



**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**

NOTICE OF ACCEPTANCE (NOA)

**Alufab Hurricane Shutters, Inc.
13000 N. W. 38th Avenue
OPA-LOCKA, Florida 33054**

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: 0.0295" (min.) Galvanized Steel Storm Panels Shutter

APPROVAL DOCUMENT: Drawing No. 03-244, titled "0.0295" thick galv. Steel storm panel", sheets 1 through 8 of 8, prepared by Tilteco, Inc., dated December 04, 2003, last revision #1 dated March 30, 2004, signed and sealed by Walter A. Tillit Jr., P.E., 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 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 consists of this page 1, evidence submitted page(s) as well as approval document mentioned above. The submitted documentation was reviewed by **Helmy A. Makar, P.E.**



Helmy A. Makar
04/29/2004

NOA No 04-0210.01
Expiration Date: 04/29/2009
Approval Date: 04/29/2004
Page 1

Alufab Hurricane Shutters, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. *Drawing No. 03-244, titled "0.0295" thick galv. Steel storm panel", sheets 1 through 8 of 8, prepared by Tilteco, Inc., dated December 04, 2003, last revision #1 dated March 30, 2004, signed and sealed by Walter A. Tillit Jr., P.E.*

B. TESTS

1. *Test report on Uniform Static Air Pressure Test, Large Missile Impact Test, and Cyclic Wind Pressure Test of 0.0295" galvanized steel storm panels shutter, prepared by Construction Testing Corporation, Report No. 03-025, dated December 31, 2003, signed and sealed by Yamil G. Kuri, P.E.*

C. CALCULATIONS

1. *0.0295" thick galvanized steel Storm panel calculations, Sheets 1 through 51 of 51, by Tilteco, Inc., signed and sealed by Walter A. Tillit Jr., P.E., dated February 03, 2004.*

D. QUALITY ASSURANCE

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

E. MATERIAL CERTIFICATIONS

1. *Mill Certified Inspection Report, dated 02/17/03, for G-60 Steel, ASTM A653 Grade 80 by GalvTech, with chemical composition and physical properties.*
2. *Tensile Test Reports from Certified Testing Laboratories, Job No. CTL-1116 dated January 23, 2004 for galvanized steel, tested per ASTM E8-93, signed and sealed by Ramesh Patel, P.E.*



Helmy A. Makar, P. E.

Product Control Examiner

NOA No 04-0210.01

Expiration Date: 04/29/2009

Approval Date: 04/29/2004

GENERAL NOTES:

1. STORM PANEL SHOWN ON THIS PRODUCT APPROVAL DOCUMENT (P.A.D.) HAS BEEN VERIFIED FOR COMPLIANCE IN ACCORDANCE WITH THE 2001 EDITION OF THE FLORIDA BUILDING CODE. THIS SHUTTER SYSTEM MAY BE INSTALLED AT HIGH VELOCITY HURRICANE ZONES. DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1619 OF THE ABOVE MENTIONED CODE. IN ORDER TO VERIFY THAT ANCHORS ON THIS P.A.D. WERE NOT OVERSTRESSED, A 33% INCREASE IN ALLOWABLE STRESS FOR WIND LOADS WAS NOT USED IN THEIR ANALYSIS. STORM PANEL'S ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1606.1.4 OF THE ABOVE MENTIONED CODE AS PER CONSTRUCTION TESTING CORPORATION REPORT #03-025 AS PER TAS-201, TAS-202 AND TAS-203.

2. ALL STEEL SHEET METAL PANELS SHALL HAVE STRUCTURAL QUALITY ASTM A-653, GRADE 80 DESIGNATION W/ Min. Fy=93.78 ksi (AFTER ROLLED) AND TO BE G-90 GALVANIZED.

3. ALL ALUMINUM EXTRUSIONS SHALL BE ALUMINUM ASSOCIATION 6063-T6 ALLOY AND TEMPER (UNLESS OTHERWISE NOTED). THE THICKNESS OF ALL EXTRUSIONS SHALL BE AS SHOWN ON THIS DRAWING.

4. ALL SCREWS TO BE STAINLESS STEEL 304 OR 316 AISI SERIES OR CORROSION RESISTANT COATED CARBON STEEL AS PER DIN 50018 WITH 50 ksi YIELD POINT AND 90 ksi TENSILE STRENGTH.

5. BOLTS TO BE ALUMINUM ASSOCIATION 2024-T4 ALLOY AND TEMPER, ASTM A-307 GALVANIZED STEEL, OR AISI 304 SERIES STAINLESS STEEL WITH 36 ksi MINIMUM YIELD STRENGTH.

6. ANCHORS TO WALL SHALL BE AS FOLLOWS: (UNLESS OTHERWISE NOTED)

(A) TO EXISTING POURED CONCRETE:

- 1/4"Ø TAPCON ANCHORS MANUFACTURED BY ELCO TEXTRON, INTO CONCRETE W/ f'c=3.32 Ksi (Min.)
- 1/4"Øx7/8" CALK-IN ANCHORS MANUFACTURED BY POWERS FASTENERS, INC., INTO CONCRETE W/ f'c=2.0 Ksi (Min.)
- 1/4"Øx7/8" PANELMATE (female/male) MANUFACTURED BY ELCO TEXTRON, INTO CONCRETE WITH f'c=3.35 Ksi (Min.)

NOTES:

A.1) MINIMUM EMBEDMENT INTO POURED CONCRETE OF TAPCON ANCHOR AND ELCO PANELMATE ARE 1 3/4" AND 2" RESPECTIVELY.

A.2) 7/8" CALK-IN ANCHORS SHALL BE ENTIRELY EMBEDDED INTO THE POURED CONCRETE. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED.

1/4"Ø-20 SCREWS USED SHALL BE 1 1/2" LONG MINIMUM SHOULD STUCCO EXIST, AND 1" MINIMUM FOR WALLS WITH NO STUCCO.

SCREWS SHALL HAVE 3/4"Ø FOR DIRECT MOUNTED PANELS AND 3/4"Ø OR 9/16"Ø HEAD FOR ALL TRACKS OR PLATES.

A.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS. ANCHORAGE SHALL BE AS INDICATED ON NOTES A.1 & A.2 ABOVE.

B) TO EXISTING CONCRETE BLOCK WALL:

- 1/4"Ø TAPCON ANCHORS MANUFACTURED BY ELCO TEXTRON.
- 1/4"Øx7/8" CALK-IN ANCHORS MANUFACTURED BY POWERS FASTENERS, INC.
- 1/4"Øx7/8" PANELMATE (female/male) MANUFACTURED BY ELCO TEXTRON.

NOTES:

B.1) MINIMUM EMBEDMENT OF TAPCON ANCHOR AND ELCO PANELMATE INTO CONCRETE BLOCK UNIT IS 1 1/4".

B.2) 7/8" CALK-IN ANCHORS SHALL BE ENTIRELY EMBEDDED INTO CONCRETE BLOCK UNIT. NO EMBEDMENT INTO STUCCO SHALL BE PERMITTED.

1/4"Ø-20 SCREWS USED SHALL BE 1 1/2" LONG MINIMUM SHOULD STUCCO EXIST, AND 1" MINIMUM FOR WALLS WITH NO STUCCO.

SCREWS SHALL HAVE 3/4"Ø FOR DIRECT MOUNTED PANELS AND 3/4"Ø OR 9/16"Ø HEAD FOR ALL TRACKS OR PLATES.

B.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE OR BRICK PANELS, VENEER OR PAVERS BE FOUND ON THE EXISTING WALL OR FLOOR, ANCHORS SHALL BE LONG ENOUGH TO REACH THE MAIN STRUCTURE BEHIND SUCH PANELS. ANCHORAGE SHALL BE AS INDICATED ON NOTES B.1 & B.2 ABOVE.

C) ANCHORS SHALL BE INSTALLED FOLLOWING ALL THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR MANUFACTURER.

7. PANELS MAY ALSO BE INSTALLED HORIZONTALLY FOLLOWING INSTALLATION DETAILS SHOWN ON SECTIONS 1 THRU 4 (SHEET 3 AND 4 OF 8) EXCEPT THAT HEADERS 2 AND 3 SHALL NOT BE USED.

8. 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. CONTRACTOR TO SEAL/CAULK ALL SHUTTER COMPONENT EDGES WHICH REMAIN IN CONTINUOUS CONTACT WITH THE BUILDING TO PREVENT WIND/RAIN INTRUSION. CAULK AND SEAL SHUTTER TRACKS ALL AROUND FULL LENGTH.

9. STORM PANEL INSTALLATION SHALL COMPLY WITH SPECS INDICATED IN THIS DRAWING PLUS ANY BUILDING AND ZONING REGULATIONS PROVIDED BY THE JURISDICTION WHERE PERMIT IS APPLIED TO.

10. (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 FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (P.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.

11. SHUTTER'S MANUFACTURER PERMANENT LABEL SHALL BE PLACED ON THE EXPOSED SURFACE OF THE CENTER FLANGE OF A PANEL APPROXIMATELY 4" ABOVE THE BOTTOM OF SUCH PANEL.

ONE LABEL SHALL BE PLACED FOR EVERY PANEL.

LABEL SHALL READ AS FOLLOWS:

ALUFAB HURRICANE SHUTTERS, INC.

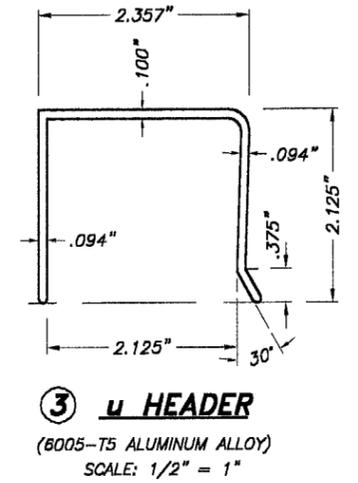
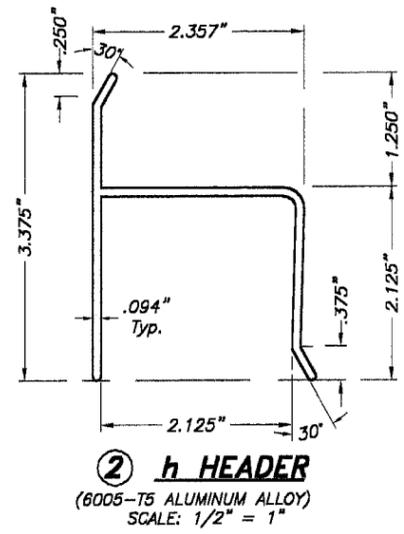
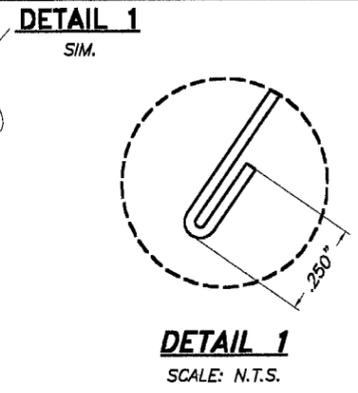
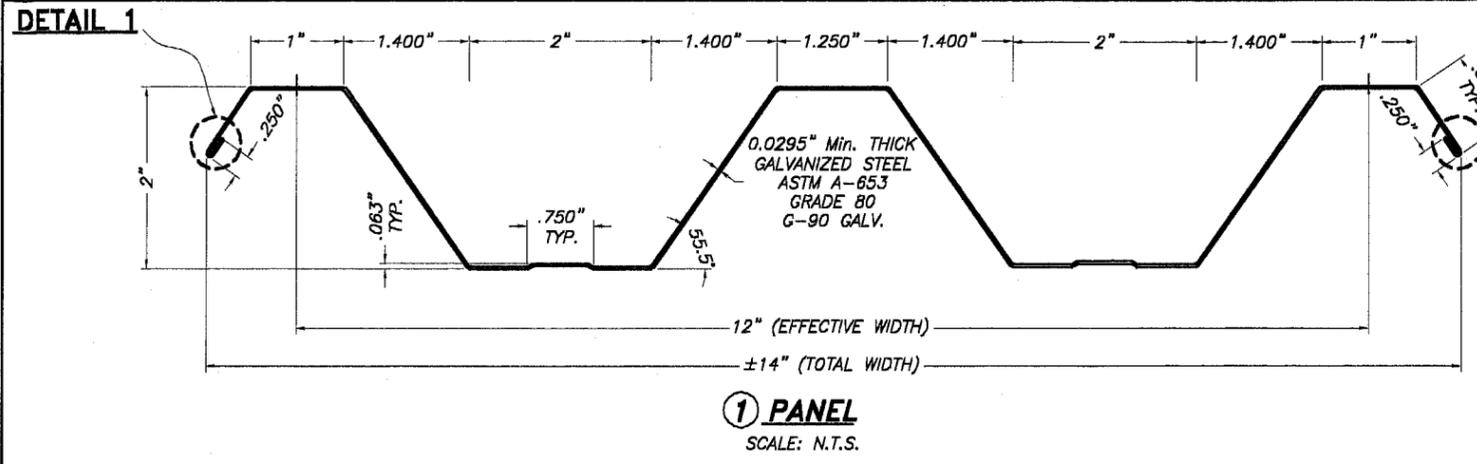
OPA-LOCKA, FL.

MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED.

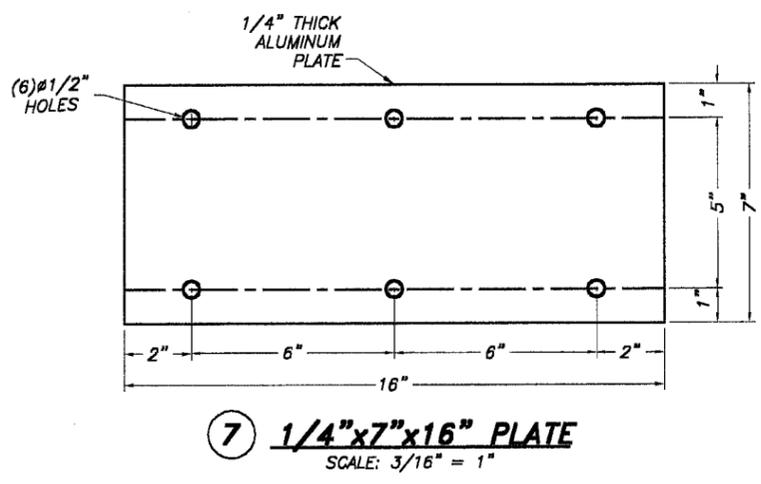
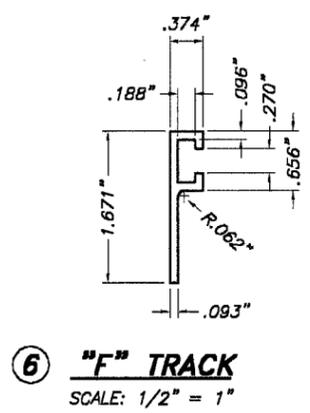
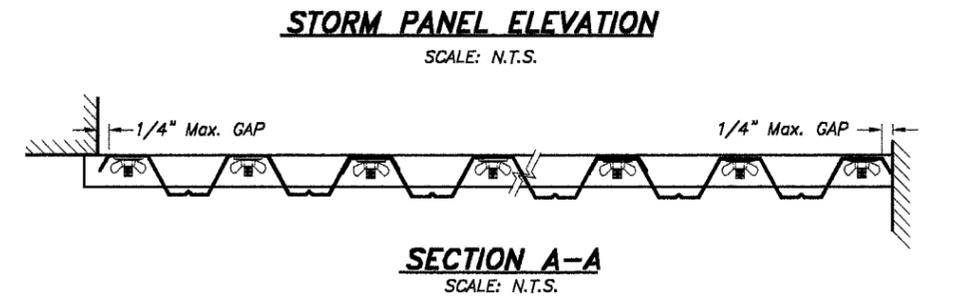
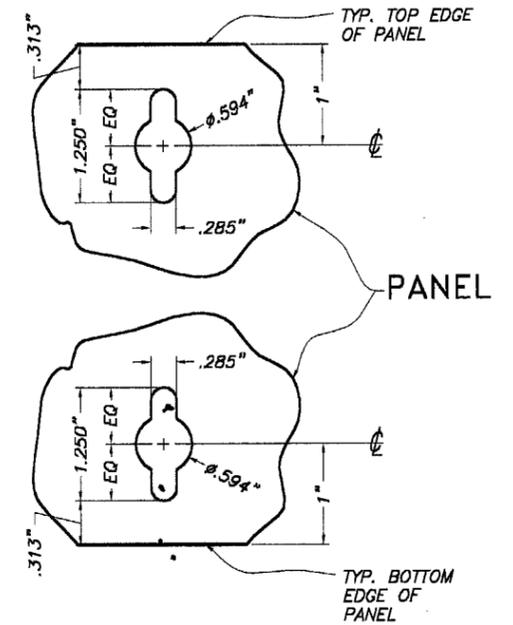
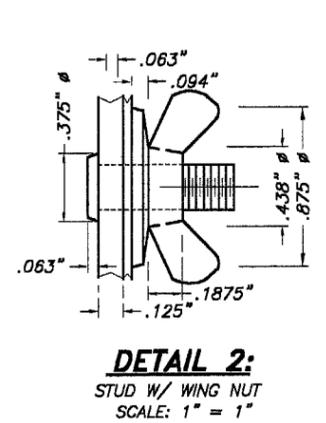
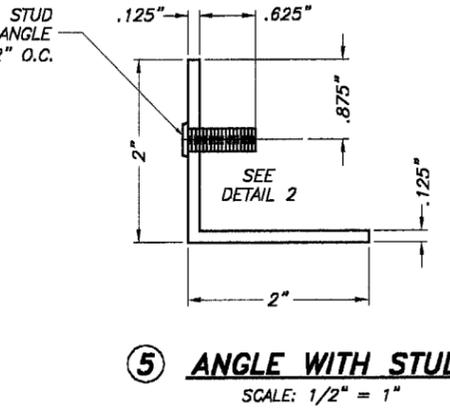
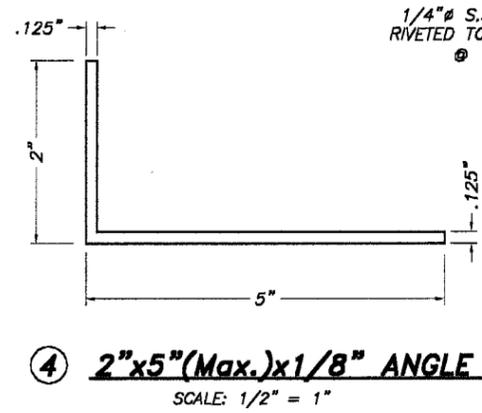
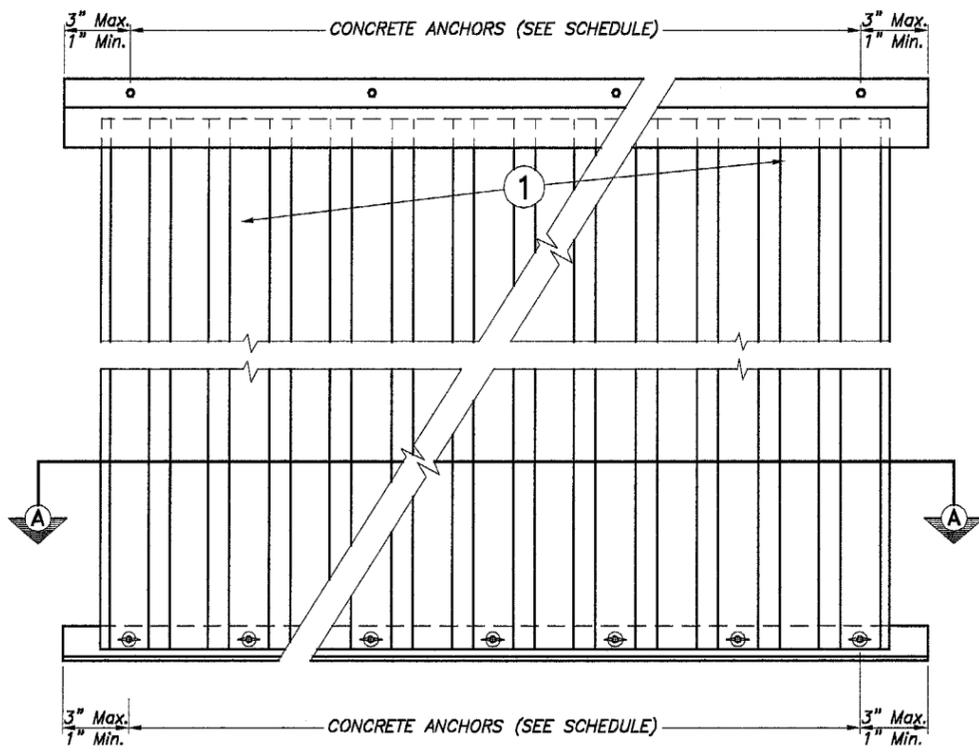
Approved as complying with the
Florida Building Code
Date 04/29/2004
NOA# 04-0210-01
Miami Dade Product Control
Division
By Halmyr H. Miller

F.B.C.(H.V.H.Z.)

		© 2003 TILTECO, INC		0.0295" THICK GALV. STEEL STORM PANEL		AS SHOWN SCALE			
		 <u>3/3/04</u> P.E. SEAL/SIGNATURE/DATE		 TILLIT TESTING & ENGINEERING COMPANY 8595 N.W. 36th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33186 Phone : (305)871-1530 . Fax : (305)871-1531 e-mail: tilteco@aol.com EB-0006719 WALTER A. TILLIT Jr., P. E. FLORIDA Lic. # 44167		ALUFAB HURRICANE SHUTTERS, INC. 13000 N.W. 38th AVE. OPA-LOCKA, FL 33054		12/4/03 DATE 03-244 DRAWING No	
MIAMI-DADE COUNTY									
								SHEET 1 OF 8	



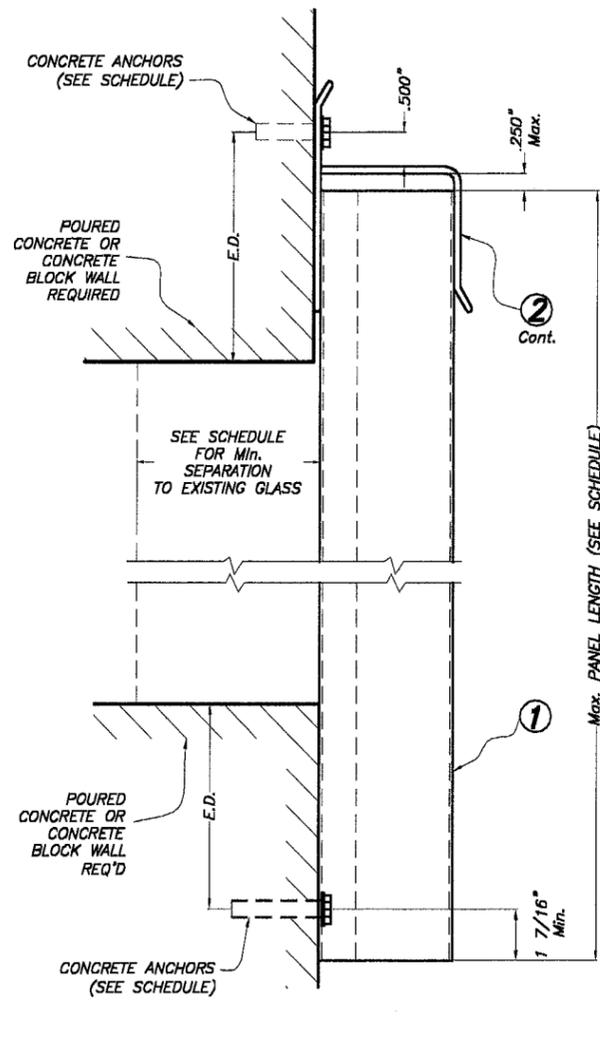
COMPONENTS



Approved as complying with the Florida Building Code
 Date 04/29/2004
 NOA# 04-0210-01
 Miami Dade Product Control Division
 By Helmut H. Weber

