

PRODUCT APPROVAL FOR ALUMINUM STANDS FOR ROOF TOP EQUIPMENT

- 1- THIS EQUIPMENT UNIT STAND SYSTEM SHOWN ON THIS PRODUCT EVALUATION DOCUMENT (P.E.D) HAS BEEN VERIFIED FOR CODE COMPLIANCE IN ACCORDANCE WITH THE 2023 (8th EDITION) OF THE FLORIDA BUILDING CODE, FOR USE WITHIN THE HIGH VELOCITY HURRICANE ZONE (HVHZ) AND OUT OF IT. DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED SEPARATELY ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE USING ASD METHODOLOGY, IN ACCORDANCE WITH ASCE 7-22 AND SECTIONS 1616.1, 1620.1, 1620.6 & 1609 OF THE FLORIDA BUILDING CODE, AND SHALL BE LESS THAN OR EQUAL TO THE LATERAL AND UPLIFT DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN.
- 2- THE ARCHITECT/ENGINEER OF RECORD FOR THE EXISTING STRUCTURE THAT WILL SUPPORT THESE ALUMINUM STANDS SHALL BE RESPONSIBLE FOR ITS INTEGRITY AND SHALL VERIFY THE ADEQUACY OF THE EXISTING STRUCTURE TO WITHSTAND THE SUPERIMPOSED LOADS (ASD) - REF "REACTION SCHEDULE" INDICATED ON SHEET 6, WHERE REACTION FORCES ARE LISTED FOR USE WITH EXISTING STRUCTURE. DESIGN PROFESSIONAL OF RECORD SHALL VERIFY APPLICABILITY AND/OR ADDITIONAL FACTORS FOR USE WITH EXISTING STRUCTURE VERIFICATION.
- 3- STAND SHALL BE INSTALLED WITH MINIMUM CLEAR HEIGHT AS SPECIFIED IN THE ABOVE-NOTED BUILDING CODE. "STAND HEIGHT" AS USED HEREIN IS NOT NECESSARILY EQUIVALENT TO "STAND CLEAR HEIGHT" AS SPECIFIED IN THE BLDG CODE. STANDS SHALL BE INSTALLED WITH A MINIMUM CLEAR HEIGHT IN ACCORDANCE WITH SECTIONS 1522 & 1510 TABLES 1522.3 & 1510.10 OF THE FLORIDA BUILDING CODE, APPLICABLE TO HIGH VELOCITY HURRICANE ZONE & ZONES OUT OF IT, RESPECTIVELY.
- 4- VIBRATION ISOLATOR PADS SHALL BE PROVIDED BY OTHERS BETWEEN UNITS & STAND.
- 5- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT FASTENING AS SHOWN HEREIN WILL NOT VOID THE EQUIPMENT MANUFACTURER'S WARRANTY, ESPECIALLY WHERE UNITS ARE INSTALLED WITH OVERHANG PAST RAIL (SEE TIE-DOWN DETAILS). STRUCTURAL ADEQUACY OF EQUIPMENT FOR WIND RESISTANCE IS NOT PART OF THIS APPROVAL AND MUST BE VERIFIED SEPARATELY.
- 6- ELECTRICAL GROUND , WHEN REQUIRED , TO BE DESIGNED & INSTALLED BY OTHERS. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE AS PER MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
- 7- MAXIMUM DIMENSIONS AND WEIGHT OF MECHANICAL UNITS SHALL CONFORM TO SPECIFICATIONS STATED HEREIN, SEE SHEETS 5 AND 7 THRU 10 FOR LIMITATIONS.
- 8- ALL SCREWS & BOLTS SHALL BE AS SPECIFIED ON THIS DRAWING, AND SHALL COMPLY WITH SECTION 2411.3.3.4 OF THE FLORIDA BUILDING CODE.
- 9- ALL ALUMINUM EXTRUSIONS SHALL BE 6061-T6 ALLOY & TEMPER, UNLESS NOTED OTHERWISE.WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D 1.2 REQUIREMENTS, USING 5356 FILLER ALLOYS.
- 10- ALL EXISTING CONCRETE SUBSTRATE SHALL HAVE MINIMUM f_c COMPRESSIVE STRENGTH OF 3000 PSI AS VERIFIED BY OTHERS.
- 11- ALL ALUMINUM EXTRUSIONS IN CONTACT WITH DISSIMILAR MATERIALS SHALL COMPLY WITH SECTION III-6 OF THE 2020 ALUMINUM DESIGN MANUAL.
- 12- ENGINEER SEAL AFFIXED HERETO VALIDATE STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED ON THIS DOCUMENT.
- 13- WATER-TIGHTNESS OF EXISTING HOST SUBSTRATE SHALL BE THE FULL RESPONSIBILITY OF THE INSTALLING CONTRACTOR. CONTRACTOR SHALL ENSURE THAT ANY REMOVED OR ALTERED WATERPROOFING MEMBRANE IS RESTORED AFTER FABRICATION AND INSTALLATION OF STRUCTURE PROPOSED HEREIN. THIS ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY WATERPROOFING OR LEAKAGE ISSUES WHICH WAY OCCUR AS WATER-TIGHTNESS SHALL BE THE FULL RESPONSIBILITY OF THE INSTALLING CONTRACTOR.

THIS DRAWING SHALL ONLY BE USED TO
OBTAIN PERMITS IN THE STATE OF FLORIDA

- 14- (a) THIS P.E.D. (PRODUCT EVALUATION DOCUMENT) 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.E.D.
- (b) CONTRACTOR TO BE RESPONSIBLE FOR THE SELECTION, PURCHASE AND INSTALLATION INCLUDING LIFE SAFETY OF THIS PRODUCT, BASED ON THIS P.E.D., PROVIDED HE/SHE DOES NOT DEVIATE FROM THE CONDITIONS DETAILED ON THIS DOCUMENT. CONSTRUCTION SAFETY AT SITE IS THE CONTRACTOR'S RESPONSIBILITY.
- (c) THIS P.E.D. WILL BE CONSIDERED INVALID IF ALTERED BY ANY MEANS.
- (d) SITE SPECIFIC PROJECTS SHALL BE PREPARED BY A FLORIDA REGISTERED ENGINEER OR ARCHITECT WHICH WILL BECOME THE ENGINEER OF RECORD (E.O.R.) FOR THE PROJECT AND WHO WILL BE RESPONSIBLE FOR THE PROPER USE OF THE P.E.D.
- (e) ORIGINAL P.E.D. SHALL BEAR THE DATE AND ORIGINAL SEAL AND SIGNATURE OF THE PROFESSIONAL ENGINEER OF RECORD THAT PREPARED IT.
- 15- PRODUCT MANUFACTURER'S LABEL SHALL BE PLACED ON AN EXPOSED SURFACE OF STAND, INCLUDING MANUFACTURER'S NAME, CITY WHERE LOCATED AND THE FLORIDA PRODUCT APPROVAL NUMBER.

