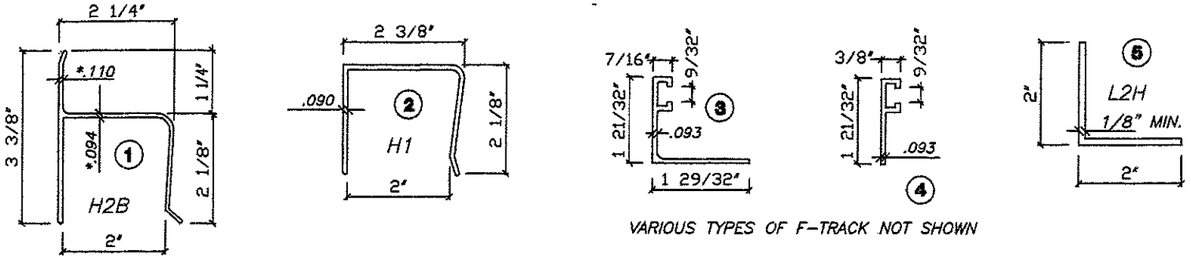
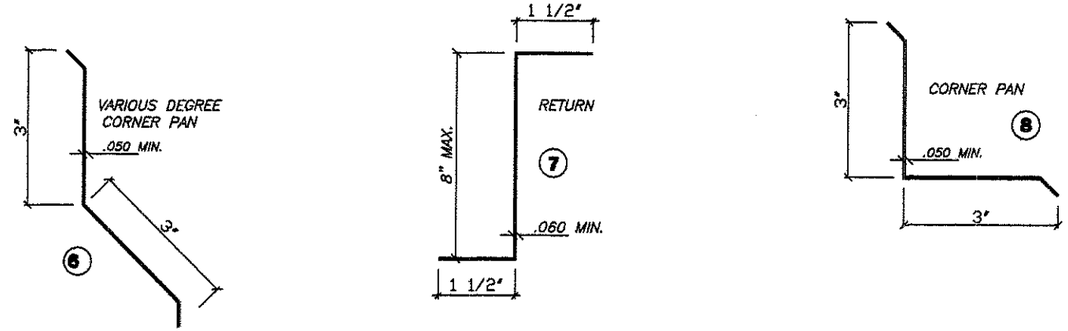
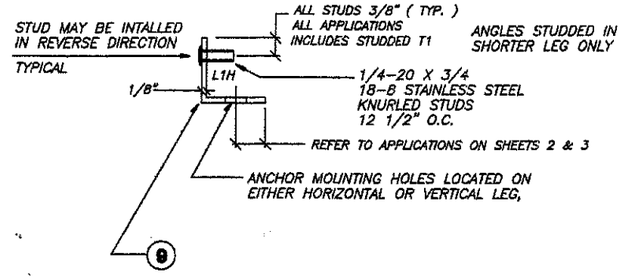
.024 GALV. STEEL FBC
(N.H.V.H.Z.)

MAXIMUM IMPACT® STORM PANEL

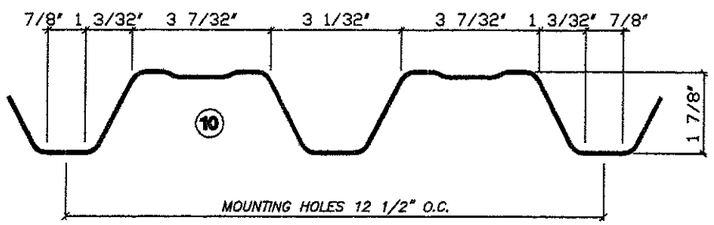


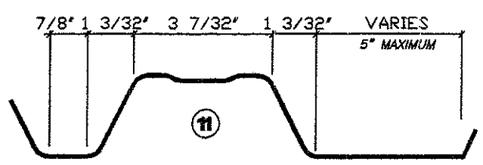
VARIOUS TYPES OF F-TRACK NOT SHOWN





STUDDED ANGLE DETAIL





SPECIAL NET PANEL SECTION

CROSS SECTIONS

COMPLIES WITH:

FLORIDA BUILDING CODE

TESTED TO SSTD 12-97 , 12-99 , ASTM E 330

GENERAL NOTES:

THIS STORM PANEL IS NOT TO BE INSTALLED IN HIGH VELOCITY HURRICANE ZONES
DESIGN WIND LOADS SHALL BE DETERMINED AS PER SECTION 1609 OF ABOVE CODE,
WIND SPEED AS REQUIRED BY JURISDICTION WHERE SHUTTER IS TO BE INSTALLED AND
IN ACCORDANCE WITH ASCE 7 USING A DIRECTIONALITY FACTOR OF KD=.85

VERIFIED FOR ADEQUACY FOR IMPACT AND FATIGUE RESISTANCE
AS PER ATL REPORT #0214.01-01 AND
ADDENDUM REPORT #0423.02-01, COMPARATIVE AND RATIONAL ANALYSIS

NO INCREASE IN ALLOWABLE STRESS WAS USED IN THE DESIGN
OF THIS PRODUCT

ALL ALUMINUM H AND U HEADER EXTRUSIONS TO BE ALLOY 6063-T6 OR EQUAL
ALL ALUMINUM ANGLE EXTRUSIONS TO BE ALLOY 6063-T5 OR EQUAL

STORM PANELS SHALL BE: ASTM A653 SS GRADE E MIN. Fy = 80 K.S.I. MINIMUM VALUE
.024 GALVANIZED STEEL,
HOT DIP COATED. WITH A NOMINAL WIDTH OF 12 1/2"

THE STORM PANEL SHUTTER MAY BE INSTALLED VERTICALLY OR HORIZONTALLY,
IN ACCORDANCE TO THE DETAILED SPECIFICATIONS HEREIN.

PANELS MAY BE NOTCHED OR MITERED TO ACCOMMODATE AN OBSTRUCTION

PANELS MAY HAVE A STRAIGHT, RIPPLED SURE GRIP OR HEMMED EDGE

ANCHORAGE OF THE SHUTTER SYSTEM TO CONCRETE OR MASONRY SHALL CONSIST OF
THE FOLLOWING OR EQUAL WITH MINIMUM ULTIMATE LOAD VALUES SHOWN

1/4" DIA. RAWL LOK/BOLT ANCHOR (SLEEVED DRIVE ANCHOR)
MIN. TENSILE 1190 - MIN. SHEAR 1520 - 1 1/8" MIN. EMBED. IN CONCRETE
MIN. TENSILE 1200 - MIN. SHEAR 1270 - 1 1/8" MIN. EMBED. IN MASONRY

1/4-20 RAWL CALK-IN ANCHOR (MACHINE SCREW ANCHOR) WITH 1/4-20 BOLTS
MIN. TENSILE 1870 - MIN. SHEAR 1730 - 7/8" MIN. EMBED. IN CONCRETE
MIN. TENSILE 880 - MIN. SHEAR 1340 - 7/8" MIN. EMBED. IN MASONRY

1/4" PERMA-SEAL TAPPER BY RAWL (MASONRY SCREWS VARIOUS HEAD TYPES)
MIN. TENSILE 1520 - MIN. SHEAR 1980 - 1 1/2" MEN. EMBED. IN CONCRETE
MIN. TENSILE 880 - MIN. SHEAR 1270 - 1 1/4" MIN. EMBED. IN MASONRY

1/4" ZAMAC NAILIN BY RAWL (ZAMAC HAMMER DRIVES)
MIN. TENSILE 980 - MIN. SHEAR 1400 - 1 3/8" MIN. EMBED. IN CONCRETE
MIN. TENSILE 730 - MIN. SHEAR 1320 - 1 1/4" MIN. EMBED. IN MASONRY

ANCHORAGE TO WOOD CONSTRUCTION SHALL BE 1/4" STEEL LAGS OR LARGER
WITH 1" MIN. THREAD PENETRATION, 1/4-20 BRASS WOOD BUSHINGS.
1/4" ELCO PANEL MATES OR 1/4" MASONRY SCREWS
WITH 1 7/8" MIN. THREAD PENETRATION.