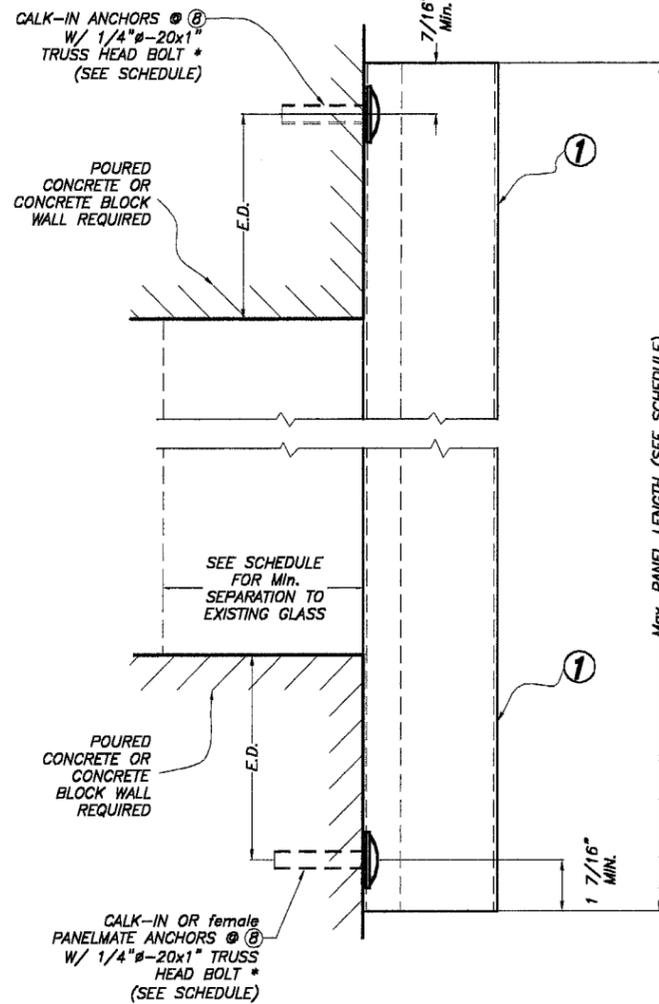
F.B.C.(H.V.H.Z.)

MIAMI-DADE COUNTY	 3/31/04 P.E. SEAL/SIGNATURE/DATE	©2003 TILTECO, INC. TILTECO INC. TILLIT TESTING & ENGINEERING COMPANY 6595 N.W. 36th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33166 Phone: (305)871-1530 Fax: (305)871-1531 e-mail: tilteco@aol.com EB-0008719 WALTER A. TILLIT Jr., P. E. FLORIDA Lic. # 44167	0.0295" THICK GALV. STEEL STORM PANEL	AS SHOWN SCALE																		
			ALUFAB HURRICANE SHUTTERS, INC. 13000 N.W. 38th AVE. OPA-LOCKA, FL 33054	12/4/03 DATE																		
			<table border="1"> <thead> <tr> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GENERAL</td> <td>3/30/04</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. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	1	GENERAL	3/30/04	3	-	-	2	-	-	4	-	-	03-244 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE																	
1	GENERAL	3/30/04	3	-	-																	
2	-	-	4	-	-																	
				SHEET 2 OF 8																		



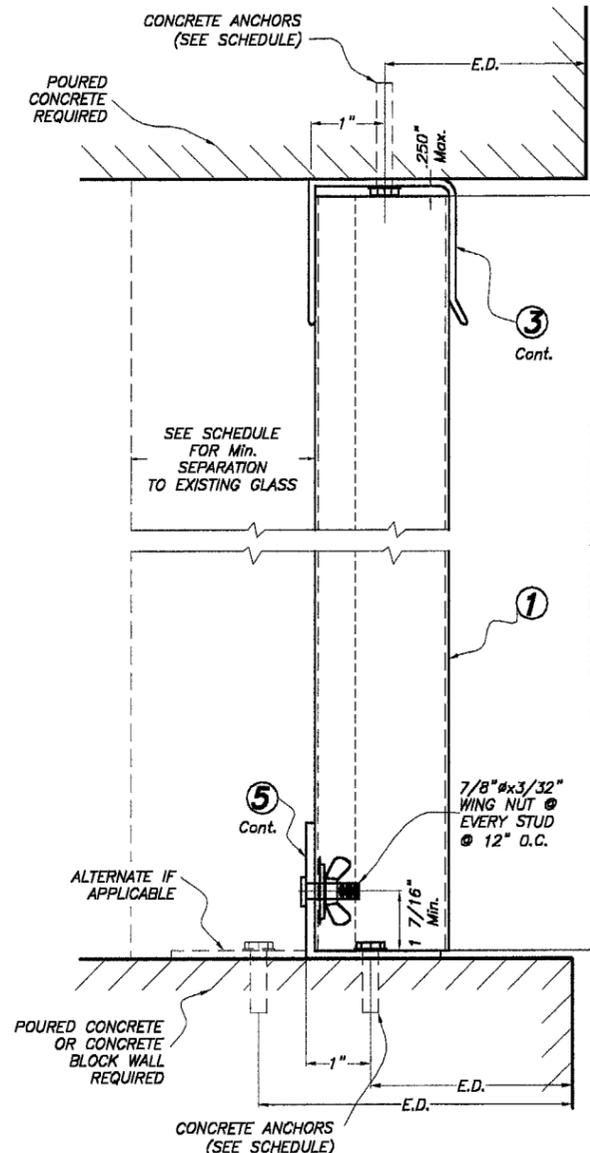
**WALL MOUNTING INSTALLATION
- SECTION 1**

SCALE: 3/8" = 1"



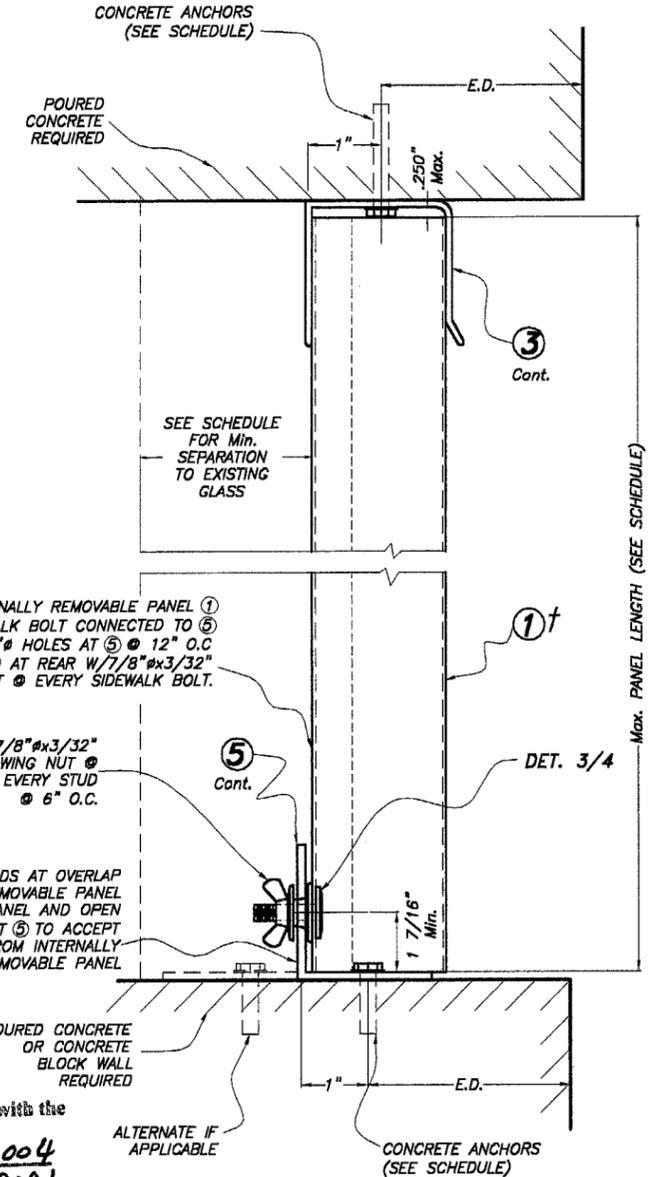
**DIRECT MOUNTING INSTALLATION
- SECTION 2**

SCALE: 3/8" = 1"



**SECTION 3A
ADJACENT PANELS**

Approved as complying with the Florida Building Code
Date 04/29/2004
NOA# 04-0210-01
Miami Dade Product Control
Division
By Helmut A. Miller



**SECTION 3B
INTERNALLY REMOVABLE PANEL****

**CEILING AND FLOOR MOUNTING
INSTALLATION - SECTION 3**

SCALE: 3/8" = 1"

**** NOTE:**

INTERNALLY REMOVABLE PANEL SHOWN ON SECTION 3B SHALL ALWAYS BE INSTALLED IN BETWEEN ADJACENT PANELS MOUNTED AS SHOWN ON SECTION 3A.

† NOTE:

INTERNALLY REMOVABLE PANEL SHALL BE PROVIDED W/ AN ADEQUATE REMOVABLE HANDLE IN ORDER TO INSTALL PANEL.

E.D. = EDGE DISTANCE
(SEE SCHEDULE ON SHEET 6 OF 8)

NOTE FOR COMBINATION OF SECTIONS:
FLOOR/WALL/CEILING MOUNTING SECTIONS CAN BE COMBINED IN ANY WAY TO SUIT ANY INSTALLATION.

* TRUSS HEAD BOLT TO BE 3/4" x 3/32" THICK HEAD MACHINE SCREW W/ LENGTH AS PER NOTES A.2 & B.2 ON SHEET 1.

F.B.C.(H.V.H.Z.)

MIAMI-DADE COUNTY

P.E. SEAL/SIGNATURE/DATE

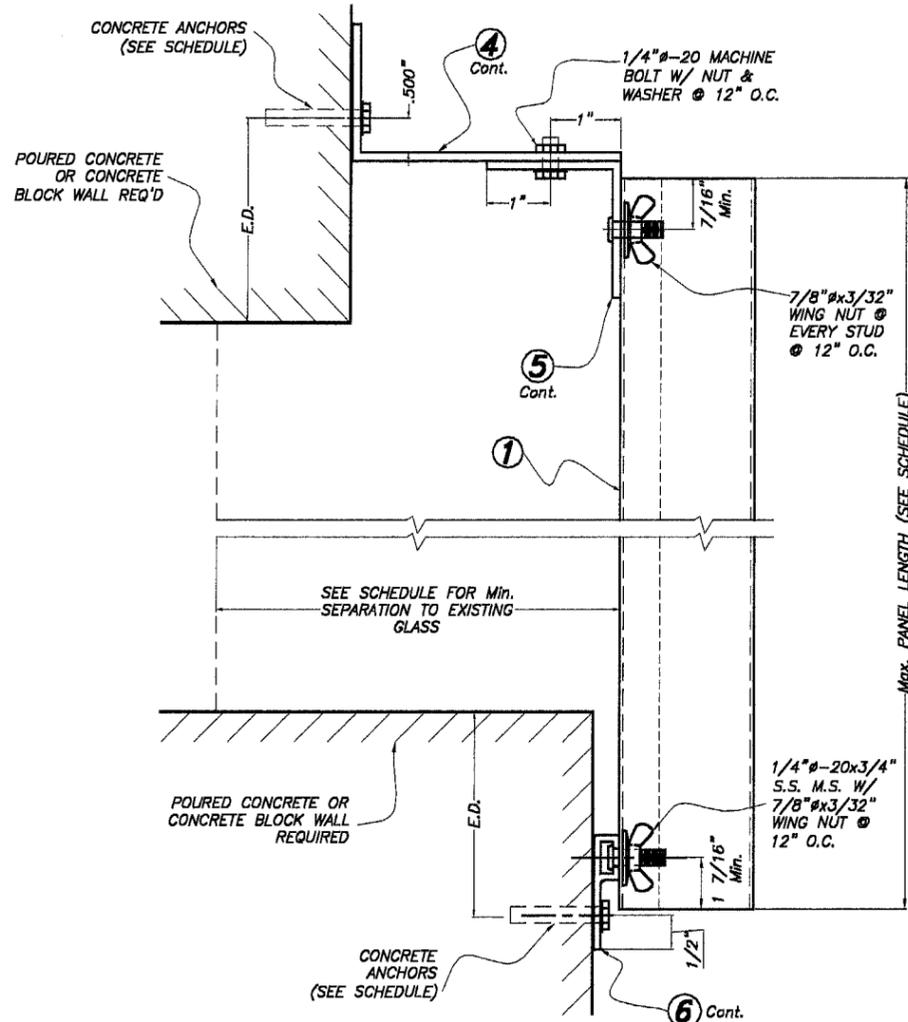
David
3/31/04

©2003 TILTECO, INC

TILTECO INC.

