MIAMI-DADE COUNTY
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.buildingcodeonline.com

NOTICE OF ACCEPTANCE (NOA)

Aluminum World, Inc.
4401 E 10th Avenue
Hialeah, Florida 33013

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: " Mid-Rise Bertha " Aluminum Accordion Shutter System

APPROVAL DOCUMENT: Drawing No. 05-234, titled "ASSA / Mid-Rise Bertha Accordion Shutter", sheets 1 through 9 of 9, and sheet 1A of 9, prepared by Tilteco, Inc., dated August 08, 2005, last revision #1 dated August 08, 2005, signed and sealed by Walter A. Tillit Jr., P.E. bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and Expiration 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: "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 NOA # 03-0423.01** and consists of this page 1, evidence submitted pages E-1 & E-2 and approval document mentioned above.

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

PRODUCT CONTROL ACCEPTED

Helmy A. Makar
10/20/2005

NOA No 05-0817.08
Expiration Date: 05/10/2008
Approval Date: 10/20/2005
Page 1

Aluminum World, Inc.

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #00-0327.06

A. DRAWINGS

1. *Drawing No. 00-58, prepared by Tilteco Inc., titled "ASSA / Economy Accordion Shutter", dated February 24, 2000, sheets 1 through 9 of 9, signed and sealed by Walter A. Tillit, Jr., P.E. on February 24, 2000.*

B. TESTS

1. *See Association's generic approval under 96-0091.*

C. CALCULATIONS

1. *See Association's generic approval under 96-0091.*

D. MATERIAL CERTIFICATIONS

1. *See Association's generic approval under 96-0091.*

E. STATEMENTS

1. *Release letter issued by the American Shutter Systems Association, Inc., dated February 21, 2000, certifying this product to meet the criteria of product tested and approved, and allowing Aluminum World, Inc. to use the test results approved under Dade County Approval No. 96-0091, signed by Mr. Trudy Midkiff.*
2. *Acknowledgment letter by Aluminum World, Inc., dated March 18, 2000, signed by Mr. Francisco Rosado.*
3. *Letter by Tilteco Inc., dated March 8, 2000, certifying that the drawing (No. 00-58) prepared for Aluminum World, Inc., signed and sealed by Mr. Walter A. Tillit, Jr., P.E., is engineering wise identical to ASSA's generic drawing (No. 95-62A).*
4. *Acceptance Letter issued to Mr. Francisco Rosado on May 9, 2000 and returned signed by Mr. Francisco Rosado on May 10, 2000, indicating to please issue the proposed Notice of Acceptance as submitted and reviewed.*

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL #03-0423.01

A. DRAWINGS

1. *Drawing No. **03-087**, titled " ASSA / Economy Accordion Shutter ", sheets 1 through 9 of 9, prepared by Tilteco, Inc., dated April 21, 2003, last revision #1 dated April 21, 2003 signed and sealed by Walter A. Tillit, Jr., P.E.*

B. TESTS

1. *See Association's generic approval under 03-0112.*

Helmy A. Makar, P. E.
Product Control Examiner
NOA No 05-0817.08
Expiration Date: 05/10/2008
Approval Date: 10/20/2005

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

C. CALCULATIONS

1. See Association's generic approval under 03-0112.

D. MATERIAL CERTIFICATIONS

1. See Association's generic approval under 03-0112.

E. STATEMENTS

1. Letter issued by Mr. Walter A. Tillit, Jr., P.E., dated April 18, 2003, indicating that the only change is update General Note numbers 1 & 11 to reference the Florida Building Code and ASCE 7-98.

5. NEW EVIDENCE SUBMITTED

A. DRAWINGS:

1. Drawing No. 05-234, titled " ASSA / Mid-Rise Bertha Accordion Shutter ", sheets 1 through 9 of 9, and sheet 1A of 9, prepared by Tilteco, Inc., dated August 08, 2005, last revision #1 dated August 08, 2005, signed and sealed by Walter A. Tillit Jr., P.E.

B. TESTS:

1. See Association's generic approval under 05-0236.

C. CALCULATIONS:

1. See Association's generic approval under 05-0236.

D. QUALITY ASSURANCE

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

E. MATERIAL CERTIFICATION:

1. See Association's generic approval under 05-0236.

F. STATEMENTS

1. Letter from Tilteco, Inc., dated August 10, 2005, signed and sealed by Walter A. Tillit Jr., P.E., certifying that the drawing (No. 05-234) prepared for Aluminum World, Inc., signed and sealed by Walter A. Tillit, Jr., P.E., is engineering wise identical to ASSA's generic drawing (No. 05-139).

Helmy A. Makar, P. E.
Product Control Examiner
NOA No 05-0817.08
Expiration Date: 05/10/2008
Approval Date: 10/20/2005

GENERAL NOTES:

1. ACCORDION SHUTTER SHOWN ON THIS PRODUCT APPROVAL DOCUMENT HAS BEEN VERIFIED FOR CODE COMPLIANCE IN ACCORDANCE WITH THE 2004 EDITION OF THE FLORIDA BUILDING CODE.
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. A DURATION FACTOR CD=1.60 WAS USED FOR VERIFICATION OF FASTENERS IN WOOD.
ASSA/MID-RISE BERTHA ACCORDION SHUTTER ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE HAS BEEN VERIFIED IN ACCORDANCE WITH SECTION 1609.1.4 OF THE ABOVE MENTIONED CODE AS PER ATL REPORT # 0201.01-96 AND 0701.01-05, PER TAS-201, TAS-202 AND TAS-203 PROTOCOLS.

2. STAINLESS STEEL SHEET METAL SCREWS USED AT LOUVER PIN SHALL BE # 10 x 3", 410-HT MINIMUM SERIES W/135.0 ksi YIELD STRENGTH & 180 ksi TENSILE STRENGTH. SCREWS SHALL BE COATED WITH XYLAN 5000 SERIES FLUOROPOLYMER COATINGS AS MANUFACTURED BY WHITFORD Co, BOX 507. WEST CHESTER PA. 19381.

3. ALL ALUMINUM EXTRUSIONS SHALL BE 6063-T6 ALLOY.

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

5. ALL ALUMINUM POP RIVETS TO BE 5052 ALUMINUM ALLOY WITH ALUMINUM MANDREL.

6. BOLTS TO BE A.S.T.M. A-307 GALVANIZED OR AISI 304 SERIES STAINLESS STEEL WITH 35 ksi MINIMUM MINIMUM YIELD STRENGTH.

7. ANCHORS TO WALL SHALL BE AS FOLLOWS: (UNLESS OTHERWISE NOTED)
(A) TO EXISTING POURED CONCRETE:
- 1/4" ø TAPCON ANCHORS, AS MANUFACTURED BY I.T.W. BUILDEX.
- 1/4" ø ZAMAC NAILIN ANCHORS, AS MANUFACTURED BY POWERS FASTENERS, INC.
- 1/4" ø x 7/8" CALK-IN AS MANUFACTURED BY POWERS FASTENERS, INC.

NOTES:
A.1) MINIMUM EMBEDMENT OF TAPCON AND ZAMAC NAILIN ANCHORS INTO POURED CONCRETE IS 1 3/4".
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.
A.3) IN CASE THAT PRECAST STONE, PRECAST CONCRETE PANELS, 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 AS MANUFACTURED BY I.T.W. BUILDEX.
- 1/4" ø ZAMAC NAILIN ANCHORS AS MANUFACTURED POWERS FASTENERS, INC.
- 1/4" ø x 7/8" CALK-IN AS MANUFACTURED BY POWERS FASTENERS, INC.

NOTES:
B.1) MINIMUM EMBEDMENT OF TAPCON ANCHORS, AND ZAMAC NAILIN ANCHORS INTO THE CONCRETE BLOCK UNIT SHALL BE 1 1/4".

B.2) 7/8" CALK-IN ANCHORS SHALL BE ENTIRELY EMBEDDED INTO THE 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.

B.3) IN CASE THAT PRECAST STONE OR PRECAST CONCRETE PANELS BE FOUND ON THE EXISTING WALL, 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 OF THE RECOMMENDATIONS AND SPECIFICATIONS OF THE ANCHOR'S MANUFACTURER.

8. THIS ASSA/MID-RISE BERTHA ACCORDION SHUTTER SYSTEM IS PATENT PENDING. COMPONENTS OF THIS APPROVAL ARE COVERED IN WHOLE OR PART BY U.S. PATENT ISSUED TO EASTERN METAL SUPPLY, INC.

9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE WHERE SHUTTER IS TO BE ATTACHED TO INSURE PROPER ANCHORAGE.

10. SHUTTER'S MANUFACTURER LABEL SHALL BE PLACED ON THE EXPOSED SURFACE OF THE FEMALE LOCK SLAT (COMPONENT ①).
ONE LABEL SHALL BE PLACED FOR EVERY OPENING. LABEL SHALL READ AS FOLLOWS:
ALUMINUM WORLD, INC.
HIALEAH, FLORIDA
MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED.

11. (a) THIS PRODUCT APPROVAL DOCUMENT (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 PRODUCT APPROVAL PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.

(c) THIS PRODUCT APPROVAL DOCUMENT WILL BE CONSIDERED INVALID IF MODIFIED.

(d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA 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 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 THAT PREPARED IT.

PRODUCT REVISED
as complying with the Florida
Buiding Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By
Miami Dade Product Control
Division

F.B.C. (High Velocity Hurricane Zone)

AUG 11 2005

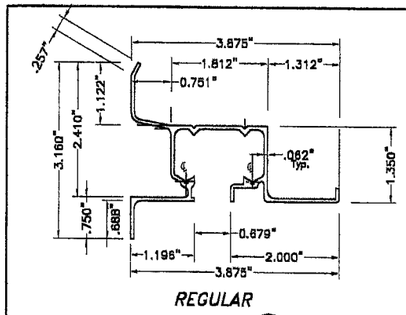
TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
EB-0006719
WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

ASSA/MID-RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
(ASSA # 167)
4401 E 10 AVENUE
HIALEAH, FLORIDA 33013
PH:(305)825-1355, FAX:(305)825-1356

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	-	-
2	-	-	4	-	-

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 1 OF 9



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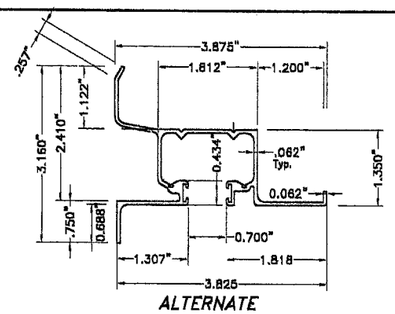
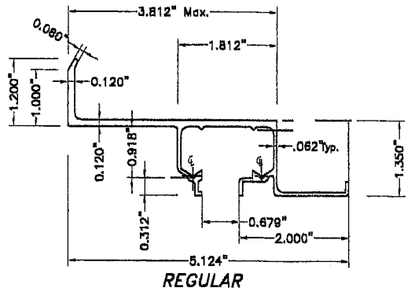


ALTERNATE

Ⓐ HEADER–WALL MOUNT.
Ⓐ SILL–WALL MOUNT. (INVERTED USE)
SCALE: 3/8" = 1"



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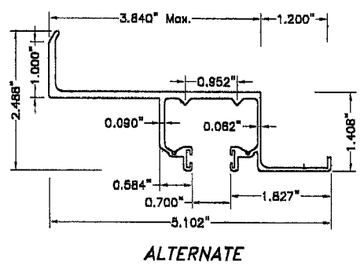
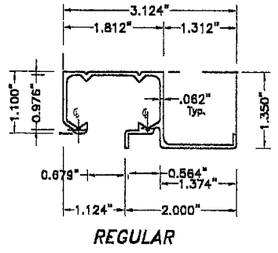


ALTERNATE

Ⓐ1 HEADERS–WALL MOUNT.
SCALE: 3/8" = 1"



