MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

CONTRACTOR LICENSING SECTION
(305) 375-2527 FAX (305) 375-2558

CONTRACTOR ENFORCEMENT SECTION
(305) 375-2966 FAX (305) 375-2908

PRODUCT CONTROL DIVISION
(305) 375-2902 FAX (305) 372-6339

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Madden Manufacturing
1889 NW 22nd Street
Pampano Beach, FL 33069

Your application for Product Approval of:
0.050" Aluminum Storm Panel Shutter
under Chapter 8 of the Code of Miami-Dade County governing the use of Alternate Materials and Types of Construction, and completely described herein, has been recommended for acceptance by the Miami-Dade County Building Code Compliance Office (BCCO) under the conditions specified herein.

This approval shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at anytime from a jobsite or manufacturer's plant for quality control testing.
If this product or material fails to perform in the approved manner, BCCO may revoke, modify, or suspend the use of such product or material immediately. BCCO reserves the right to revoke this approval, if it is determined BCCO that this product or material fails to meet the requirements of the South Florida Building Code.

The expense of such testing will be incurred by the manufacturer.

Acceptance No.:98-1110.03

Expires:03/13/2003

Raul Rodriguez
Chief Product Control Division

THIS IS THE COVERSHEET, SEE ADDITIONAL PAGES FOR SPECIFIC AND GENERAL CONDITIONS

BUILDING CODE & PRODUCT REVIEW COMMITTEE

This application for Product Approval has been reviewed by the BCCO and approved by the Building Code and Product Review Committee to be used in Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director
Miami-Dade County
Building Code Compliance Office

Approved:05/20/1999

Internet mail address: postmaster@buildingcodeonline.com **Homepage: http://www.buildingcodeonline.com**

Madden Manufacturing Co.

ACCEPTANCE No. : 98-1110.03

APPROVED : MAY 20 1999

EXPIRES : March 13, 2003

NOTICE OF ACCEPTANCE: SPECIFIC CONDITIONS

1. SCOPE

This revises and renews the Notice of Acceptance No. 96-0520.02, which was issued on March 13, 1997. It approves an Aluminum Storm Panel Shutter, as described in Section 2 of this Notice of Acceptance, designed to comply with the South Florida Building Code, 1994 Edition for Miami-Dade County, for the locations where the pressure requirements, as determined by SFBC Chapter 23, do not exceed the Design Pressure Rating values indicated in the approved drawings.

2. PRODUCT DESCRIPTION

This Aluminum Storm Panel Shutter and its components shall be constructed in strict compliance with the following documents: Drawing No. 96-110, titled "0.050" Aluminum Storm Panel", prepared by Knezevich & Associates, Inc., dated April 22, 1996, last revision #6 dated March 4, 1999, sheets 1 through 8 of 8, 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. These documents shall hereinafter be referred to as the approved drawings.

3. LIMITATIONS

All permanent set components, included but not limited to embedded anchor bolts, threaded cones, metal shields, headers and sills, must be protected against corrosion, contamination and damage at all times.

4. INSTALLATION

This Aluminum Storm Panel Shutter and its components shall be installed in strict compliance with the approved drawings.

5. 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".

6. BUILDING PERMIT REQUIREMENTS

6.1 Application for building permit shall be accompanied by copies of the following:

6.1.1 This Notice of Acceptance.

6.1.2 Duplicate copies of the approved drawings, as identified in Section 2 of this Notice of Acceptance, clearly marked to show the components selected for the proposed installation.

6.1.3 Any other documents required by the Building Official or the South Florida Building Code (SFBC) in order to properly evaluate the installation of this system.

Helmy A. Makar, P.E. - Product Control Examiner
Product Control Division

Madden Manufacturing Co.

ACCEPTANCE No. : 98-1110.03

APPROVED : MAY 20 1999

EXPIRES : March 13, 2003

NOTICE OF ACCEPTANCE: STANDARD CONDITIONS

1 Renewal of this Acceptance (approval) shall be considered after a renewal application has been filed and the original submitted documents, including test-supporting data, engineering documents, are no older than eight (8) years.

2. Any and all approved products shall be permanently labeled with the manufacturer's name, city, state, and the following statement: "Miami-Dade County Product Control Approved", or as specifically stated in the specific conditions of this Acceptance.

3. Renewals of Acceptance will not be considered if:
   a. There has been a change in the South Florida Building Code affecting the evaluation of this product and the product is not in compliance with the code changes.
   b. The product is no longer the same product (identical) as the one originally approved.
   c. If the Acceptance holder has not complied with all the requirements of this acceptance, including the correct installation of the product.
   d. The engineer, who originally prepared, signed and sealed the required documentation initially submitted, is no longer practicing the engineering profession.

4. Any revision or change in the materials, use, and/or manufacture of the product or process shall automatically be cause for termination of this Acceptance, unless prior written approval has been requested (through the filing of a revision application with appropriate fee) and granted by this office.

5. Any of the following shall also be grounds for removal of this Acceptance:
   a. Unsatisfactory performance of this product or process.
   b. Misuse of this Acceptance as an endorsement of any product, for sales, advertising or any other purposes.

6. The Notice of Acceptance 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 Notice of Acceptance is displayed, then it shall be done in its entirety.

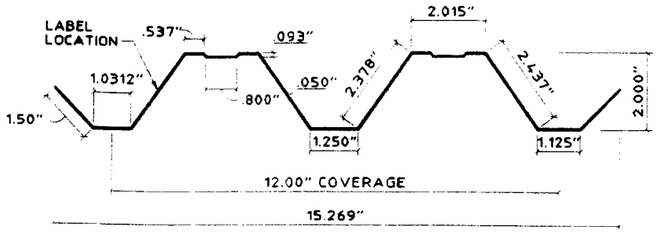
7. A copy of this Acceptance as well as approved drawings and other documents, where it applies, shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at all time. The engineer needs not reseal the copies.

8. Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.

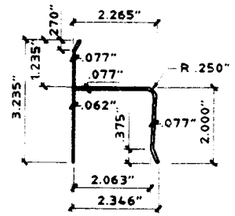
9. This Notice of Acceptance consists of pages 1, 2 and this last page 3.

END OF THIS ACCEPTANCE

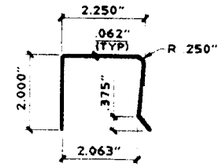
Helmy A. Makar, P.E. - Product Control Examiner
Product Control Division



1 STORM PANEL
SCALE : 1/4" = 0'-1"



2 "h" HEADER
SCALE : 1/4" = 0'-1"



3 "U" HEADER
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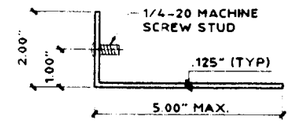
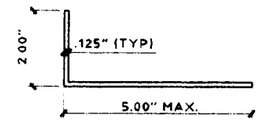
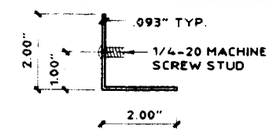


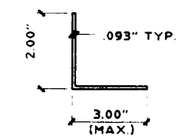
4a STUDDED ANGLE
SCALE : 1/4" = 0'-1"



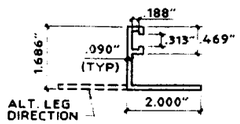
4 ANGLE 6063-T6 TYPICAL 6061-T6 FOR DETAIL "T"
SCALE : 1/4" = 0'-1"



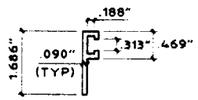
6 STUDDED ANGLE
SCALE 1/4" = 0'-1"



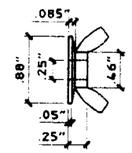
5 ANGLE
SCALE 1/4" = 0'-1"



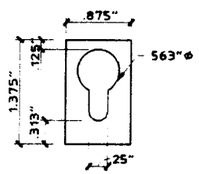
7 "E" TRACK
SCALE : 1/4" = 0'-1"



7a "F" TRACK
SCALE : 1/4" = 0'-1"

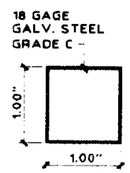


8 WINGNUT
SCALE : HALF SIZE

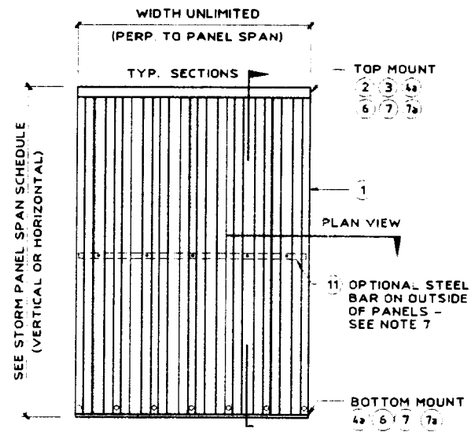


(20 GA. GALV. STEEL OR 0.050" ALUM)