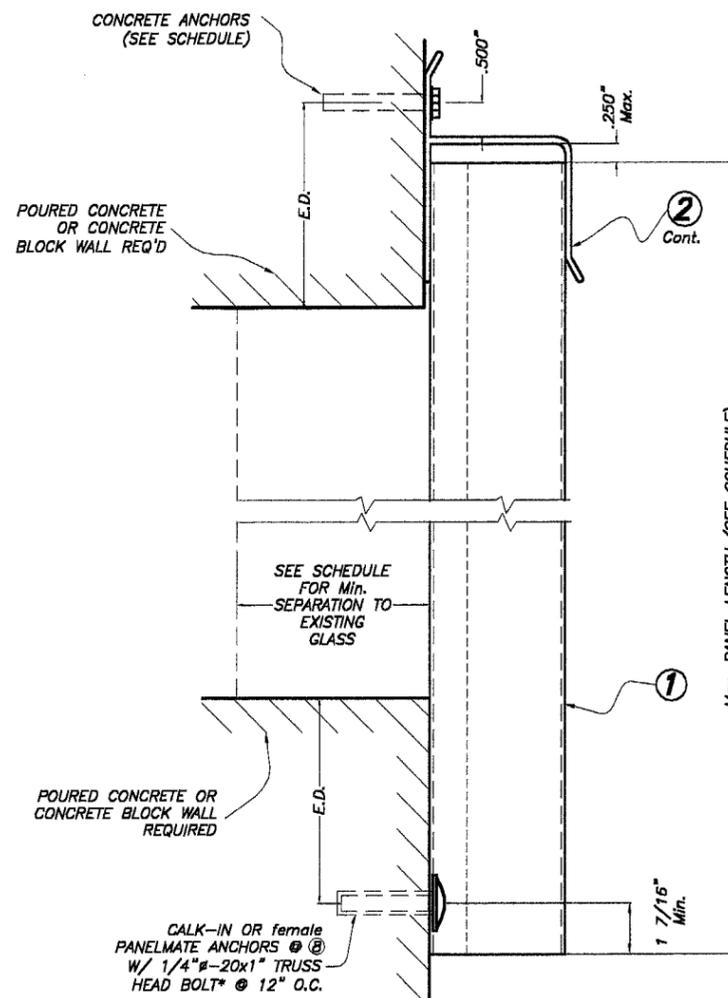
TILLIT TESTING & ENGINEERING COMPANY
6595 N.W. 36th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
e-mail: tilteco@aol.com
EB-0006719
WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

0.0295" THICK GALV. STEEL STORM PANEL						AS SHOWN SCALE
ALUFAB HURRICANE SHUTTERS, INC.						12/4/03 DATE
13000 N.W. 38th AVE. OPA-LOCKA, FL 33054						03-244 DRAWING No
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	SHEET 3 OF 8
1	GENERAL	3/30/04	3	-	-	
2	-	-	4	-	-	

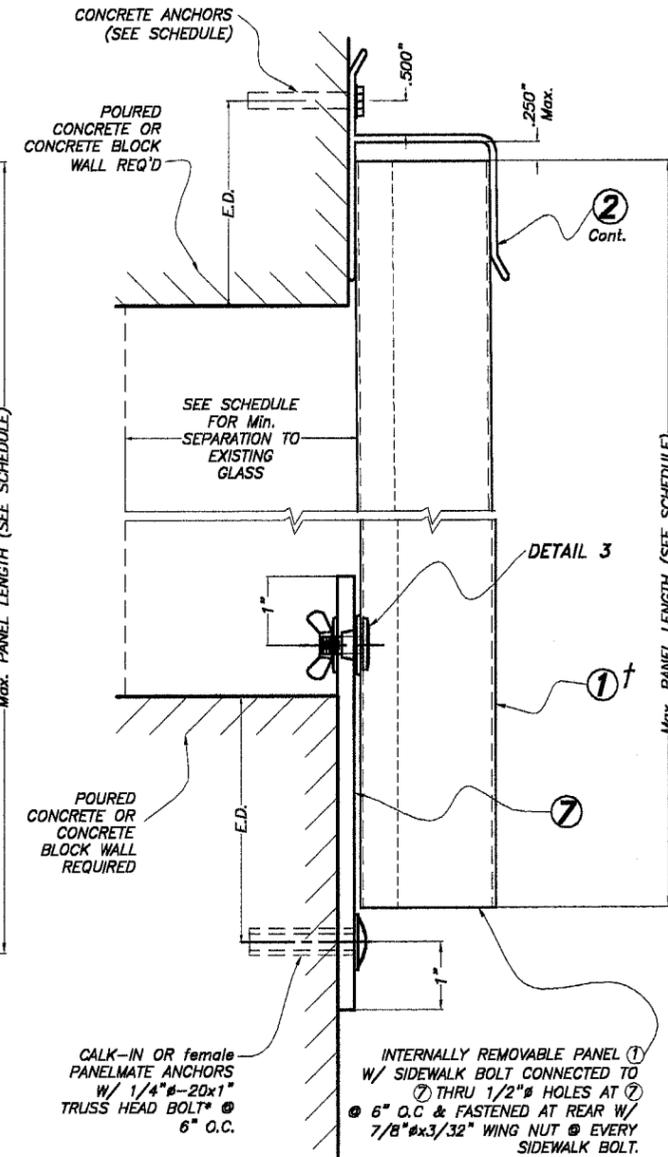


**BUILD-OUT INSTALLATION
- SECTION 4**

SCALE: 3/8" = 1"

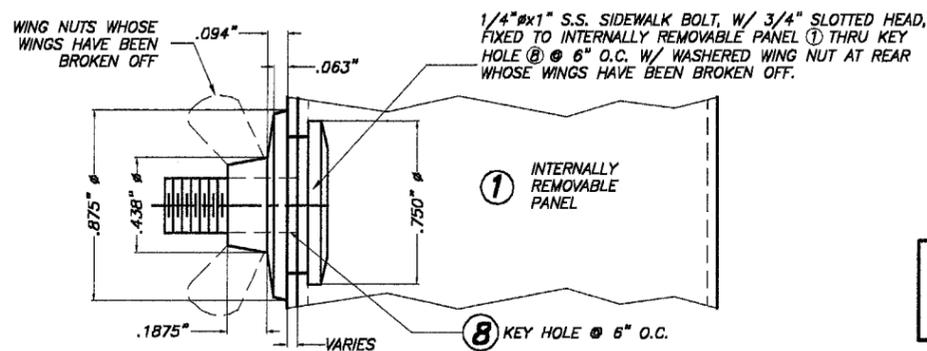


**SECTION 5A
ADJACENT PANELS**



**SECTION 5B
INTERNALLY REMOVABLE PANEL****

Approved as complying with the Florida Building Code
Date 04/29/2004
NOA# 04-0210.01
Miami Dade Product Control Division
By Harvey A. Miller



DETAIL 3 - INSTALLATION OF 1/4"x1" SIDEWALK BOLT @ REMOVABLE PANEL

E.D. = EDGE DISTANCE (SEE SCHEDULE ON SHEET 6 OF 8)

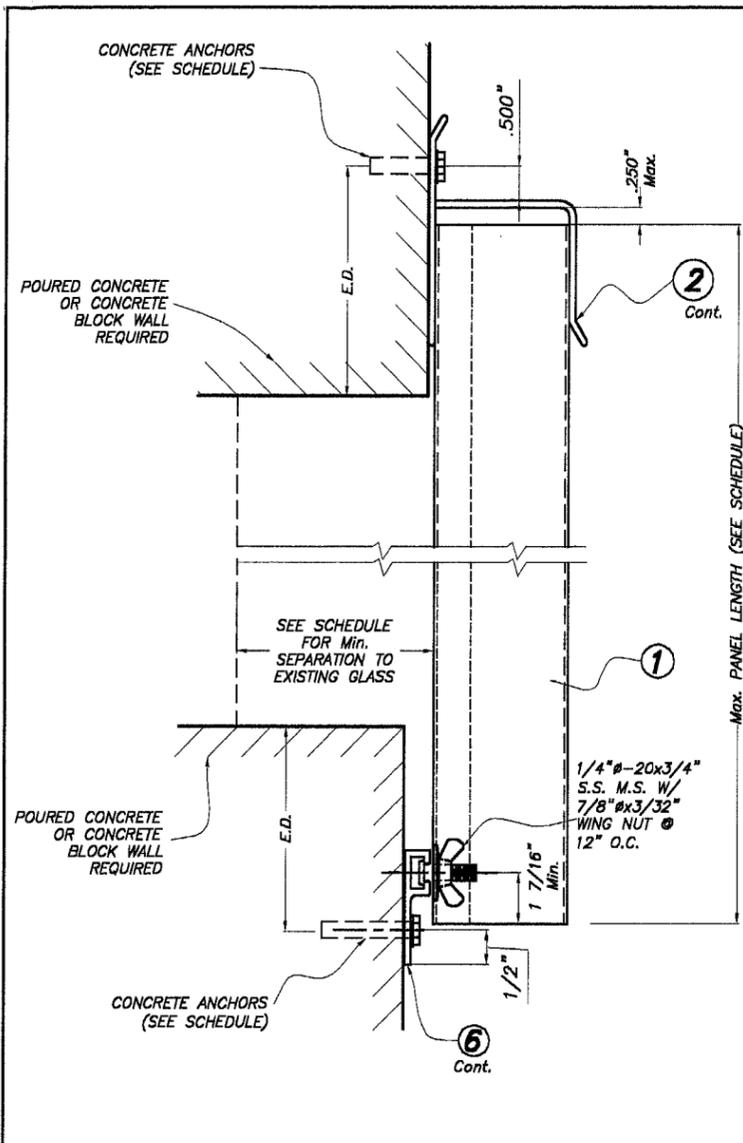
* TRUSS HEAD BOLT TO BE 3/4" x 3/32" THICK HEAD MACHINE SCREW W/ LENGTH AS PER NOTES A.2 & B.2 ON SHEET 1.

** NOTE: INTERNALLY REMOVABLE PANEL SHOWN ON SECTION 5B SHALL ALWAYS BE INSTALLED IN BETWEEN ADJACENT PANELS MOUNTED AS SHOWN ON SECTION 5A.