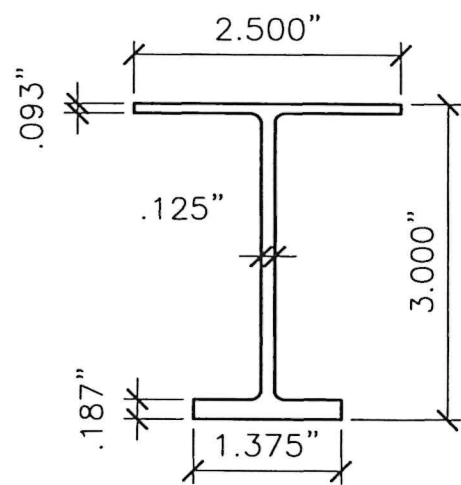
SHEET #	INDEX
	DESCRIPTION
1	GENERAL NOTES AND INDEX
2	BILL OF MATERIALS AND COMPONENTS
3	ASSEMBLY DETAILS FOR STANDS
4	STAND ASSEMBLY DETAILS (CONTINUED)
5	SCHEDULE NOTES/ANCHOR SCHEDULE/REACTION SCHEDULE
6	EQUIPMENT UNIT TIE DOWN TO RAILS STANDS
7	SCHEDULE FOR MAX. PRESSURE $DS \geq 20"$ UP TO $36"$; $HU=24",28",32"$; $HS=18",24"$ & $30"$
8	SCHEDULE FOR MAX. PRESSURE RATING W/ $DS \geq 20"$ UP TO $36"$; $HU=36"$; $HS=18",24"$ & $30"$
9	SCHEDULE FOR MAX. PRESSURE $DS \geq 20"$ UP TO $36"$; $HU=42"$; $HS=18",24"$ & $30"$
10	SCHEDULE FOR MAX. PRESSURE $DS \geq 20"$ UP TO $36"$; $HU=48"$; $HS=18",24"$ & $30"$

DRAWN BY: Y.M.		DATE 07/7/23		23-080 DRAWING No		SHEET 1 OF 10	
FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)				ALUMINUM STANDS FOR ROOF TOP EQUIPMENT			
F&L ALUMINUM PARTS, INC. 2087 N. POWERLINE RD. SUITE #1 POMPANO BEACH, FL. 33069				DATE 17/02/23			
REV No				DESCRIPTION			
1				OLD 24-26			
© 2023 TILTECO INC.				TILTECO INC. TILLIT TESTING & ENGINEERING COMPANY 6335 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33186 Phone : (305)871-1330 • Fax : (305)871-1331 e-mail: tilteco@ttilco.com CA-0006719 WALTER A. TILLIT JR., P.E. FLORIDA Lic. # 44167			
WALTER A. TILLIT JR. LICENSE No. 44167 STATE OF FLORIDA PROFESSIONAL ENGINEER				P.E. SEAL/SIGNATURE/DATE 2023/7/2023			

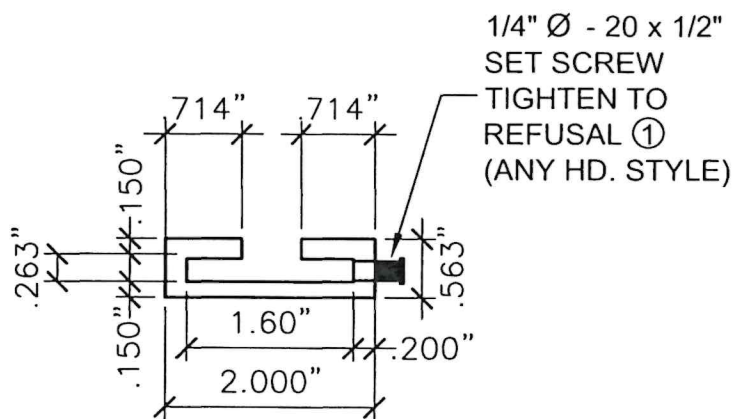
BILL OF MATERIALS:

COMPONENT No.	DESCRIPTION	DIMENSIONS	MATERIAL	MANUFACTURER	NOTES
①	RAIL (I-BEAM)	2.50" X 1.375" X 3"	6061-T6 ALLOY	-	SUPPORT FOR ROOF TOP EQUIPMENT FIT AND ADJUSTED INTO ③
②A	LARGE STRUT TUBING	1.50" X 1.50" X 0.093"	6061-T6 ALLOY	-	WIND BRACING COMPONENT WELDED TO ④ & BOLTED TO ②B
②B	SMALL STRUT TUBING	1.25" X 1.25" X 0.125"	6061-T6 ALLOY	-	WIND BRACING COMPONENT WELDED TO ④ & BOLTED TO ②A
③	TOP CHANNEL	2.00" X 0.563" X 0'-2 1/2"	6061-T6 ALLOY	-	WELDED TO TOP OF ④ TO RECEIVE ①
④	POST	1.75" X 0.125" THK.	6061-T6 ALLOY	-	WELDED TO ⑤, ②A, ②B & ③
⑤	BASE PLATE	5" X 5" X 1/4"	6061-T6 ALLOY	-	WELDED TO ④ & ANCHORED TO EXISTING STRUCTURE (SEE SHEET 5 FOR SPECS.)

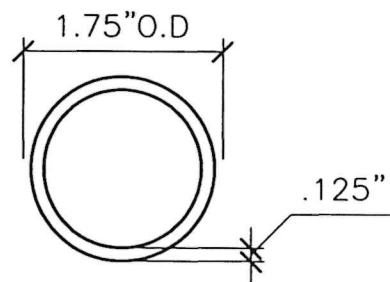
COMPONENTS



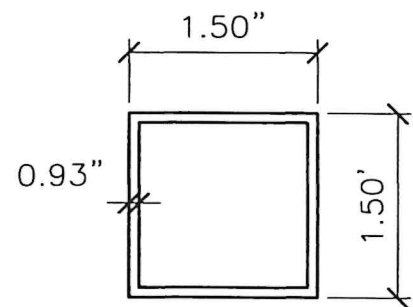
① RAIL (I-BEAM)
1/2"= 0'- 1"



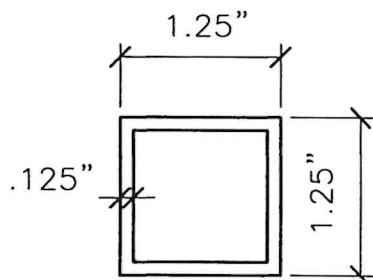
③ TOP CHANNEL (2.50" LONG)
1/2"= 0'- 1"



④ POST
1/2"= 0'- 1"

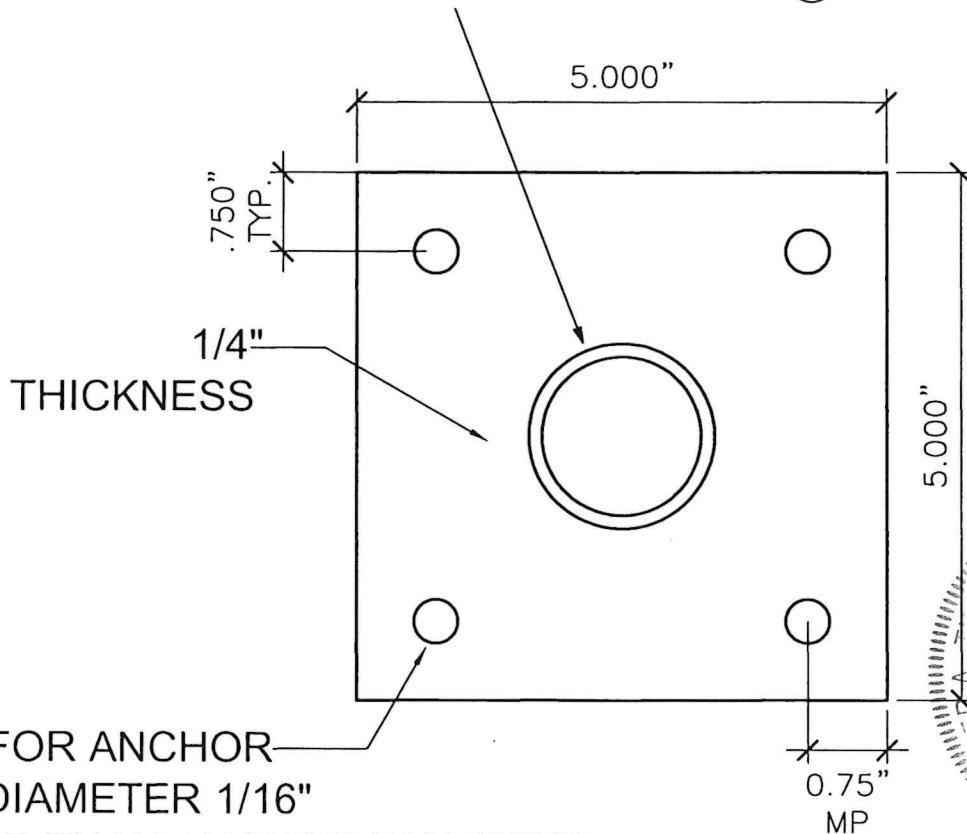


②A LARGE STRUT TUBING
1/2"= 0'- 1"