10 KEYHOLE WASHER
SCALE : HALF SIZE

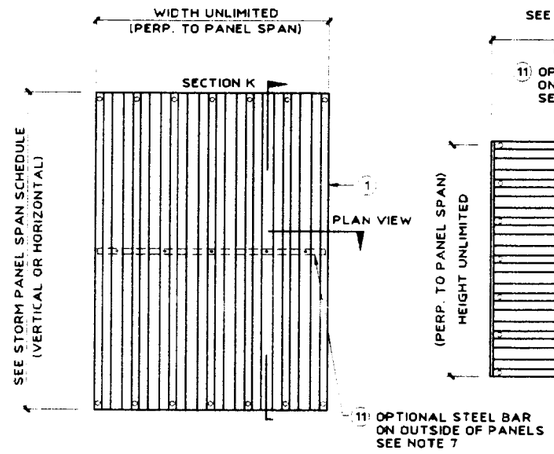


11 STEEL BAR
SCALE : HALF SIZE



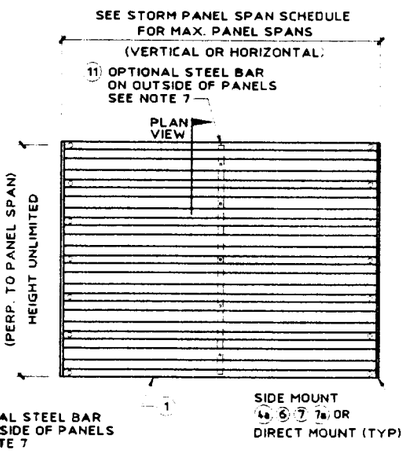
TYPICAL VERTICAL MOUNT ELEVATION

FOR ALL INSTALLATIONS SEE TABLE 2, PAGE 8 OF 8, FOR REQUIRED MIN. PANEL SEPARATION FROM GLASS.



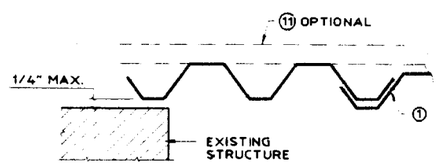
DIRECT MOUNT ELEVATION

FOR ALL INSTALLATIONS SEE TABLE 2, PAGE 8 OF 8, FOR REQUIRED MIN. PANEL SEPARATION FROM GLASS.

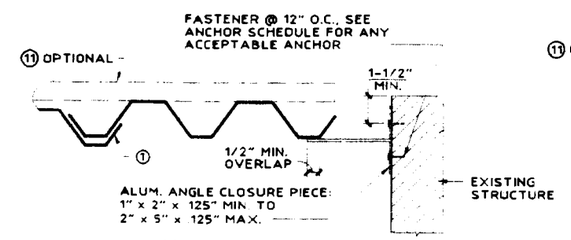


HORIZONTAL MOUNT ELEVATION

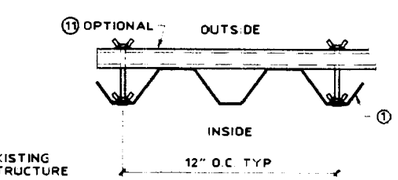
FOR ALL INSTALLATIONS SEE TABLE 2, PAGE 8 OF 8, FOR REQUIRED MIN. PANEL SEPARATION FROM GLASS.



A WALL MOUNT

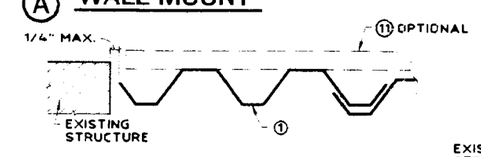


B TRAP MOUNT

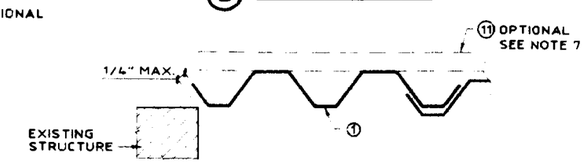


TYPICAL BAR ATTACHMENT

(USE ONLY WHEN IMPROVED DEFLECTION REQUIRED)



C TRAP MOUNT



D FACE MOUNT

TYPICAL CLOSURE DETAILS (PLAN)

SCALE: 1-1/2" = 1'-0"

GENERAL NOTES:

1. THIS STORM PANEL SHUTTER SYSTEM IS DESIGNED AND TESTED IN ACCORDANCE WITH THE SOUTH FLORIDA BUILDING CODE 1994 EDITION.
2. POSITIVE AND NEGATIVE DESIGN PRESSURE CALCULATIONS SHALL BE PERFORMED FOR SPECIFIC JOBS IN ACCORDANCE WITH ASCE 7-88 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES." TABLES SHALL BE REFERENCED AT APPROPRIATE DESIGN LOADS.
3. PRODUCT MARKINGS SHALL BE WITHIN 12" OF ONE END OF THE PANEL WITH A MIN. OF ONE MARKING PER PANEL AND SHALL BE LABELED AS FOLLOWS:

   MADDEN MFG CO.
   POMPANO BEACH, FL
   DADE COUNTY PRODUCT APPROVED

4. PANELS HAVE BEEN TESTED IN ACCORDANCE WITH THE DADE COUNTY PROTOCOLS PA 201, PA 202, AND PA 203. DESIGN IS BASED ON CONSTRUCTION TESTING CORPORATION (CTC) TEST REPORT No. 96-014.
5. STORM PANELS SHALL BE 5052-H32 ALUMINUM ALLOY, 0.050" THICKNESS. ALL ALUMINUM EXTRUSIONS SHALL BE 6063-T6, U.O.N.
6. ALL SCREWS AND BOLTS TO BE 2024-T4 ALUMINUM ALLOY, STAINLESS STEEL, OR GALVANIZED STEEL WITH A 33 KSI MINIMUM YIELD STRENGTH.
7. FOR INSTALLATIONS 30 FT. OR LESS ABOVE GRADE, AN OPTIONAL 1" x 1" x 18 GAGE STEEL BAR MAY BE USED TO CONTROL DEFLECTION OF STORM PANEL SYSTEM PROVIDED THAT THE PANEL SPANS USED ARE 104" OR LESS, AND THAT THE SEPARATION FROM THE GLASS IS 2" OR MORE BUT LESS THAN 3-3/4". STEEL BAR MAY BE USED FASTENED AT PANEL OVERLAPS, AT MIDSPAN, W/ 1/4-20 x 4" BOLTS AND DIE CAST ALUMINUM WASHERED WINGNUTS. SEE MINIMUM PANEL SEPARATION FROM GLASS SCHEDULE, PAGE 8 OF 8, FOR REDUCED SEPARATIONS.
8. TOP AND BOTTOM DETAILS MAY BE INTERCHANGED AS FIELD CONDITIONS REQUIRE. PANELS MAY ALSO BE MOUNTED WITH STUD ANGLE OR DIRECT MOUNTED HORIZONTALLY.
9. THE PERMIT HOLDER SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE TO SUSTAIN THE NEW SUPERIMPOSED LOADS AND TO VERIFY ALL DIMENSIONS AT THE JOB SITE BEFORE COMMENCING WITH THE WORK.
10. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EMBEDMENT LENGTHS SHALL BE AS NOTED AND DO NOT INCLUDE STUCCO OR OTHER FINISHES.
11. AT LEAST ONE WARNING NOTE PER OPENING SHALL BE PLACED IN A CONSPICUOUS LOCATION ON ANY OF THE COMPONENTS OF STORM PANEL SYSTEM ADVISING THE HOME OWNER OR TENANT THAT "STORM PANELS WILL NOT OFFER HURRICANE PROTECTION UNLESS STEEL TUBE & BOLTS ARE PROPERLY INSTALLED WHEN NEEDED".

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE MAY 20 1999
BY Helmy A. Mahfouz
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 98-1110.03

KNEZEVICH & ASSOCIATES, INC.
CONSULTING ENGINEERS • PRODUCT TESTING
641 MOKENA DRIVE·MIAMI SPRINGS, FLORIDA 33166
MIAMI (305) 883-9571 FT. LAUDERDALE (954) 677-9500
FAX: (305) 883-9572
COPYRIGHT © 1999 KNEZEVICH & ASSOCIATES, INC.