REFER TO SHEETS 4 & 5 OF 5 FOR ANCHOR SPACING AND MINIMUM EMBEDMENTS

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE
STRUCTURE TO WITHSTAND THE ADDITIONAL LOADS AND INSURE PROPER ANCHORAGE.

PERMANENT FASTENER COMPONENTS, EMBEDDED ANCHOR BOLTS, THREADED CONES
OR METAL SHIELDS, NOT IN USE, MUST BE PROTECTED AGAINST CORROSION,
CONTAMINATION AND DAMAGE AT ALL TIME.

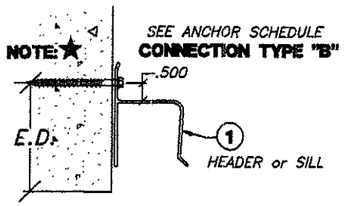
ROBERT S. MONSOUR, PE
EB-0006024
RAMMS ENGINEERING, INC.

REVISIONS	BY
01/23/09	

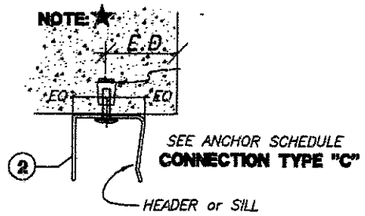
RAMMS ENGINEERING, INC.
Structural Design
2100 W. 78th STREET, SUITE 311
HIALEAH, FLORIDA 33016
EB 0006024

METALTECH, INC.
EST. 1957
7635 W. SECOND CT. HIALEAH, FL 33014

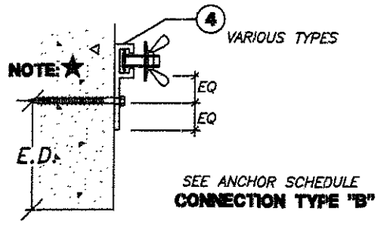
DESIGN	SEP/RSM
APPROVED	
DATE	10/02/2005
SCALE	SHOWN
JOB	051410
SHEET	1
OF	5



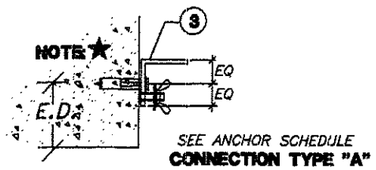
DETAIL 1



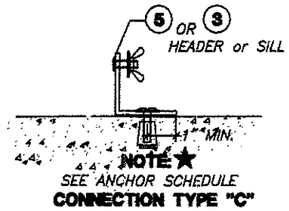
DETAIL 2



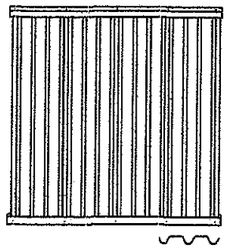
DETAIL 3



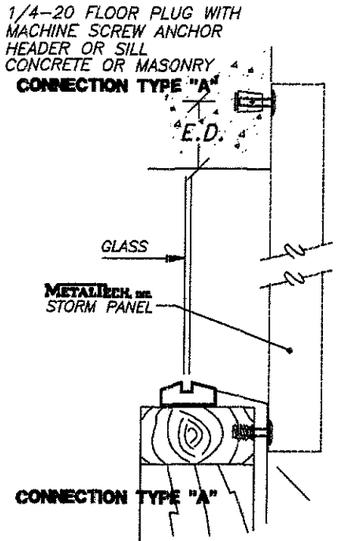
DETAIL 4



DETAIL 5



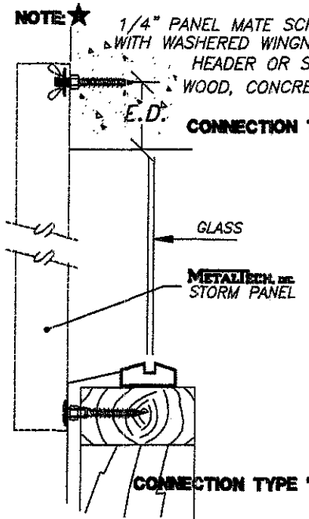
VERTICAL INSTALLATION
ELEVATION

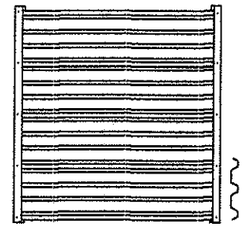


NOTE:

THE METALTECH STORM PANEL MAY BE INSTALLED WITHOUT THE USE OF AN EXTRUDED HEADER OR SILL.
THE SHUTTER MAY BE ANCHORED DIRECTLY TO THE STRUCTURE WITH THE USE OF ONE OR A COMBINATION OF DETAIL 6

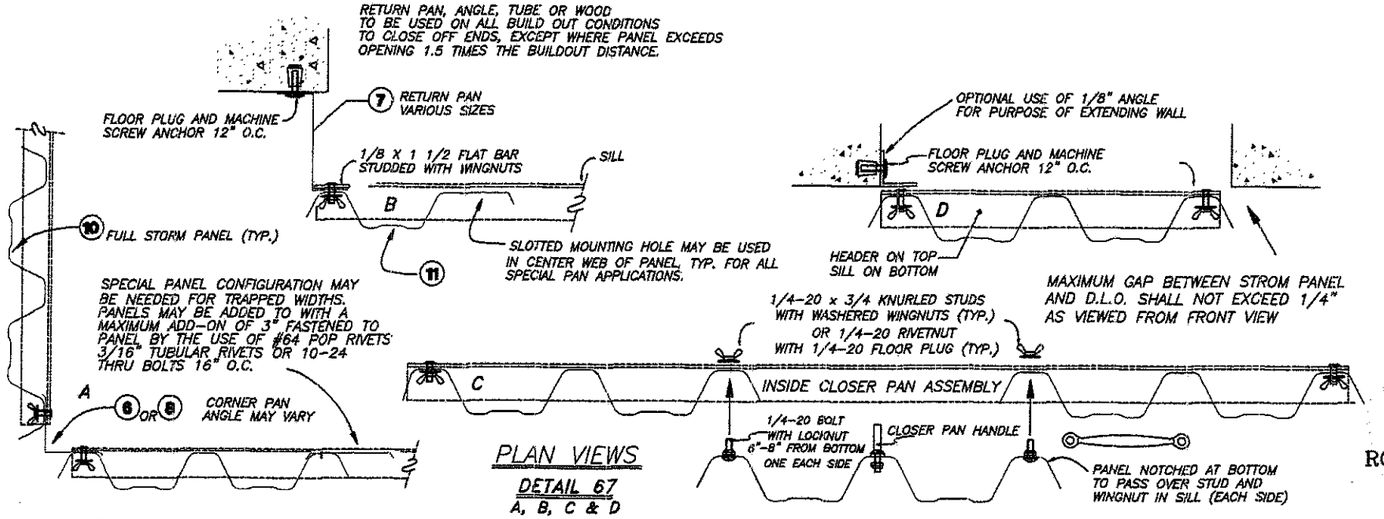
NOTE:★





HORIZONTAL INSTALLATION
ELEVATION

DETAIL 6

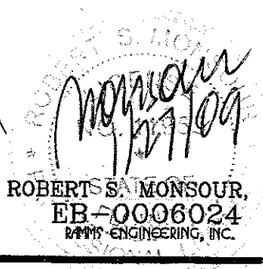


PLAN VIEWS
DETAIL 6?
A, B, C & D

NOTE:★

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE TO WITH STAND THE ADDITIONAL LOADS AND INSURE PROPER ANCHORAGE. SHUTTER SYSTEM MAY BE INTSALL INTO WOOD, CONCRETE, MASONRY.

