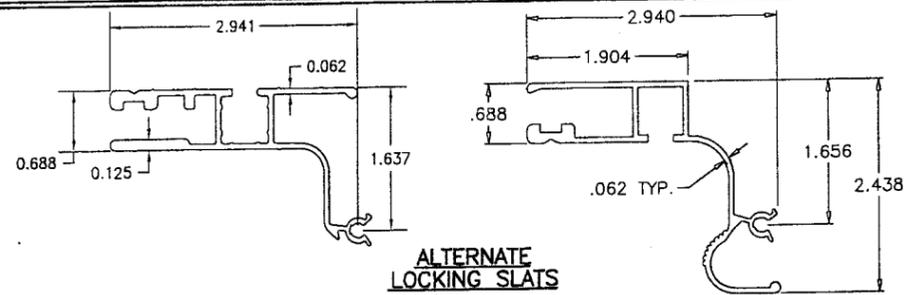
WALL MOUNT SLAT
6063-T5



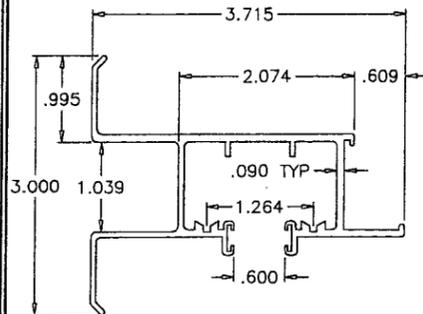
FEMALE END SLAT
6063-T5



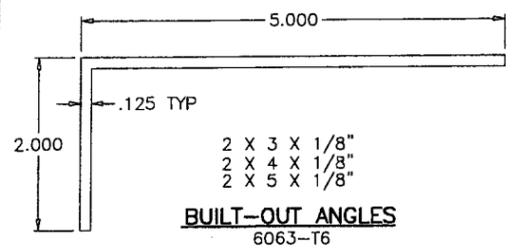
MALE LOCKING SLAT
6063-T6



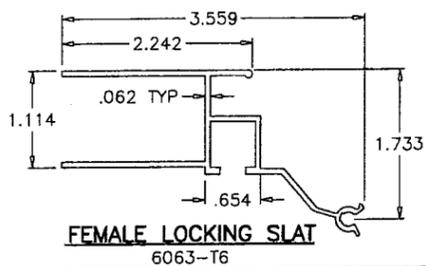
ALTERNATE LOCKING SLATS
6063-T6



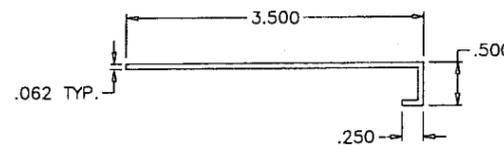
WALL HEADER
6063-T5



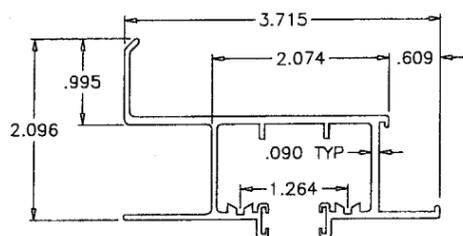
BUILT-OUT ANGLES
6063-T6



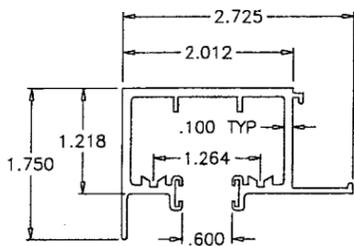
FEMALE LOCKING SLAT
6063-T6



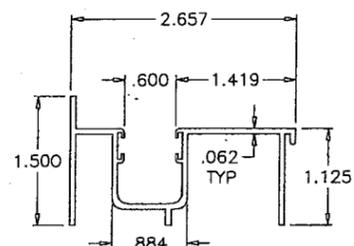
BOTTOM RAIN GUARD (OPTIONAL)
(NON STRUCTURAL)
6063-T6



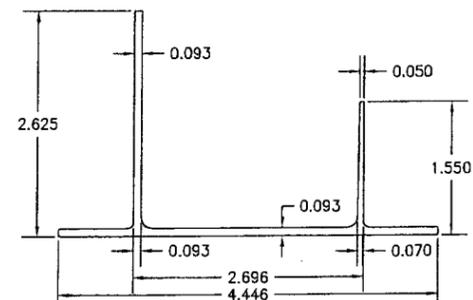
ALT. WALL HEADER
6063-T5



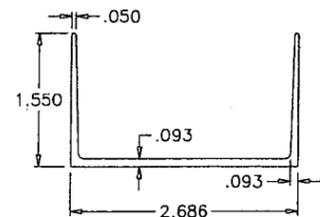
CEILING HEADER
6063-T5



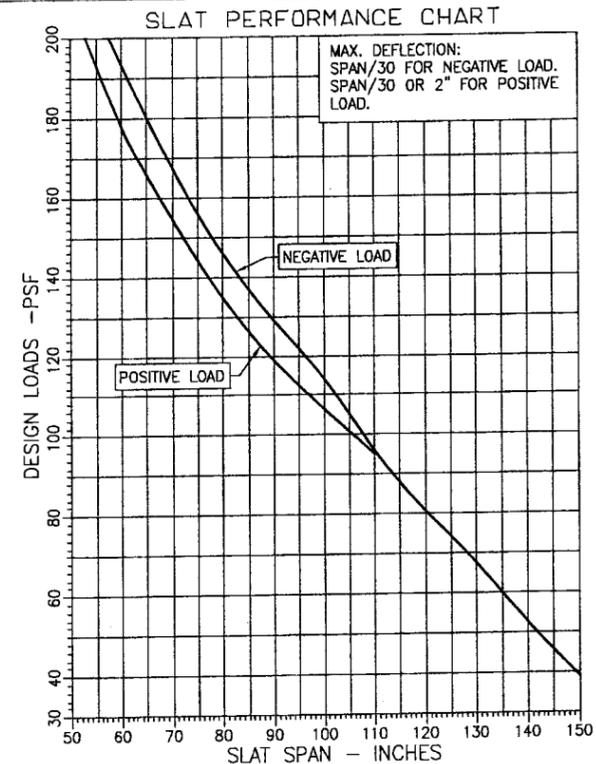
BOTTOM SILL TRACK
6063-T6



ALTERNATE BOTOM TRACK ADAPTER
6063-T5 ALUMINUM



BOTTOM TRACK ADAPTER
6063-T6



USE SLAT PERFORMANCE CHART TO VERIFY SLAT CAPACITY FOR THE REQUIRED DESIGN LOAD FOR THE PARTICULAR LOCATION.

PRODUCT MARKING

A LABEL SHALL BE AFFIXED ON LOCKING MEMBER OF UNIT ABOVE THE LOCK WITH FOLLOWING STATEMENT

FOLDING SHUTTER CORP. WEST PALM BEACH, FL
"DADE COUNTY PRODUCT CONTROL APPROVED"

GENERAL NOTES

1. THESE SHUTTERS ARE DESIGNED PER THE 2004 FLORIDA BUILDING CODE (FBC) FOR NON-HIGH VELOCITY HURRICAN ZONES (NON-HVHZ).
2. DESIGN CRITERIA FOR ALUMINUM, MINIMUM MECHANICAL PROPERTIES, AND SAFETY FACTORS ARE IN ACCORDANCE WITH THE "ALUMINUM CONSTRUCTION MANUAL" LATEST EDITION.
3. ALL EXTRUSIONS SHALL BE ALLOYS AS SHOWN ON DETAILS.
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 LISTED, SPACED AS SHOWN ON DETAILS. ANCHOR EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO.
6. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL OR ALUMINUM ALLOY 2024-T4 OR 7075-T6.
7. DESIGN CRITERIA FOR SLATS: MAX DEFLECTION $\leq L/30$ FOR NEGATIVE PRESSURE AND THE LESSER OF $L/30$ OR 2" FOR POSITIVE PRESSURE.
8. ANCHORING OR LOADING CONDITIONS OTHER THAN THOSE SHOWN IN THESE DETAILS ARE NOT PART OF THIS APPROVAL.