0.050" ALUMINUM STORM PANEL

MADDEN MANUFACTURING CO.
1889 N.W. 22 ST.
POMPANO BEACH, FL 33069
(800) 272-2071

revisions			
no	date	by	description
1	10/24/96	JRV	GENERAL REVISION
2	01/08/97	JWK	COUNTY COMMENTS
3	02/04/97	JWK	REV ANCHOR SCHEDULE
4	02/26/97	JWK	REV ANCHOR SCHEDULE
5	06/16/98	VJK	REV ANCHOR SCHEDULE
6	03/04/99	VJK	COUNTY COMMENTS

V.J. KNEZEVICH
PROFESSIONAL ENGINEER
FL License No. PE 0010983

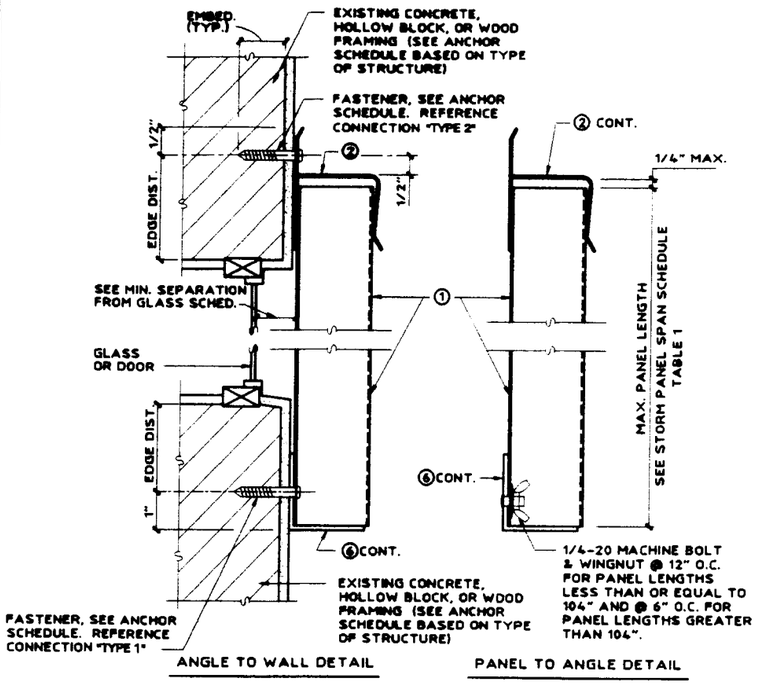
MAR 1 0 1999

date 04/22/96	
scale AS NOTED	drawn by MC
design by VJK	checked by VJK

drawing no. 96-110

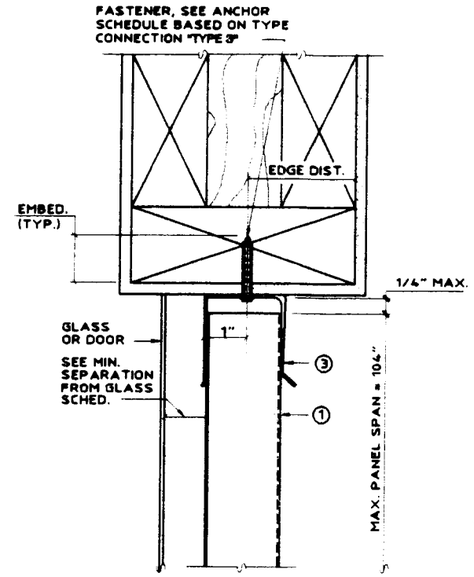
sheet 1 of 8

03/09/99 15:20



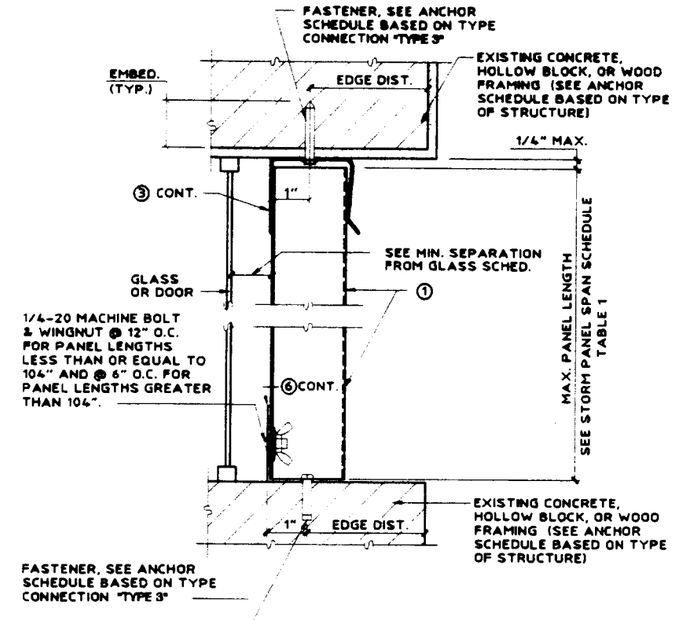
Ⓔ WALL MOUNT SECTION

SCALE : 3" = 1'-0"



Ⓕ WOOD CEILING/ INSIDE MOUNT SECTION

SCALE : 3" = 1'-0"



Ⓖ CEILING/INSIDE MOUNT SECTION

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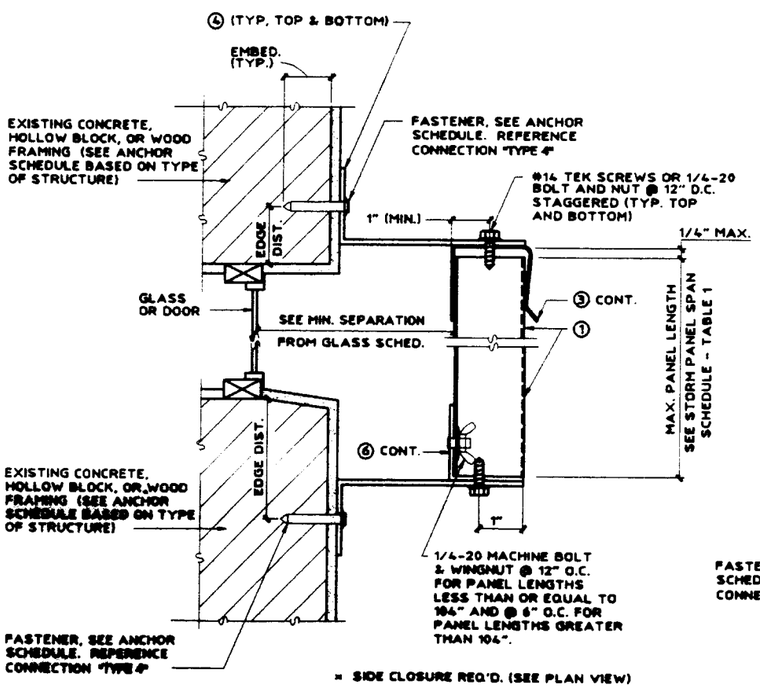

Ⓗ BUILD-OUT MOUNT SECTION

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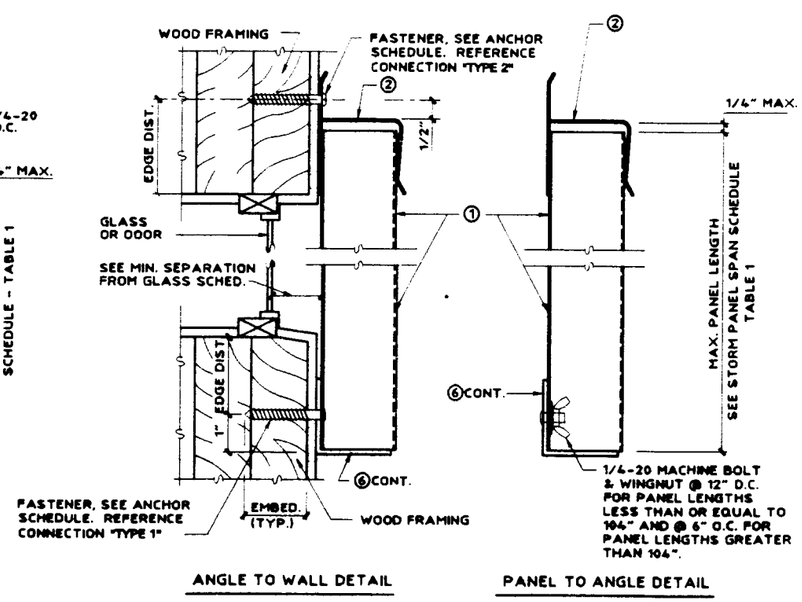

Ⓘ WALL MOUNT SECTION

SCALE : 3" = 1'-0"

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE MAY 20 19 99
BY Helmy A. Moter
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 98-1110.03

KNEZEVICH & ASSOCIATES, INC.
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641 MOKENA DRIVE-MIAMI SPRINGS, FLORIDA 33166
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0.050" ALUMINUM STORM PANEL

MADDEN MANUFACTURING CO.
1889 N.W. 22 ST.
POMPANO BEACH, FL 33069
(800) 272-2071

revisions

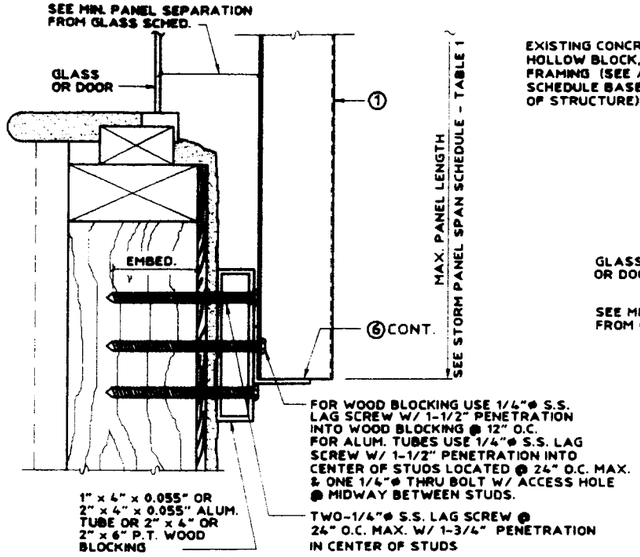
no	date	by	description
1	10/24/96	RV	GENERAL REVISION
2	01/09/97	MK	COUNTY COMMENTS
3	02/04/97	MK	REV. ANCHOR SCHEDULE
4	02/26/97	MK	REV. ANCHOR SCHEDULE
5	06/16/98	VJK	REV. ANCHOR SCHEDULE
6	03/04/99	VJK	COUNTY COMMENTS