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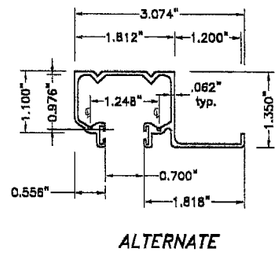
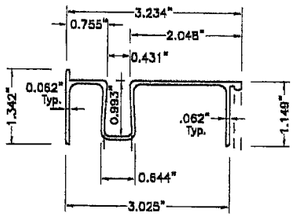
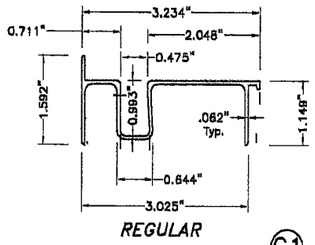


ALTERNATE

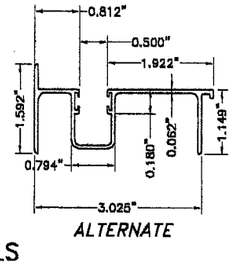
Ⓑ HEADER CEILING MOUNT.
SCALE: 3/8" = 1"



Ⓒ SILL
SCALE: 3/8" = 1"

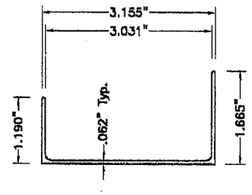


REGULAR

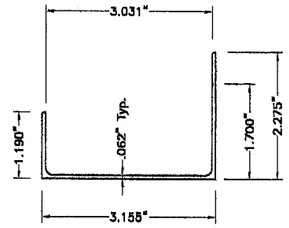


ALTERNATE

Ⓒ1 SILLS
SCALE: 3/8" = 1"



Ⓓ SILL BOTTOM ADAPTER
SCALE: 3/8" = 1"



Ⓓ1 SILL BOTTOM ADAPTER
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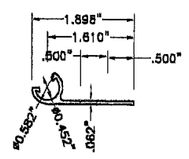
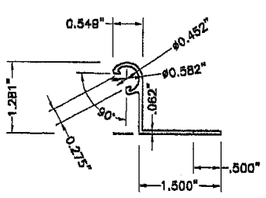
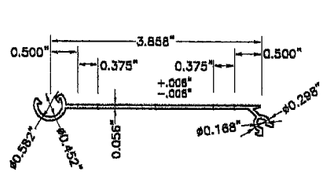


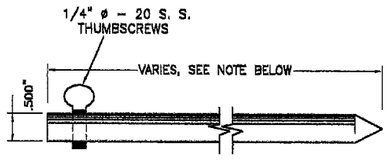
Ⓔ 180° STARTER
SCALE: 3/8" = 1"



Ⓔ1 90° STARTER
SCALE: 3/8" = 1"

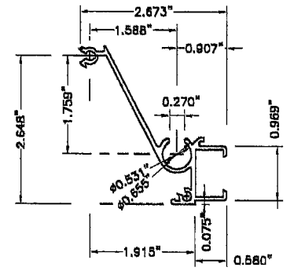


Ⓕ LOUVER BLADE
SCALE: 3/8" = 1"
COVERED UNDER US PATENT # 5458179

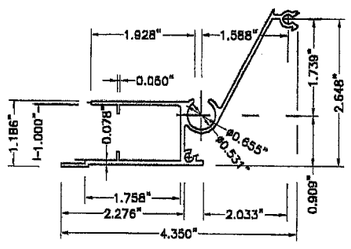


Ⓖ LOCKING PIN
SCALE: 3/8" = 1"

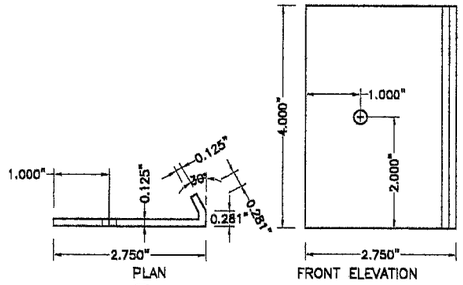
12" Min. FOR UP TO 9'–0" SHUTTER BLADE LENGTHS AND 24" Min. FOR SHUTTER BLADE LENGTHS GREATER THAN 9'–0".



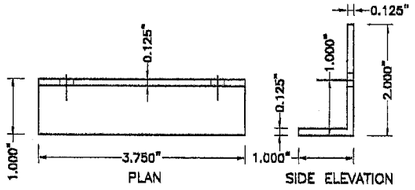
Ⓗ MALE LOCK SLAT
SCALE: 3/8" = 1"



Ⓘ FEMALE LOCK SLAT
SCALE: 3/8" = 1"

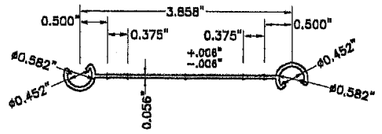


Ⓙ OUTSIDE LOCKER # 1
SCALE: 3/8" = 1"



Ⓚ INSIDE LOCKER # 2
SCALE: 3/8" = 1"

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Miami Dade Product Control Division



Ⓛ FEMALE/FEMALE
ECONO BLADE
SCALE: 3/8" = 1"

F.B.C. (High Velocity Hurricane Zone)

COMPONENTS

AUG 11 2005

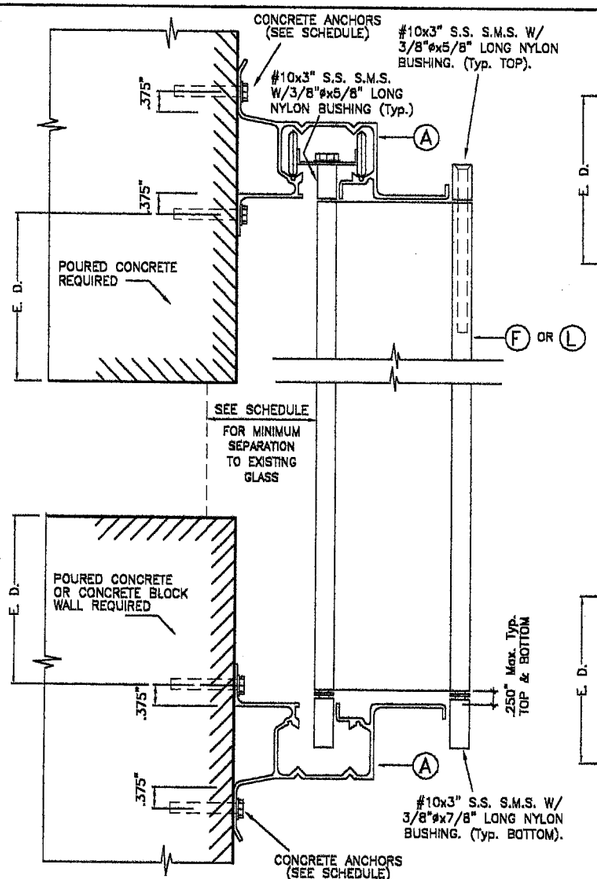
TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6385N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
EB-0006719
WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

ASSA/MID–RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
(ASSA # 167)
4401 E 10 AVENUE
HIALEAH, FLORIDA 33013
PH:(305)825–1355, FAX:(305)825–1356

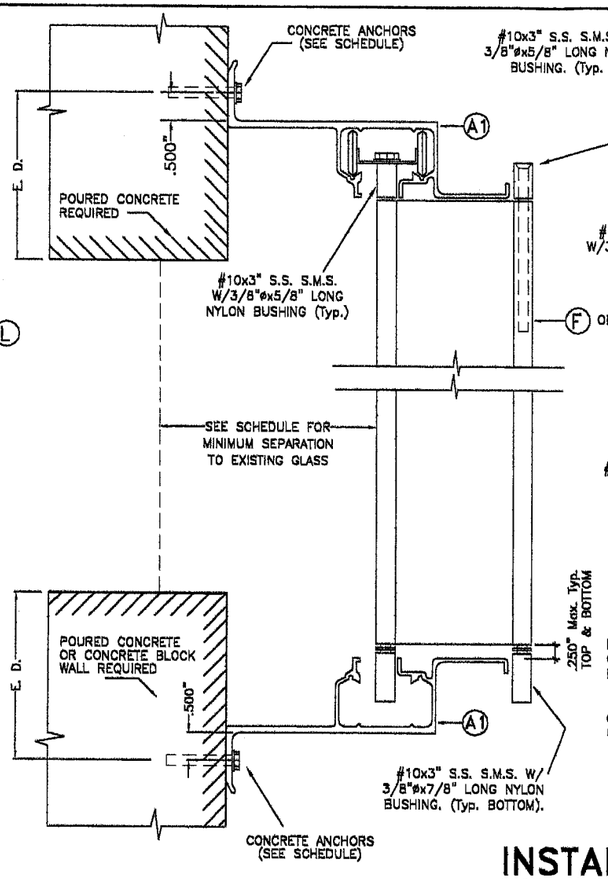
DRAWN BY: J.J.V.
8/8/05 DATE
05–234 DRAWING No
SHEET 1A OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03–087	8/8/05	3	–	–
2	–	–	4	–	–



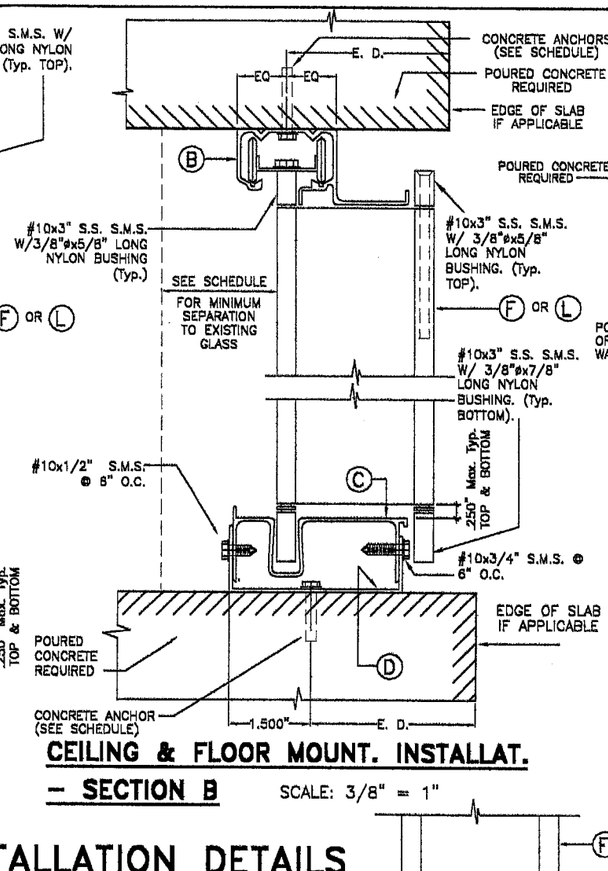
WALL MOUNTING INSTALLATION – SECTION A

SCALE: 3/8" = 1"



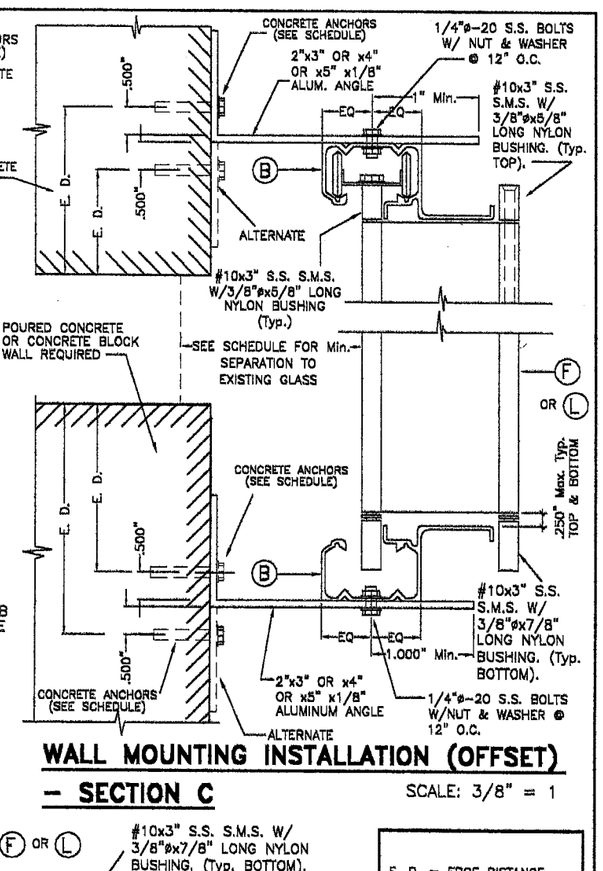
WALL MOUNTING INSTALLATION – SECTION A1

SCALE: 3/8" = 1"