Approved as complying with the Florida Building Code
Date: 05/18/2006
NOA# 06-0407.07
Miami Dade Product Control
Division
By: *Helmy A. M...*

DRAWN BY:	W.W.S.	CHECKED BY:	W.W.S.
PLOT:	1=1	DATE:	04/04/06
NO.	REVISION DESCRIPTION	DATE	BY

TITAN II NON-HVHZ FOLDING SHUTTER
MANUFACTURER
FOLDING SHUTTER CORP.
7089 HEMSTREET PLACE
WEST PALM BEACH, FL 33406
561-683-4811

CONSULTANTS
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.
8895 N. MILITARY TRAIL, SUITE C-204
PALM BEACH GARDENS, FL 33410
PHONE: 561-775-4902 FAX: 561-775-4903

CERTIFICATION
APR 04 2006
WARREN W. SCHAEFER, P.E.
P.E. NO. 44135

DRAWING NO.	REV.
1475	
SHEET NO.	
1	OF 5

CERTIFICATION

DRAWING TITLE

MANUFACTURER

CONSULTANTS

APR 0 & 2006
W. W. SCHAEFER P.E.
W. W. SCHAEFER P.E. NO. 44135

NOV 06-0407.0
05/18/2006
Florida Building Code
Approved as submitted with the
Minimum Trade Product Control

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

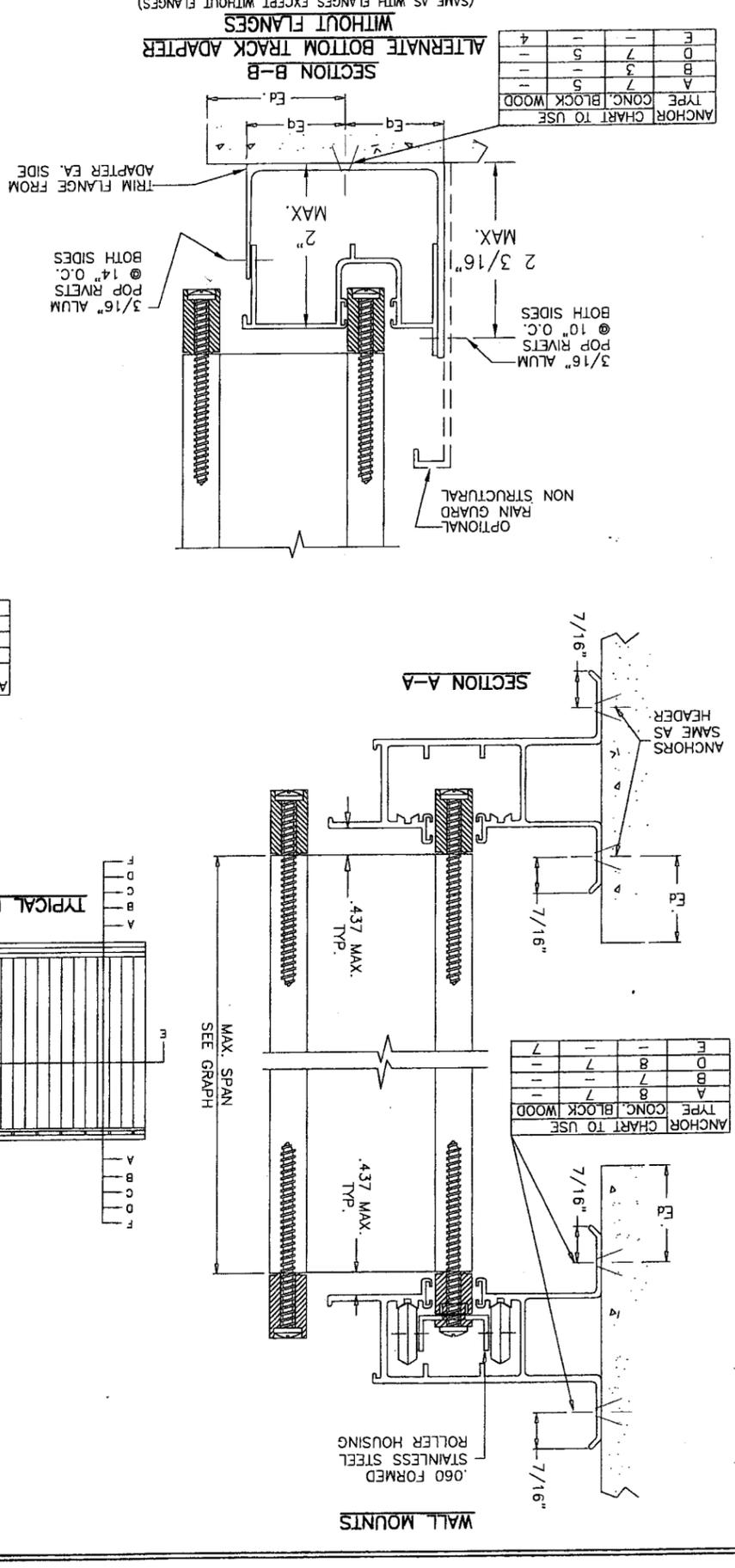
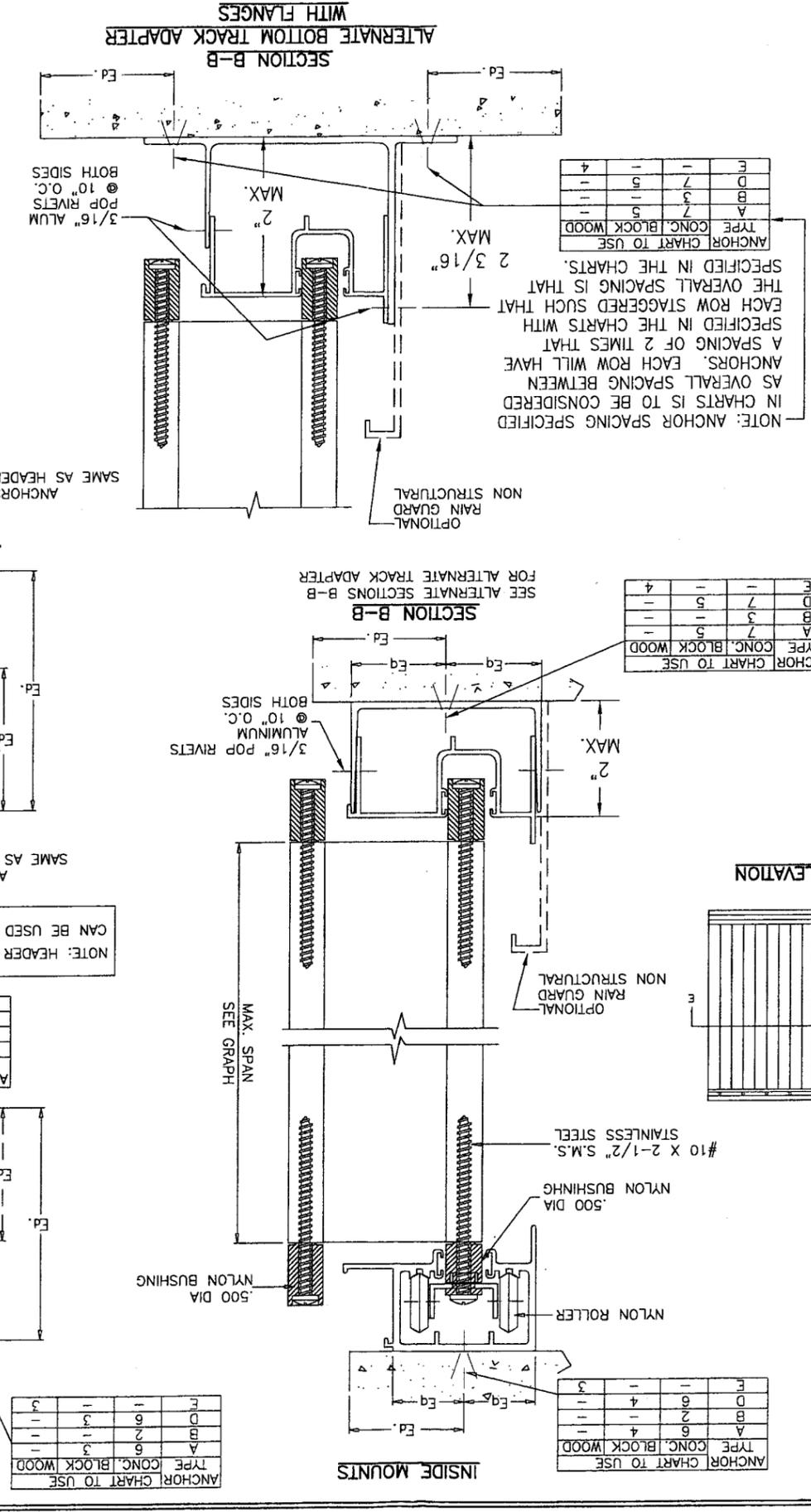
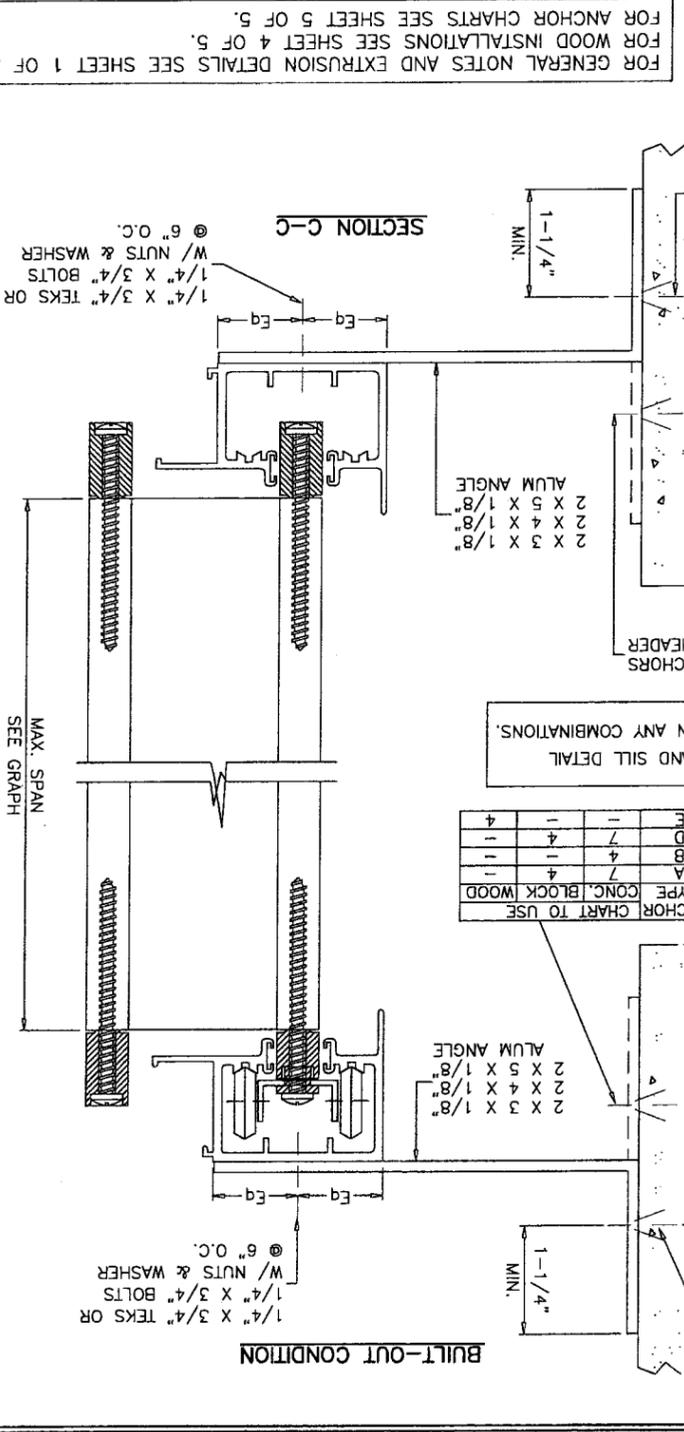
Ed = TYPICAL EDGE DISTANCE
WOOD = 5d
CONC. & BLOCK = 12d (12 ANCHOR DIAMETERS)