WHEN ANCHORING TO WOOD, THE WOOD MUST BE A MINIMUM 2 X 4 EQUAL TO #2 SOUTHERN PINE WITH 0.55 SPECIFIC GRAVITY AND STRUCTURALLY PART OF THE FRAMING STRUCTURE OR SUCURELY ATTACHED TO FRAMING STRUCTURE



MAXIMUM IMPACT STORM PANEL

REVISIONS	BY

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HIALEAH, FLORIDA 33016
EB 0006024

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957
LEADER WORLD-WIDE

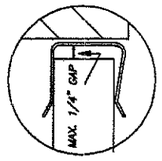
DRAWN	SEP / RSM
APPROVED	
DATE	10/02/2005
SCALE	SHOWN
JOB	051410
SHEET	2
OF	5 SHEETS

.024 GALV. MAXIMUM IMPACT STEEL STORM PANEL

24 ga. STEEL

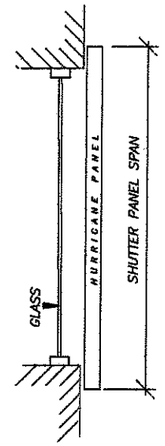
DESIGN PRESSURE	PANEL SPAN
24.52	140
27.03	136
28.03	134
29.67	132"
34.52	125"
37.24	122"
40.57	119"
44.81	115"
47.84	110"
50.66	106"
52.91	104"
55.16	102"
58.53	97"
61.35	93"
63.60	89"
69.43	82"
77.49	73"
82.05	69"
85.70	66"
89.35	64"
94.82	60"
99.38	57"
103.02	55"

MINIMUM PANEL HIEGHT 36"



MAXIMUM GAP BETWEEN PANEL AND HEADER IS 1/4" (TYP.)

DETAIL "F"

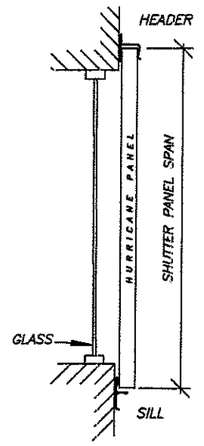


DETAIL 5 ON SHEET 2

DETAIL 5 ON SHEET 2

WALL MOUNT

ANCHORING PANEL
TOP & BOTTOM
NO HDR. OR SILL

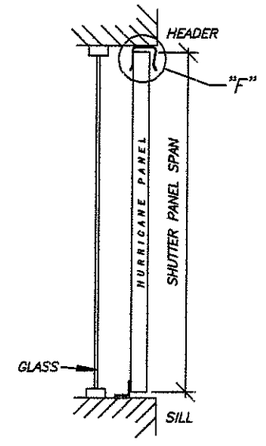


DETAIL 1 ON SHEET 2

DETAILS 3 ON SHEET 2

WALL MOUNT

WITH HDR. AND SILL



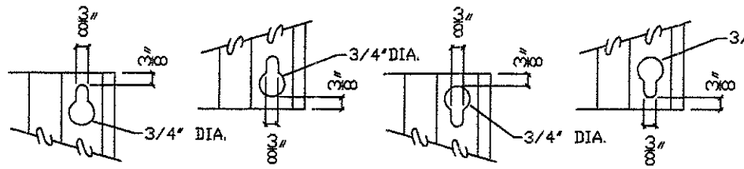
DETAIL 2 ON SHEET 2

DETAIL 4 ON SHEET 2

INSIDE MOUNT

WITH HDR. AND SILL

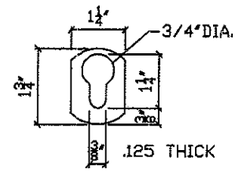
TYPICAL SECTION VIEWS



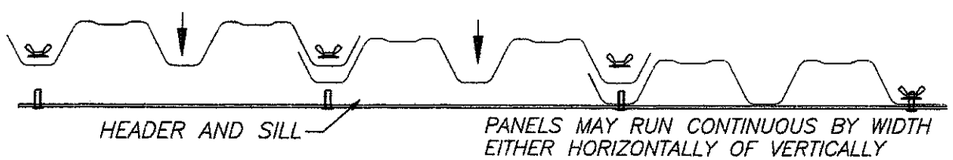
FASTENER MUST BE IN NORROW PORTION OF KEY HOLE,
IF NOT A KEY HOLE WASHER SHOULD BE USED