CEILING & FLOOR MOUNT. INSTALLAT. – SECTION B

SCALE: 3/8" = 1"

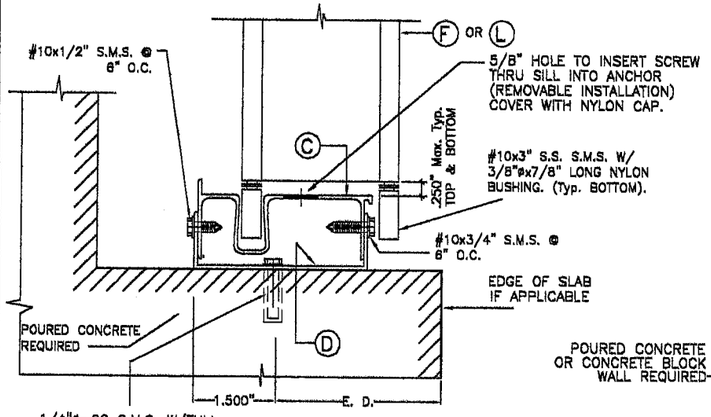


WALL MOUNTING INSTALLATION (OFFSET) – SECTION C

SCALE: 3/8" = 1

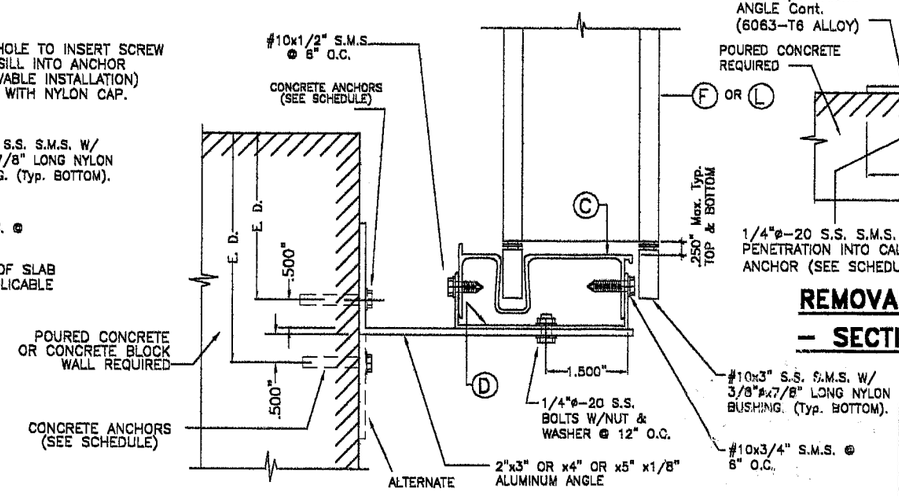
E. D. = EDGE DISTANCE (SEE SCHEDULE ON SHEET 8 OF 9)

INSTALLATION DETAILS



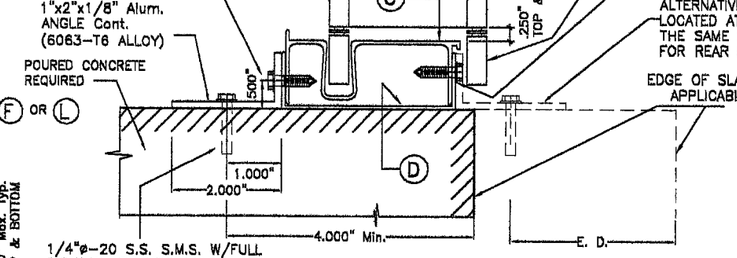
REMOVABLE FLOOR MOUNTING INSTALLATION – SECTION B1

SCALE: 3/8" = 1"



WALL MOUNTING INSTALLATION (OFFSET) – SECTION C1

SCALE: 3/8" = 1"



REMOVABLE FLOOR MOUNTING INSTALLATION – SECTION B2

SCALE: 3/8" = 1"

PRODUCT REVISED as complying with the Florida Building Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Helen A. Miller
Miami Dade Product Control Division

F.B.C. (High Velocity Hurricane Zone)

AUG 11 2005

TILLIT TESTING & ENGINEERING COMPANY
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Phone : (305)871-1530 . Fax : (305)871-1531
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WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

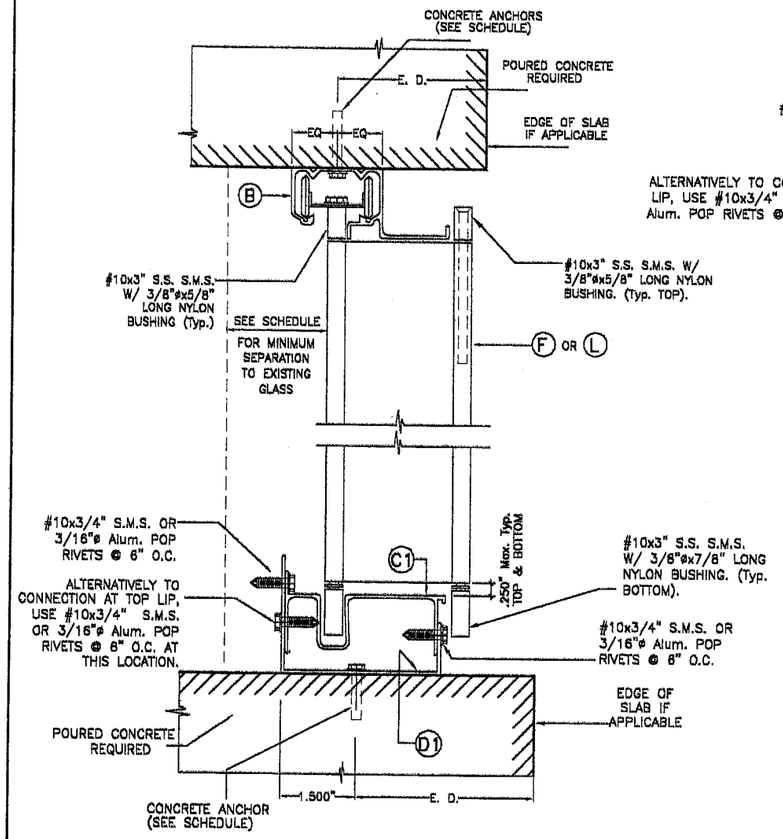
ASSA/MID-RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
(ASSA # 187)
4401 E 10 AVENUE
HIALEAH, FLORIDA 33013
PH:(305)825-1355, FAX:(305)825-1386

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 2 OF 9

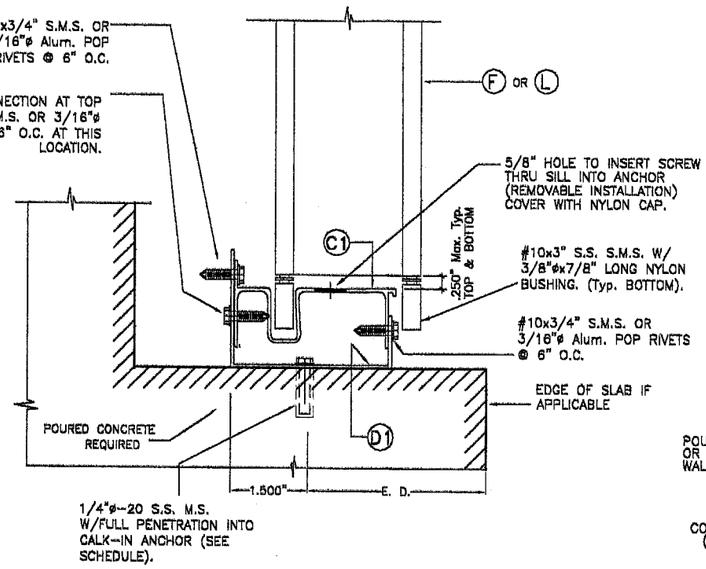
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	-	-
2	-	-	4	-	-

INSTALLATION DETAILS



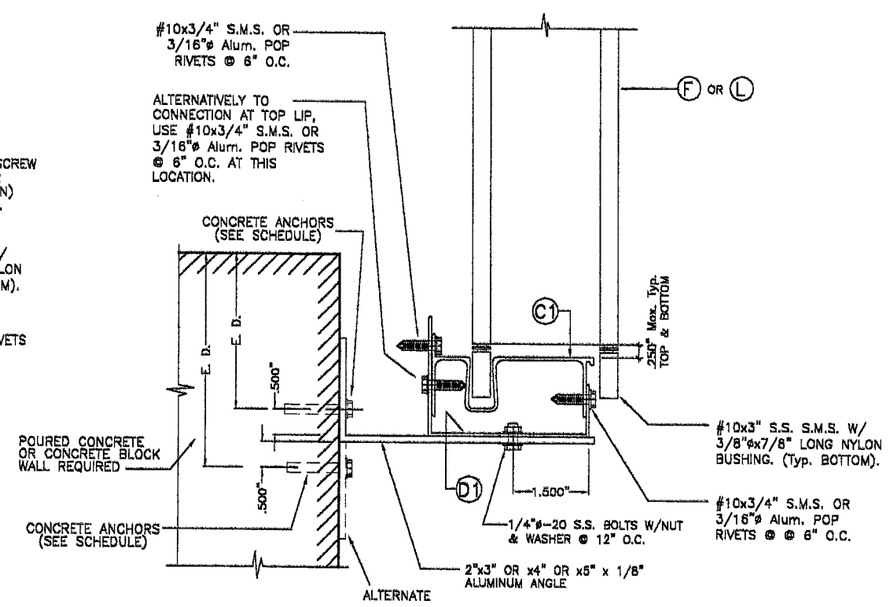
REMOVABLE FLOOR MOUNTING INSTALLATION – SECTION B1'

SCALE: N.T.S.



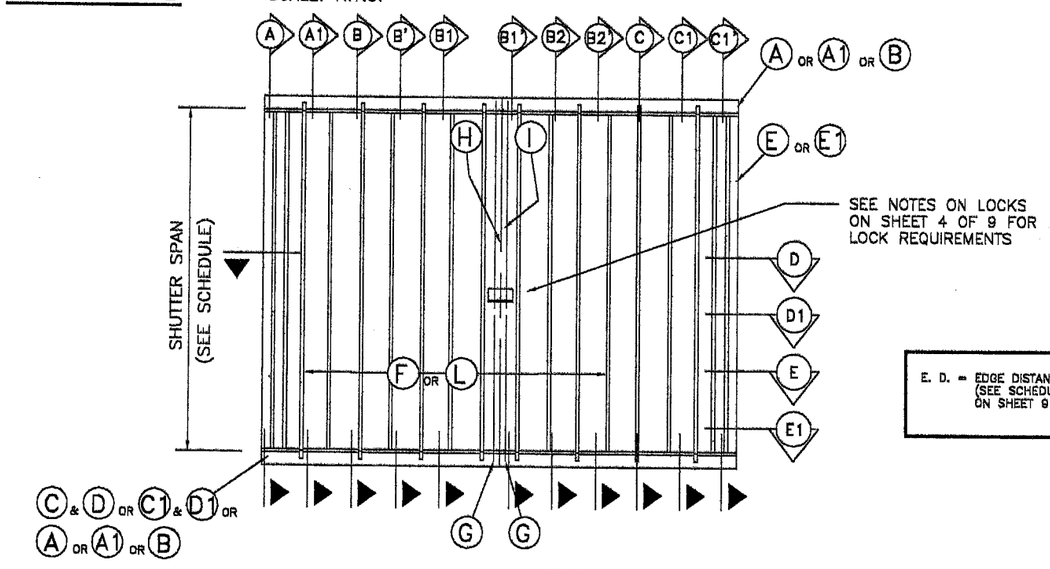
WALL MOUNTING INSTALLATION (OFFSET) – SECTION C1'

SCALE: N.T.S.