②B SMALL STRUT TUBING
1/2"= 0'- 1"

POST ④ LOCATION
(CENTERED) W/ OPTIONAL 1.75"
DIAM HOLE AT CENTER TO FIT ④



⑤ BASE PLATE
3/8"= 0'- 1"

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)		DRAWN BY: Y.M.		DATE	
ALUMINUM STANDS FOR ROOF TOP EQUIPMENT		07/7/23		23-080	
F&L ALUMINUM PARTS, INC.		2087 N. POWERLINE RD. SUITE #1 POMPANO BEACH, FL 33069		DRAWING No	
REV No	DESCRIPTION	DATE	REV No	DESCRIPTION	DATE
1	010 24-26	7/7/2023			

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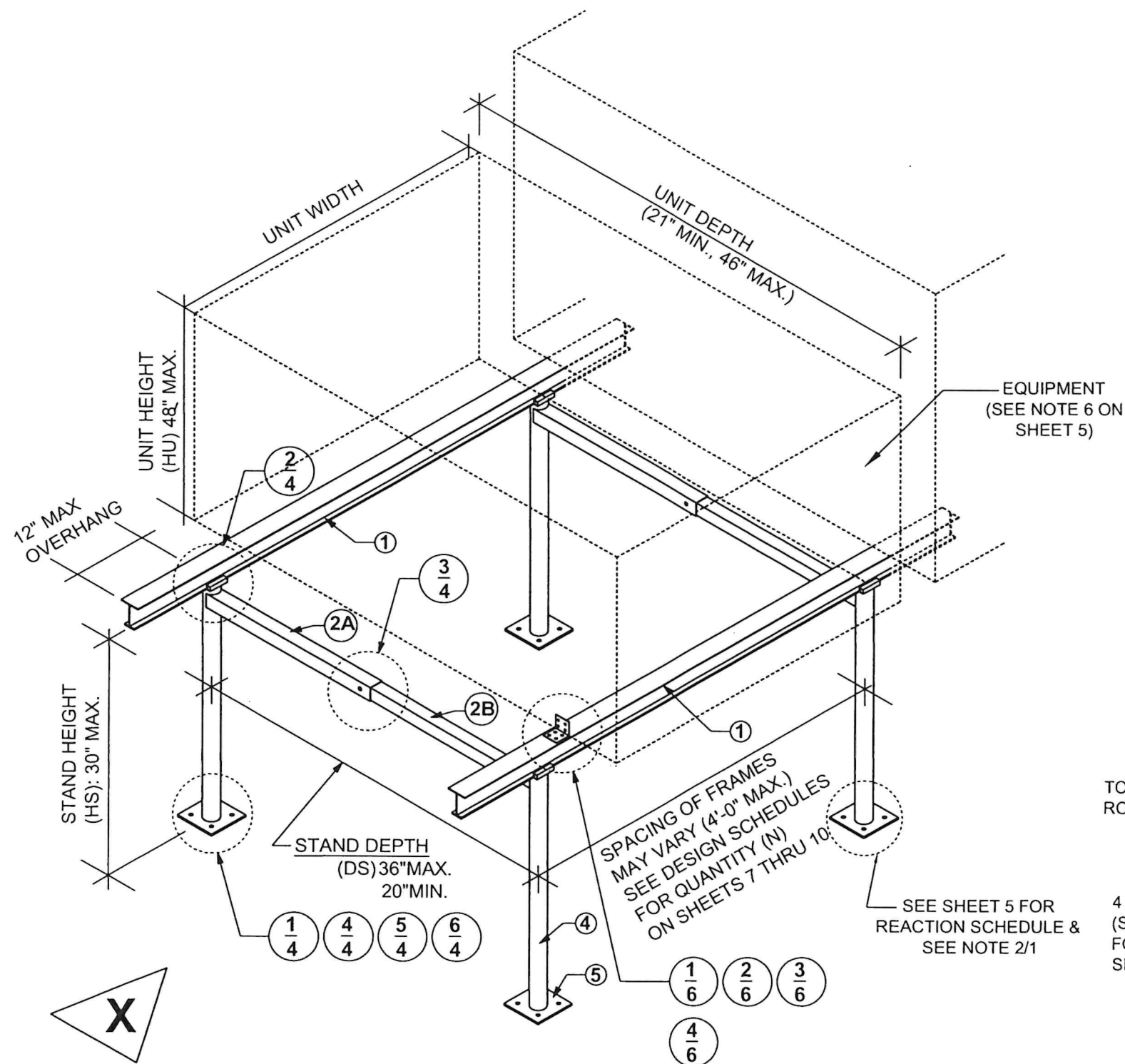
LICENSE No. 44167