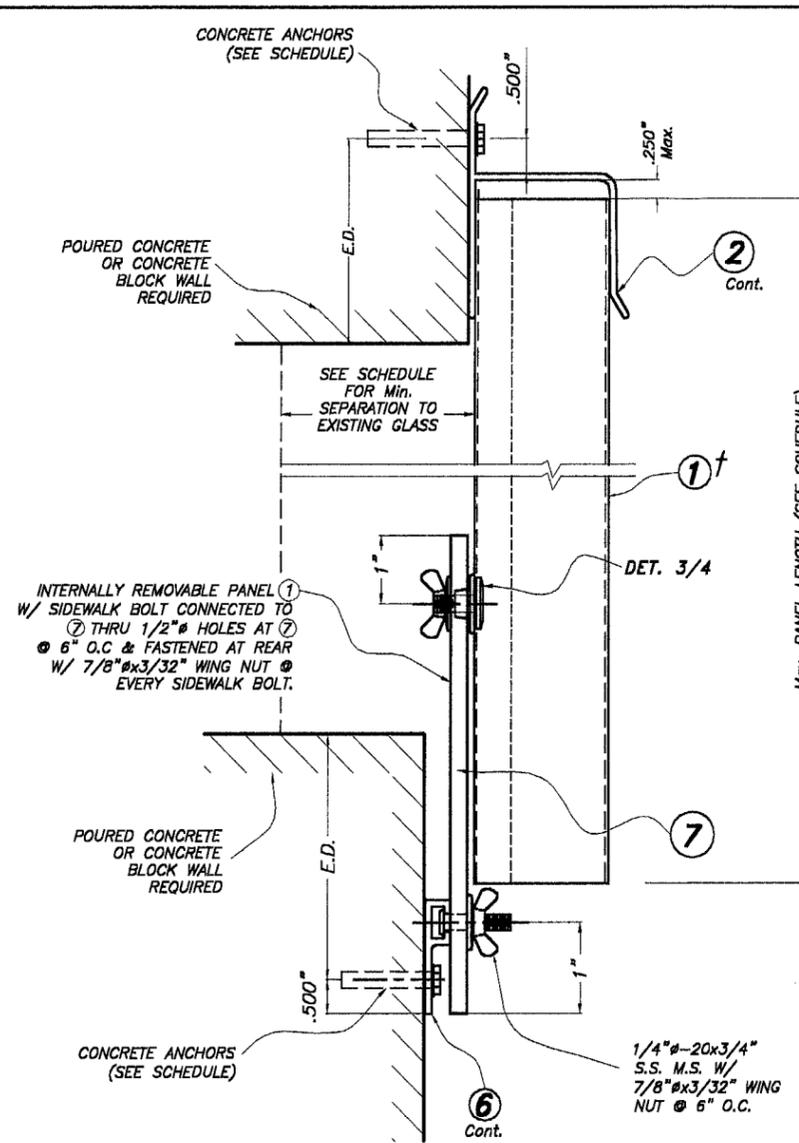
† NOTE: INTERNALLY REMOVABLE PANEL SHALL BE PROVIDED W/ AN ADEQUATE REMOVABLE HANDLE IN ORDER TO INSTALL PANEL.

F.B.C.(H.V.H.Z.)

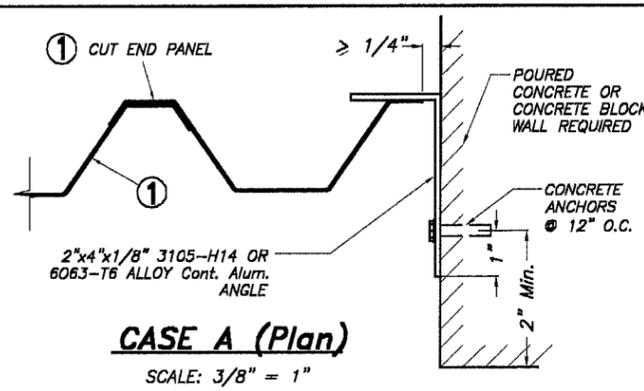
MIAMI-DADE COUNTY		P.E. SEAL/SIGNATURE/DATE <i>Walter A. Tillit Jr.</i> 3/3/04		© 2003 TILTECO, INC. TILTECO INC. TILLIT TESTING & ENGINEERING COMPANY 6505 N.W. 36th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33166 Phone : (305)871-1530 . Fax : (305)871-1531 e-mail: tilteco@aol.com EB-0008719 WALTER A. TILLIT Jr., P. E. FLORIDA Lic. # 44167		0.0295" THICK GALV. STEEL STORM PANEL ALUFAB HURRICANE SHUTTERS, INC. 13000 N.W. 38th AVE. OPA-LOCKA, FL 33054		AS SHOWN SCALE 12/4/03 DATE 03-244 DRAWING No SHEET 4 OF 8	
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE				
1	GENERAL	3/30/04	3	-	-				
2	-	-	4	-	-				



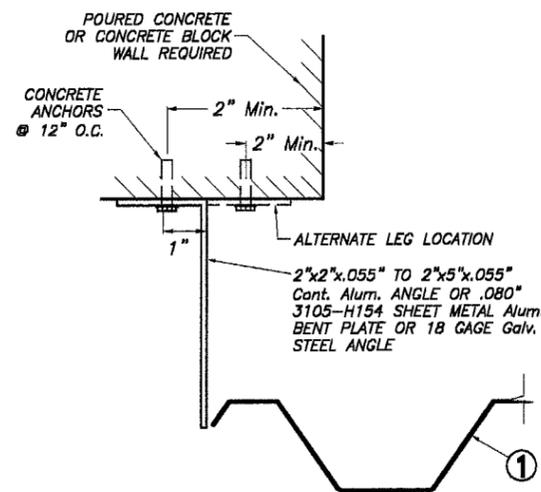
**SECTION 6A
ADJACENT PANELS**



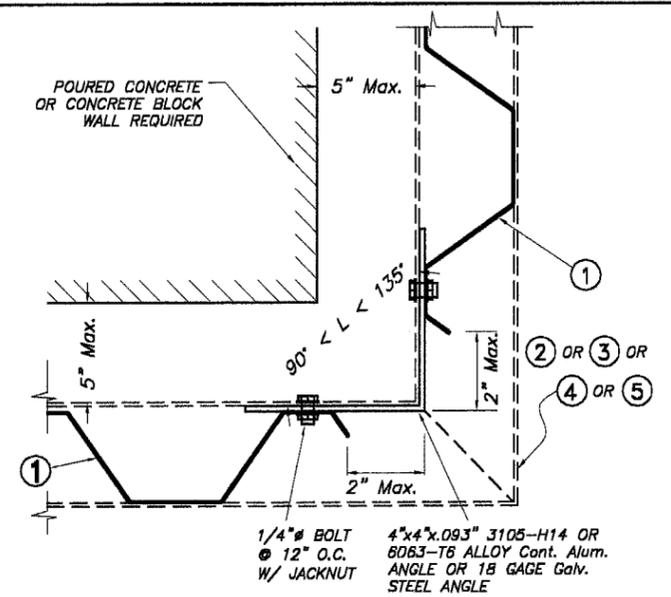
**SECTION 6B
INTERNALLY REMOVABLE PANEL ****



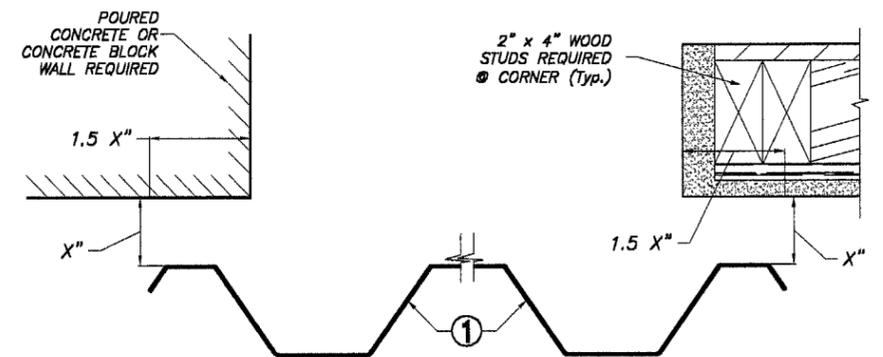
CASE A (Plan)
SCALE: 3/8" = 1"



CASE C (Plan)
SCALE: 3/8" = 1"



CASE B (Plan)
SCALE: 3/8" = 1"



CASE D (Plan)
SCALE: 3/8" = 1"

**WALL MOUNTING INSTALLATION
- SECTION 6**
SCALE: 3/8" = 1"

**** NOTE:**
INTERNALLY REMOVABLE PANEL SHOWN ON SECTION 6B SHALL ALWAYS BE INSTALLED IN BETWEEN ADJACENT PANELS MOUNTED AS SHOWN ON SECTION 6A.

† NOTE:
INTERNALLY REMOVABLE PANEL SHALL BE PROVIDED W/ AN ADEQUATE REMOVABLE HANDLE IN ORDER TO INSTALL PANEL.

E.D. = EDGE DISTANCE
(SEE SCHEDULE ON SHEET 6 OF 8)

Approved as complying with the Florida Building Code
Date 04/29/2004
NOA# 04-0210-01
Miami Dade Product Control
Division
By Helmut A. Miller

END CLOSURES DETAILS

F.B.C.(H.V.H.Z.)

MIAMI-DADE COUNTY	P.E. SEAL/SIGNATURE/DATE <i>Seal</i> 3/3/04	©2003 TILTECO, INC TILTECO INC. TILLIT TESTING & ENGINEERING COMPANY 6595 N.W. 38th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33166 Phone : (305)871-1530 . Fax : (305)871-1531 e-mail: tiltco@aol.com EB-006719 WALTER A. TILLIT, Jr., P. E. FLORIDA Lic. # 44167	0.0295" THICK GALV. STEEL STORM PANEL	AS SHOWN SCALE																		
			ALUFAB HURRICANE SHUTTERS, INC. 13000 N.W. 38th AVE. OPA-LOCKA, FL 33054	12/4/03 DATE 03-244 DRAWING No																		
			<table border="1"> <thead> <tr> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> <th>REV. No</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>GENERAL</td> <td>3/30/04</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. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE	1	GENERAL	3/30/04	3			2			4			SHEET 5 OF 8
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE																	
1	GENERAL	3/30/04	3																			
2			4																			

MAXIMUM DESIGN PRESSURE RATING "W" (p.s.f.) AND CORRESPONDING MAXIMUM ANCHOR SPACING SCHEDULE FOR INSTALLATIONS INTO CONCRETE AND C.B.S. STRUCTURES *

MAXIMUM DESIGN PRESSURE RATING "W" (p.s.f.) AND CORRESPONDING MAXIMUM PANEL LENGTH SCHEDULE

MAXIMUM DESIGN PRESSURE RATING W (p.s.f.)	Max. PANEL LENGTH (ft.) (SEE SECTIONS)	MINIMUM SEPARATION TO GLASS	APPLICABLE TO SECTION # AND ANY COMBINATION OF THEM
+90.0, -90.0	8'-0"	2 3/4"	1 THRU 6
+72.0, -72.0	>8'-0" TO 8'-6"	3 1/8"	1 THRU 6
+66.0, -66.0	>8'-6" TO 8'-9"	3 1/8"	1 THRU 6
+45.0, -45.0	>8'-9" TO 10'-0"	3 1/8"	1 THRU 6

E. D. = EDGE DISTANCE

ANCHORS LEGEND

ANCHORS TYPE	ANCHOR MIN. SPACING
TAPCON	3.0"
CALK-IN	2.5"
PANELMATE	3.0"

Approved as complying with the Florida Building Code
 Date 04/29/2004
 NOA# 04-0210-01
 Miami Dade Product Control Division
 By [Signature]

* SEE SHEET 7 & 8 OF 8 FOR ANCHORS TYPE & SPACING FOR INSTALLATIONS INTO WOOD FRAME BUILDINGS.

** MAXIMUM ANCHOR SPACINGS ARE VALID FOR 3 1/2" EDGE DISTANCE. FOR E. D. LESS THAN 3 1/2", REDUCE ANCHOR SPACING BY MULTIPLYING SPACING SHOWN ON SCHEDULE BY THE FOLLOWING FACTORS. (NOTE: Min. E. D. FOR CALK-IN ANCHORS IS 2 1/2"). FOR THIS OPERATION TO BE POSSIBLE, REDUCED SPACING OBTAINED USING FACTOR SHALL NOT BE LESS THAN MINIMUM SPACING INDICATED FOR EACH ANCHOR TYPE AT ANCHORS LEGEND.