V.J. KNEZEVICH
PROFESSIONAL ENGINEER
FL License No: PE 0010983

MAR 10 1999

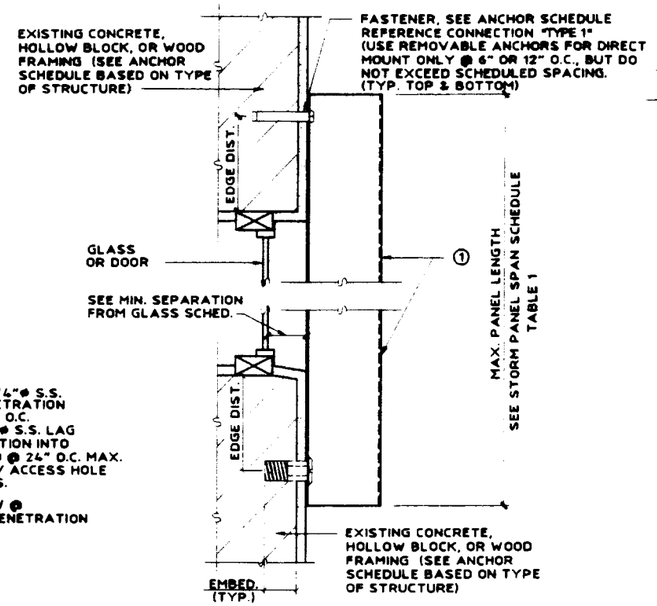
date 04/22/96	
scale AS NOTED	drawn by MK
design by VJK	checked by VJK
drawing no. 96-110	
sheet 2 of 8	

03/09/99 15:23



Ⓙ WALL MOUNT SECTION (BOTTOM)

SCALE : 3" = 1'-0"



Ⓚ WALL MOUNT SECTION (DIRECT MOUNT)

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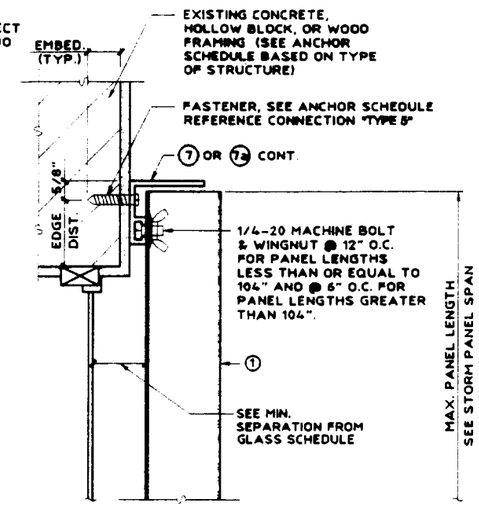
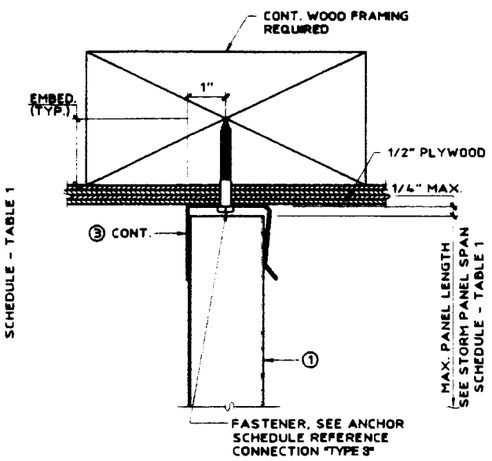


NOTE: THIS DETAIL MAY BE USED AT TOP OR BOTTOM OF PANELS.

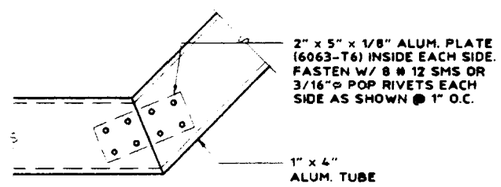
Ⓛ WALL MOUNT DETAIL

SCALE : 3" = 1'-0"



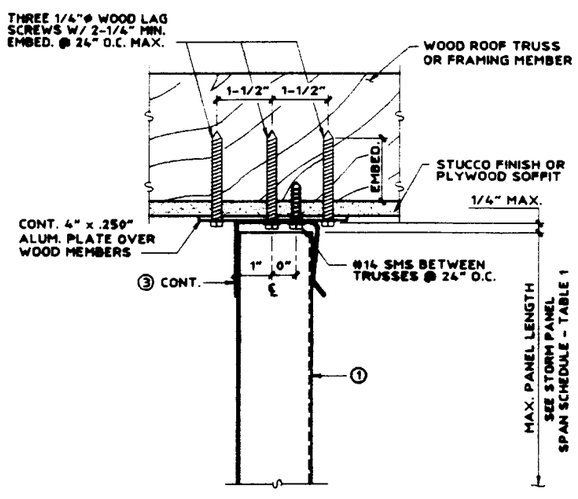
Ⓜ SOFFIT CONNECTION DETAIL

SCALE : 3" = 1'-0"



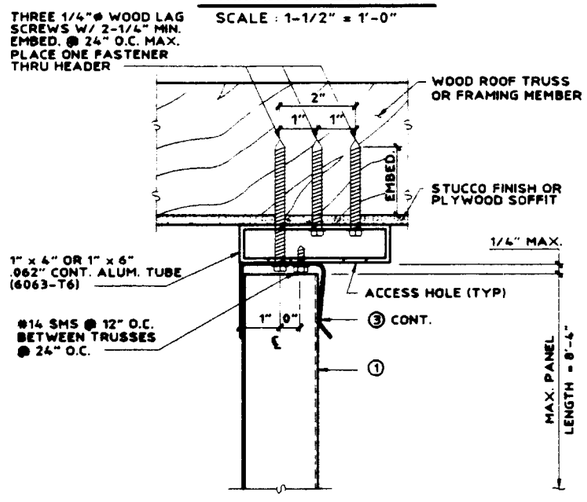
SPLICE DETAIL FOR BAY WINDOW APPLICATIONS

SCALE : 1-1/2" = 1'-0"



Ⓝ SOFFIT CONNECTION DETAIL

SCALE : 3" = 1'-0"



(MAX. DESIGN LOAD = 56 P.S.F.)

Ⓞ ALT. SOFFIT CONNECTION DETAIL

SCALE : 3" = 1'-0"

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DATE: MAY 20 1999
BY [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 98-1110.03

KNEZEVICH & ASSOCIATES, INC.
CONSULTING ENGINEERS • PRODUCT TESTING
641 MOKENA DRIVE·MIAMI SPRINGS, FLORIDA 33166
MIAMI (305) 883-9571 FT. LAUDERDALE (954) 677-9500
FAX: (305) 883-9572

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0.050" ALUMINUM STORM PANEL

MADDEN MANUFACTURING CO.
1889 N.W. 22 ST.
POMPANO BEACH, FL 33069
(800) 272-2071

revisions

no	date	by	description
1	10/24/96	JRV	GENERAL REVISION
2	01/08/97	JMK	COUNTY COMMENTS
3	02/06/97	JMK	REV ANCHOR SCHEDULE
4	02/26/97	JMK	REV ANCHOR SCHEDULE
5	06/16/98	VJK	REV ANCHOR SCHEDULE
6	03/04/99	VJK	COUNTY COMMENTS

V.J. KNEZEVICH
PROFESSIONAL ENGINEER
FL License No: PE 0010983

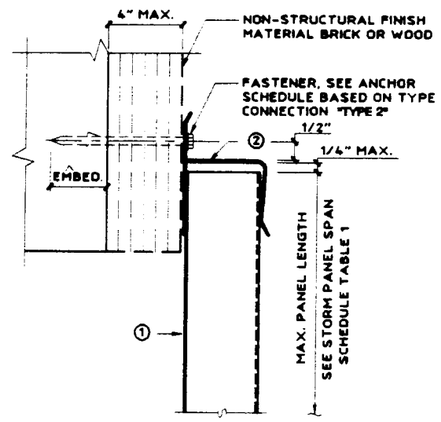
MAR 1 0 1999

date 04/22/96	
scale AS NOTED	drawn by MC
design by VJK	checked by VJK

drawing no. 96-110

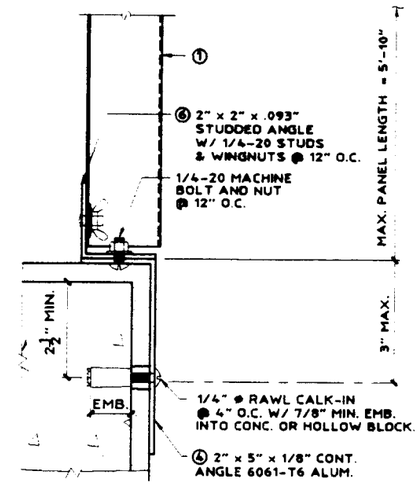
sheet 3 of 8

03/09/99 15:23



Ⓡ WALL MOUNT

SCALE : 3" = 1'-0"