CEILING & FLOOR MOUNTING INSTALLATION – SECTION B'

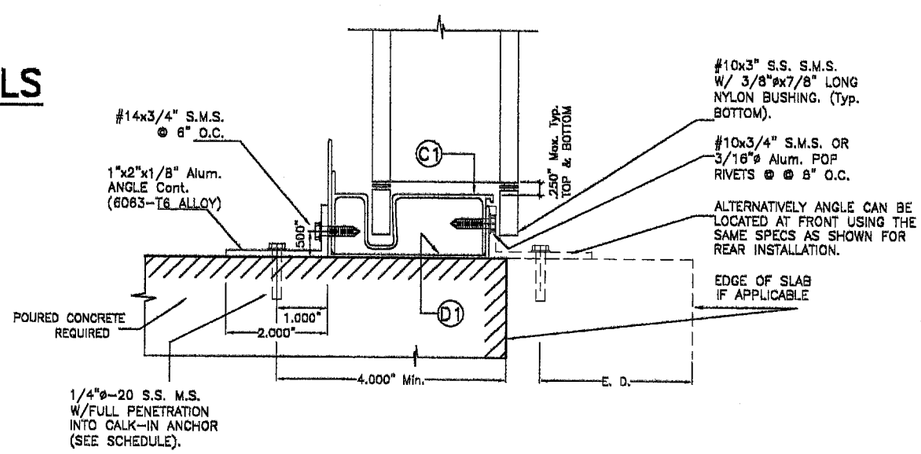
SCALE: N.T.S.



TYPICAL ELEVATION

N. T. S.

E. D. = EDGE DISTANCE (SEE SCHEDULE ON SHEET 9 OF 9)



REMOVABLE FLOOR MOUNTING INSTALLATION – SECTION B2'

SCALE: N.T.S.

PRODUCT REVISED
as complying with the Florida Buiding Code
Acceptance No 05-0817.08
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By
Miami Dade Product Control Division

AUG 11 2005

F.B.C. (High Velocity Hurricane Zone)

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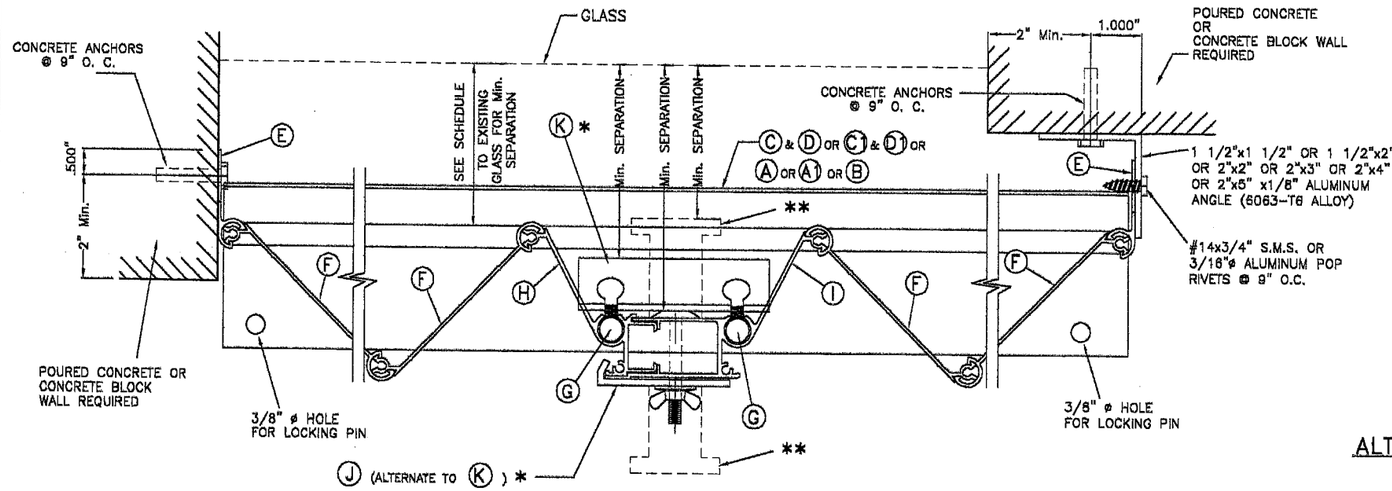
DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 3 OF 9

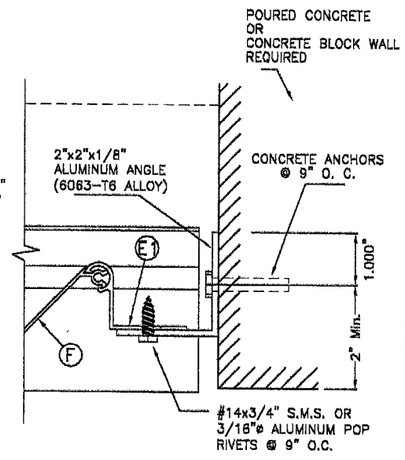
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	–	–
2	–	–	4	–	–



SECTION D

NOTE : SEE NOTES ON LOCKS ON THIS SHEET, VALID ALSO FOR SECTION E1 AND ONE SIDED SHUTTER.

SCALE: N.T.S.

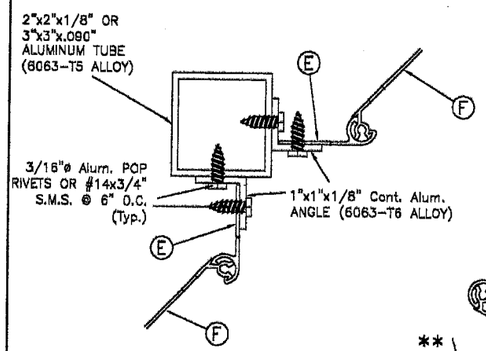


ALTERNATE CLOSURE DETAIL W/ (E1)

NOTES ON LOCKS:

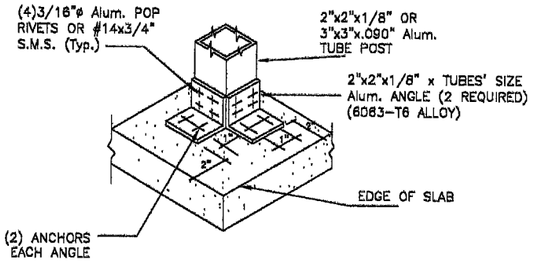
* INSIDE LOCKER (K) OR OUTSIDE LOCKER (J) SHALL ALWAYS BE USED FOR ANY SPAN AT INSTALLATIONS WITHIN THE FIRST 30 FEET OF BUILDING, AND FOR SHUTTER SPANS GREATER THAN 8'-0", FOR INSTALLATIONS ABOVE 30 FEET ELEVATION OF BUILDING MEASURED AT BOTTOM OF SHUTTER.
INSIDE LOCKER (K) SHALL BE ATTACHED TO (H) & (I) BY MEANS OF 2 THUMB SCREWS ONLY WHEN USING (K) LOCKER.
OUTSIDE LOCKER (J) MAY BE USED AS AN INSIDE LOCKER IF ATTACHED TO (H) & (I) W/ 1/4"ø-20x1" LONG S. S. THREADED BOLT W/ 1/4"ø-20x5/8" INTERNALLY THREADED ALUMINUM RIVNUT. SEE INSTALLATION DETAIL ON THIS SHEET.
OUTSIDE LOCKER (J) SHALL BE ATTACHED THRU (H) & (I) W/ 1/4"ø-20 S.S. SIDEWALK BOLT W/ 7/8" WING NUT OR W/ 1/4"ø-20x1" LONG S.S. THREADED BOLT W/ 1/4"ø-20x5/8" INTERNALLY THREADED ALUMINUM RIVNUT. SEE INSTALLATION DETAIL ON THIS SHEET.

**
a). FOR INSTALLATIONS WITHIN THE FIRST 30 FEET ELEVATION OF BUILDING MEASURED AT BOTTOM OF SHUTTER AND IN ADDITION TO EITHER (K) OR (J) USED LOCKERS, A REGULAR T LOCK MAY BE USED FOR SECURITY PURPOSES AT ANY DESIRED LOCATION OF CENTERMATE (INSIDE OR OUTSIDE).
WHEN USED INSIDE, MINIMUM SEPARATION TO GLASS SHALL ALSO BE VERIFIED FROM THE TIP OF SUCH T LOCK OR FROM THE OTHER SHUTTER COMPONENTS SHOWN ON SECTION D (WHICHEVER IS MORE CRITICAL).
b). FOR INSTALLATIONS ABOVE 30 FEET ELEVATION OF BUILDING MEASURED AT BOTTOM OF SHUTTER AND SHUTTER SPANS UP TO 8'-0", ONE T LOCK MAY BE USED IN LIEU OF LOCKERS (K) OR (J) AT MIDSPAN OF CENTERMATE FACING OUTSIDE OR INSIDE.
WHEN USED INSIDE, MINIMUM SEPARATION TO GLASS SHALL ALSO BE VERIFIED FROM THE TIP OF SUCH T LOCK OR FROM THE OTHER SHUTTER COMPONENTS SHOWN ON SECTION D (WHICHEVER IS MORE CRITICAL).

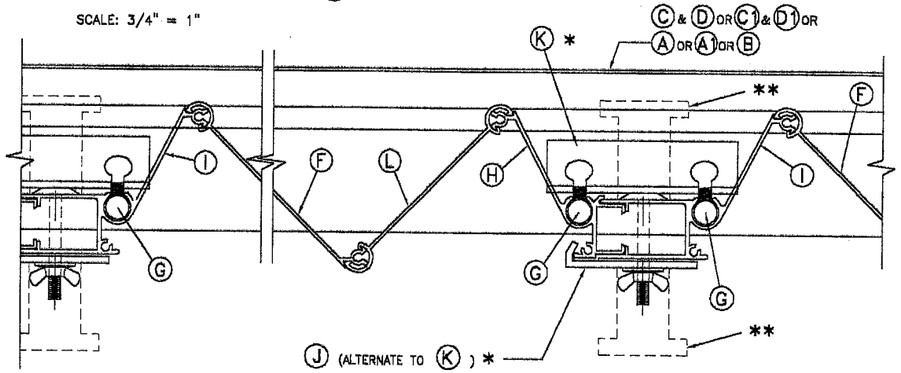


SECTION E

SCALE: N.T.S.