ACTUAL E. D.	FACTOR	
	TAPCON/PANELMATE	CALK-IN
3"	.86	.75
2 1/2"	.71	.50
2"	.50	-

MAXIMUM DESIGN LOAD W (p.s.f.)	MAXIMUM ANCHORS SPACING FOR E. D. = 3 1/2" **						APPLICABLE TO SECTIONS # & ANY COMBINATION OF THEM	MAXIMUM PANEL LENGTH "L" (ft.)
	TAPCONS		CALK-IN		PANELMATE			
	TO CONCRETE	TO MASONRY	TO CONCRETE	TO MASONRY	TO CONCRETE	TO MASONRY		
+45.0, -45.0	12"	12"	12"	12"	12"	12"	1 (TOP)	8'-9"
	-	-	12"	12"	12"	12"	1 (BOTTOM)	
	-	-	12"	12"	12"	12"	2 (TOP & BOTTOM)	
	12"	-	12"	-	12"	-	3A & 3B (TOP)	
	12"	7 1/2"	11"	7"	12"	6 1/2"	3A & 3B (BOTTOM)	
	12"	12"	12"	12"	12"	12"	4 (TOP)	
	12"	12"	12"	12"	12"	12"	4 (BOTTOM)	
	12"	12"	12"	12"	12"	12"	5A & 5B (TOP)	
	-	-	12"	12"	12"	12"	5A (BOTTOM)	
	-	-	6"	6"	6"	6"	5B (BOTTOM)	
	12"	12"	12"	12"	12"	12"	6A & 6B (TOP)	
	12"	12"	12"	12"	12"	12"	6A (BOTTOM)	
	9"	4"	8 1/2"	4"	9 1/2"	3 1/2"	6B (BOTTOM)	
	+45.0, -45.0	12"	11 1/2"	12"	11 1/2"	12"	11"	
-		-	12"	6"	12"	6"	1 (BOTTOM)	
-		-	12"	6"	12"	6"	2 (TOP & BOTTOM)	
12"		-	12"	-	12"	-	3A & 3B (TOP)	
12"		7"	9 1/2"	6"	12"	5 1/2"	3A & 3B (BOTTOM)	
12"		11 1/2"	12"	11 1/2"	12"	11"	4 (TOP)	
12"		11 1/2"	12"	11 1/2"	12"	11"	4 (BOTTOM)	
12"		11 1/2"	12"	11 1/2"	12"	11"	5A & 5B (TOP)	
-		-	12"	6"	12"	6"	5A (BOTTOM)	
-		-	6"	6"	6"	6"	5B (BOTTOM)	
12"		11 1/2"	12"	11 1/2"	12"	11"	6A & 6B (TOP)	
12"		11 1/2"	12"	11 1/2"	12"	11"	6A (BOTTOM)	
9"		4"	8 1/2"	4"	9 1/2"	3 1/2"	6B (BOTTOM)	
+66.0, -66.0		12"	7"	12"	7"	12"	6 1/2"	1 (TOP)
	-	-	12"	6"	12"	6"	1 (BOTTOM)	
	-	-	12"	6"	12"	6"	2 (TOP & BOTTOM)	
	11 1/2"	-	9"	-	12"	-	3A & 3B (TOP)	
	9"	5"	7 1/2"	5"	10 1/2"	4 1/2"	3A & 3B (BOTTOM)	
	12"	9"	12"	9"	12"	8 1/2"	4 (TOP)	
	12"	9"	12"	9"	12"	8 1/2"	4 (BOTTOM)	
	12"	7"	12"	7"	12"	6 1/2"	5A & 5B (TOP)	
	-	-	12"	6"	12"	6"	5A (BOTTOM)	
	-	-	6"	6"	6"	6"	5B (BOTTOM)	
	12"	7"	12"	7"	12"	6 1/2"	6A & 6B (TOP)	
	12"	9"	12"	9"	12"	8 1/2"	6A (BOTTOM)	
	9"	4"	8 1/2"	4"	9 1/2"	3 1/2"	6B (BOTTOM)	

MAXIMUM DESIGN LOAD W (p.s.f.)	MAXIMUM ANCHORS SPACING FOR E. D. = 3 1/2" **						APPLICABLE TO SECTIONS # & ANY COMBINATION OF THEM	MAXIMUM PANEL LENGTH "L" (ft.)
	TAPCONS		CALK-IN		PANELMATE			
	TO CONCRETE	TO MASONRY	TO CONCRETE	TO MASONRY	TO CONCRETE	TO MASONRY		
+72.0, -72.0	12"	12"	12"	12"	12"	11 1/2"	1 (TOP)	6'-0"
	-	-	12"	12"	12"	6"	1 (BOTTOM)	
	-	-	12"	12"	12"	6"	2 (TOP & BOTTOM)	
	12"	-	12"	-	12"	-	3A & 3B (TOP)	
	12"	7"	10"	6 1/2"	12"	6"	3A & 3B (BOTTOM)	
	12"	12"	12"	12"	12"	11 1/2"	4 (TOP)	
	12"	12"	12"	12"	12"	11 1/2"	4 (BOTTOM)	
	12"	12"	12"	12"	12"	11 1/2"	5A & 5B (TOP)	
	-	-	12"	12"	12"	6"	5A (BOTTOM)	
	-	-	6"	6"	6"	6"	5B (BOTTOM)	
	12"	12"	12"	12"	12"	11 1/2"	6A & 6B (TOP)	
	12"	12"	12"	12"	12"	11 1/2"	6A (BOTTOM)	
	9"	4"	8 1/2"	4"	9 1/2"	3 1/2"	6B (BOTTOM)	
	+72.0, -72.0	12"	5 1/2"	12"	5 1/2"	12"	5 1/2"	
-		-	12"	6"	12"	6"	1 (BOTTOM)	
-		-	12"	6"	12"	6"	2 (TOP & BOTTOM)	
11"		-	8 1/2"	-	12"	-	3A & 3B (TOP)	
8 1/2"		5"	7"	4 1/2"	9 1/2"	4"	3A & 3B (BOTTOM)	
12"		8 1/2"	12"	8 1/2"	12"	8"	4 (TOP)	
12"		8 1/2"	12"	8 1/2"	12"	8"	4 (BOTTOM)	
12"		5 1/2"	12"	5 1/2"	12"	5 1/2"	5A & 5B (TOP)	
-		-	12"	6"	12"	6"	5A (BOTTOM)	
-		-	6"	6"	6"	6"	5B (BOTTOM)	
12"		5 1/2"	12"	5 1/2"	12"	5 1/2"	6A & 6B (TOP)	
12"		8 1/2"	12"	8 1/2"	12"	8"	6A (BOTTOM)	
-		-	-	-	-	-	6B (BOTTOM)	
+90.0, -90.0		7 1/2"	-	7"	-	7 1/2"	-	1 (TOP)
	-	-	12"	6"	12"	6"	1 (BOTTOM)	
	-	-	12"	6"	12"	6"	2 (TOP & BOTTOM)	
	9"	-	7"	-	10"	-	3A & 3B (TOP)	
	7"	4"	6"	3 1/2"	8"	3 1/2"	3A & 3B (BOTTOM)	
	12"	6 1/2"	12"	6 1/2"	12"	6"	4 (TOP)	
	12"	7"	12"	7"	12"	6 1/2"	4 (BOTTOM)	
	7 1/2"	-	7"	-	7 1/2"	-	5A & 5B (TOP)	
	-	-	12"	6"	12"	6"	5A (BOTTOM)	
	-	-	6"	6"	6"	6"	5B (BOTTOM)	
	7 1/2"	-	7"	-	7 1/2"	-	6A & 6B (TOP)	
	12"	7"	12"	7"	12"	6 1/2"	6A (BOTTOM)	
	-	-	-	-	-	-	6B (BOTTOM)	

F.B.C.(H.V.H.Z.)

MIAMI-DADE COUNTY

[Signature]
 3/31/04
 P.E. SEAL/SIGNATURE/DATE

©2003 TILTECO, INC

TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
 6595 N.W. 36th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33166
 Phone : (305)871-1530 . Fax : (305)871-1531
 e-mail: tiltenco@aol.com
 EB-0006719
 WALTER A. TILLIT Jr., P. E.
 FLORIDA Lic. # 44167

0.0295" THICK GALV. STEEL STORM PANEL

ALUFAB HURRICANE SHUTTERS, INC.

13000 N.W. 38th AVE.
 OPA-LOCKA, FL 33054

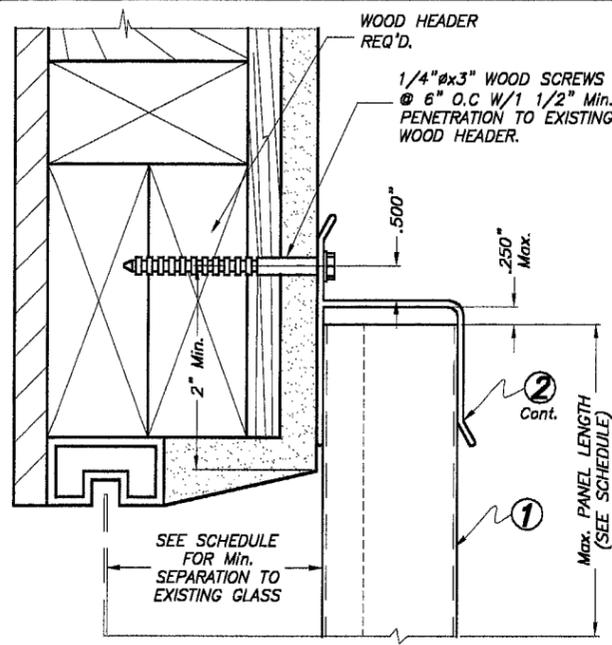
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	GENERAL	3/30/04	3		
2			4		