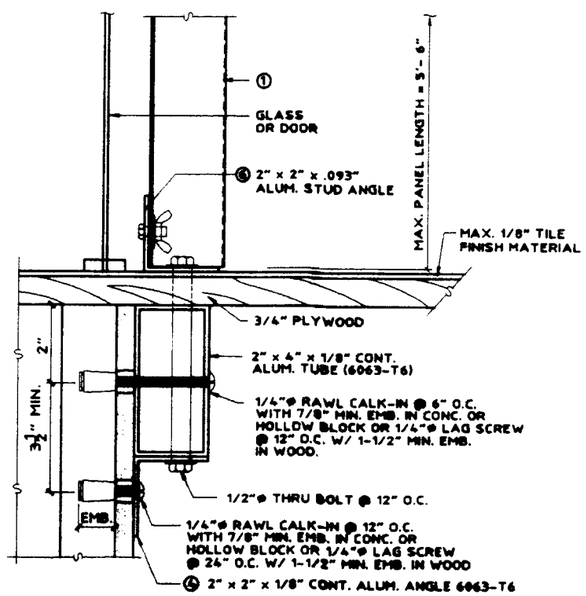


NOTES: THIS DETAIL MAY BE USED AT TOP OR BOTTOM OF PANEL.

(MAX. DESIGN LOAD = 72 PSF)

Ⓣ EDGE MOUNT DETAIL

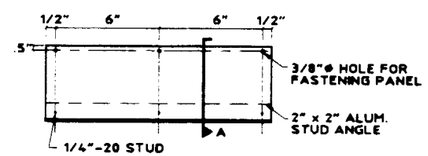
SCALE : 3" = 1'-0"



(MAX. DESIGN LOAD = 72 PSF)

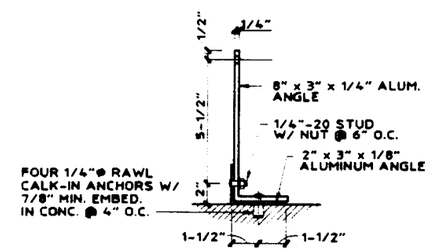
Ⓤ "PASS THRU" DETAIL

SCALE : 3" = 1'-0"



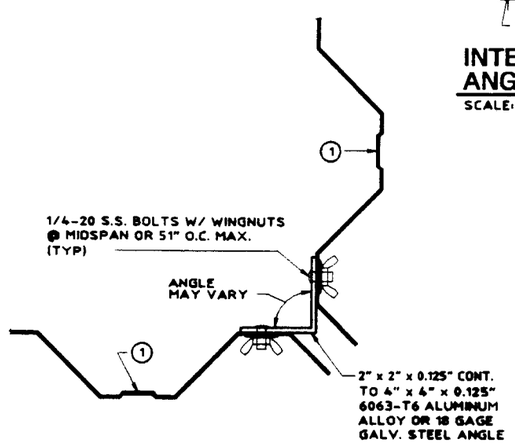
INTERIOR FASTENING ANGLE ASSEMBLY

SCALE: 1-1/2" = 1'-0"



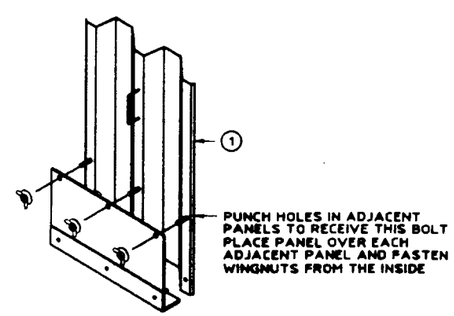
INTERIOR FASTENING ANGLE ASSEMBLY

SCALE: N.T.S.



Ⓥ ALT. CORNER DETAIL

SCALE : 3" = 1'-0"



Ⓦ STORM PANEL INTERIOR FASTENING (ISOMETRIC)

SCALE: 3" = 1'-0"

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DATE MAY 20 1999
BY Helmy A. Mak
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 98-1110.03

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KNEZEVICH & ASSOCIATES, INC.
CONSULTING ENGINEERS • PRODUCT TESTING
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revisions

no	date	by	description
1	10/24/96	JRV	GENERAL REVISION
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3	02/04/97	JWK	REV. ANCHOR SCHEDULE
4	02/26/97	JWK	REV. ANCHOR SCHEDULE
5	06/16/98	VJK	REV. ANCHOR SCHEDULE
6	03/04/99	VJK	COUNTY COMMENTS

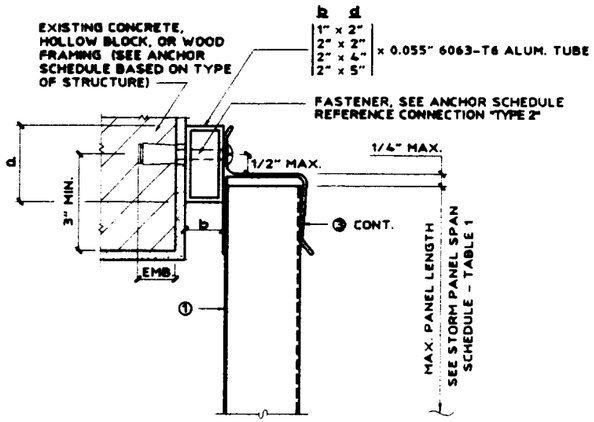
V.J. KNEZEVICH
PROFESSIONAL ENGINEER
FL License No: PE 0070983

MAR 10 1999

date 04/22/96	
scale AS NOTED	drawn by MC
design by VJK	checked by VJK

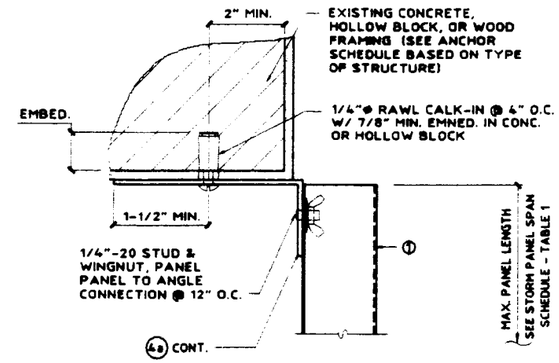
drawing no. 96-110

sheet 4 of 8



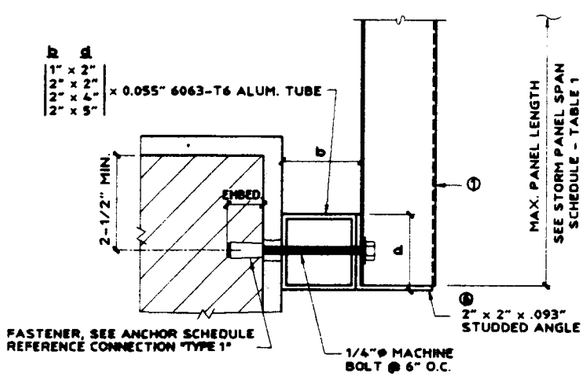
(Y) HEADER MOUNT DETAIL

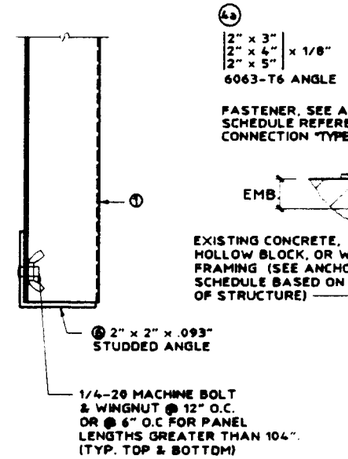
SCALE : 3" = 1'-0"



(Z) ALT. TRAP MOUNT DETAIL

SCALE : 3" = 1'-0"

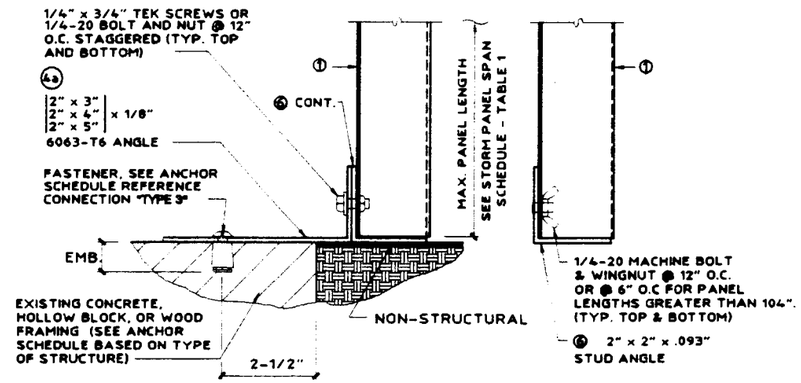




NOTE: THIS DETAIL MAY BE USED AT TOP OR BOTTOM OF PANEL.