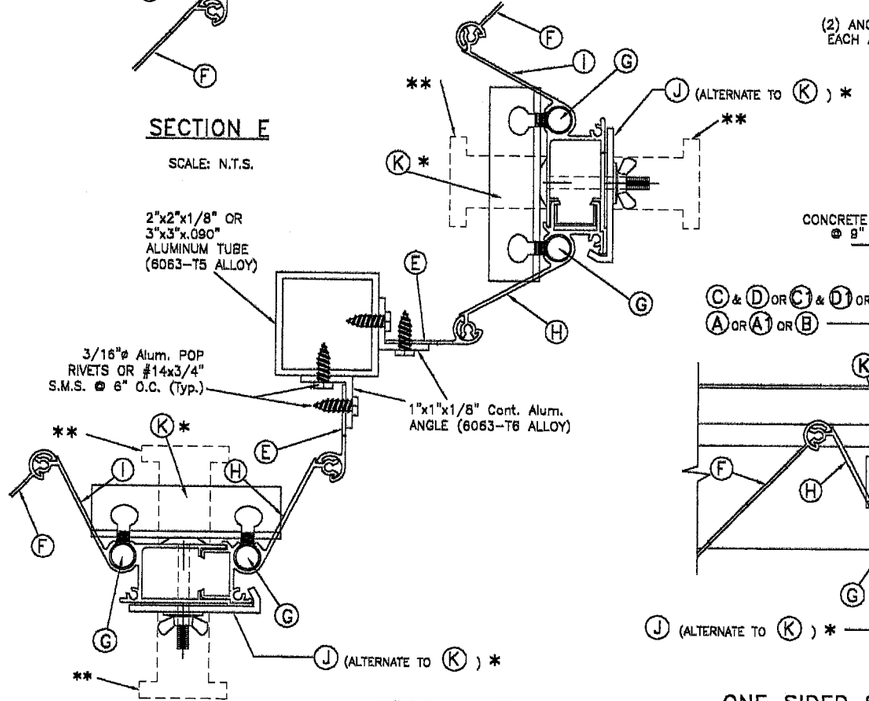


ISOMETRIC (CORNER POST) & (Typ. AT TOP BOTTOM SLABS)



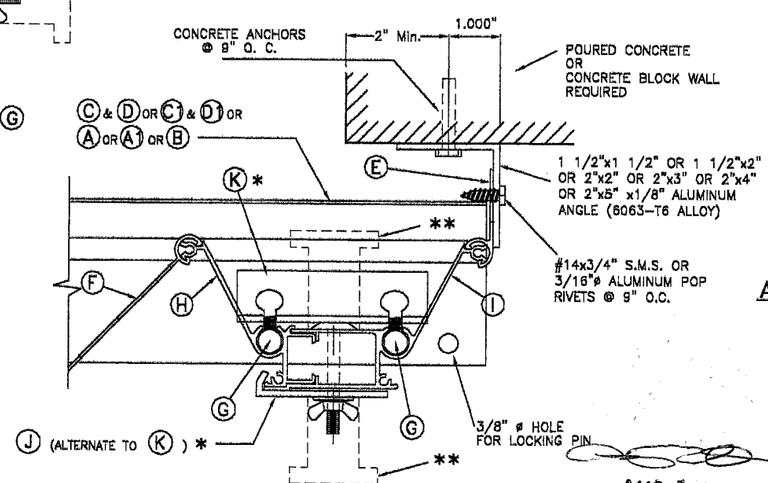
SECTION D1 (MULTIPLE SHUTTERS)

SCALE: 3/4" = 1"



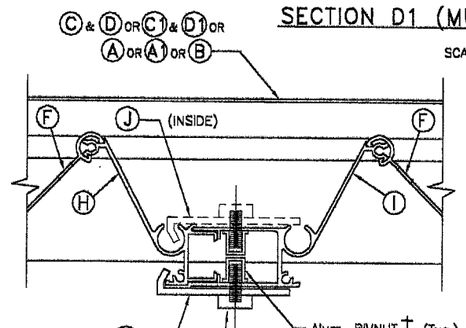
SECTION E1

SCALE: N.T.S.



ONE SIDED SHUTTER: END CONNECTION DETAIL

SCALE: N.T.S.



ALTERNATE USE OF (J) LOCKER W/ RIVNUT † AS INSIDE OR OUTSIDE LOCKER

SCALE: N.T.S.

†: SERIES 9444 ALUMINUM (2024-T3 ALLOY) LARGE FLANGE THIN SHEET NUTSERT, PART # 0820, AS MANUFACTURED BY AVDEL CHERRY TEXTORN, PARSIPPENY, NEW JERSEY 07054 OR EQUAL.

PRODUCT REVISED
as complying with the Florida Building Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Miami Dade Product Control Division

F.B.C. (High Velocity Hurricane Zone)

AUG 11 2005

TILTECO INC.
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ASSA/MID-RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
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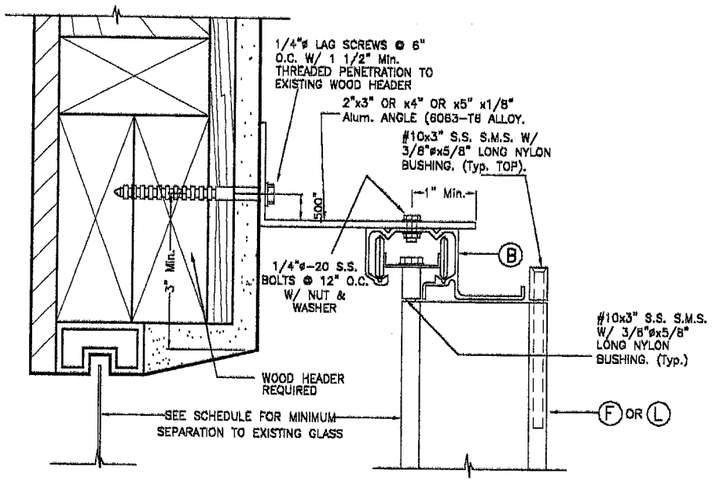
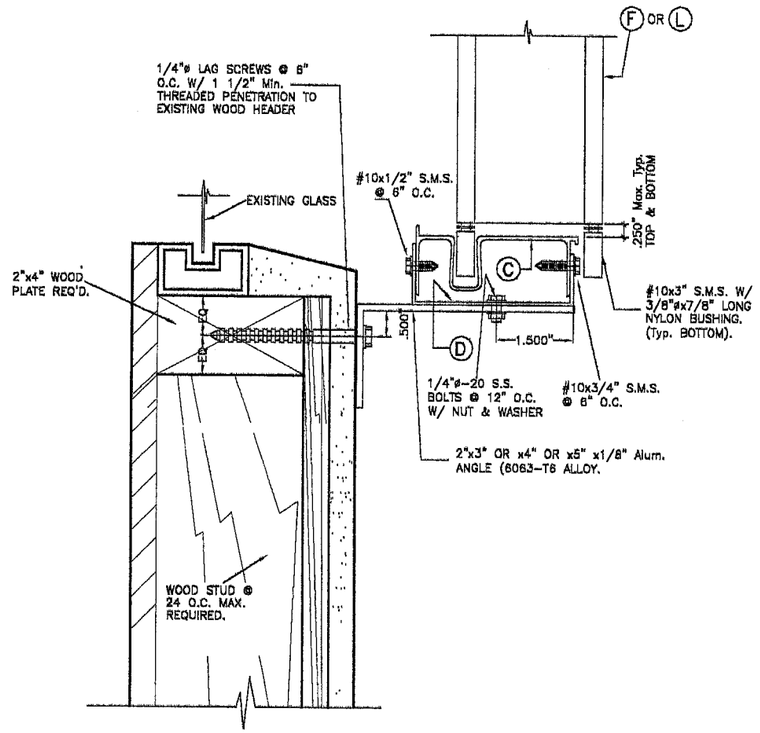
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-067	8/8/05	3	–	–
2	–	–	4	–	–

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 4 OF 9

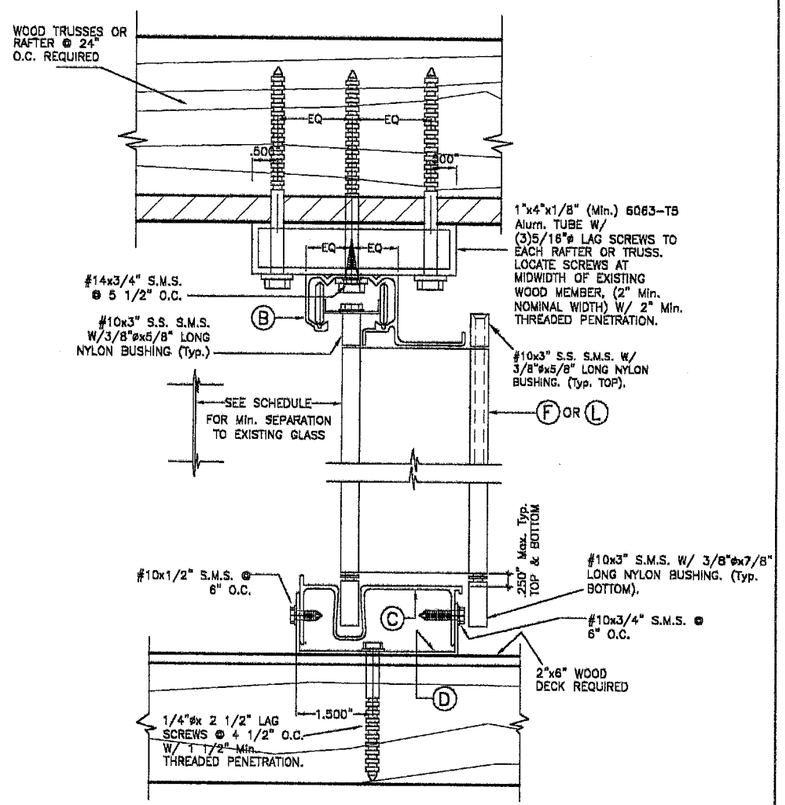
INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS



ALTERNATIVE 1



ALTERNATIVE 2



CEILING & FLOOR MOUNTING INSTALLATION – SECTION B

SCALE: N.T.S.

NOTES:

1. INSTALLATIONS ARE ONLY VALID FOR BUILDINGS WITH DESIGN LOAD UP TO 75.3 p.s.f. AND 9'-0" Max. SHUTTER SPAN.
2. NEW 2" x 6" P. T. TO BE SOUTHERN PINE No. 2, SURFACED DRY WITH 19 % M. M. C. W/ SPECIFIC DENSITY OF 0.55.
3. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.

PRODUCT REVISED
as complying with the Florida Buiding Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Helmy A. Mesh
Miami Dade Product Control Division

AUG 11 2005

F.B.C. (High Velocity Hurricane Zone)

TILTECO INC.
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8686N.W. 36th. St., Ste. 308, VIRGINIA GARDENS, FLORIDA 33166
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WALTER A. TILLIT Jr., P. E.
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ASSA/MID-RISE BERTHA ACCORDION SHUTTER

DRAWN BY: J.J.V.

ALUMINUM WORLD, INC.
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4401 E 10 AVENUE
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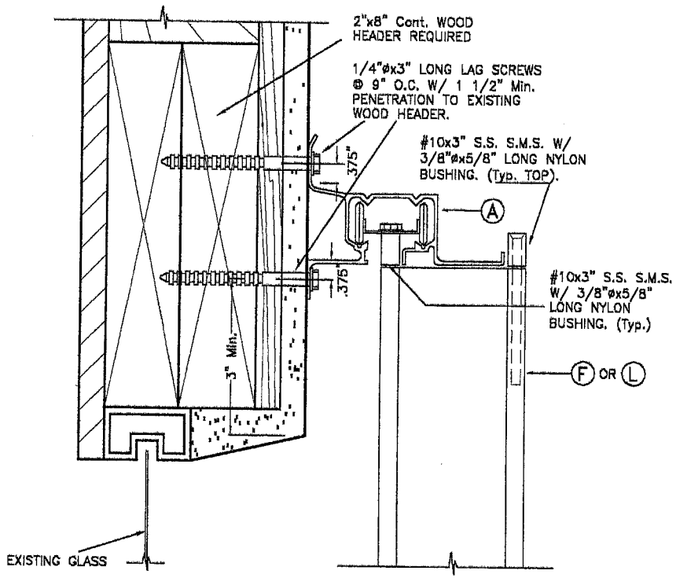
PH:(305)825-1355, FAX:(305)825-1356