FOR LESSER EDGE DISTANCES SEE SHEET 5 OF 5.

FOR ANCHOR CHARTS SEE SHEET 5 OF 5.

FOR WOOD INSTALLATIONS SEE SHEET 4 OF 5.

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



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

FOR WOOD INSTALLATIONS SEE SHEET 4 OF 5.

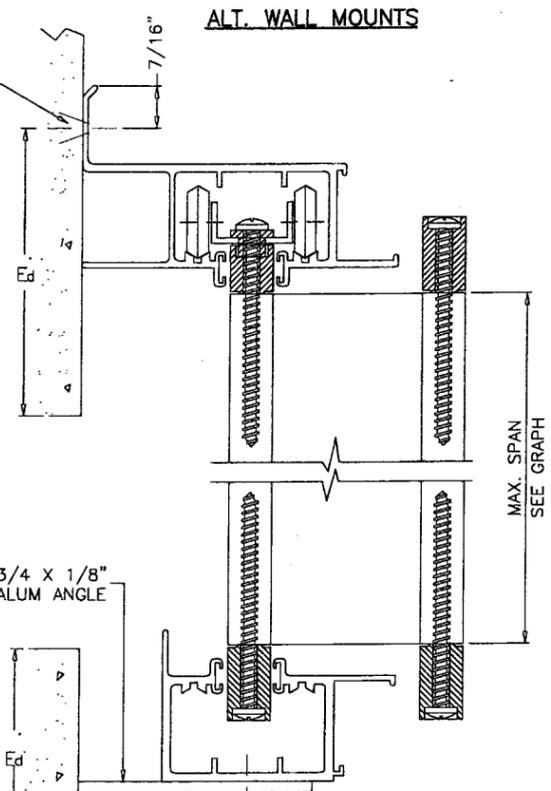
FOR ANCHOR CHARTS SEE SHEET 5 OF 5.