STATE OF FLORIDA

PROFESSIONAL ENGINEER

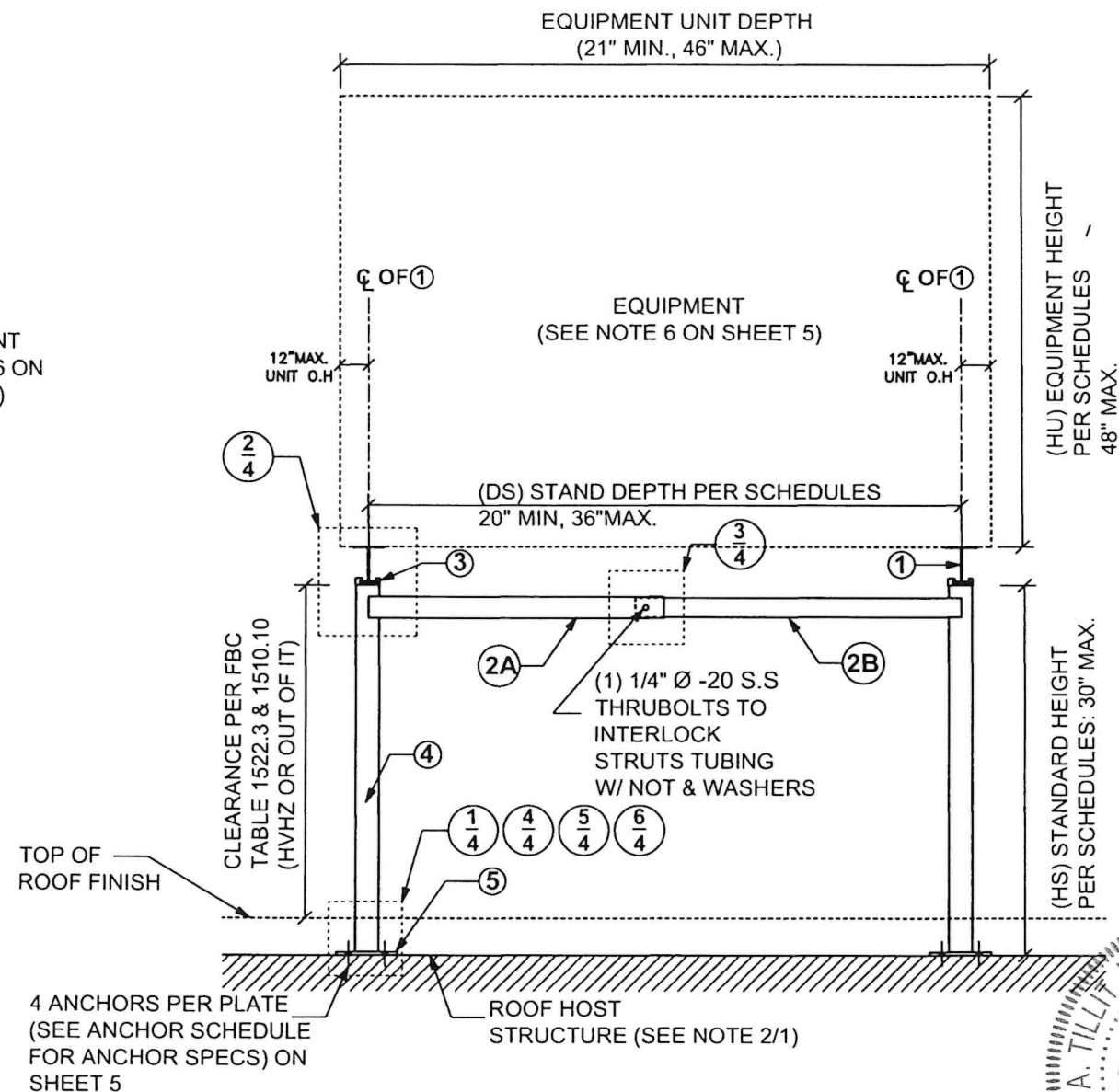
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ASSEMBLY FOR STANDS

SCALE: N.T.S



ELEVATION X

SCALE: 1/16"= 0'-1"

DRAWN BY: Y.M.		DATE 07/7/23	
23-080		DRAWING NO	
SHEET 3 OF 10			

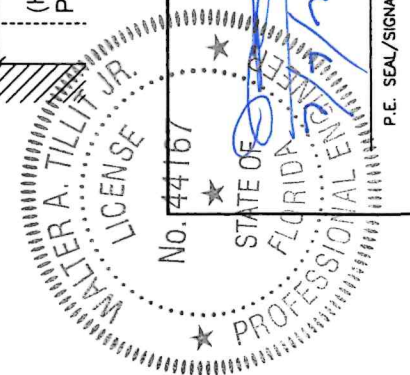
FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

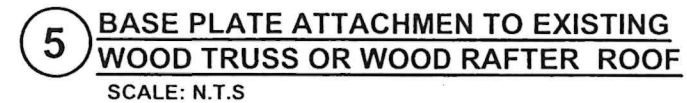
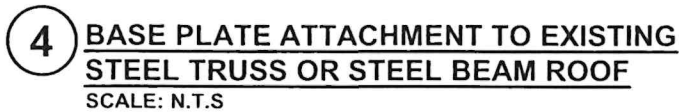
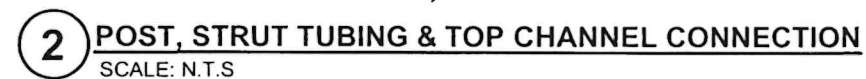
ALUMINUM STANDS FOR ROOF
TOP EQUIPMENT

F&L ALUMINUM PARTS, INC.
2087 N. POWERLINE RD. SUITE #1
POMPANO BEACH, FL 33069

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FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

ALUMINUM STANDS FOR ROOF
TOP EQUIPMENT

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2087 N. POWERLINE RD. SUITE #1
CORONA BEACH, CA 92659

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No. 44167

STATE OF FLORIDA
PROFESSIONAL ENGINEER

P.I.E. SEAL/SIGNATURE/DATE

TYPICAL ASSEMBLY AND POST ATTACHMENT DETAILS FOR STANDS

NOTES APPLICABLE TO SCHEDULES ON SHEETS 7 THRU 10

1. SCHEDULES ON SHEETS 7 THRU 10 PROVIDE MAXIMUM A.S.D LATERAL & UPLIFT WIND LOADS FOR EACH COMBINATION OF TOTAL UNIT FRONTAL AREA (AF), STAND DEPTH (DS), EQUIPMENT HEIGHT(HU), STAND HEIGHT (HS) AND NUMBER OF POST FRAMES (N) PER STAND.
2. TOTAL FRONTAL AREA IS TOTAL AREA OF EQUIPMENT UNIT FACE PARALLEL TO RAIL① (EQUAL TO TOTAL SUM OF UNIT HEIGHT (IN) x UNIT WIDTH (IN) FOR ALL UNITS ON STAND), AS DEPICTED HEREIN.
3. UNIT HEIGHT (HU) INCHES INCLUDED IN SCHEDULE SHALL BE DEFINED AS FOLLOWS: AVERAGE HEIGHT OF ALL UNITS IF THE DIFFERENCE IN HEIGHT BETWEEN TWO ADJACENT UNITS DOES NOT EXCEED 8", OR MAX UNIT HEIGHT OF INSTALLATION IF THE ABOVE CONDITION IS NOT COMPLIED WITH. MAX. UNIT HEIGHT IS 48"
4. STAND HEIGHT (HS), INCHES, IS AS DEPICTED HEREIN, MEASURE FROM HOST STRUCTURE TO BOTTOM OF RAIL①
5. "FRAMES" HERE DENOTES ASSEMBLAGE OF 2 POSTS ④ WITH STRUTS ②A, ②B. PERPENDICULAR TO RAILS①
6. EACH EQUIPMENT UNIT SHALL HAVE A MAXIMUM WEIGHT OF 500 lbs & A MIN.WEIGHT OF 75 LBS. SEE GENERAL NOTE 5 ON SHEET 1
7. SPACING OR CLEARANCE BETWEEN UNITS MAY VARY, BASED ON UNITS MANUFACTURER SPECS.
8. REFERENCE ANCHOR SCHEDULE BELOW FOR ALLOWABLE ANCHORS AND INSTALLATION CRITERIA, BASED ON SUBSTRATE AT ROOF.
9. EQUIPMENT UNITS SHALL BE ATTACHED TO RAILS ① PER UNIT CONNECTION DETAILS ON SHEET 6. AND AS PER ACCOMPANYING NOTES BASED ON MANUFACTURER'S SPECS.

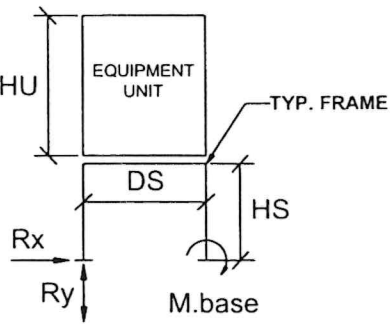
ANCHORS SCHEDULE

SUBSTRATE											
CONCRETE △				STEEL △				WOOD △			
MANUFACTURER	DIAMETER	MIN. E.D	MIN. EMBD'T	MANUFACTURER	DIAMETER	MIN. E.D	MIN. EMBD'T	MANUFACTURER	DIAMETER	MIN. E.D	MIN. EMBD'T
DEWALT	3/8"	5"	2"	DEWALT	5/16"-24	5/8"	FULL THREAD ENGAGEMENT	N/A	3/8"	1 1/2"	3 1/2"
SCREW BOLT				HEX WASHER HEAD DRILL FLEX STRUCTURAL DRILL SCREWS				NDS LAG SCREWS			

- △ NOTES: 1 - CONCRETE TO BE MIN f'c = 3 KSI
2 - STEEL TO BE MIN ASTM A-36, 1/4" MIN THICK.
3 - WOOD TO BE G=0.55 SOUTHERN YELLOW PINE # 2,
MINIMUM 4" THICK.