8/8/05 DATE

05-234 DRAWING No

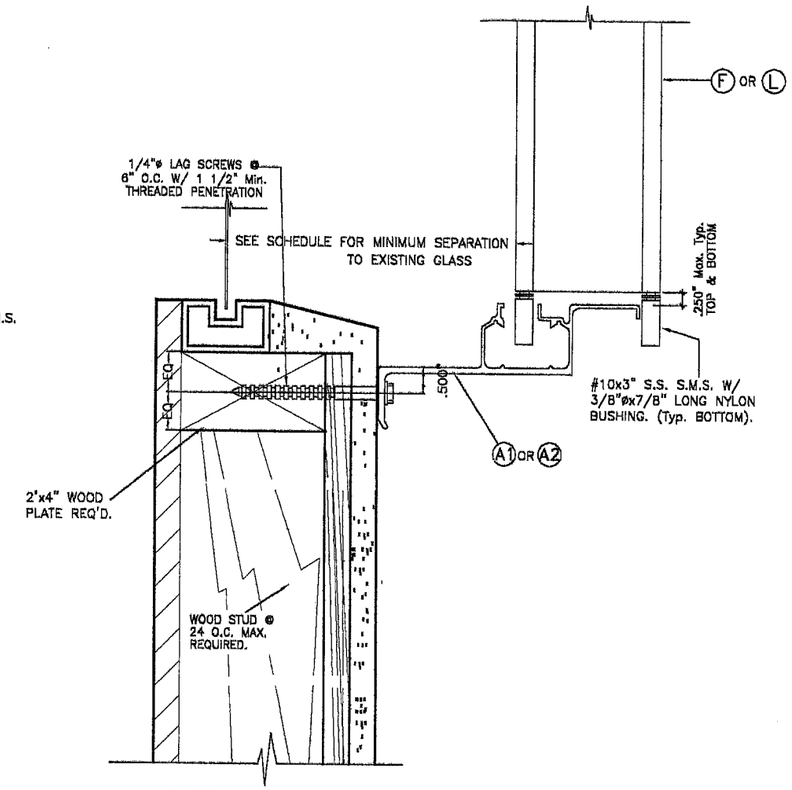
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	–	–
2	–	–	4	–	–

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

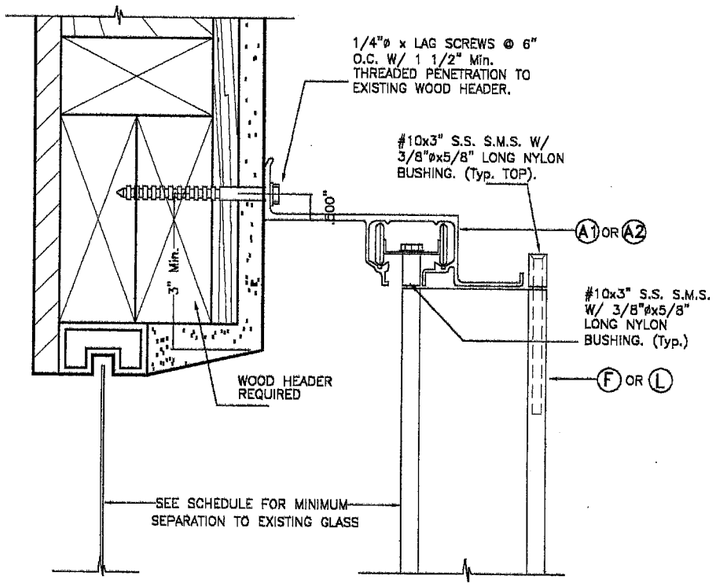


WALL MOUNTING INSTALLATION – SECTION A1

SCALE: N.T.S.



ALTERNATIVE 1



ALTERNATIVE 2

WALL MOUNTING INSTALLATION (OFFSET) – SECTION A2

SCALE: N.T.S.

NOTES:

1. INSTALLATIONS ARE ONLY VALID FOR BUILDINGS WITH DESIGN LOAD UP TO 75.3 p.s.f. AND 9'-0" Max. SHUTTER SPAN.
2. NEW 2" x 6" P. T. TO BE SOUTHERN PINE No. 2, SURFACED DRY WITH 19 % M. M. C. W/ SPECIFIC DENSITY OF 0.55.
3. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.

PRODUCT REVISED
as complying with the Florida Buiding Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Helena A. Madan
Miami Dade Product Control Division

F.B.C. (High Velocity Hurricane Zone)

AUG 11 2005

TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
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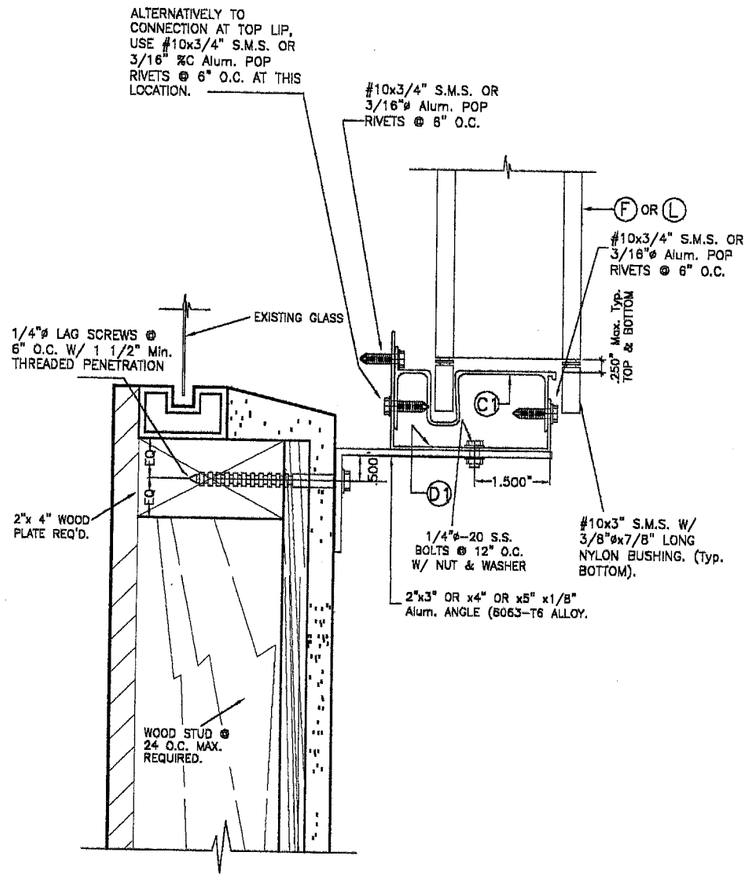
DRAWN BY: J.J.V.

8/8/05 DATE

05-234 DRAWING No

SHEET 6 OF 9

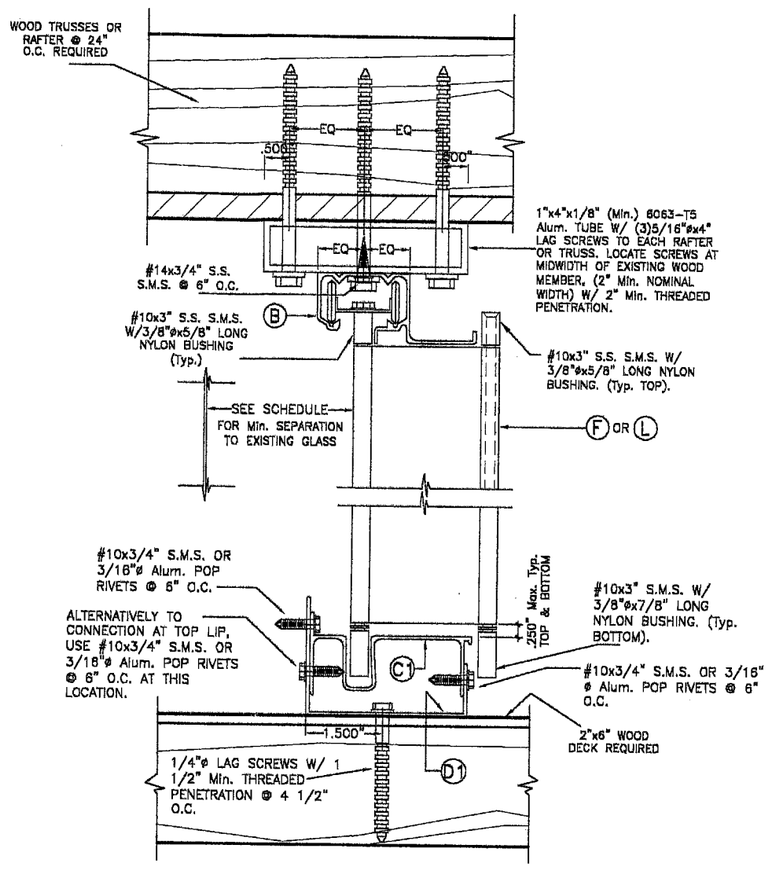
REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	–	–
2	–	–	4	–	–



ALTERNATIVE 1

WALL MOUNTING INSTALLATION (OFFSET) – SECTION A'

SCALE: N.T.S.



CEILING & FLOOR MOUNTING INSTALLATION – SECTION B'

SCALE: N.T.S.

NOTES:

1. INSTALLATIONS ARE ONLY VALID FOR BUILDINGS WITH DESIGN LOAD UP TO 75.3 p.s.f. AND 9'-0" Max. SHUTTER SPAN.
2. NEW 2" x 6" P. T. TO BE SOUTHERN PINE No. 2, SURFACED DRY WITH 19 % M. M. C. W/ SPECIFIC DENSITY OF 0.55.
3. FOR NEW WOOD FRAME CONSTRUCTION: WOOD MEMBERS TO BE SOUTHERN PINE No. 2, W/ SPECIFIC DENSITY OF 0.55 OR EQUAL.

INSTALLATION DETAILS ON EXISTING WOOD BUILDINGS

PRODUCT REVISED
as complying with the Florida Buiding Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Helena A. Melo
Miami Dade Product Control Division

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REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	–	–
2	–	–	4	–	–

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 7 OF 9

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

(VALID FOR SECTIONS A, A1, B, B1, B2, C & C1 ON SHEET 2 OF 9).

NOTE: DESIGN PRESSURE RATING CORRESPONDS ONLY TO NEGATIVE PRESSURE (SUCTION) LOADS, IN ACCORDANCE WITH ASCE 7-98 CRITERIA FOR A GIVEN OPENING. IF NEGATIVE PRESSURE VALUES COMPLY WITH THE REQUIRED PRESSURE FOR THE OPENING, THE POSITIVE PRESSURE WILL AUTOMATICALLY QUALIFY AND NEED NOT TO BE CHECKED.