FOR ALTERNATE SECTIONS B-B FOR ALTERNATE TRACK ADAPTER

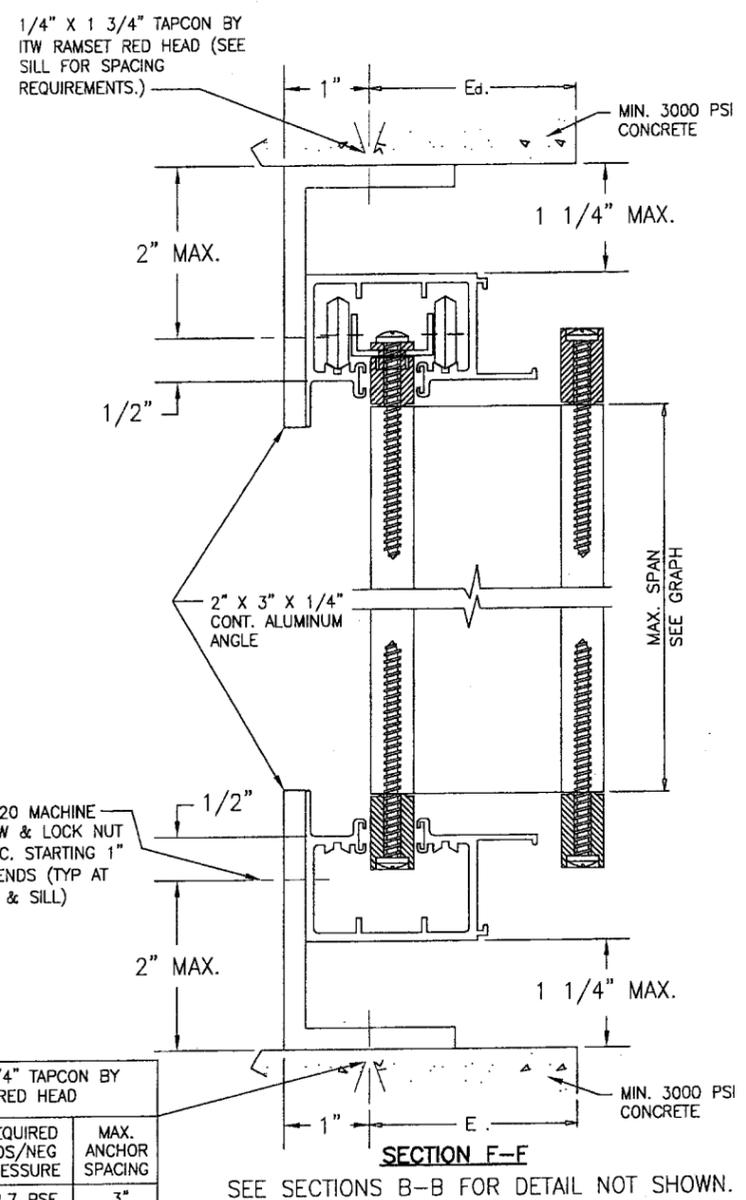
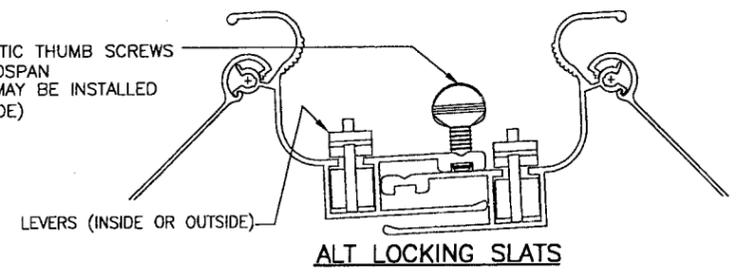
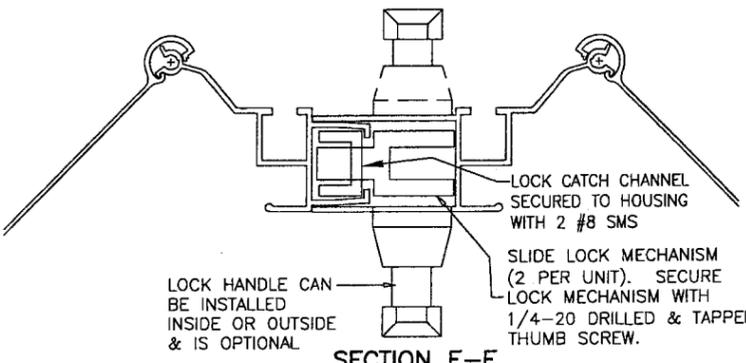
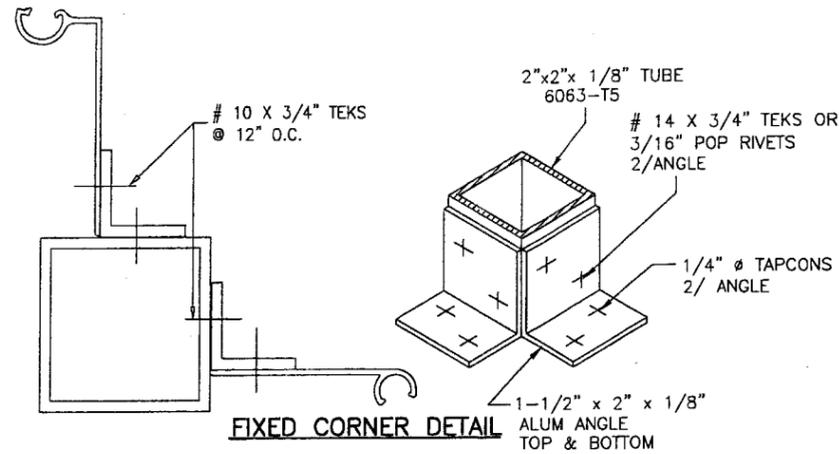
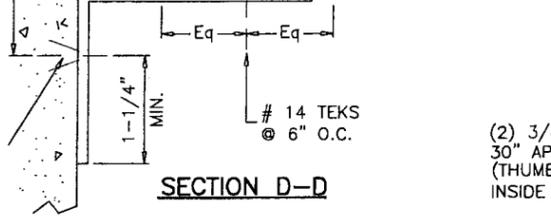
NOTE: ANCHOR SPACING SPECIFIED IN CHARTS IS TO BE CONSIDERED AS OVERALL SPACING BETWEEN ANCHORS. EACH ROW WILL HAVE A SPACING OF 2 TIMES THAT SPECIFIED IN THE CHARTS WITH EACH ROW STAGGERED SUCH THAT THE OVERALL SPACING IS THAT SPECIFIED IN THE CHARTS.

(SAME AS WITH FLANGES EXCEPT WITHOUT FLANGES)

ANCHOR TYPE	CHART TO USE		
	CONC.	BLOCK	WOOD
A	2	1	-
B	1	-	-
D	3	1	-
E	-	-	1

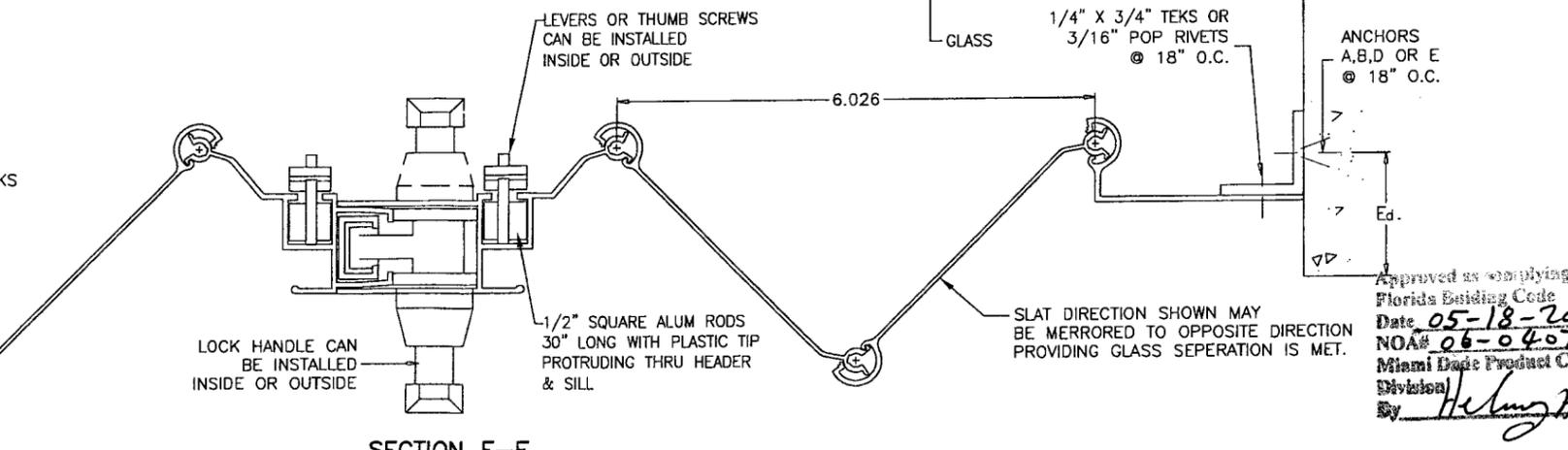
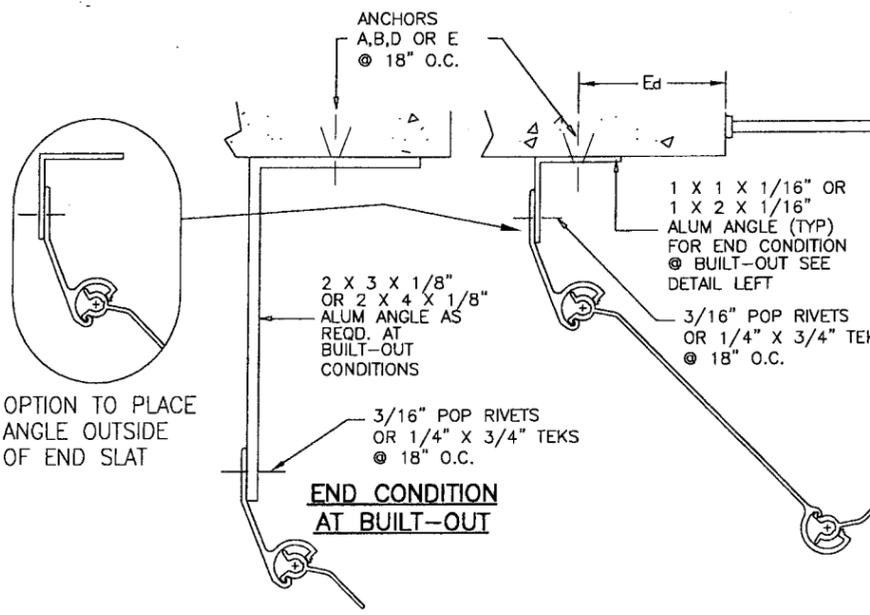