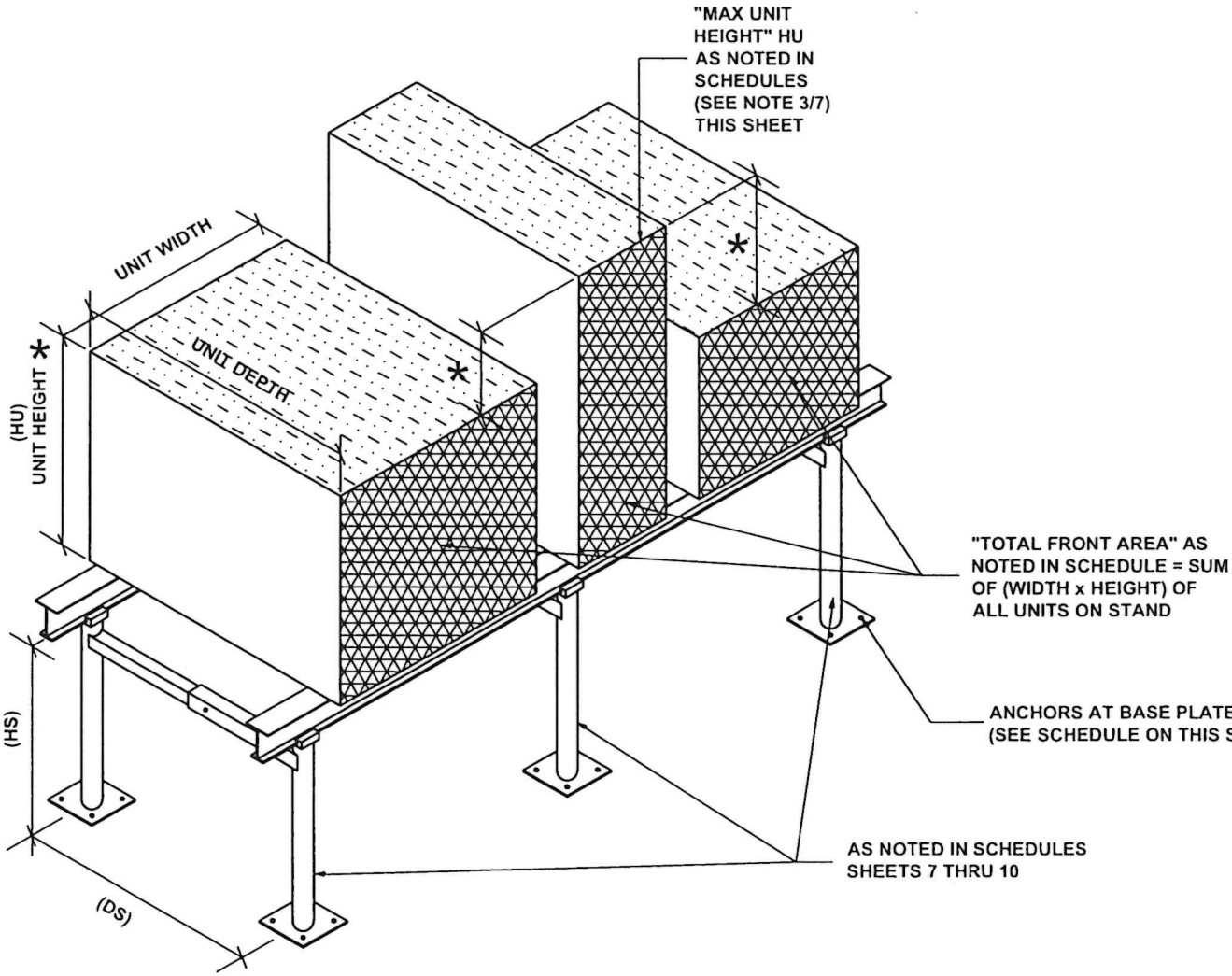
**REACTION SCHEDULE: SEE NOTE 2/1

REACTION AT BASE Rx	REACTION AT BASE Ry	REACTION AT BASE M.base
300 LB	600 LB	3.5 K-IN



SIDE VIEW

** REACTIONS CORRESPOND TO THE WORST CASE FORCE APPLIED AT BASE PLATE FOR ANY COMBINATION OF DS OF HU FOR AN HS DIMENSION



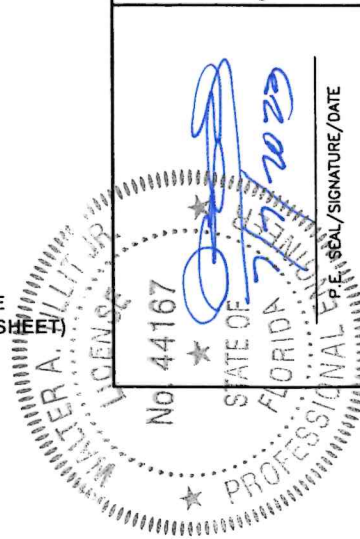
UNIT SIZES & CONFIGURATION (FOR USE WITH DESIGN SCHEDULES)

SCALE: 1/4" = 1'-0" ISOMETRIC

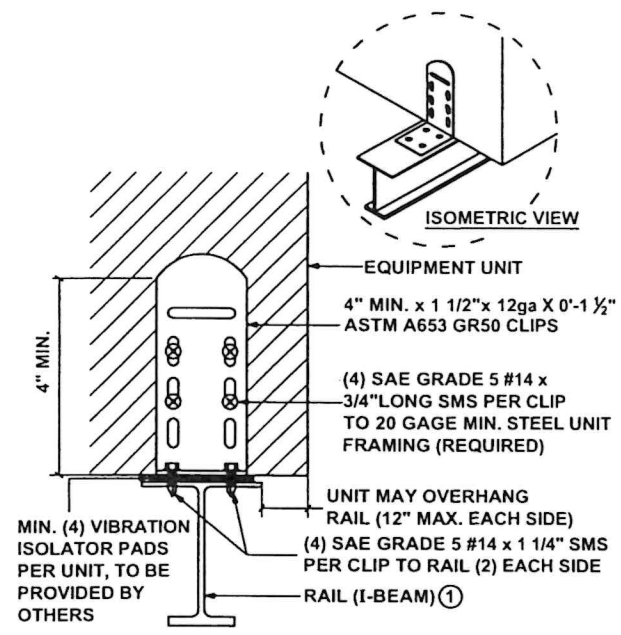
* SEE NOTE 3 THIS SHEET

DRAWN BY: Y.M.		DATE 07/7/23		DRAWING No 23-080		SHEET 5 OF 10	
ALUMINUM STANDS FOR ROOF TOP EQUIPMENT		F&L ALUMINUM PARTS, INC. 2087 N. POWERLINE RD. SUITE #1 POMPANO BEACH, FL 33069		DESCRIPTION OLD 23-06		DATE 17/02/23	