MOUNTING HOLE MAY ALSO BE A 9/16" DIA. CIRCLE

DETAIL "G"



KEY HOLE WASHER



EXPLODED ASSEMBLY

ROBERT S. MONSOUR, PE
EB-0006024
RAMMS ENGINEERING, INC.

REVISIONS	BY

RAMMS ENGINEERING, INC.
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2100 W. 76th STREET, SUITE 311
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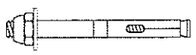
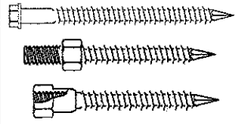
METALTECH, INC.
ESTABLISHED WORLD-WIDE
EST. 1957
7635 W. SECOND CT. HIALEAH, FL. 33014

DRAWN: SEP/RSM
APPROVED:
DATE: 10/02/2005
SCALE: SHOWN
JOB: 051410
SHEET: 3
OF 5 SHEETS

ANCHOR SCHEDULE

ANCHOR SPACING vs DESIGN PRESSURE AND CONNECTION TYPE			59.6 PSF						71.5 PSF						81.5 PSF						91.4 PSF					
			POURED CONCRETE			CONCRETE BLOCK			POURED CONCRETE			CONCRETE BLOCK			POURED CONCRETE			CONCRETE BLOCK			POURED CONCRETE			CONCRETE BLOCK		
			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE		
ANCHOR TYPE	PANEL	E.D.	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
 1/4" SLEEVE ANCHOR 1 1/4" MIN. EMBEDMENT	68" Span	3"	16	13	8	16	13	10	16	13	7	16	13	8	15	10	6	16	10	7	14	7	5	14	7	6
		2"	16	13	7	16	13	8	16	13	5	16	13	6	14	9	5	14	9	6	12	6	4	12	6	5
		1 1/4"	16	13	5	16	13	6	14	13	4	14	13	5	12	8	4	12	8	4	11	5	3	11	5	4
	88" Span	3"	16	13	6	16	13	7	14	6	5	14	6	6	12	4	5	12	5	5	11	3	4	11	4	5
		2"	15	11	5	15	11	6	12	6	4	12	6	5	11	4	4	11	4	4	9	3	3	10	3	4
		1 1/4"	13	10	4	13	10	5	11	5	3	11	5	4	10	4	3	10	4	3	9	3	3	9	3	3
	105" Span	3"	14	6	5	14	7	6	11	4	4	12	4	5												
		2"	12	6	4	12	6	5	10	4	4	10	4	4												
		1 1/4"	11	5	3	11	5	4	9	3	3	9	3	3												
	124" Span	3"	11	4	4	12	4	5																		
		2"	10	4	4	10	4	4																		
		1 1/4"	9	3	3	9	3	3																		
 1/4" SLEEVED DRIVE ANCHOR 1 3/8" MIN. EMBEDMENT	68" Span	3"	16	13	7	13	13	6	15	13	6	11	11	5	13	8	5	9	6	4	11	5	5	8	4	4
		2"	15	13	6	12	12	5	13	13	5	10	10	4	11	7	5	8	5	4	10	5	4	8	4	3
		1 1/4"	14	13	5	10	10	4	12	12	4	9	9	3	10	7	4	8	5	3	9	4	3	7	3	3
1/4" ZAMAC HAMMER DRIVE 1 3/8" MIN. EMBEDMENT	88" Span	3"	13	10	6	10	8	5	11	5	5	8	4	4	10	4	4	7	3	3	9	3	4	7		3
		2"	12	9	5	9	7	4	10	5	4	7	3	3	9	3	3	7		3	8	3	3	6		3
		1 1/4"	11	9	4	8	6	3	9	4	3	7	3	3	8	3	3	6			7		3	5		
	105" Span	3"	11	5	5	8	4	4	9	3	4	7		3												