ANCHOR TYPE	CHART TO USE		
	CONC.	BLOCK	WOOD
A	5	2	-
B	2	-	-
D	5	2	-
E	-	-	2



1/4" X 1 3/4" TAPCON BY ITW RAMSET RED HEAD		
MAX. SHUTTER HEIGHT	REQUIRED POS/NEG PRESSURE	MAX. ANCHOR SPACING
99.5"	82.7 PSF	3"
99.5"	41.4 PSF	6"
99.5"	27.8 PSF	9"

SEE SECTIONS B-B FOR DETAIL NOT SHOWN.



DRAWN BY: W.W.S.	CHECKED BY: W.W.S.
PLOT: 1=1	DATE: 04/04/06
DATE	BY
REVISION DESCRIPTION	
NO.	
DRAWING TITLE TITAN II NON-HVAZ FOLDING SHUTTER	
CONSULTANTS W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.	MANUFACTURER FOLDING SHUTTER CORP.
8895 N. MILITARY TRAIL, SUITE C-204 PALM BEACH GARDENS, FL 33410 PHONE: 561-775-4902 FAX: 561-775-4903	7089 HEMSTREET PLACE WEST PALM BEACH, FL 33406 561-683-4811
CERTIFICATION APR 04 2006 WARREN W. SCHAEFER, P.E. NO. 44135	
Approved as complying with the Florida Building Code Date: 05-18-2006 NOA: 06-0407-07 Miami Dade Product Control Division By: <i>Heung H. Mak</i>	
DRAWING NO. 1475	REV.
SHEET NO. 3 OF 5	

DRAWN BY: W.W.S.	CHECKED BY: W.W.S.
PLOT: 1=1	DATE: 04/04/06
DATE	
BY	
REVISION DESCRIPTION	
NO.	

