

TIE DOWN INSTALLATION OF MECHANICAL CU UNITS INTO APPROVED STANDS OR INTO CONCRETE SLAB ON GRADE.

GENERAL NOTES:

1- INSTALLATION OF CU UNITS INTO APPROVED STANDS OR INTO CONCRETE SLAB ON GRADE HAVE BEEN VERIFIED IN ACCORDANCE WITH THE 2023 (8th EDITION) OF THE FLORIDA BUILDING CODE. DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM HAVE BEEN DETERMINED IN ACCORDANCE WITH ASCE 7-22 AND SECTIONS 1620.6 & 1616, 1604 OF THE 2023 (8th EDITION) OF THE FLORIDA BUILDING CODE. DESIGN BASED ON EQUIPMENT INFORMATION PROVIDED BY THE CONTRACTOR TO THIS OFFICE.

MAXIMUM ASD DESIGN WIND LOADS ALLOWED FOR THIS TIE DOWN INSTALLATION OF CU UNITS SHALL BE AS PER SHEET 9.

2-STAND SHALL BE INSTALLED AS PER APPROVAL DRAWINGS. (MIAMI DADE COUNTY NOA OR FLORIDA APPROVAL). STAND DESIGN NOT INCLUDED ON THIS APPROVAL.

3- VIBRATION ISOLATOR PADS IF APPLICABLE, PER UNIT MANUFACTURER SPECS SHALL BE PROVIDED BY OTHERS BETWEEN UNITS & STAND.

4- 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.

5- MAXIMUM DIMENSIONS AND WEIGHT OF MECHANICAL UNITS SHALL CONFORM TO SPECIFICATIONS STATED HEREIN. MINIMUM CU WEIGHT SHALL BE 100Lbs STRUCTURAL ADEQUACY OF EQUIPMENT FOR WIND RESISTANCE IS NOT INCLUDED ON THIS CERTIFICATION.

6- ALL BOLTS, SCREWS AND ANCHORS SHALL BE AS SPECIFIED ON THIS DRAWING, AND SHALL COMPLY WITH SECTION 2411.3.3.4 OF THE FLORIDA BUILDING CODE.

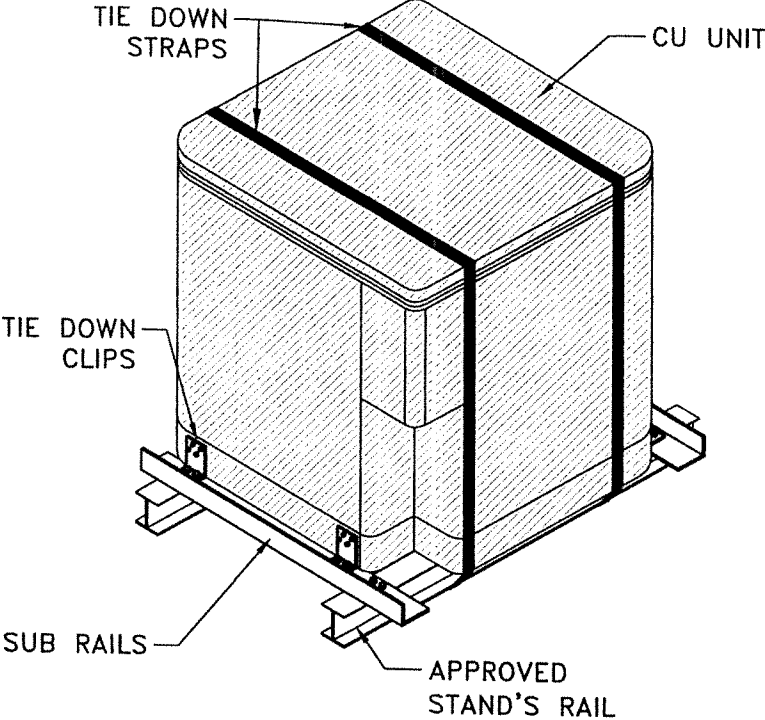
7- ALL ALUMINUM EXTRUSIONS SHALL BE MADE OF ALLOYS & TEMPER AS INDICATED ON THIS DRAWING.