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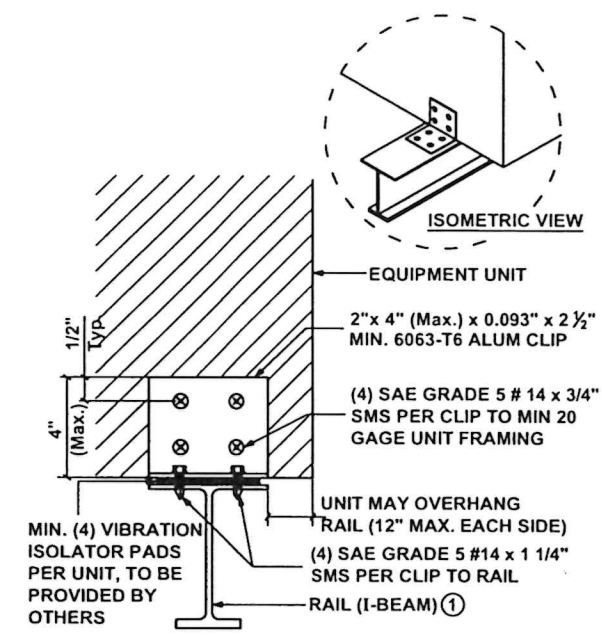


GENERIC * EQUIPMENT UNIT ANCHORAGE TO RAIL ①:
*SEE NOTES BELOW FOR ADDITIONAL GUIDELINES FOR TIE DOWN OF EQUIPMENT TO STANDS



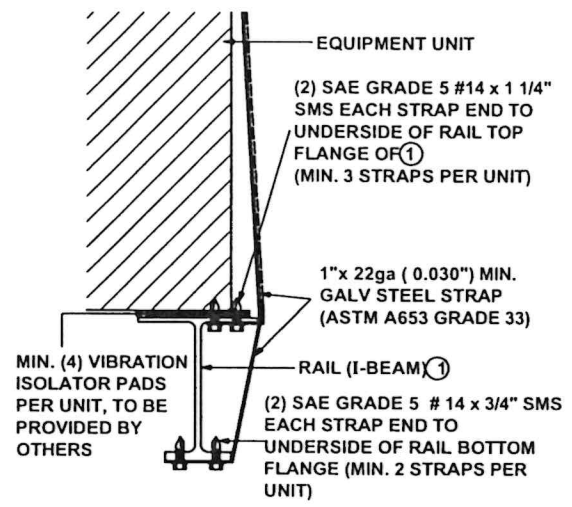
TYPICAL CONNECTION:
-MINIMUM (4) PER UNIT-

1 CLIPPED UNIT CONNECTION
SCALE: N.T.S ELEVATION



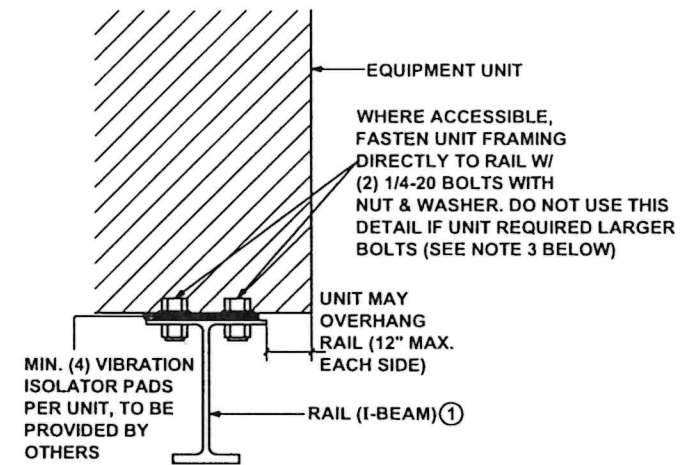
TYPICAL CONNECTION:
-MINIMUM (4) PER UNIT-

2 CLIPPED UNIT CONNECTION
SCALE: N.T.S ELEVATION



TYPICAL CONNECTION:
-MINIMUM (4) PER UNIT-

3 STRAPPED UNIT CONNECTION
SCALE: N.T.S ELEVATION



TYPICAL CONNECTION:
-MINIMUM (4) PER UNIT-

4 DIRECT UNIT CONNECTION
SCALE: N.T.S ELEVATION

ADDITIONAL NOTES WITH GUIDELINES AND REFERENCES FOR PERFORMING UNIT'S TIE DOWN TO STANDS:

- (1) IF EQUIPMENT TO BE INSTALLED IS MANUFACTURED BY CARRIER, USE THEIR TECHNICAL EVALUATION REPORT, AS ENGINEERED FOR TIE DOWN PROCEDURES.
- (2) IF EQUIPMENT TO BE INSTALLED IS MANUFACTURED BY RHEEM, USE THEIR NOA FOR TIE DOWN PROCEDURES.
- (3) FOR UNITS REQUIRED TIE DOWN BOLTS LARGER THAN 1/4 Ø. RAIL ① SHALL NOT BE USED. SPECIAL ENGINEERING WILL BE APPLICABLE IN THAT CASE.
- (4) ANY OTHER CASE OF TIE DOWN NOT ADDRESSED HERE SHALL BE MADE THRU SPECIAL ENGINEERING.

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

ALUMINUM STANDS FOR ROOF TOP EQUIPMENT

F&L ALUMINUM PARTS, INC.
2087 N. POWERLINE RD. SUITE #1
POMPAHO BEACH, FL 33069

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TILTECO INC.
No. 44167
STATE OF FLORIDA
PROFESSIONAL ENGINEER
P.E. SEAL/SIGNATURE/DATE

2/15/2023

DRAWN BY:
Y.M.
07/7/23

DATE

23-080
DRAWING No

SHEET 6 OF 10

ASD DESIGN LATERAL (WL) & UPLIFT (WU) PRESSURE RATING (psf) SCHEDULE GIVEN A STAND WITH STAND'S DEPTH (DS), TOTAL EQUIPMENT UNIT FRONT AREA (AF), EQUIPMENT UNIT HEIGHT (HU), STAND HEIGHT (HS) AND NUMBER OF REQUIRED FRAMES (N)

DS ≥20"
MAX
UP TO 36"