(AB) 2" x 2" ALUM. TUBE BUILD-OUT

SCALE : 3" = 1'-0"



NOTE: THIS DETAIL MAY BE USED AT TOP OR BOTTOM OF PANEL.

(AC) STORM PANEL BUILD-OUT

SCALE : 3" = 1'-0"

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BY [signature]
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
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V.J. KNEZEVICH
PROFESSIONAL ENGINEER
FL License No: PE 0010983

MAR 10 1999

date 04/22/96	
scale AS NOTED	drawn by MK
design by VJK	checked by VJK

drawing no. 96-110

sheet 5 of 8

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ANCHOR SCHEDULE

FASTENER MAXIMUM SPACING (INCHES) REQUIRED FOR VARIOUS DESIGN LOADS AND SPANS

EXISTING STRUCTURE	ANCHOR TYPE	LOAD (W) PSF MAX. (SEE NOTE 1)	MIN. 2" EDGE DISTANCE															MIN. 3" EDGE DISTANCE														
			SPANS UP TO 5' - 6" (SEE NOTE 1)					SPANS UP TO 7' - 6" (SEE NOTE 1)					SPANS UP TO 10' - 6" (SEE NOTE 1)					SPANS UP TO 5' - 6" (SEE NOTE 1)					SPANS UP TO 7' - 6" (SEE NOTE 1)					SPANS UP TO 10' - 6" (SEE NOTE 1)				
			CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE				
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
CONCRETE	1/4"ø ITW TAPCON W/ 1-3/4" MIN. EMBEDMENT (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	12	12	12	12	12	11	12	9	10	12	8	12	12	12	12	12	12	12	12	12	12	12	11	12	12	9
		62.0	12	12	12	12	12	12	11	11	12	9	12	8	9	12	7	12	12	12	12	12	12	12	12	12	10	12	9	12	12	8
		72.0	12	12	12	12	10	12	8	9	12	7	12	8	9	12	7	12	12	12	12	12	12	9	12	12	8	12	9	12	12	8
		92.0	12	9	10	12	8	12	8	9	12	7	12	8	9	12	7	12	10	12	12	9	12	9	12	12	8	12	9	12	12	8
		200.0	12	8	9	12	7	12	8	9	12	7	12	8	9	12	7	12	9	12	12	8	12	9	12	12	8	12	9	12	12	8
	* 1/4"ø ELCO MALE/ FEMALE "PANELMATE" W/ 1-1/4 MIN. EMBEDMENT & 1/4-20 SIDEWALK BOLT (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	7	12	12	8	12	5	12	4	6	12	4	12	12	12	12	8	12	12	10	12	6	12	4	7	12	4
		62.0	12	12	9	12	6	12	5	6	12	4	11	4	5	11	3	12	12	10	12	6	12	5	8	12	4	12	4	6	12	3
		72.0	12	8	8	12	5	11	4	5	11	3	11	4	5	11	3	12	9	9	12	5	12	4	6	12	4	12	4	6	12	3
		92.0	12	4	6	12	4	11	4	5	11	3	11	4	5	11	3	12	4	7	12	4	12	4	6	12	3	12	4	6	12	3
		200.0	11	4	5	11	3	11	4	5	11	3	11	4	5	11	3	12	4	6	12	3	12	4	6	12	3	12	4	6	12	3
	* 1/4"ø POWERS CALK-IN W/ 7/8" EMBEDMENT & 1/4-20 STAINLESS STEEL MACHINE SCREW (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	12	12	12	12	12	12	12	10	9	12	8	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10
		62.0	12	12	12	12	12	12	11	9	12	9	12	8	8	12	7	12	12	12	12	12	12	12	12	12	11	12	10	12	12	9
		72.0	12	12	11	12	11	12	8	8	12	8	12	8	8	12	7	12	12	12	12	12	12	10	12	12	10	12	10	12	12	9
		92.0	12	9	9	12	8	12	8	8	12	7	12	8	8	12	7	12	12	12	12	10	12	10	12	12	9	12	10	12	12	9
		200.0	12	8	8	12	7	12	8	8	12	7	12	8	8	12	7	12	10	12	12	9	12	10	12	12	9	12	10	12	12	9
	1/4"ø POWERS ZAMAC NAIL-IN W/ 1-1/8" MIN. EMBEDMENT (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	8	12	12	10	12	5	12	4	7	12	4	12	12	12	12	9	12	12	12	12	6	12	5	8	12	4
		62.0	12	12	10	12	6	12	5	7	12	4	11	4	6	11	3	12	12	12	12	7	12	6	9	12	5	12	4	8	12	4
		72.0	12	8	9	12	5	12	4	6	12	3	11	4	6	11	3	12	10	11	12	6	12	4	8	12	4	12	4	8	12	4
		92.0	12	4	7	12	4	11	4	6	11	3	11	4	6	11	3	12	5	8	12	4	12	4	8	12	4	12	4	8	12	4
		200.0	11	4	6	11	3	11	4	6	11	3	11	4	6	11	3	12	4	8	12	4	12	4	8	12	4	12	4	8	12	4
	* 1/4"ø ITW RED HEAD DYNABOLT SLEEVE ANCHOR W/1-1/8" MIN. EMBED. (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	11	12	12	10	12	8	12	6	7	12	6	12	12	12	12	12	12	12	12	12	10	12	8	12	12	7
		62.0	12	12	11	12	8	12	8	8	12	6	12	5	7	12	5	12	12	12	12	11	12	10	12	12	8	12	7	11	12	6
		72.0	12	12	9	12	7	12	6	7	12	5	12	5	7	12	5	12	12	12	12	9	12	7	11	12	7	12	7	11	12	6
		92.0	12	6	7	12	6	12	5	7	12	5	12	5	7	12	5	12	8	12	12	7	12	7	11	12	6	12	7	11	12	6
		200.0	12	5	7	12	5	12	5	7	12	5	12	5	7	12	5	12	7	11	12	6	12	7	11	12	6	12	7	11	12	6
	1/4"ø ASHLEY QUICK-SET SCREW WITH 1-1/4" MIN. EMBEDMENT (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	7	12	10	9	12	5	11	4	6	11	3	12	12	12	12	7	12	10	9	12	5	11	4	6	11	3
		62.0	12	12	10	12	5	12	5	7	12	4	10	3	6	10	3	12	12	10	12	5	12	5	7	12	4	10	3	6	10	3
		72.0	12	7	8	12	4	10	3	6	10	3	10	3	6	10	3	12	7	8	12	4	10	3	6	10	3	10	3	6	10	3
		92.0	11	4	6	11	3	10	3	6	10	3	10	3	6	10	3	11	4	6	11	3	10	3	6	10	3	10	3	6	10	3
		200.0	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3
	* 1/4"ø POWERS DROP-IN & 1/4-20 SIDEWALK BOLT (3/4"ø HEAD) W/ 1-1/4" MIN. EMBEDMENT (MIN. 3,000 P.S.I. CONCRETE)	48.0	12	12	12	12	12	12	12	12	12	12	12	12	9	12	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
		62.0	12	12	12	12	12	12	12	10	12	11	12	10	9	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
		72.0	12	12	12	12	12	12	11	9	12	10	12	10	9	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
		92.0	12	12	9	12	10	12	10	9	12	10	12	10	9	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
		200.0	12	10	9	12	10	12	10	9	12	10	12	10	9	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12