		2"	10	5	4	7	4	3	8	3	3	6		3												
		1 1/4"	9	4	3	7	3	3	8	3	3	6		2												
	124" Span	3"	9	3	4	7		3																		
		2"	8	3	3	6		3																		
		1 1/4"	8	3	3	6																				
VARIOUS HEAD TYPES  1/4" MASONRY SCREWS 1 1/2" MIN. EMBEDMENT	68" Span	3"	16	13	11	16	13	7	16	13	9	13	13	6	16	13	8	11	7	5	16	8	7	10	5	4
		2"	16	13	9	14	13	6	16	13	8	12	12	5	16	11	7	10	6	4	16	8	6	9	4	4
		1 1/4"	16	13	8	13	13	5	16	13	6	10	10	4	16	10	6	9	6	3	14	7	5	8	4	3
	88" Span	3"	16	13	9	12	9	5	16	8	7	10	5	4	15	6	6	9	3	4	14	4	5	8	3	3
		2"	16	13	7	11	7	4	15	7	6	9	4	4	14	5	5	8	3	3	12	4	4	7		3
		1 1/4"	16	13	6	10	8	4	14	7	5	8	4	3	12	5	4	7	3	3	11	4	3	6		
	105" Span	3"	16	8	7	10	5	4	15	5	6	8	3	4												
		2"	16	7	6	9	4	4	13	5	5	8	3	3												
		1 1/4"	14	7	5	8	4	3	12	4	4	7														
	124" Span	3"	15	5	6	8	3	4																		
		2"	13	5	5	8	3	3																		
		1 1/4"	12	4	4	7																				
 1/4-20 x 7/8" , 1/2" DIA. MACHINE SCREW ANCHOR 7/8" MIN. EMBEDMENT	68" Span	3"	16	13	12	16	13	7	16	13	10	13	13	6	16	13	9	11	7	5	16	10	8	10	5	4
		2.5"	16	13	10	14	13	6	16	13	9	12	12	5	16	13	7	10	7	4	16	9	7	9	4	4
		2"	16	13	8	13	13	5	16	13	7	10	10	4	16	12	6	9	6	3	16	8	5	8	4	3
	88" Span	3"	16	13	9	12	9	5	16	10	8	10	5	4	16	7	7	9	3	4	16	5	6	8	3	3
		2.5"	16	13	8	11	8	5	16	9	7	9	4	4	16	6	6	8	3	3	15	5	5	7		3
		2"	16	13	6	10	7	4	16	8	5	8	4	3	15	6	4	7	3	3	13	4	4	6		
	105" Span	3"	16	10	8	10	5	4	16	6	7	8	3	4												
		2.5"	16	9	7	9	4	4	16	6	6	8	3	3												
		2"	16	8	5	8	4	3	14	5	4	7		3												
	124" Span	3"	16	6	7	8	3	4																		
		2.5"	16	6	6	8	3	3																		
		2"	14	5	4	7		3																		

NOTES:

SPANS AND LOADS SHOWN IN THIS SCHEDULE ARE FOR DETERMINING ANCHOR SPACING ONLY. FOR ALLOWABLE SPANS VS. DESIGN LOADS REFER TO SHEET 3.

MINIMUM ENBEDMENT AND EDGE DISTANCE EXCLUDES STUCCO AND/OR WALL FINISHES.

SHADED AREAS REPRESENT ANCHOR CONDITIONS THAT ARE NOT ACCEPTABLE.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE SOUNDNESS OF THE STRUCTURE TO WITH STAND THE ADDITIONAL LOADS AND INSURE PROPER ANCHORAGE. SHUTTER SYSTEM MAY BE INTSALL INTO WOOD, CONCRETE OR MASONRY .

ROBERT S. MONSOUR, PE
EB-0006024
RAMMS ENGINEERING, INC.