AF MAX (IN ²)	HU MAX (IN)	HS MAX (IN)	N = 2		N = 3		N = 4		N = 5		N = 6		N = 7	
			WL	WU	WL	WU	WL	WU	WL	WU	WL	WU	WL	WU
576	24	18	200	158	200	158	200	158	200	158	200	158	200	158
		24	185.5	146.4	200	158	200	158	200	158	200	158	200	158
		30	148.4	117.1	200	158	200	158	200	158	200	158	200	158
864	28	18	149.4	117.9	170.7	134.7	200	158	200	158	200	158	200	158
		24	123.6	97.6	170.7	134.7	200	158	200	158	200	158	200	158
		30	98.9	78.1	148.4	117.1	197.8	156.2	200	158	200	158	200	158
1152	30	18	114.8	90.7	134.5	106.2	193.5	152.8	200	158	200	158	200	158
		24	92.7	73.2	134.5	106.2	185.5	146.4	200	158	200	158	200	158
		30	74.2	58.6	111.3	87.9	148.4	117.1	185.5	146.4	200	158	200	158
1440	32	18	91.9	72.5	107.6	85.0	154.8	122.2	201.4	159.0	200	158	200	158
		24	74.2	58.6	107.6	85.0	148.4	117.1	185.5	146.4	200	158	200	158
		30	59.3	46.9	89.0	70.3	118.7	93.7	148.4	117.1	178.0	140.6	200	158
1728	32	18	76.6	60.5	89.7	70.8	129.0	101.9	167.9	132.5	206.5	163.0	200	158
		24	61.8	48.8	89.7	70.8	123.6	97.6	154.5	122.0	185.5	146.4	200	158
		30	49.5	39.0	74.2	58.6	98.1	78.1	123.6	97.6	148.6	117.1	173.1	136.7
2304	32	18	57.4	45.3	67.3	53.1	96.8	76.4	125.9	99.4	154.9	122.3	183.8	145.1
		24	46.4	36.6	67.3	53.1	92.7	73.2	115.9	91.5	139.1	109.8	162.3	128.1
		30			55.6	43.9	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
2880	32	18	45.9	36.3	53.8	42.5	77.4	61.4	100.7	79.5	123.9	97.8	147.0	116.1
		24			53.8	42.5	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
		30			44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
3600	32	18			43.1	34.0	61.9	48.9	80.6	63.6	99.1	78.3	117.6	92.9
		24			43.1	34.0	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
		30					47.5	37.5	59.3	46.9	71.2	56.2	83.1	65.6
4320	32	18					51.6	40.7	67.2	53.0	82.6	65.2	98.0	77.4
		24					49.5	39.0	61.8	48.8	74.2	58.6	86.5	68.3
		30							49.5	39.0	59.3	49.9	69.2	54.7
5184	32	18					43.0	34.0	56.0	44.2	68.8	54.4	81.7	64.5
		24							51.5	40.7	61.8	48.8	72.1	56.9
		30									49.5	39.0	57.7	45.6
5760	32	18							50.4	39.8	62.0	48.9	73.5	58.0
		24							46.4	36.6	55.6	43.9	64.9	51.2
		30									44.5	35.1	51.9	41.0

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

DRAWN BY:
Y.M.
07/7/23

DATE

23-080
DRAWING NO

SHEET 7 OF 10

ALUMINUM STANDS FOR ROOF
TOP EQUIPMENT

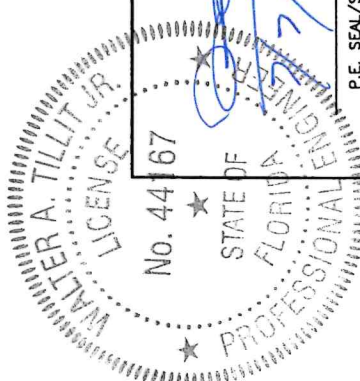
F&L ALUMINUM PARTS, INC.
2087 N. POWERLINE RD. SUITE #1
POMPANO BEACH, FL 33069

REV. NO. 1
DATE 1/1/2023
DESCRIPTION OLD 23-05

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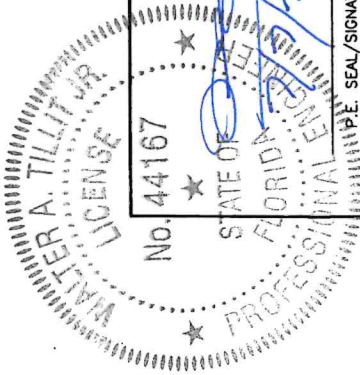
TILLIT TESTING & ENGINEERING COMPANY
6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL 33166
Phone : (305)971-1530 Fax : (305)971-1531
e-mail: tilteco@aol.com
CA-0006719
WALTER A. TILLIT JR., P.E.
FLORIDA LIC. # 44167



P.E. SEAL/SIGNATURE/DATE

ASD DESIGN LATERAL (WL) & UPLIFT (WU) PRESSURE RATING (psf) SCHEDULE GIVEN A STAND WITH STAND'S DEPTH (DS), TOTAL EQUIPMENT UNIT FRONT AREA (AF), EQUIPMENT UNIT HEIGHT (HU), STAND HEIGHT (HS) AND NUMBER OF REQUIRED FRAMES (N)

DS ≥20" MAX UP TO 36"		HS MAX (IN)	N = 2		N = 3		N = 4		N = 5		N = 6		N = 7	
			WL		WU		WL		WU		WL		WU	
			AF MAX (IN ²)	HU MAX (IN)										
1440	36	18	92.6	73.1	111.0	87.6	158.6	125.2	200	158	200	158	200	158
		24	74.2	58.6	111.0	87.6	148.4	117.1	185.5	146.4	200	158	200	158
		30	59.3	46.9	89.0	70.3	118.7	93.7	148.4	117.1	178.0	140.6	200	158
1728	36	18	77.1	60.9	92.5	73.0	132.1	104.3	171.3	135.3	210.3	166.0	200	158
		24	61.8	48.8	92.5	73.0	123.6	97.6	154.5	122.0	185.5	146.4	200	158
		30	49.5	39.0	74.2	58.6	98.9	78.1	123.6	97.6	148.4	117.1	173.1	136.7
2304	36	18	57.9	45.7	69.4	54.8	99.1	78.3	128.5	101.4	157.7	124.5	186.8	147.5
		24	46.4	36.6	69.4	54.8	92.7	73.2	115.9	91.5	139.1	109.8	162.3	128.1
		30			55.6	43.9	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
2880	36	18			55.5	43.8	79.3	62.6	102.8	81.2	126.2	99.6	149.5	118.0
		24			55.5	43.8	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
		30			44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
3600	36	18			44.4	35.0	63.4	50.1	82.2	64.9	100.9	79.7	119.6	94.4
		24			44.4	35.0	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
		30					47.5	37.5	59.3	46.9	71.2	56.2	83.1	65.6
4320	36	18					52.9	41.7	68.5	54.1	84.1	66.4	99.7	78.7
		24					49.5	39.0	61.8	48.8	74.2	58.6	86.5	68.3
		30					49.5	39.0	59.3	46.9	69.2	54.7		
5184	36	18					44.1	34.8	57.1	45.1	70.1	55.3	83.0	65.6
		24					41.2	32.5	51.5	40.7	61.8	48.8	72.1	56.9
		30							41.2	32.5	49.5	39.0	57.7	45.6
5760	36	18							51.4	40.6	63.1	49.8	74.7	59.0
		24							46.4	36.6	55.6	44.0	64.9	51.2
		30									44.5	35.1	51.9	41.0
6480	36	18							45.7	36.1	56.1	44.3	66.4	52.5
		24									49.5	39.0	57.7	45.6
		30											46.2	36.4
7700	36	18									47.2	37.3	55.9	44.1
		24									41.6	32.9	48.6	38.3
		30												



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CA-0006719
WALTER A. TILLIT JR. P.E.
FLORIDA Lic. # 44167

DRAWN BY: Y.M. 07/7/23		DATE	
ALUMINUM STANDS FOR ROOF TOP EQUIPMENT		F&L ALUMINUM PARTS, INC. 2087 N. POWERLINE RD. SUITE #1 POMPANO BEACH, FL. 33069	
23-080 DRAWING No		SHEET 8 OF 10	
REV No	DESCRIPTION	DATE	DESCRIPTION
1	010 21-08	17/03	

ASD DESIGN LATERAL (WL) & UPLIFT (WU) PRESSURE RATING (psf) SCHEDULE GIVEN A STAND WITH STAND'S DEPTH (DS), TOTAL EQUIPMENT UNIT FRONT AREA (AF), EQUIPMENT UNIT HEIGHT (HU), STAND HEIGHT (HS) AND NUMBER OF REQUIRED FRAMES (N)