AS SHOWN SCALE

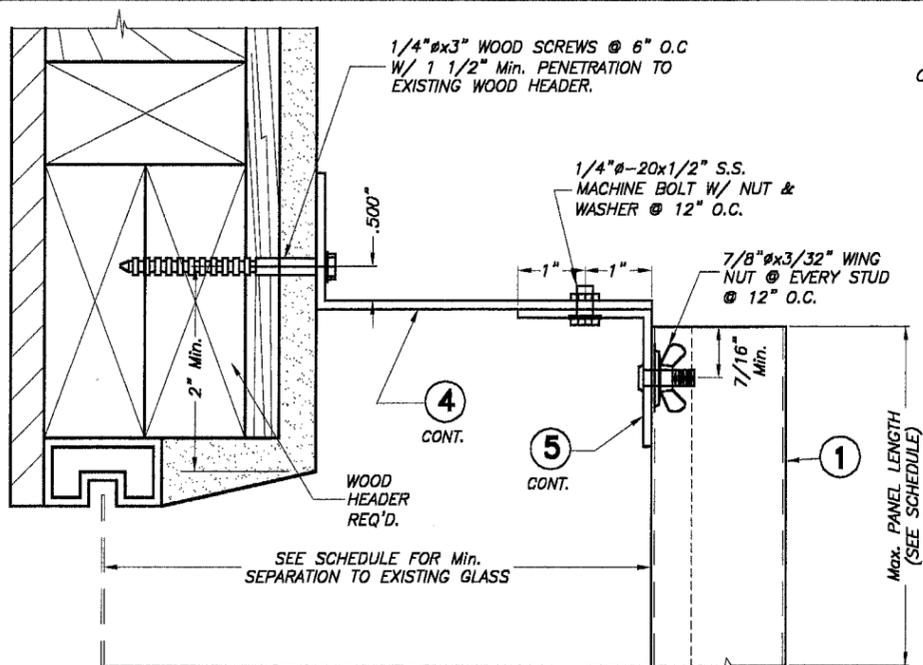
12/4/03 DATE

03-244 DRAWING No

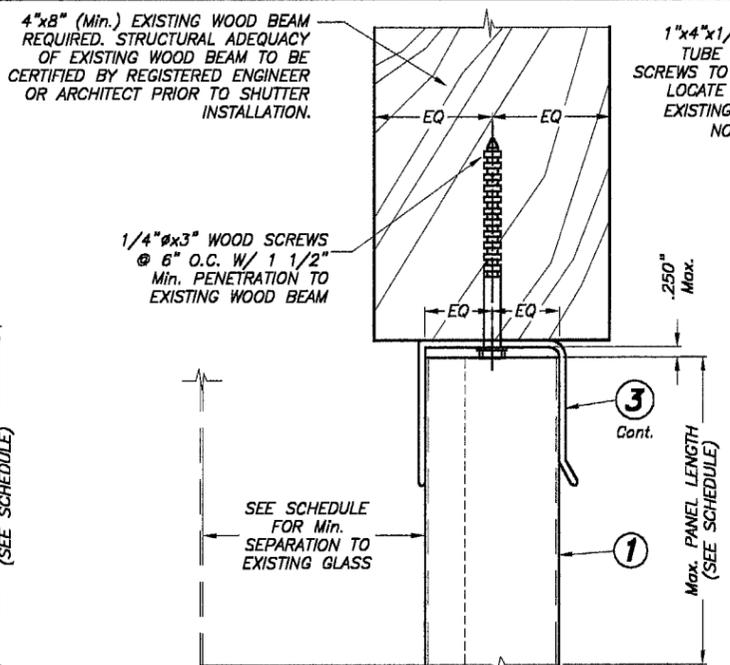
SHEET 6 OF 8



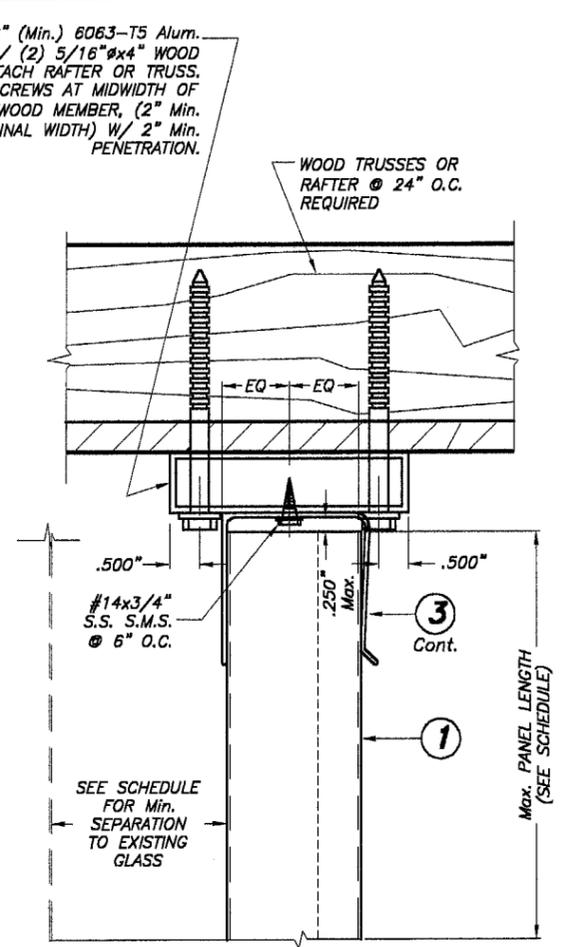
ALTERNATIVE 1



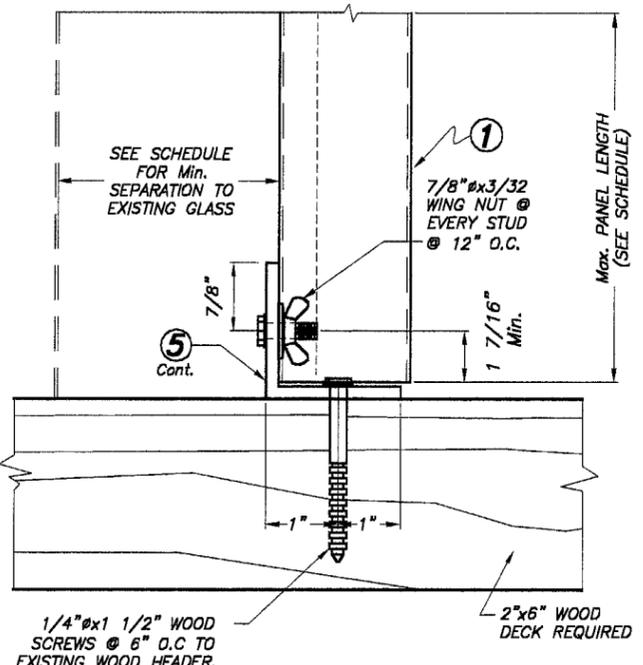
ALTERNATIVE 3



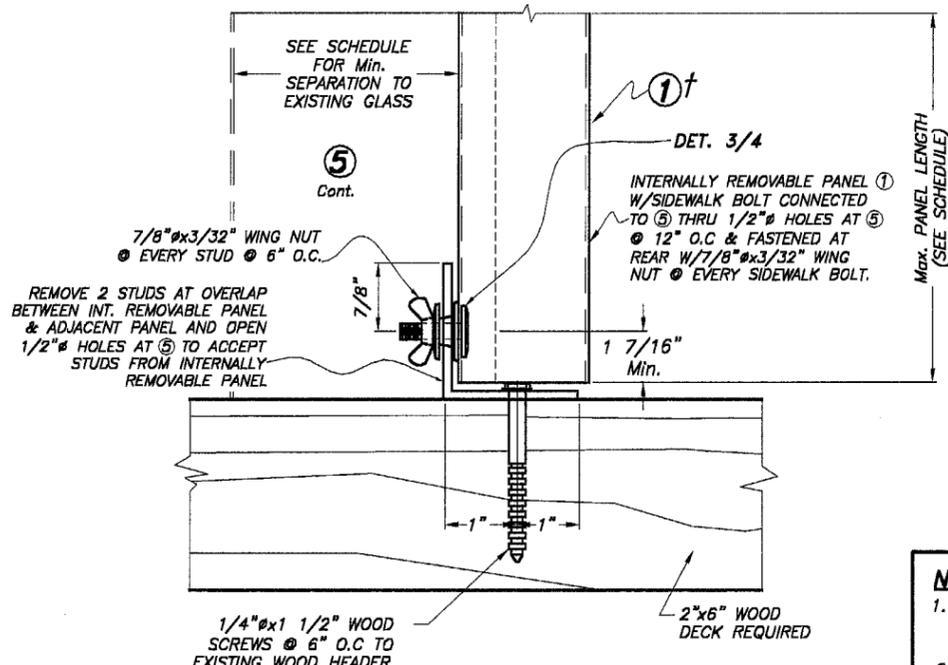
ALTERNATIVE 4



ALTERNATIVE 5



**ALTERNATIVE 2A
ADJACENT PANELS**

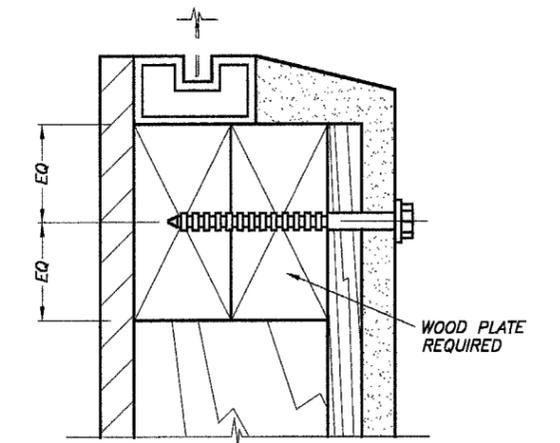


**ALTERNATIVE 2B
INTERNALLY REMOVABLE PANEL****

† NOTE:
INTERNALLY REMOVABLE PANEL SHALL BE PROVIDED W/ AN ADEQUATE REMOVABLE HANDLE IN ORDER TO INSTALL PANEL.

**** NOTE:**
INTERNALLY REMOVABLE PANEL SHOWN ON ALTERNATIVE 2B SHALL ALWAYS BE INSTALLED IN BETWEEN ADJACENT PANELS MOUNTED AS SHOWN ON ALTERNATIVE 2A.

NOTES:
1. INSTALLATIONS ARE VALID ONLY FOR DESIGN WIND LOADS AND Max. PANEL LENGTHS AS PER SCHEDULE ON SHEET 6 OF 8.
2. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.



**ALTERNATIVE WOOD FRAME CONDITION
& ANCHOR LOCATION AT BOTTOM**

SCALE: 1/4" = 1"
NOTE: SHUTTER TRACKS NOT SHOWN FOR CLARITY
F.B.C.(H.V.H.Z.)

NOTE FOR COMBINATION OF SECTIONS:
FLOOR/ WALL/ CEILING MOUNTING SECTIONS CAN BE COMBINED IN ANY WAY TO SUIT ANY INSTALLATION.

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS
SCALE: 3/8" = 1"

Approved as complying with the Florida Building Code
Date 04/29/2004
NOA# 04-0210-01
Miami Dade Product Control Division
By *Helmut H. Hader*

MIAMI-DADE COUNTY

P.E. SEAL/SIGNATURE/DATE

David [Signature]
3/31/04

©2003 TILTECO, INC

TILTECO INC.

TILLIT TESTING & ENGINEERING COMPANY
6595 N.W. 38th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 33186
Phone : (305)871-1530 . Fax : (305)871-1531
e-mail: tilteco@aol.com
EB-0006719
WALTER A. TILLIT, Jr., P. E.
FLORIDA Lic. # 44167

0.0295" THICK GALV. STEEL STORM PANEL

ALUFAB HURRICANE SHUTTERS, INC.
13000 N.W. 38th AVE.
OPA-LOCKA, FL 33054

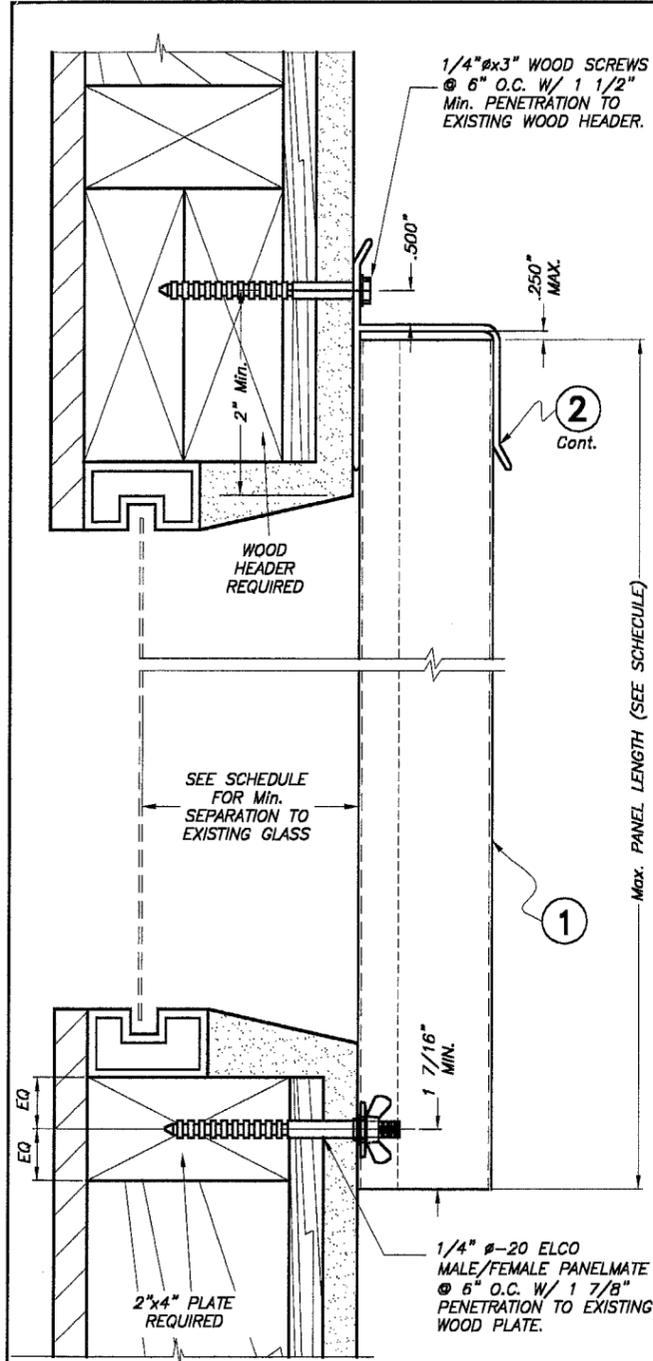
REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	GENERAL	3/30/04	3		
2			4		