REVISIONS	BY

RAMMS ENGINEERING, INC.
Structural Design
2100 W. 76th STREET, SUITE 311
HIALEAH, FLORIDA 33016
EB 0006024

METALTECH, INC.
7635 W. SECOND CT. HIALEAH, FL 33014
EST. 1957

DRW	SEP/RSM
APPROVED	
DATE	10/02/2005
SCALE	SHOWN
JOB NO.	051410
SHEET	4
OF	5

ANCHOR SCHEDULE

WOOD APPLICATIONS			UP TO 59.5 PSF			UP TO 71.5 PSF			UP TO 81.5 PSF			UP TO 91.4 PSF		
			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE			CONNECTION TYPE		
ANCHOR TYPE	DIA.	SPAN	A	B	C	A	B	C	A	B	C	A	B	C
BRASS WOOD BUSHING 1" MIN. PENETRATION	1/4-20	68" SPAN	11	11	4	9	9	3	8	5	3	7	3	3
		88" SPAN	8	6	3	7	3	3	6	2	2	8		2
		105" SPAN	7	3	3	6	2	2						
		124" SPAN	6	2	2									
WOOD LAGS 1" MINIMUM TREAD PENETRATION	1/4"	68" SPAN	14	13	6	12	12	5	10	6	4	9	4	4
		88" SPAN	11	8	4	9	4	4	8	3	3	7	2	3
		105" SPAN	9	4	4	7	3	3						
		124" SPAN	7	3	3									
WOOD LAGS 1" MINIMUM TREAD PENETRATION	5/16"	68" SPAN	16	13	7	14	13	6	12	8	5	11	5	5
		88" SPAN	13	10	6	11	5	5	9	3	4	8	3	4
		105" SPAN	11	5	5	9	3	4						
		124" SPAN	9	3	4									
WOOD LAGS 1" MINIMUM TREAD PENETRATION	3/8"	68" SPAN	16	13	9	16	13	7	14	9	6	12	6	6
		88" SPAN	14	11	7	12	6	5	11	4	5	9	3	4
		105" SPAN	12	6	6	10	4	5						
		124" SPAN	10	4	5									
WOOD LAGS 1" MINIMUM TREAD PENETRATION	7/16	68" SPAN	16	13	9	16	13	8	15	10	7	14	7	6
		88" SPAN	16	13	7	14	6	6	12	4	5	11	3	5
		105" SPAN	14	6	6	11	4	5						
		124" SPAN	11	4	5									
1/4" ELCO PANEL MATES 1 7/8" MIN. THREAD PENETRATION	1/4"	68" SPAN	14	13	6	12	12	5	10	6	4	9	4	4
		88" SPAN	11	8	4	9	4	4	8	3	3	7	2	3
		105" SPAN	9	4	4	7	3	3						
		124" SPAN	7	3	3									
1/4" ELCO PANEL MATES 1 7/8" MIN. THREAD PENETRATION	1/4"	68" SPAN	14	13	6	12	12	5	10	6	4	9	4	4
		88" SPAN	11	8	4	9	4	4	8	3	3	7	2	3
		105" SPAN	9	4	4	7	3	3						
		124" SPAN	7	3	3									
VERIOUS HEAD TYPES 1/4" MASONRY SCREWS 1 7/8" MIN. THREAD PENETRATION	1/4"	68" SPAN	14	13	6	12	12	5	10	6	4	9	4	4
		88" SPAN	11	8	4	9	4	4	8	3	3	7	2	3
		105" SPAN	9	4	4	7	3	3						
		124" SPAN	7	3	3									

NOTES:

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WHEN ANCHORING TO WOOD, THE WOOD MUST BE A MINIMUM 2 X 4 EQUAL TO #2 SOUTHERN PINE 0.55 SPECIFIC GRAVITY AND STRUCTURALLY PART OF THE FRAMING STRUCTURE OR SUCURELY ATTACHED TO FRAMING STRUCTURE

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