ANCHOR SCHEDULE

FASTENER MAXIMUM SPACING (INCHES) REQUIRED FOR VARIOUS DESIGN LOADS AND SPANS

EXISTING STRUCTURE	ANCHOR TYPE	LOAD (W) PSF MAX. (SEE NOTE 1)	MIN. 3/4" EDGE DISTANCE														
			SPANS UP TO 5' - 6" (SEE NOTE 1)					SPANS UP TO 7' - 6" (SEE NOTE 1)					SPANS UP TO 10' - 6" (SEE NOTE 1)				
			CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE				
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
WOOD	1/4"ø WOOD LAG W/ 1-3/4" MIN. THREAD PENETRATION SHEAR PARALLEL OR PERPENDICULAR TO WOOD GRAIN	48.0	12	12	11	12	12	12	12	8	12	11	12	9	6	12	8
		62.0	12	12	9	12	12	12	11	6	12	9	12	8	5	12	7
		72.0	12	12	7	12	10	12	8	5	12	7	12	8	5	12	7
		92.0	12	9	6	12	8	12	8	5	12	7	12	8	5	12	7
		200.0	12	8	5	12	7	12	8	5	12	7	12	8	5	12	7
	* 7/16" O.D. BRASS BUSHING W/ 7/8" MIN. PENETRATION & 1/4-20 MACHINE SCREW	48.0	12	12		12	8	12	12		12	5	12	4		12	4
		62.0	12	12		12	6	12	5		12	4	11	4		11	3
		72.0	12	8		12	5	12	4		12	3	11	4		11	3
		92.0	12	4		12	4	11	4		11	3	11	4		11	3
		200.0	11	4		11	3	11	4		11	3	11	4		11	3
	* 1/4"ø ELCO MALE/ FEMALE "PANELMATE" W/ 1-7/8" MIN. PENETRATION & 1/4-20 SIDEWALK BOLT	48.0	12	12	12	12	12	12	12	12	12	12	12	10	10	12	9
		62.0	12	12	12	12	12	12	12	11	12	10	12	9	9	12	8
		72.0	12	12	12	12	12	12	9	10	12	8	12	9	9	12	8
		92.0	12	10	10	12	9	12	9	9	12	8	12	9	9	12	8
		200.0	12	9	9	12	8	12	9	9	12	8	12	9	9	12	8

ANCHOR NOTES:

1. **SPANS AND LOADS SHOWN HERE ARE FOR DETERMINING ANCHOR SPACING ONLY. ALLOWABLE STORM PANEL SPANS FOR SPECIFIC LOADS MUST BE LIMITED TO THOSE SHOWN IN TABLE 1, SHEET 8.**
2. ENTER ANCHOR SCHEDULE BASED ON THE EXISTING STRUCTURE MATERIAL, ANCHOR TYPE AND EDGE DISTANCE. SELECT DESIGN LOAD GREATER THAN OR EQUAL TO NEGATIVE DESIGN LOAD ON SHUTTER AND SELECT SPAN GREATER THAN OR EQUAL TO SHUTTER SPAN.
3. EXISTING STRUCTURE MAY BE CONCRETE, HOLLOW BLOCK OR WOOD FRAMING. REFERENCE ANCHOR SCHEDULE FOR PROPER ANCHOR TYPE BASED ON TYPE OF EXISTING STRUCTURE AND APPROPRIATE CONNECTION TYPE. SEE MOUNTING SECTION DETAILS FOR IDENTIFICATION OF CONNECTION TYPE.
4. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
5. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES WALL FINISH OR STUCCO.
6. WHERE EXISTING STRUCTURE IS WOOD FRAMING, WOOD FRAMING CONDITIONS VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT PLYWOOD.
7. WHERE LAG SCREWS FASTEN TO NARROW FACE OF STUD FRAMING, FASTENER SHALL BE LOCATED IN CENTER OF NOMINAL 2" x 4" (MIN.) WOOD STUD. 3/4" EDGE DISTANCE IS ACCEPTABLE FOR WOOD FRAMING. WOOD STUD SHALL BE "SOUTHERN PINE" G=0.55 OR GREATER DENSITY. LAG SCREWS SHALL HAVE PHILLIPS PAN HEAD OR HEX HEAD.
8. MACHINE SCREWS SHALL HAVE MINIMUM OF 1/2" ENGAGEMENT OF THREADS IN BASE ANCHOR AND MAY HAVE EITHER A PAN HEAD, TRUSS HEAD, OR WAFER HEAD (SIDEWALK BOLT), U.O.N.
9. ▨ DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE USES.
10. * DESIGNATES ANCHORS WHICH ARE REMOVABLE BY REMOVING MACHINE SCREW, NUT OR WASHERED WINGNUT. REMOVABLE ANCHORS ARE REQUIRED FOR DIRECT MOUNT @ 6" O.C. OR 12" O.C. MAX. SPACING ONLY. SPACINGS SHALL NOT EXCEED VALUE SPECIFIED IN ANCHOR SCHEDULE. LOCATE FASTENER IN NARROW PORTION OF KEYHOLE SLOT OR KEYHOLE WASHER.
11. 1/4-20 TRUSS HEAD BOLTS MAY BE USED IN LIEU OF 1/4-20 SIDEWALK BOLT IF KEYHOLE WASHERS ARE USED.

APPROVED AS COMPLYING WITH THE SOUTH FLORIDA BUILDING CODE
DATE MAY 20 1999
BY
PRODUCT CONTROL DIVISION
BUILDING CODE COMPLIANCE OFFICE
ACCEPTANCE NO. 98-1110.03

KNEZEVICH & ASSOCIATES, INC.
CONSULTING ENGINEERS • PRODUCT TESTING
641 MOKENA DRIVE·MIAMI SPRINGS, FLORIDA 33166
MIAMI (305) 883-9571 FT. LAUDERDALE (954) 677-9500
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0.050" ALUMINUM STORM PANEL

MADDEN MANUFACTURING CO.
1889 N.W. 22 ST.
POMPANO BEACH, FL 33069
(800) 272-2071

revisions			
no	date	by	description
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date 04/22/96	
scale AS NOTED	drawn by MC
design by VJK	checked by VJK
drawing no. 96-110	
sheet 6 of 8	

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ANCHOR SCHEDULE

FASTENER MAXIMUM SPACING (INCHES) REQUIRED FOR VARIOUS DESIGN LOADS AND SPANS

EXISTING STRUCTURE	ANCHOR TYPE	LOAD (W) PSF MAX. (SEE NOTE 1)	MIN. 2" EDGE DISTANCE															MIN. 3" EDGE DISTANCE													
			SPANS UP TO 5' - 6" (SEE NOTE 1)					SPANS UP TO 7' - 6" (SEE NOTE 1)					SPANS UP TO 10' - 6" (SEE NOTE 1)					SPANS UP TO 5' - 6" (SEE NOTE 1)					SPANS UP TO 7' - 6" (SEE NOTE 1)					SPANS UP TO 10' - 6" (SEE NOTE 1)				
			CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE					CONNECTION TYPE				
			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
HOLLOW CONCRETE BLOCK	1/4"ø ITW TAPCON W/ 1-1/4" MIN. EMBEDMENT	48.0	12	12	9	12	5	12	8	7	12	3	8	3	5	8		12	12	11	12	6	12	9	8	12	4	9	3	6	9	3
		62.0	12	10	7	12	4	9	3	5	9	3	7		4	7		12	11	9	12	4	10	4	6	10	3	8	3	5	8	
		72.0	11	5	6	11	3	8		4	8		7		4	7		12	6	7	12	4	9	3	5	9		8	3	5	8	
		92.0	8	3	5	8		7		4	7		7		4	7		9	3	6	9	3	8	3	5	8		8	3	5	8	
		200.0	7		4	7		7		4	7		7		4	7		8	3	5	8		8	3	5	8		8	3	5	8	
	* 1/4"ø ELCO MALE/ FEMALE "PANELMATE" W/ 1-1/4 MIN. EMBEDMENT & 1/4-20 SIDEWALK BOLT	48.0	12	12	12	12	7	12	12	8	12	5	12	4	6	12	4	12	12	12	12	8	12	12	10	12	6	12	4	7	12	4
		62.0	12	12	9	12	6	12	5	6	12	4	11	4	5	11	3	12	12	10	12	6	12	5	8	12	4	12	4	6	12	3
		72.0	12	8	8	12	5	11	4	5	11	3	11	4	5	11	3	12	9	9	12	5	12	4	6	12	4	12	4	6	12	3
		92.0	12	4	6	12	4	11	4	5	11	3	11	4	5	11	3	12	4	7	12	4	12	4	6	12	3	12	4	6	12	3
		200.0	11	4	5	11	3	11	4	5	11	3	11	4	5	11	3	12	4	6	12	3	12	4	6	12	3	12	4	6	12	3
	* 1/4"ø POWERS CALK-IN W/ 7/8" EMBEDMENT & 1/4-20 STAINLESS STEEL MACHINE SCREW	48.0	12	12	10	12	6	12	10	7	12	5	11	4	5	11	3	12	12	12	12	8	12	12	11	12	6	12	5	8	12	4
		62.0	12	12	8	12	5	12	5	5	12	3	10	3	4	10	3	12	12	12	12	6	12	6	9	12	4	12	4	7	12	4
		72.0	12	7	6	12	4	10	3	5	10	3	10	3	4	10	3	12	9	10	12	5	12	4	7	12	4	12	4	7	12	4
		92.0	11	4	5	11	3	10	3	4	10	3	10	3	4	10	3	12	5	8	12	4	12	4	7	12	4	12	4	7	12	4
		200.0	10	3	4	10	3	10	3	4	10	3	10	3	4	10	3	12	4	7	12	4	12	4	7	12	4	12	4	7	12	4
	1/4"ø POWERS ZAMAC NAIL-IN W/ 1-1/8" MIN. EMBEDMENT	48.0	12	12	10	12	5	11	7	7	11	3	8	3	5	8		12	12	12	12	5	12	8	9	12	4	9	3	6	9	3
		62.0	12	9	7	12	4	9	3	5	9		7		4	7		12	11	9	12	4	10	4	7	10	3	8		5	8	
		72.0	10	5	6	10	3	7		4	7		7		4	7		11	6	8	11	3	8	3	6	8		8		5	8	
		92.0	8	3	5	8		7		4	7		7		4	7		9	3	6	9	3	8		5	8		8		5	8	
		200.0	7		4	7		7		4	7		7		4	7		8		5	8		8		5	8		8		5	8	
	* 1/4"ø ITW RED HEAD DYNABOLT SLEEVE ANCHOR W/1-1/8" MIN. EMBED.	48.0	12	12	8	12	4	9	6	6	9	3	7		4	7		12	12	12	12	5	12	8	8	12	4	8	3	6	8	
		62.0	10	8	6	10	3	7	3	4	7		6		3	6		12	10	9	12	4	9	3	6	9	3	8		5	8	
		72.0	9	4	5	9		6		4	6		6		3	6		11	6	8	11	3	8		5	8		8		5	8	
		92.0	7		4	7		6		3	6		6		3	6		8	3	6	8		8		5	8		8		5	8	
		200.0	6		3	6		6		3	6		6		3	6		8		5	8		8		5	8		8		5	8	
	1/4"ø ASHLEY QUICK-SET SCREW WITH 1-1/4" MIN. EMBEDMENT	48.0	12	12	12	12	7	12	10	9	12	5	11	4	6	11	3	12	12	12	12	7	12	10	9	12	5	11	4	6	11	3
		62.0	12	12	10	12	5	12	5	7	12	4	10	3	6	10	3	12	12	10	12	5	12	5	7	12	4	10	3	6	10	3
		72.0	12	7	8	12	4	10	3	6	10	3	10	3	6	10	3	12	7	8	12	4	10	3	6	10	3	10	3	6	10	3
		92.0	11	4	6	11	3	10	3	6	10	3	10	3	6	10	3	11	4	6	11	3	10	3	6	10	3	10	3	6	10	3
		200.0	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3	10	3	6	10	3