AF MAX (IN ²)		HU MAX (IN)		HS MAX (IN)		N = 2		N = 3		N = 4		N = 5		N = 6		N = 7	
						WL	WU	WL	WU	WL	WU	WL	WU	WL	WU	WL	WU
1440	42	18				91.5	72.3	113.2	89.4	160.3	126.6	200	158	200	158	200	158
		24				74.2	58.6	111.3	87.9	148.4	117.1	185.5	146.4	200	158	200	158
		30				59.3	46.9	89.0	70.3	118.7	93.7	148.4	117.1	178.0	140.6	200	158
1728	42	18				76.3	60.2	94.3	74.5	133.6	105.5	172.4	136.1	200	158	200	158
		24				61.8	48.8	92.7	73.2	123.6	97.6	154.5	122.0	185.5	146.4	200	158
		30				49.5	39.0	74.2	58.6	98.9	78.1	123.6	97.6	148.4	117.1	173.1	136.7
2304	42	18				57.2	45.2	70.8	55.9	100.2	79.1	129.2	102.1	158.2	124.9	187.0	147.6
		24				46.4	36.6	69.5	54.9	92.7	73.2	115.9	91.5	139.1	109.8	162.3	128.1
		30						55.6	43.9	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
2880	42	18				45.8	36.1	56.6	44.7	80.2	63.3	103.4	81.7	126.5	99.9	149.6	118.1
		24						55.6	43.9	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5
		30						44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
3600	42	18						45.3	35.8	64.1	50.6	82.7	65.3	101.2	79.9	119.7	94.5
		24						44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0
		30								47.5	37.5	59.3	46.9	71.2	56.2	83.1	65.6
4320	42	18								53.4	42.2	68.9	54.4	84.4	66.6	99.7	78.7
		24								49.5	39.0	61.8	48.8	74.2	58.6	86.5	68.3
		30										49.5	39.0	59.3	46.9	69.2	54.7
5184	42	18								44.5	35.2	57.5	45.4	70.3	55.5	83.1	65.6
		24								41.2	32.5	51.5	40.7	61.8	48.8	72.1	56.9
		30										41.2	32.5	49.5	39.0	57.7	45.6
5760	42	18										51.7	40.8	63.3	50.0	74.8	59.1
		24										46.4	36.6	55.6	43.9	64.9	51.2
		30												44.5	35.1	51.9	41.0
6480	42	18										46.0	36.3	56.2	44.4	66.5	52.5
		24										41.2	32.5	49.5	39.0	57.7	45.6
		30														46.2	36.4
7700	42	18												47.3	37.4	56.0	44.2
		24												41.6	32.9	48.6	38.3
		30															
7920	42	18														54.4	42.9
		24														47.2	37.3
		30															

FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

ALUMINUM STANDS FOR ROOF
TOP EQUIPMENT

F&L ALUMINUM PARTS, INC.
2087 N. POWERLINE RD. SUITE #1
POMPANO BEACH, FL. 33069

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TILTECO INC.

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WALTER A. TILLIT JR. P.E.
FLORIDA Lic. # 44167

WALTER A. TILLIT JR.

STATE OF FLORIDA

PROFESSIONAL ENGINEER

No. 44167

DRAWN BY:
Y.M.

07/7/23

DATE

23-080

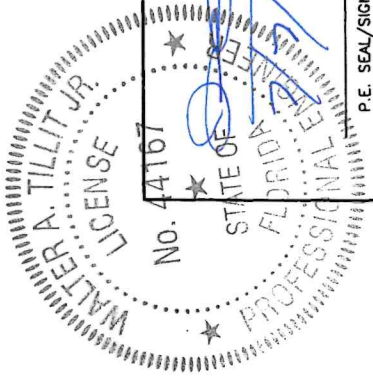
DRAWING No

SHEET 9 OF 10

ASD DESIGN LATERAL (WL) & UPLIFT (WU) PRESSURE RATING (psf) SCHEDULE GIVEN A STAND WITH STAND'S DEPTH (DS), TOTAL EQUIPMENT UNIT FRONT AREA (AF), EQUIPMENT UNIT HEIGHT (HU), STAND HEIGHT (HS) AND NUMBER OF REQUIRED FRAMES (N)

DS ≥20"
MAX
UP TO 36"

AF MAX (IN ²)	HU MAX (IN)	HS MAX (IN)	N = 2		N = 3		N = 4		N = 5		N = 6		N = 7		N = 8	
			WL	WU	WL	WU	WL	WU	WL	WU	WL	WU	WL	WU	WL	WU
1728	48	18	74.1	58.5	94.2	74.4	132.3	104.5	170.0	134.2	200	158	200	158	200	158
		24	61.8	48.8	92.7	73.2	123.6	97.6	154.5	122.0	185.5	146.4	200	158	200	158
		30	49.5	39.0	74.2	58.6	98.9	78.1	123.6	97.6	148.4	117.1	173.1	136.7	197.8	156.2
2304	48	18	55.6	43.9	70.6	55.8	99.2	78.4	127.5	100.7	155.6	122.8	183.6	144.9	200	158
		24	46.4	36.6	69.5	54.9	92.7	73.2	115.9	91.5	139.1	109.8	162.3	128.1	185.5	146.4
		30			55.6	43.9	74.2	58.6	92.7	73.2	111.3	87.9	129.8	102.5	148.4	117.1
2880	48	18	44.5	35.1	56.5	44.6	79.4	62.7	102.0	80.5	124.5	98.3	146.9	115.9	169.2	133.6
		24			55.6	43.9	74.2	58.7	92.7	73.2	111.7	87.9	129.8	102.5	148.4	117.1
		30			44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0	118.7	93.7
3600	48	18			45.2	35.7	63.5	50.1	81.6	64.4	99.6	78.6	117.5	92.8	135.4	106.9
		24			44.5	35.1	59.3	46.9	74.2	58.6	89.0	70.3	103.9	82.0	118.7	93.7
		30					47.5	37.5	59.3	46.9	71.2	56.2	83.1	65.6	95.0	75.0
4320	48	18					52.9	41.8	68.0	53.7	83.0	65.5	97.9	77.3	112.8	89.1
		24					49.5	39.0	61.8	48.8	74.2	58.6	86.5	68.3	98.9	78.1
		30							49.5	39.0	59.3	46.9	69.2	54.7	79.1	62.5
5184	48	18					44.1	34.8	56.7	44.7	69.1	54.6	81.6	64.4	94.0	74.2
		24							51.5	40.7	61.8	48.8	72.1	56.9	82.4	65.1
		30							41.2	32.5	49.5	39.0	57.7	45.6	65.9	52.1
5760	48	18							51.0	40.3	62.2	49.1	73.4	58.0	84.6	66.8
		24							46.4	36.6	55.6	43.9	64.9	51.2	74.2	58.6
		30									44.5	35.1	51.9	41.0	59.3	46.9
6480	48	18							45.3	35.8	55.3	43.7	65.3	51.5	75.2	59.4
		24									49.5	39.0	57.7	45.6	65.9	52.1
		30											46.2	36.4	52.8	41.7
7700	48	18									46.6	36.8	54.9	43.4	63.3	50.0
		24											48.6	38.3	55.5	43.8
		30													44.4	35.1
7920	48	18									45.3	35.7	53.4	42.2	61.5	48.6
		24											47.2	37.3	54.0	42.6
		30													43.2	34.1



FLORIDA BUILDING CODE (High & Non High Velocity Hurricane Zone)

ALUMINUM STANDS FOR ROOF
TOP EQUIPMENT

F&L ALUMINUM PARTS, INC.
2087 N. POWERLINE RD. SUITE #1
POMPANO BEACH, FL 33069

DATE
07/7/23

DATE
7/7/2023

23-080
DRAWING No

SHEET 10 OF 10

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7/2023

P.E. SEAL/SIGNATURE/DATE