AS SHOWN SCALE

12/4/03 DATE

03-244 DRAWING No

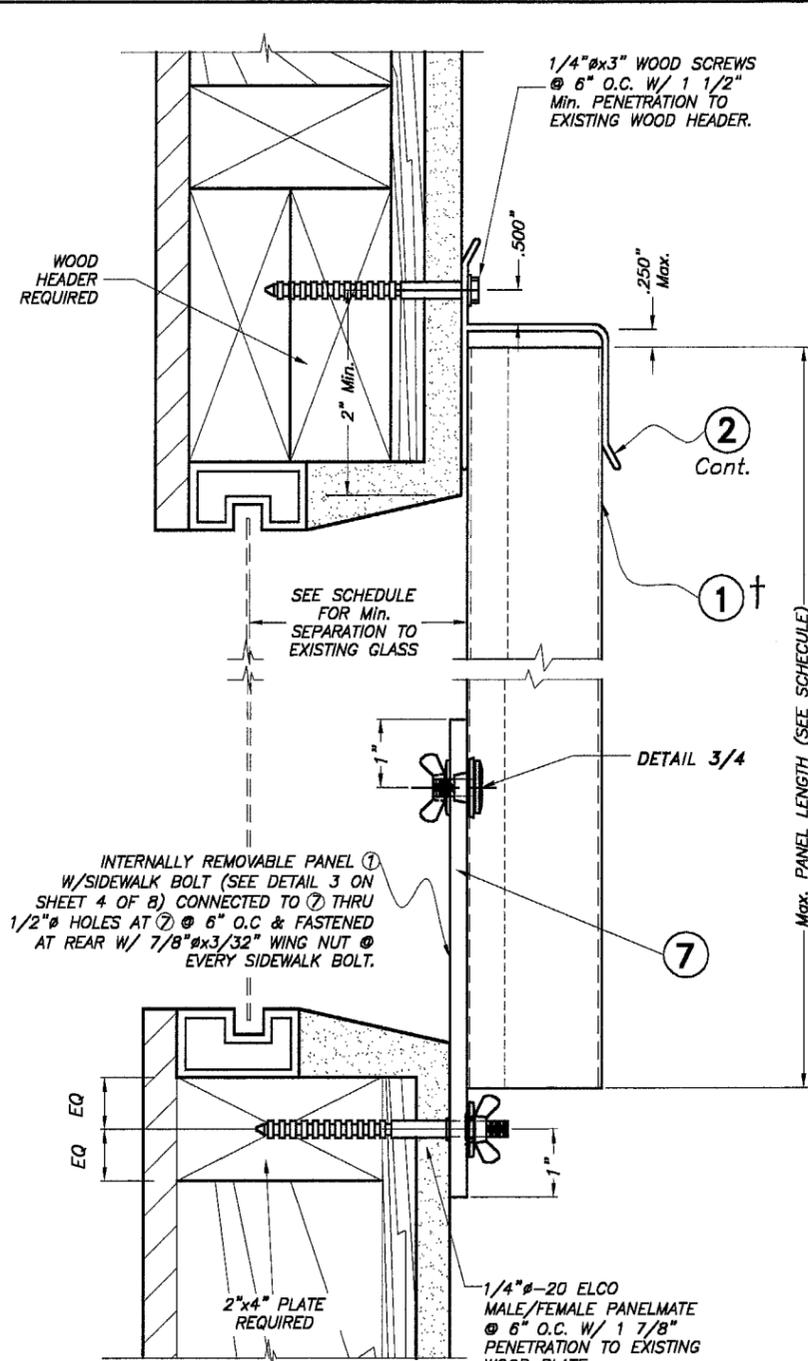
SHEET 7 OF 8



**ALTERNATIVE 6A
ADJACENT PANELS**

ALTERNATIVES 6

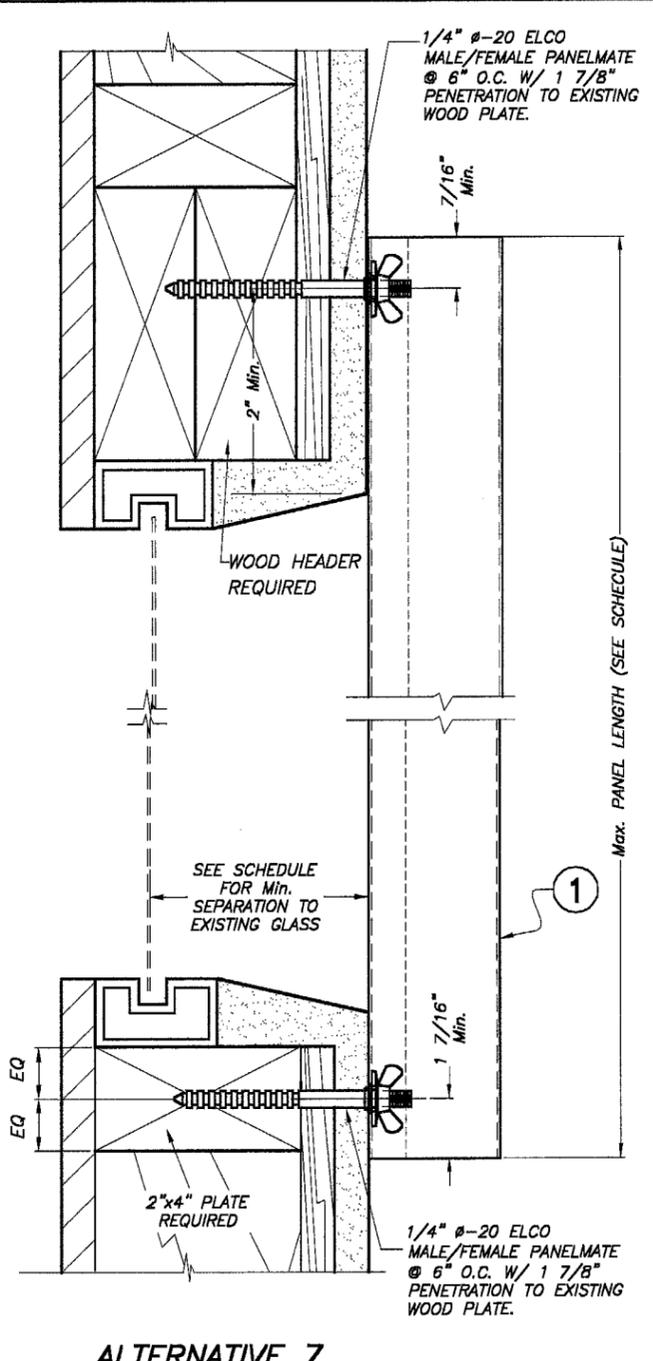
WALL MOUNTING INSTALLATIONS



**ALTERNATIVE 6B
INTERNALLY REMOVABLE PANEL****

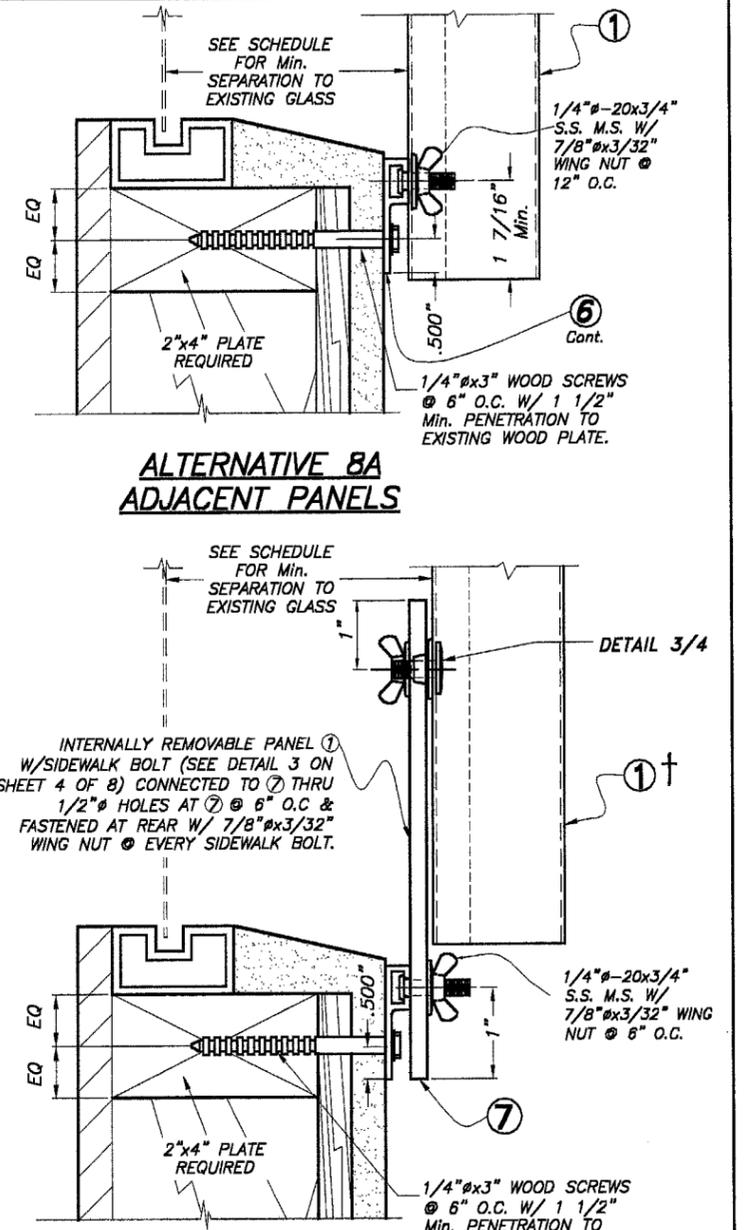
**** NOTE:**
INTERNALLY REMOVABLE PANEL SHOWN ON ALTERNATIVE 6B & 8B SHALL ALWAYS BE INSTALLED IN BETWEEN ADJACENT PANELS MOUNTED AS SHOWN ON ALTERNATIVE 6A & 8A.

† NOTE:
INTERNALLY REMOVABLE PANEL SHALL BE PROVIDED W/ AN ADEQUATE REMOVABLE HANDLE IN ORDER TO INSTALL PANEL.



ALTERNATIVE 7

NOTE FOR COMBINATION OF SECTIONS:
WALL MOUNTING SECTIONS CAN BE COMBINED IN ANY WAY TO SUIT ANY INSTALLATION.



**ALTERNATIVE 8A
ADJACENT PANELS**

**ALTERNATIVE 8B
INTERNALLY REMOVABLE PANEL****

ALTERNATIVES 8

NOTES:
1. INSTALLATIONS ARE VALID ONLY FOR DESIGN WIND LOADS AND Max. PANEL LENGTHS AS PER SCHEDULE ON SHEET 3 OF 6
2. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.

F.B.C.(H.V.H.Z.)

Approved as complying with the Florida Building Code
Date 04/29/2004
NOA# 04-0210-01
Miami Dade Product Control
Division
Heinz H. Miller
MIAMI-DADE COUNTY

David...
3/3/04
P.E. SEAL/SIGNATURE/DATE

©2003 TILTECO, INC
TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6595 N.W. 38th St., Ste. 217, VIRGINIA GARDENS, FLORIDA 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

0.0295" THICK GALV. STEEL STORM PANEL
ALUFAB HURRICANE SHUTTERS, INC.
13000 N.W. 38th AVE.
OPA-LOCKA, FL 33054

REV. No	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	GENERAL	3/30/04	3		
2			4		

AS SHOWN SCALE
12/4/03 DATE
03-244 DRAWING No
SHEET 8 OF 8