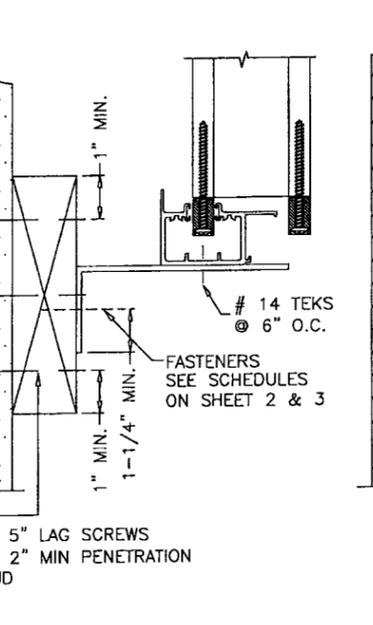
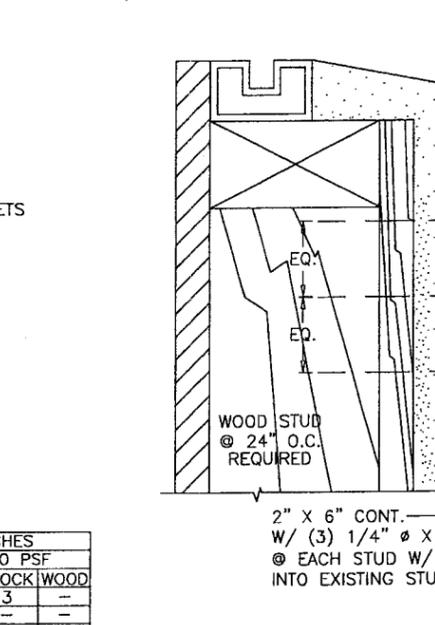
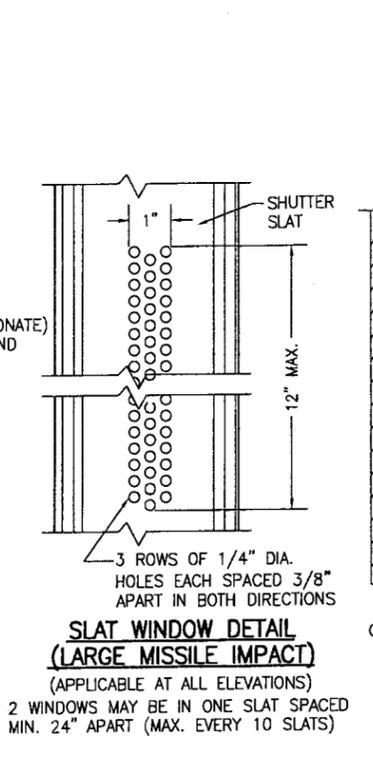
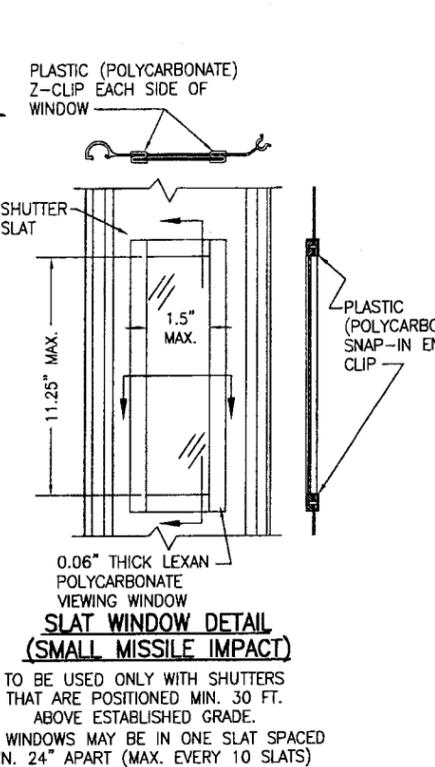
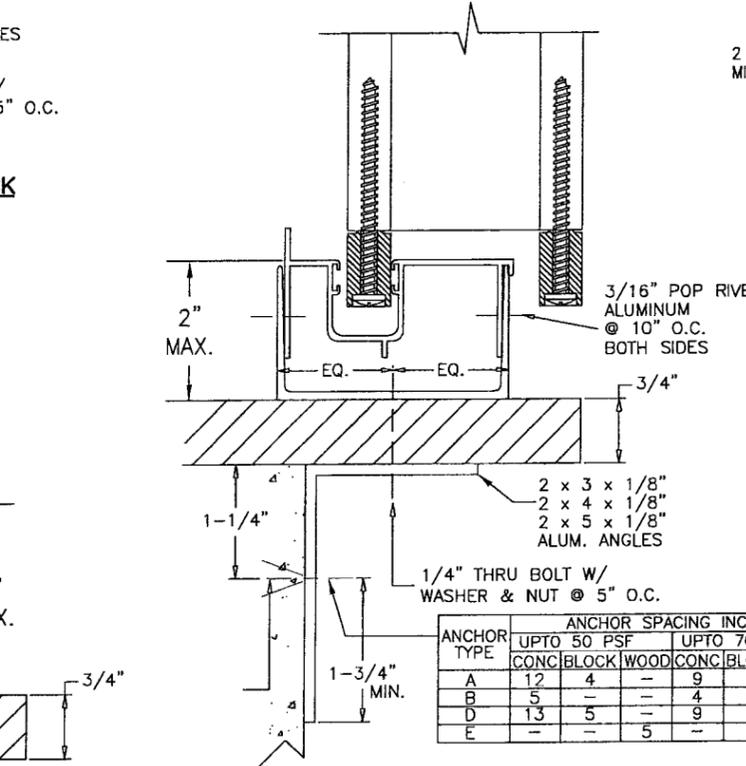
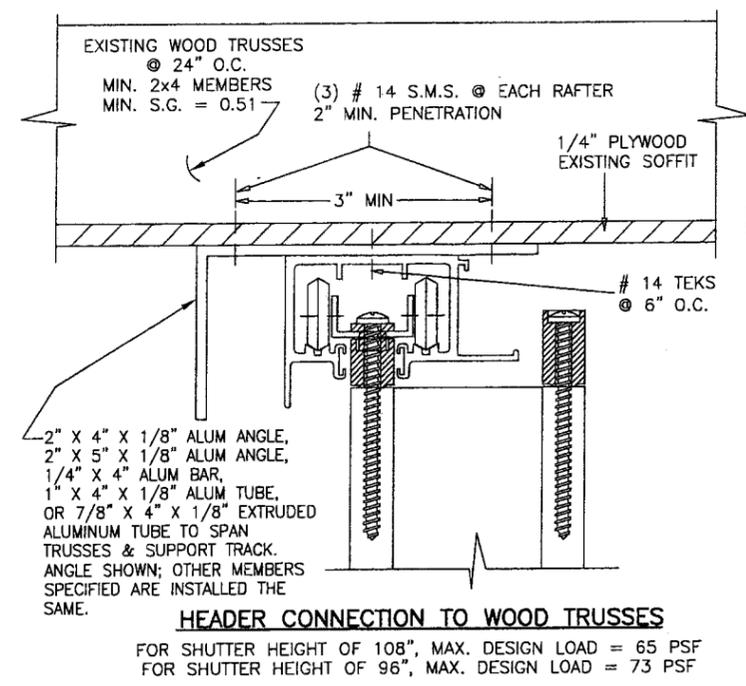
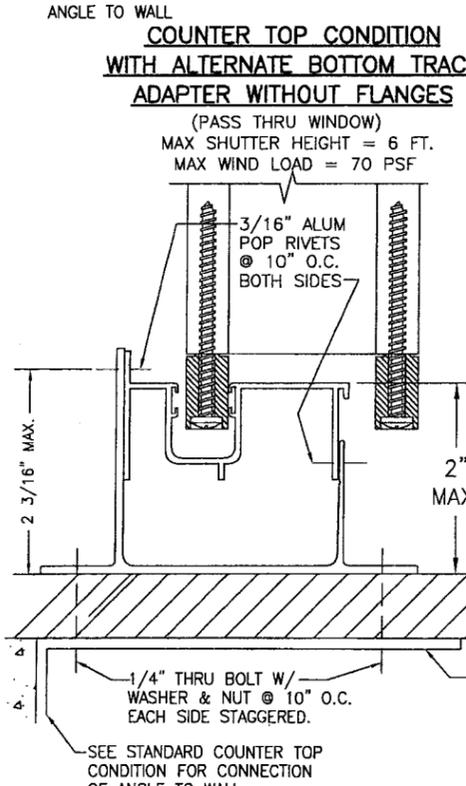
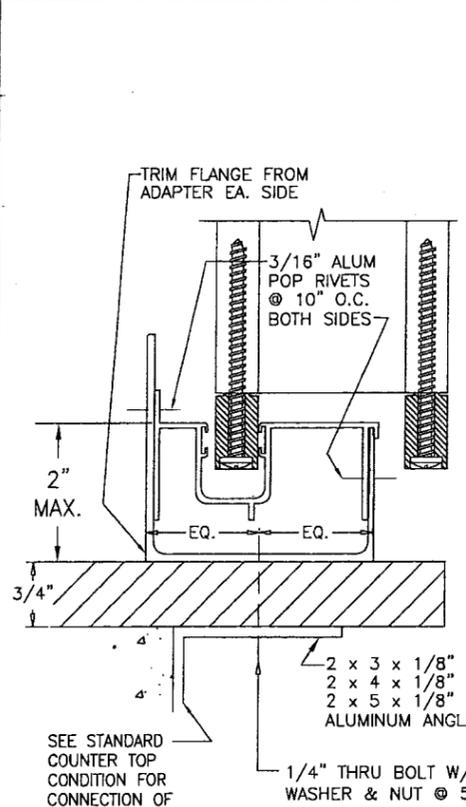
DRAWING TITLE
TITAN II NON-HVAZ FOLDING SHUTTER

MANUFACTURER
FOLDING SHUTTER CORP.
7089 HEMSTREET PLACE
WEST PALM BEACH, FL 33406
561-683-4811

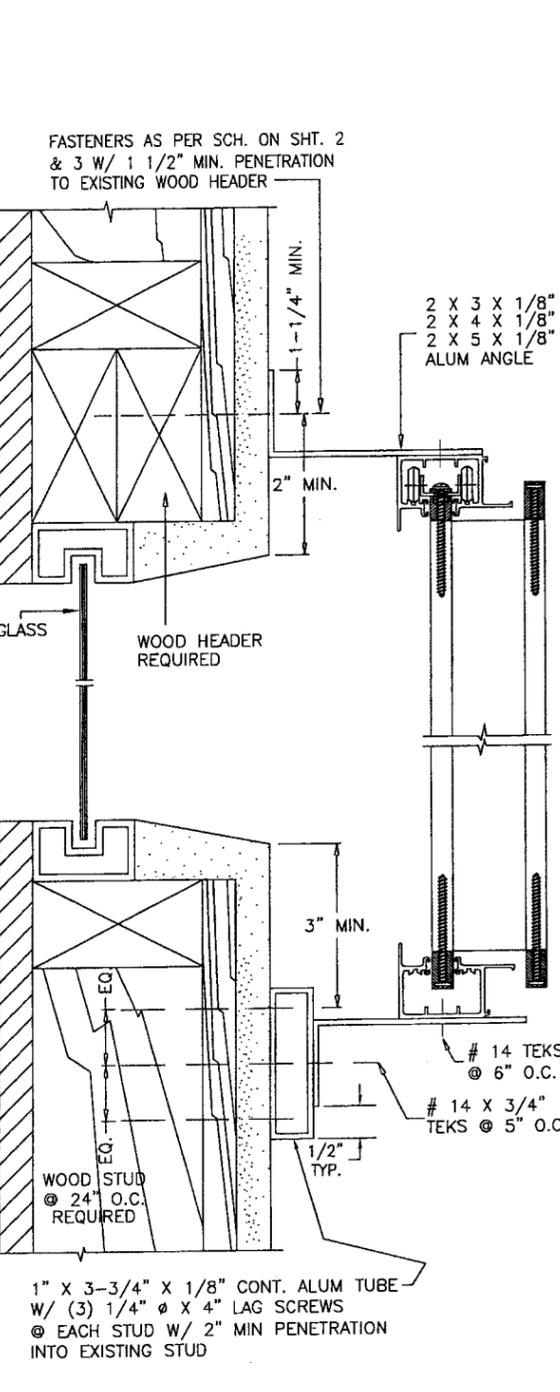
CONSULTANTS
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.
8895 N. MILITARY TRAIL, SUITE C-204
PALM BEACH GARDENS, FL 33410
PHONE: 561-775-4902 FAX: 561-775-4903