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
45.1	12'-0"	13'-0"	4"	2 1/2"
47.8	12'-0"	12'-8"	4"	2 1/2"
49.0	12'-0"	12'-6"	4"	2 1/2"
50.5	12'-0"	12'-4"	4"	2 1/2"
52.0	12'-0"	12'-2"	4"	2 1/2"
52.4	12'-0"	12'-1"	4"	2 1/2"
55.0	11'-10"	11'-10"	4"	2 1/4"
55.2	11'-10"	11'-10"	4"	2 1/4"
55.6	11'-4"	11'-9"	4"	2 1/4"
57.2	11'-4"	11'-7"	4"	2 1/4"
58.6	11'-4"	11'-5"	4"	2 1/4"
58.8	11'-4"	11'-5"	4"	2 1/4"
59.5	11'-4"	11'-4"	4"	2 1/4"
59.7	11'-4"	11'-4"	4"	2 1/8"
61.5	11'-2"	11'-2"	4"	2 1/8"
61.8	11'-1"	11'-1"	4"	2 1/8"
61.9	11'-1"	11'-1"	4"	2 1/8"
63.4	11'-0"	11'-0"	4"	2 1/8"
63.6	11'-0"	11'-0"	4"	2 1/8"
63.7	11'-0"	11'-0"	4"	2 1/8"
66.9	10'-8"	10'-8"	4"	2"
67.0	10'-8"	10'-8"	4"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
67.5	10'-8"	10'-8"	4"	2"
70.1	10'-6"	10'-6"	4"	2"
71.1	10'-5"	10'-5"	4"	2"
71.4	10'-4"	10'-4"	4"	2"
71.5	10'-4"	10'-4"	4"	2"
72.9	10'-3"	10'-3"	4"	2"
75.1	10'-1"	10'-1"	4"	2"
75.2	10'-1"	10'-1"	4"	2"
75.3	10'-1"	10'-1"	4"	2"
77.0	10'-0"	10'-0"	3 1/2"	2"
77.5	9'-11"	9'-11"	3 1/2"	2"
78.8	9'-10"	9'-10"	3 1/2"	2"
80.7	9'-9"	9'-9"	3 1/2"	2"
81.5	9'-8"	9'-8"	3 1/2"	2"
82.5	9'-8"	9'-8"	3 1/2"	2"
83.4	9'-7"	9'-7"	3 1/2"	2"
86.2	9'-5"	9'-5"	3 1/2"	2"
86.7	9'-5"	9'-5"	3 1/2"	2"
86.8	9'-5"	9'-5"	3 1/2"	2"
88.5	9'-4"	9'-4"	3 1/2"	2"
90.3	9'-3"	9'-3"	3 1/2"	2"
90.8	9'-2"	9'-2"	3 1/2"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
91.4	9'-2"	9'-2"	3 1/2"	2"
92.7	9'-1"	9'-1"	3 1/2"	2"
93.8	9'-0"	9'-0"	2 7/8"	2"
94.8	9'-0"	9'-0"	2 7/8"	2"
96.6	8'-11"	8'-11"	2 7/8"	2"
96.8	8'-11"	8'-11"	2 7/8"	2"
97.7	8'-10"	8'-10"	2 7/8"	2"
100.5	8'-9"	8'-9"	2 7/8"	2"
101.5	8'-8"	8'-8"	2 7/8"	2"
103.7	8'-7"	8'-7"	2 7/8"	2"
106.5	8'-6"	8'-6"	2 7/8"	2"
108.8	8'-5"	8'-5"	2 7/8"	2"
110.6	8'-4"	8'-4"	2 7/8"	2"
111.0	8'-4"	8'-4"	2 7/8"	2"
114.1	8'-2"	8'-2"	2 7/8"	2"
116.5	8'-2"	8'-2"	2 7/8"	2"
116.8	8'-1"	8'-1"	2 7/8"	2"
117.6	8'-1"	8'-1"	2 7/8"	2"
119.7	8'-0"	8'-0"	2 7/8"	2"
120.0	8'-0"	8'-0"	2 7/8"	2"
121.2	7'-10"	7'-10"	2 7/8"	2"
122.5	7'-9"	7'-9"	2 7/8"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
125.3	7'-7"	7'-7"	2 7/8"	2"
125.8	7'-6"	7'-6"	2 7/8"	2"
126.7	7'-6"	7'-6"	2 7/8"	2"
129.6	7'-4"	7'-4"	2 7/8"	2"
130.9	7'-3"	7'-3"	2 7/8"	2"
131.6	7'-2"	7'-2"	2 7/8"	2"
134.3	7'-1"	7'-1"	2 7/8"	2"
136.2	6'-11"	6'-11"	2 7/8"	2"
137.9	6'-10"	6'-10"	2 7/8"	2"
140.7	6'-9"	6'-9"	2 7/8"	2"
142.8	6'-7"	6'-7"	2 7/8"	2"
143.5	6'-7"	6'-7"	2 7/8"	2"
147.0	6'-5"	6'-5"	2 7/8"	2"
148.4	6'-4"	6'-4"	2 7/8"	2"
152.6	6'-2"	6'-2"	2 7/8"	2"
153.1	6'-2"	6'-2"	2 7/8"	2"
156.8	6'-0"	6'-0"	2 7/8"	2"
157.5	6'-0"	6'-0"	2 7/8"	2"
157.8	6'-0"	6'-0"	2 7/8"	2"
160.8	5'-11"	5'-11"	2 7/8"	2"
161.7	5'-10"	5'-10"	2 7/8"	2"
164.4	5'-9"	5'-9"	2 7/8"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
165.2	5'-9"	5'-9"	2 7/8"	2"
168.1	5'-8"	5'-8"	2 7/8"	2"
168.7	5'-7"	5'-7"	2 7/8"	2"
170.0	5'-7"	5'-7"	2 7/8"	2"
175.6	5'-5"	5'-5"	2 7/8"	2"
178.6	5'-4"	5'-4"	2 7/8"	2"
180.3	5'-3"	5'-3"	2 7/8"	2"
188.0	5'-0"	5'-0"	2 7/8"	2"
195.2	4'-10"	4'-10"	2 7/8"	2"
197.2	4'-10"	4'-10"	2 7/8"	2"
199.1	4'-9"	4'-9"	2 7/8"	2"
204.7	4'-7"	4'-7"	2 7/8"	2"
211.3	4'-6"	4'-6"	2 7/8"	2"
216.9	4'-4"	4'-4"	2 7/8"	2"
221.6	4'-3"	4'-3"	2 7/8"	2"
226.3	4'-2"	4'-2"	2 7/8"	2"

MAXIMUM DESIGN PRESSURE RATING "W" (p.s.f.) AND CORRESPONDING MAXIMUM ANCHOR SPACING (in.) SCHEDULE. +

(VALID FOR SECTIONS A, A1, B, B1, B2, C & C1 ON SHEET 2 OF 9).

MAXIMUM DESIGN LOAD "W" (p.s.f.)	WALL MOUNTING INSTALLATION AT TOP OR BOTTOM (TO CONCRETE)			WALL MOUNTING INSTALLATION AT TOP OR BOTTOM (TO MASONRY)			FLOOR/CEILING MOUNTING INSTALLATION TOP OR BOTTOM (TO CONCRETE)		
	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3
FROM 45.1 TO 61.8	9"	9"	9"	9"	9"	3 1/2"	9"	8 1/2"	6"
	9"	9"	6"	7"	7"	5"	9"	6"	4 1/2"
FROM 61.9 TO 75.3	9"	9"	6 1/2"	9"	5 1/2"	–	9"	7"	5 1/2"
	9"	9"	4"	9"	7"	3"	9"	5"	4"
FROM 75.4 TO 91.4	9"	7 1/2"	4 1/2"	8"	2 1/2"	–	9"	6"	5"
FROM 91.5 TO 120.0	9"	3 1/2"	3 1/2"	6"	–	–	7 1/2"	4 1/2"	4 1/2"
FROM 120.1 TO 168.1	5 1/2"	3 1/2"	–	–	–	–	5 1/2"	4 1/2"	–
FROM 168.2 TO 226.3	3 1/2"	4 1/2"	–	–	–	–	4 1/2"	4 1/2"	–

ANCHOR SPACING LEGEND

(1) Max. ANCHOR SPCG. VALID FOR SPANS OF 5'-0" OR LESS.
(2) Max. ANCHOR SPCG. VALID FOR SPANS GREATER THAN 5'-0" TO 8'-6".
(3) Max. ANCHOR SPCG. VALID FOR SPANS GREATER THAN 8'-6" TO Max. ALLOWED.

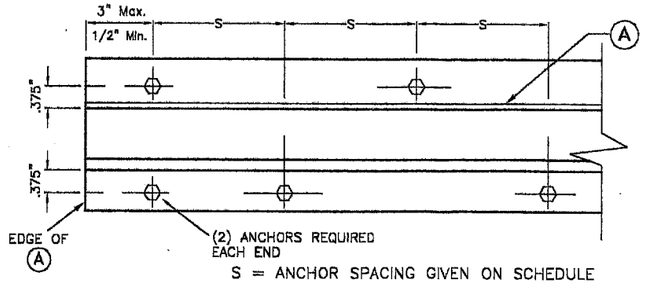
+ USE TAPCON ANCHORS, ZAMAC NAILIN & CALK-INS FOR INSTALLATIONS W/ DESIGN LOADS UP TO 75.3 p.s.f.
USE ONLY TAPCON ANCHORS & CALK-INS FOR INSTALLATIONS W/ DESIGN LOADS GREATER THAN 75.3 p.s.f.
MAXIMUM ANCHOR SPACINGS ARE VALID FOR 3" EDGE DISTANCE. FOR E. D. LESS THAN 3", REDUCE ANCHOR SPACING BY MULTIPLYING SPACINGS SHOWN ON SCHEDULE BY THE FOLLOWING FACTORS. (NOTE : Min. E. D. FOR CALK-IN ANCHORS IS 2 1/2"). THIS OPERATION SHALL ONLY BE PERFORMED WHEN REQUIRED SPACING RESULTS INTO A MINIMUM OF 3" O.C.

ACTUAL E. D.= EDGE DISTANCE	FACTOR
2 1/2"	.75
2"	.50

TAPCON OR CALK-IN
ZAMAC NAILIN
UP TO 75.3 p.s.f.

TAPCON OR CALK-IN
> 75.3 p.s.f. TO 226.3 p.s.f.

ANCHOR LEGENDS



S = ANCHOR SPACING GIVEN ON SCHEDULE

STAGGERED ANCHORS

ANCHORS USED W/TRACK "A" (TOP & BOTTOM) SHALL BE INSTALLED STAGGERED AT Max. SPACINGS INDICATED ON SCHEDULES.

TABLE 1:

MINIMUM SEPARATION BETWEEN GLASS AND SHUTTER FOR A GIVEN SHUTTER SPAN, FOR SHUTTERS INSTALLED WITHIN THE FIRST 30'-0" ABOVE GRADE OF A GIVEN BUILDING. 30'-0" ELEVATION SHALL BE MEASURED AT BOTTOM OF SHUTTER. SEPARATION TO BE MEASURED AS INDICATED ON SECTION D, SHEET 4 OF 9.

SHUTTER SPAN (ft.)	MINIMUM SEPARATION (in.)
LESS OR EQUAL THAN 9'-0"	2 7/8"
> 9'-0" TO 10'-0"	3 1/2"
> 10'-0" TO 12'-0"	4"

* FOR SHUTTERS INSTALLED WITHIN THE FIRST 30'-0" ELEVATION OF BUILDING.
SEE TABLE 1 FOR MINIMUM SEPARATION TO GLASS FOR SPANS SHORTER THAN THE MAXIMUM ALLOWED SHOWN ON SCHEDULE.

** FOR SHUTTERS INSTALLED ABOVE 30'-0" ELEVATION OF BUILDING, MEASURED AT BOTTOM OF SHUTTER.

AUG 11 2005

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 05-0817.08
Expiration Date 05/10/2008
By Helen A. Miller
Miami Dade Product Control
Division

F.B.C. (High Velocity Hurricane Zone)

TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
6355N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
EB-0006719
WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

ASSA/MID-RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
(ASSA # 167)
4401 E 10 AVENUE
HIALEAH, FLORIDA 33013
PH:(305)825-1355, FAX:(305)825-1356

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-087	8/8/05	3	–	–
2	–	–	4	–	–

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 8 OF 9

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

(VALID FOR SECTIONS B', B1', B2' & C1' ON SHEET 3 OF 9).

NOTE: DESIGN PRESSURE RATING CORRESPONDS ONLY TO NEGATIVE PRESSURE (SUCTION) LOADS, IN ACCORDANCE WITH ASCE 7-98 CRITERIA FOR A GIVEN OPENING. IF NEGATIVE PRESSURE VALUES COMPLY WITH THE REQUIRED PRESSURE FOR THE OPENING, THE POSITIVE PRESSURE WILL AUTOMATICALLY QUALIFY AND NEED NOT TO BE CHECKED.