ANCHOR NOTES:

1. **SPANS AND LOADS SHOWN HERE ARE FOR DETERMINING ANCHOR SPACING ONLY. ALLOWABLE STORM PANEL SPANS FOR SPECIFIC LOADS MUST BE LIMITED TO THOSE SHOWN IN TABLE 1, SHEET 8.**
2. ENTER ANCHOR SCHEDULE BASED ON THE EXISTING STRUCTURE MATERIAL, ANCHOR TYPE AND EDGE DISTANCE. SELECT DESIGN LOAD GREATER THAN OR EQUAL TO NEGATIVE DESIGN LOAD ON SHUTTER AND SELECT SPAN GREATER THAN OR EQUAL TO SHUTTER SPAN.
3. EXISTING STRUCTURE MAY BE CONCRETE, HOLLOW BLOCK OR WOOD FRAMING. REFERENCE ANCHOR SCHEDULE FOR PROPER ANCHOR TYPE BASED ON TYPE OF EXISTING STRUCTURE AND APPROPRIATE CONNECTION TYPE. SEE MOUNTING SECTION DETAILS FOR IDENTIFICATION OF CONNECTION TYPE.
4. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.
5. MINIMUM EMBEDMENT AND EDGE DISTANCE EXCLUDES WALL FINISH OR STUCCO.
6. WHERE EXISTING STRUCTURE IS WOOD FRAMING, WOOD FRAMING CONDITIONS VARY. FIELD VERIFY THAT FASTENERS ARE INTO ADEQUATE WOOD FRAMING MEMBERS, NOT PLYWOOD.
7. WHERE LAG SCREWS FASTEN TO NARROW FACE OF STUD FRAMING, FASTENER SHALL BE LOCATED IN CENTER OF NOMINAL 2" x 4" (MIN.) WOOD STUD. 3/4" EDGE DISTANCE IS ACCEPTABLE FOR WOOD FRAMING. WOOD STUD SHALL BE "SOUTHERN PINE" G=0.55 OR GREATER DENSITY. LAG SCREWS SHALL HAVE PHILLIPS PAN HEAD OR HEX HEAD.
8. MACHINE SCREWS SHALL HAVE MINIMUM OF 1/2" ENGAGEMENT OF THREADS IN BASE ANCHOR AND MAY HAVE EITHER A PAN HEAD, TRUSS HEAD, OR WAFER HEAD (SIDEWALK BOLT), U.O.N.
9. ▨ DESIGNATES ANCHOR CONDITIONS WHICH ARE NOT ACCEPTABLE USES.

*10. DESIGNATES ANCHORS WHICH ARE REMOVABLE BY REMOVING MACHINE SCREW, NUT OR WASHERED WINGNUT. REMOVABLE ANCHORS ARE REQUIRED FOR DIRECT MOUNT @ 6" O.C. OR 12" O.C. MAX. SPACING ONLY. SPACINGS SHALL NOT EXCEED VALUE SPECIFIED IN ANCHOR SCHEDULE. LOCATE FASTENER IN NARROW PORTION OF KEYHOLE SLOT OR KEYHOLE WASHER.

11. 1/4-20 TRUSS HEAD BOLTS MAY BE USED IN LIEU OF 1/4-20 SIDEWALK BOLT IF (10) KEYHOLE WASHERS ARE USED.

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BY [signature]
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2	01/09/97	JWK	COUNTY COMMENTS
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MAR 10 1999

date 04/22/96
scale AS NOTED
drawn by MC
design by VJK
checked by VJK
drawing no. 96-110
sheet 7 of 8

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TABLE 1

STORM PANEL SPAN
STORM PANEL SCHEDULE

NEGATIVE DESIGN LOAD W (PSF)	FOR ALL MOUNTING CONDITIONS L MAX. (FT-IN)
30.0	10 - 6
35.0	10 - 4
40.0	10 - 0
45.0	9 - 8
50.0	9 - 5
55.0	9 - 2
60.0	8 - 9
62.0	8 - 7
65.0	8 - 5
70.0	7 - 10
72.0	7 - 7
75.0	7 - 3
80.0	6 - 10
90.0	6 - 1
100.0	5 - 6
110.0	5 - 0
120.0	4 - 7
130.0	4 - 2
140.0	3 - 11
150.0	3 - 8
160.0	3 - 5
170.0	3 - 2
180.0	3 - 0
190.0	2 - 10
200.0	2 - 9

TABLE 2

MIN. SEPARATION FROM GLASS SCHEDULE

POSITIVE DESIGN LOAD(W) (PSF)	ACTUAL SHUTTER SPAN (FT - IN)	MINIMUM SEPARATION FOR INSTALLATIONS 30' OR LESS ABOVE GRADE (INCHES)		MINIMUM SEPARATION FOR INSTALLATIONS GREATER THAN 30' ABOVE GRADE (INCHES)
		BAR	NO BAR	NO BAR
30.0	3 - 0	2	3	1-1/8
	4 - 0	2	3	1-1/4
	5 - 0	2	3	1-1/4
	7 - 0	2	3	1-1/2
	8 - 8	2-1/8	3	2-1/8
	10 - 6	3-3/4	3-3/4	3-3/8
40.0	3 - 0	2	3	1-1/8
	4 - 0	2	3	1-1/4
	5 - 0	2	3	1-3/8
	7 - 0	2	3	1-5/8
	8 - 8	2-1/2	3	2-1/2
	10 - 0	3-3/4	3-3/4	3-1/2
50.0	3 - 0	2	3	1-1/8
	4 - 0	2	3	1-1/4
	5 - 0	2	3	1-3/8
	7 - 0	2	3	1-3/4
	8 - 8	2-3/4	3	2-3/4
	9 - 5	3-3/4	3-3/4	3-5/8
60.0	3 - 0	2	3	1-1/8
	4 - 0	2	3	1-1/4
	5 - 0	2	3	1-3/8
	7 - 0	2	3	1-7/8
	8 - 8	3	3	3
	9 - 0	3-3/4	3-3/4	3-1/4
70.0	3 - 0	2	3	1-1/8
	4 - 0	2	3	1-1/4
	5 - 0	2	3	1-3/8
	6 - 0	2	3	1-7/8
	7 - 0	3	3	3
	8 - 8	3-3/4	3-3/4	3

NOTES:

1. ENTER TABLE 1 WITH NEGATIVE DESIGN LOAD TO DETERMINE MAX. PANEL SPAN. POSITIVE LOADS LESS THAN OR EQUAL TO THE NEGATIVE LOAD ARE ACCEPTABLE.
2. ENTER TABLE 2 WITH POSITIVE DESIGN LOAD TO DETERMINE MIN. SEPARATION FROM GLASS.
3. FOR DESIGN LOADS BETWEEN TABULATED VALUES, USE NEXT HIGHER LOAD OR LINEAR INTERPOLATION MAY BE USED TO DETERMINE ALLOWABLE SPANS.

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BY Helena A. Hall
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