CERTIFICATION
APR 10 2006
WARREN W. SCHAEFER, P.E.
P.E. NO. 44135

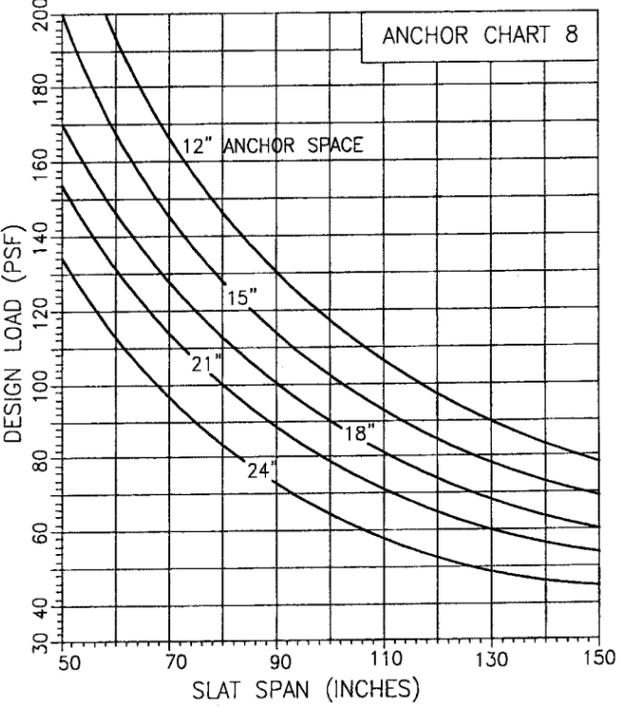
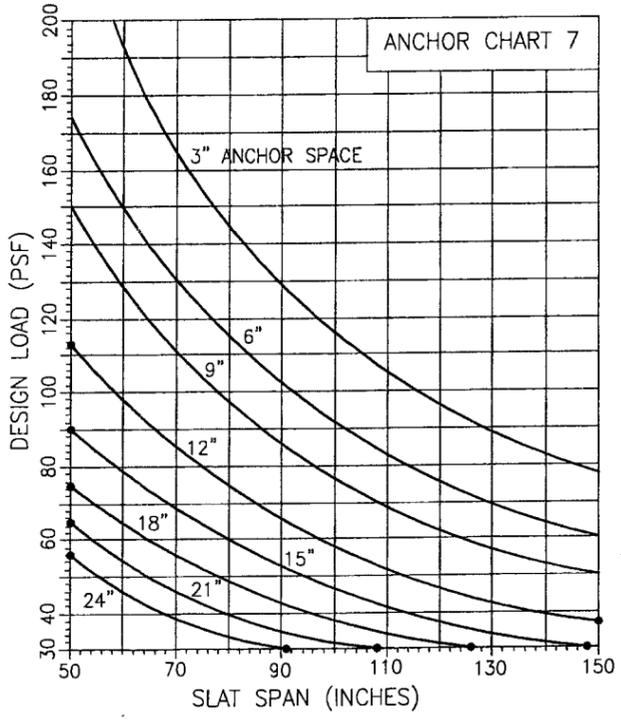
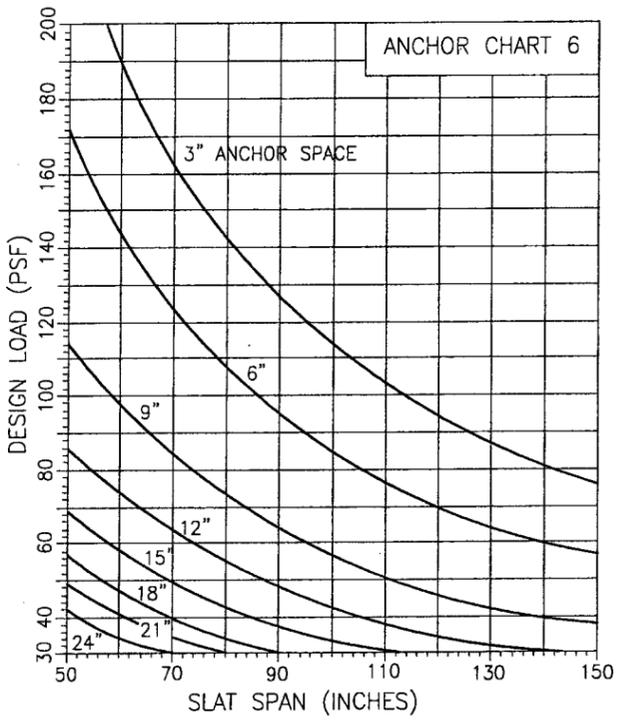
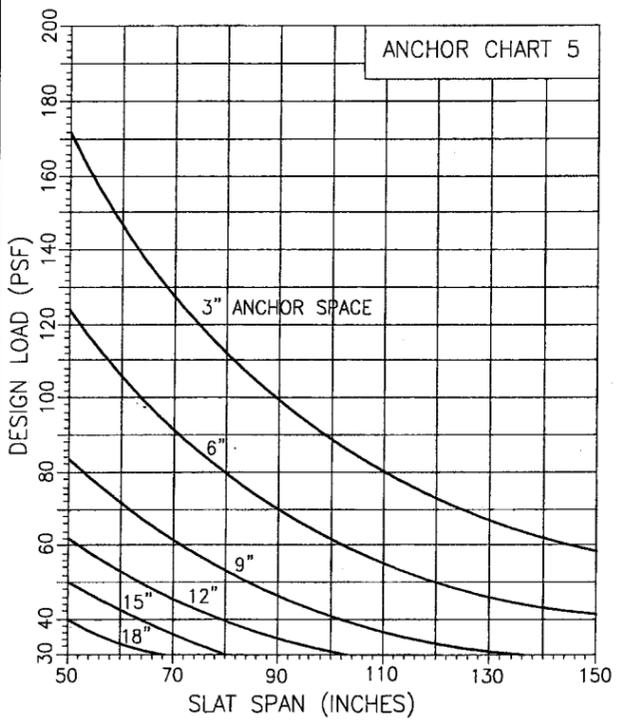
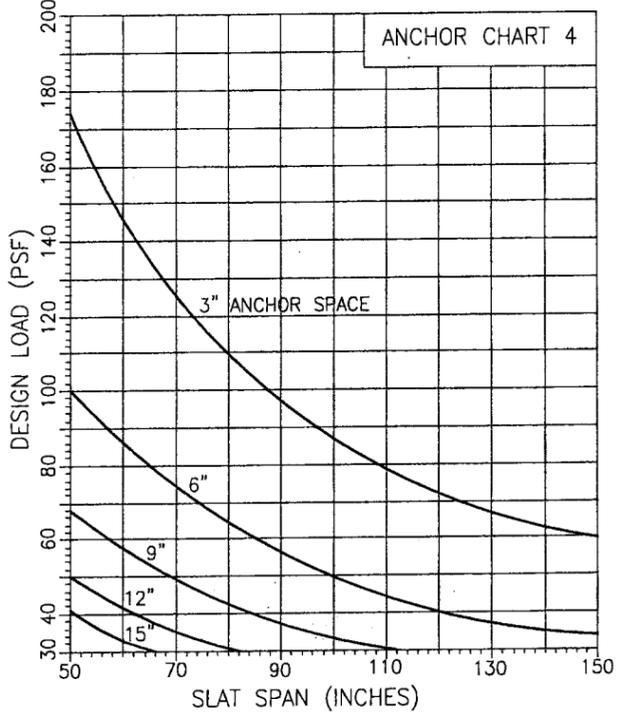
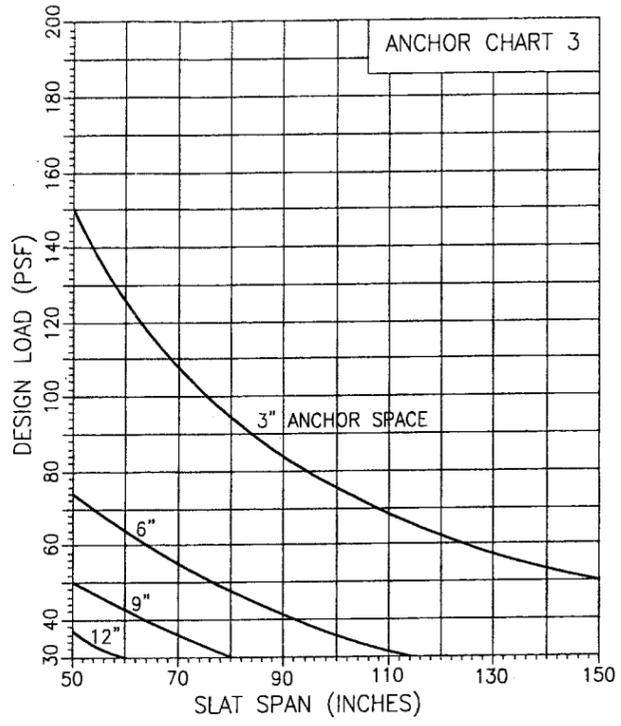
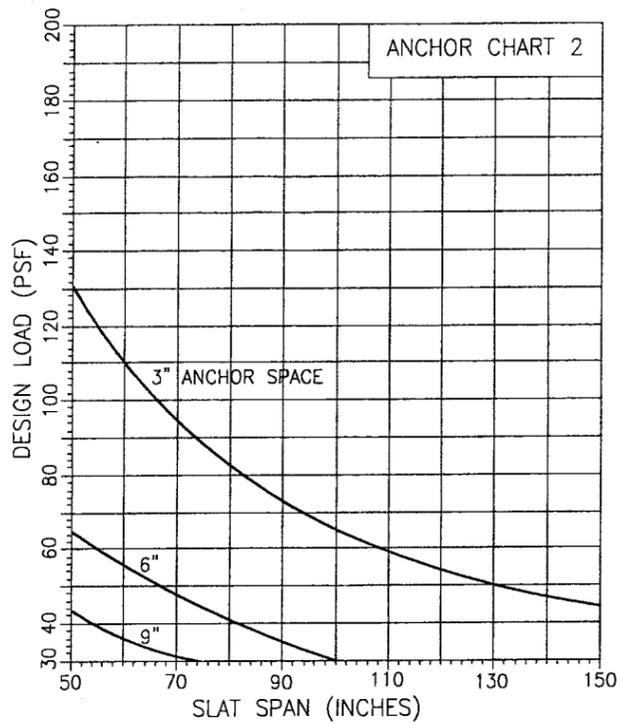
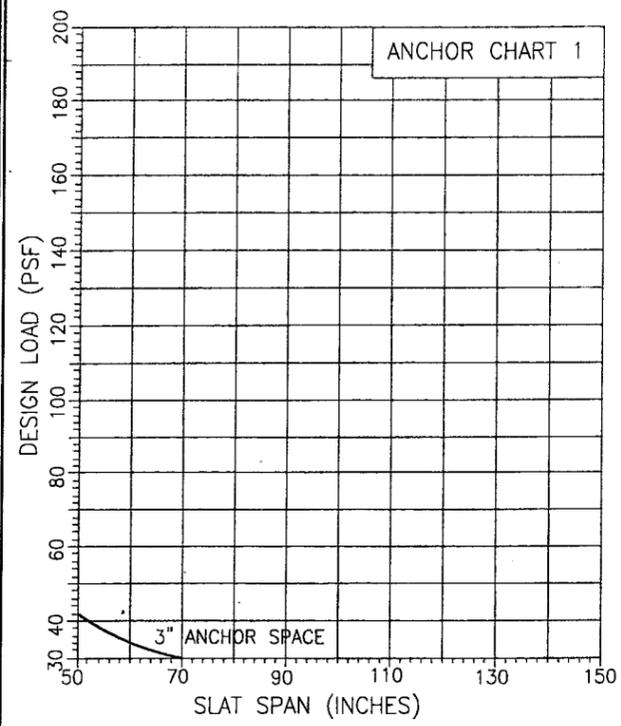
DRAWING NO. 1475
REV. 5
SHEET NO. 4 OF 5