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
45.1	12'-0"	13'-3"	4"	3"
47.8	12'-0"	13'-1"	4"	3"
49.0	12'-0"	13'-0"	4"	3"
50.5	12'-0"	12'-11"	4"	3"
52.0	12'-0"	12'-10"	4"	3"
52.4	12'-0"	12'-10"	4"	3"
55.0	12'-0"	12'-7"	4"	3"
55.2	12'-0"	12'-7"	4"	3"
55.6	12'-0"	12'-6"	4"	3"
57.2	12'-0"	12'-4"	4"	2 7/8"
58.6	12'-0"	12'-2"	4"	2 7/8"
58.8	12'-0"	12'-2"	4"	2 7/8"
59.5	12'-0"	12'-1"	4"	2 7/8"
59.7	12'-0"	12'-1"	4"	2 7/8"
61.5	11'-11"	11'-11"	4"	2 3/4"
61.8	11'-10"	11'-10"	4"	2 3/4"
61.9	11'-10"	11'-10"	4"	2 3/4"
63.4	11'-9"	11'-9"	4"	2 3/4"
63.6	11'-8"	11'-8"	4"	2 3/4"
63.7	11'-8"	11'-8"	4"	2 3/4"
66.9	11'-5"	11'-5"	4"	2 3/4"
67.0	11'-5"	11'-5"	4"	2 3/4"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
67.5	11'-4"	11'-4"	4"	2 1/2"
70.1	11'-2"	11'-2"	4"	2 1/2"
71.1	11'-1"	11'-1"	4"	2 1/2"
71.4	11'-0"	11'-0"	4"	2 1/2"
71.5	11'-0"	11'-0"	4"	2 1/2"
72.9	10'-11"	10'-11"	4"	2 1/2"
75.1	10'-9"	10'-9"	4"	2 1/2"
75.2	10'-9"	10'-9"	4"	2 1/2"
75.3	10'-9"	10'-9"	4"	2 1/2"
77.0	10'-8"	10'-8"	4"	2 1/2"
77.5	10'-7"	10'-7"	4"	2 3/8"
78.8	10'-6"	10'-6"	4"	2 3/8"
80.7	10'-5"	10'-5"	4"	2 3/8"
81.5	10'-4"	10'-4"	4"	2 3/8"
82.5	10'-3"	10'-3"	4"	2 3/8"
83.4	10'-3"	10'-3"	4"	2 3/8"
86.2	10'-0"	10'-0"	3 1/2"	2 3/8"
86.7	10'-0"	10'-0"	3 1/2"	2 3/8"
86.8	10'-0"	10'-0"	3 1/2"	2 3/8"
88.5	9'-11"	9'-11"	3 1/2"	2 1/4"
90.3	9'-10"	9'-10"	3 1/2"	2 1/4"
90.8	9'-10"	9'-10"	3 1/2"	2 1/4"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
91.4	9'-9"	9'-9"	3 1/2"	2 1/4"
92.7	9'-8"	9'-8"	3 1/2"	2 1/4"
93.8	9'-8"	9'-8"	3 1/2"	2 1/4"
94.8	9'-7"	9'-7"	3 1/2"	2 1/4"
96.6	9'-6"	9'-6"	3 1/2"	2 1/4"
96.8	9'-6"	9'-6"	3 1/2"	2 1/8"
97.7	9'-5"	9'-5"	3 1/2"	2 1/8"
100.5	9'-4"	9'-4"	3 1/2"	2 1/8"
101.5	9'-3"	9'-3"	3 1/2"	2 1/8"
103.7	9'-2"	9'-2"	3 1/2"	2 1/8"
106.5	9'-0"	9'-0"	2 1/2"	2 1/8"
108.8	8'-11"	8'-11"	2 1/2"	2 1/8"
110.6	8'-11"	8'-11"	2 1/2"	2 1/8"
111.0	8'-10"	8'-10"	2 1/2"	2"
114.1	8'-9"	8'-9"	2 1/2"	2"
116.5	8'-7"	8'-7"	2 1/2"	2"
116.9	8'-6"	8'-6"	2 1/2"	2"
117.6	8'-6"	8'-6"	2 1/2"	2"
119.7	8'-4"	8'-4"	2 1/2"	2"
120.0	8'-4"	8'-4"	2 1/2"	2"
121.2	8'-3"	8'-3"	2 1/2"	2"
122.5	8'-2"	8'-2"	2 1/2"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
125.3	8'-0"	8'-0"	2 1/2"	2"
125.8	7'-11"	7'-11"	2 1/2"	2"
126.7	7'-11"	7'-11"	2 1/2"	2"
129.6	7'-8"	7'-8"	2 1/2"	2"
130.9	7'-8"	7'-8"	2 1/2"	2"
131.6	7'-7"	7'-7"	2 1/2"	2"
134.3	7'-5"	7'-5"	2 1/2"	2"
136.2	7'-4"	7'-4"	2 1/2"	2"
137.9	7'-3"	7'-3"	2 1/2"	2"
140.7	7'-1"	7'-1"	2 1/2"	2"
142.8	7'-0"	7'-0"	2 1/2"	2"
143.5	6'-11"	6'-11"	2 1/2"	2"
147.0	6'-10"	6'-10"	2 1/2"	2"
148.4	6'-9"	6'-9"	2 1/2"	2"
152.6	6'-6"	6'-6"	2 1/2"	2"
153.1	6'-6"	6'-6"	2 1/2"	2"
156.8	6'-4"	6'-4"	2 1/2"	2"
157.5	6'-4"	6'-4"	2 1/2"	2"
157.8	6'-4"	6'-4"	2 1/2"	2"
160.6	6'-2"	6'-2"	2 1/2"	2"
161.7	6'-2"	6'-2"	2 1/2"	2"
164.4	6'-1"	6'-1"	2 1/2"	2"

MAXIMUM DESIGN LOAD "W" (p.s.f.)	MAXIMUM PANEL SPAN (ft.)		MINIMUM SEPARATION TO GLASS (in.)	
	*	**	*	**
165.2	6'-0"	6'-0"	2 1/2"	2"
168.1	5'-11"	5'-11"	2 1/2"	2"
168.7	5'-11"	5'-11"	2 1/2"	2"
170.0	5'-10"	5'-10"	2 1/2"	2"
175.6	5'-8"	5'-8"	2 1/2"	2"
176.6	5'-8"	5'-8"	2 1/2"	2"
180.3	5'-6"	5'-6"	2 1/2"	2"
188.0	5'-4"	5'-4"	2 1/2"	2"
195.2	5'-1"	5'-1"	2 1/2"	2"
197.2	5'-1"	5'-1"	2 1/2"	2"
199.1	5'-0"	5'-0"	2 1/2"	2"
204.7	4'-11"	4'-11"	2 1/2"	2"
211.3	4'-9"	4'-9"	2 1/2"	2"
216.9	4'-7"	4'-7"	2 1/2"	2"
221.6	4'-6"	4'-6"	2 1/2"	2"
226.3	4'-5"	4'-5"	2 1/2"	2"

MAXIMUM DESIGN PRESSURE RATING "W" (p.s.f.) AND CORRESPONDING MAXIMUM ANCHOR SPACING (in.) SCHEDULE. +

(VALID FOR SECTIONS B', B1', B2' & C1' ON SHEET 3 OF 9).

MAXIMUM DESIGN LOAD "W" (p.s.f.)	WALL MOUNTING INSTALLATION AT TOP OR BOTTOM (TO CONCRETE)			WALL MOUNTING INSTALLATION AT TOP OR BOTTOM (TO MASONRY)			FLOOR/CEILING MOUNTING INSTALLATION TOP OR BOTTOM (TO CONCRETE)		
	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3	NOTE 1	NOTE 2	NOTE 3
FROM 45.1 TO 61.8	9"	9"	9"	9"	9"	3 1/2"	9"	8 1/2"	6"
	9"	9"	6"	7"	7"	5"	9"	6"	4 1/2"
FROM 61.9 TO 75.3	9"	9"	6 1/2"	9"	5 1/2"	–	9"	7"	5 1/2"
	9"	9"	4"	9"	7"	3"	9"	5"	4"
FROM 75.4 TO 91.4	9"	7 1/2"	4 1/2"	8"	2 1/2"	–	9"	6"	5"
FROM 91.5 TO 120.0	9"	3 1/2"	3 1/2"	6"	–	–	7 1/2"	4 1/2"	4 1/2"
FROM 120.1 TO 168.1	5 1/2"	3 1/2"	–	–	–	–	5 1/2"	4 1/2"	–
FROM 168.2 TO 226.3	3 1/2"	4 1/2"	–	–	–	–	4 1/2"	4 1/2"	–

ANCHOR SPACING LEGEND

(1) Max. ANCHOR SPCG. VALID FOR SPANS OF 5'-0" OR LESS.
(2) Max. ANCHOR SPCG. VALID FOR SPANS GREATER THAN 5'-0" TO 8'-6".
(3) Max. ANCHOR SPCG. VALID FOR SPANS GREATER THAN 8'-6" TO Max. ALLOWED.

+ USE TAPCON ANCHORS, ZAMAC NAILIN & CALK-INS FOR INSTALLATIONS W/ DESIGN LOADS UP TO 75.3 p.s.f.
USE ONLY TAPCON ANCHORS & CALK-INS FOR INSTALLATIONS W/ DESIGN LOADS GREATER THAN 75.3 p.s.f.
MAXIMUM ANCHOR SPACINGS ARE VALID FOR 3" EDGE DISTANCE. FOR E. D. LESS THAN 3", REDUCE ANCHOR SPACING BY MULTIPLYING SPACINGS SHOWN ON SCHEDULE BY THE FOLLOWING FACTORS. (NOTE : Min. E. D. FOR CALK-IN ANCHORS IS 2 1/2"). THIS OPERATION SHALL ONLY BE PERFORMED WHEN REQUIRED SPACING RESULTS INTO A MINIMUM OF 3" O.C.

ACTUAL E. D.= EDGE DISTANCE	FACTOR
2 1/2"	.75
2"	.50

TAPCON OR CALK-IN	TAPCON OR CALK-IN
ZAMAC NAILIN	
UP TO 75.3 p.s.f.	> 75.3 p.s.f. TO 226.3 p.s.f.

ANCHOR LEGENDS

TABLE 1:

MINIMUM SEPARATION BETWEEN GLASS AND SHUTTER FOR A GIVEN SHUTTER SPAN, FOR SHUTTERS INSTALLED WITHIN THE FIRST 30'-0" ABOVE GRADE OF A GIVEN BUILDING. 30'-0" ELEVATION SHALL BE MEASURED AT BOTTOM OF SHUTTER. SEPARATION TO BE MEASURED AS INDICATED ON SECTION D, SHEET 4 OF 9.

SHUTTER SPAN (ft.)	MINIMUM SEPARATION (in.)
LESS OR EQUAL THAN 9'-0"	2 1/2"
> 9'-0" TO 10'-0"	3 1/2"
> 10'-0" TO 12'-0"	4"

PRODUCT REVISED
as complying with the Florida Buiding Code
Acceptance No. 05-0817.08
Expiration Date 05/10/2008
By Miami Dade Product Control Division

* FOR SHUTTERS INSTALLED WITHIN THE FIRST 30'-0" ELEVATION OF BUILDING. SEE TABLE 1 FOR MINIMUM SEPARATION TO GLASS FOR SPANS SHORTER THAN THE MAXIMUM ALLOWED SHOWN ON SCHEDULE.

** FOR SHUTTERS INSTALLED ABOVE 30'-0" ELEVATION OF BUILDING, MEASURED AT BOTTOM OF SHUTTER.

F.B.C. (High Velocity Hurricane Zone)

AUG 11 2005

TILTECO INC.
TILLIT TESTING & ENGINEERING COMPANY
8565N.W. 36th. St., Ste. 305, VIRGINIA GARDENS, FLORIDA 33166
Phone : (305)871-1530 . Fax : (305)871-1531
EB-0008719
WALTER A. TILLIT Jr., P. E.
FLORIDA Lic. # 44167

ASSA/MID-RISE BERTHA ACCORDION SHUTTER

ALUMINUM WORLD, INC.
(ASSA # 167)
4401 E 10 AVENUE
HIALEAH, FLORIDA 33013
PH:(305)825-1355, FAX:(305)825-1356

DRAWN BY: J.J.V.
8/8/05 DATE
05-234 DRAWING No
SHEET 9 OF 9

REV. NO	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1	OLD 03-057	8/8/05	3	–	–
2	–	–	4	–	–