INSTALLATION DETAIL ON EXISTING WOOD BUCKS SCALE: 1/4"=1"
FOR SHUTTER HEIGHT OF 108" MAX. DESIGN LOAD = 46 PSF
FOR SHUTTER HEIGHT OF 96" MAX. DESIGN LOAD = 51 PSF
FOR HEADER/SILL DETAILS CONNECTED TO CONTINUOUS WOOD MEMBERS SEE SHEETS 2 & 3.



Approved as complying with the Florida Building Code
Date 05/18/2006
NOAH 06-0407-07
Miami Dade Product Control
Division
By Helmy A. Alkhatib



TYPICAL ANCHORS

- ANCHOR (A) = 1/4" TAPCON (BY ITW RAMSET/RED HEAD):
1-3/4" EMBEDMENT TO 3000 PSI MIN. CONCRETE
1-1/4" EMBEDMENT TO BLOCK
- ANCHOR (B) = #14 S.M.S. W/ RAWL SCRU-LEAD INTO MIN. 3000 PSI CONCRETE:
1-1/2" EMBEDMENT.
- ANCHOR (D) = 1/4" RAWL CALK-IN:
TOTAL ANCHOR BODY INTO BLOCK OR MIN. 3000 PSI CONCRETE.
- ANCHOR (E) = #14 S.M.S./LAG SCREWS INTO WOOD (S.G. = 0.47):
1-1/2" MIN. PENETRATION.

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 = 12" O.C. (FROM CHART) FOR 2" EDGE DIST. SPACING = 12 X .71 = 8.5 O.C.					
TYPICAL EDGE DISTANCE IN WOOD = 1-1/4" NO REDUCTION FACTOR IS REQUIRED					

USE CHARTS 1 THRU 8 TO VERIFY ANCHOR REQUIREMENTS AND STRESS LIMITATIONS OF LOAD/SPAN COMBINATIONS FOR HEADER AND SILL.

NOTE: ANCHORS, USE FULL EMBEDMENT IN CONCRETE BEYOND THE COVERING (STUCCO, TILES, ETC.)

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Date: 05/18/2006
NOA# 06-0407-07
Miami Dade Product Control
Division
By: *Helmut A. Weber*

DRAWN BY: W.W.S.	CHECKED BY: W.W.S.
PLOT: 1=1	DATE: 04/04/06
NO.	REVISION DESCRIPTION
DATE	BY
<p>DRAWING TITLE: TITAN II NON-HVAZ FOLDING SHUTTER</p> <p>CONSULTANTS: W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. 8895 N. MILITARY TRAIL, SUITE C-204 PALM BEACH GARDENS, FL 33410 PHONE: 561-775-4902 FAX: 561-775-4903</p> <p>MANUFACTURER: FOLDING SHUTTER CORP. 7089 HEMSTREET PLACE WEST PALM BEACH, FL 33406 561-683-4811</p>	
CERTIFICATION	<p>APR 04 2006</p> <p>WARREN W. SCHAEFER, P.E. P.E. NO. 44135</p>
DRAWING NO. 1475	REV.
SHEET NO. 5	OF 5