8- ALL CONCRETE TO BE CONSTRUCTED IN ACCORDANCE WITH ACI 318-19.
4"THK CONCRETE SLAB ON GRADE IS BY OTHERS. MINIMUM $f'_c=3\text{Ksi}$ IS REQUIRED.

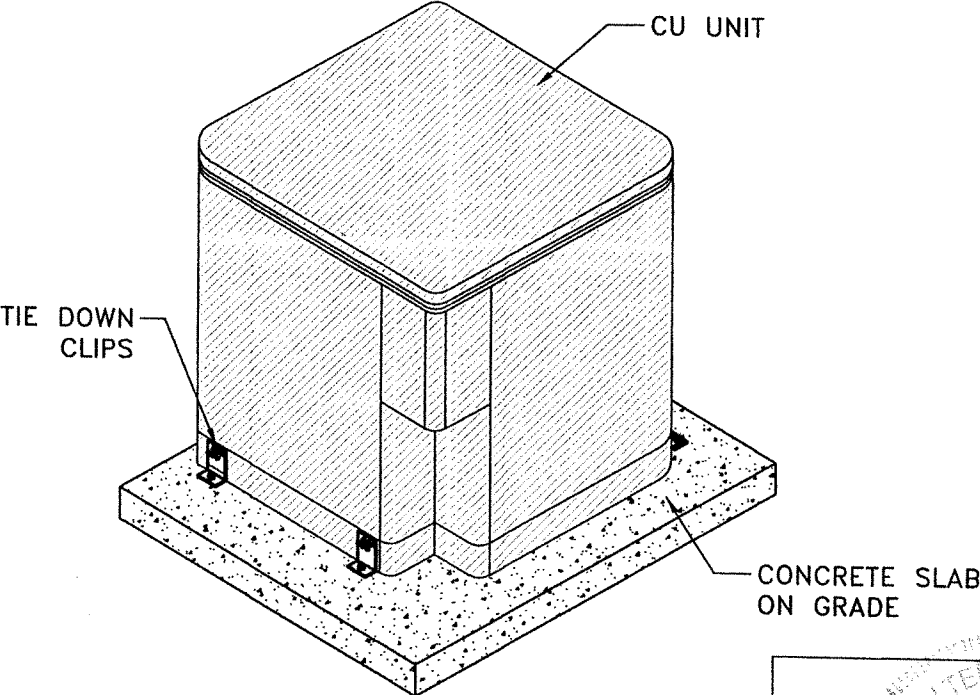
9- TIE DOWN SPECIFIED HEREIN IS FOR AN INDIVIDUAL CU UNIT, REPEAT AS NEEDED FOR MULTIPLE UNITS.

10- 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.

11- THIS ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION SAFETY AT SITE WHICH IS THE CONTRACTOR'S RESPONSIBILITY.

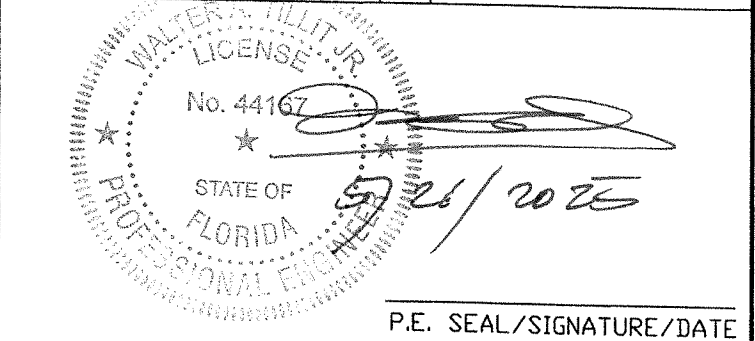


CASE I: MECHANICAL UNIT CU TIE DOWN TO APPROVED STAND



CASE II: MECHANICAL UNIT CU TIE DOWN TO CONCRETE SLAB ON GRADE

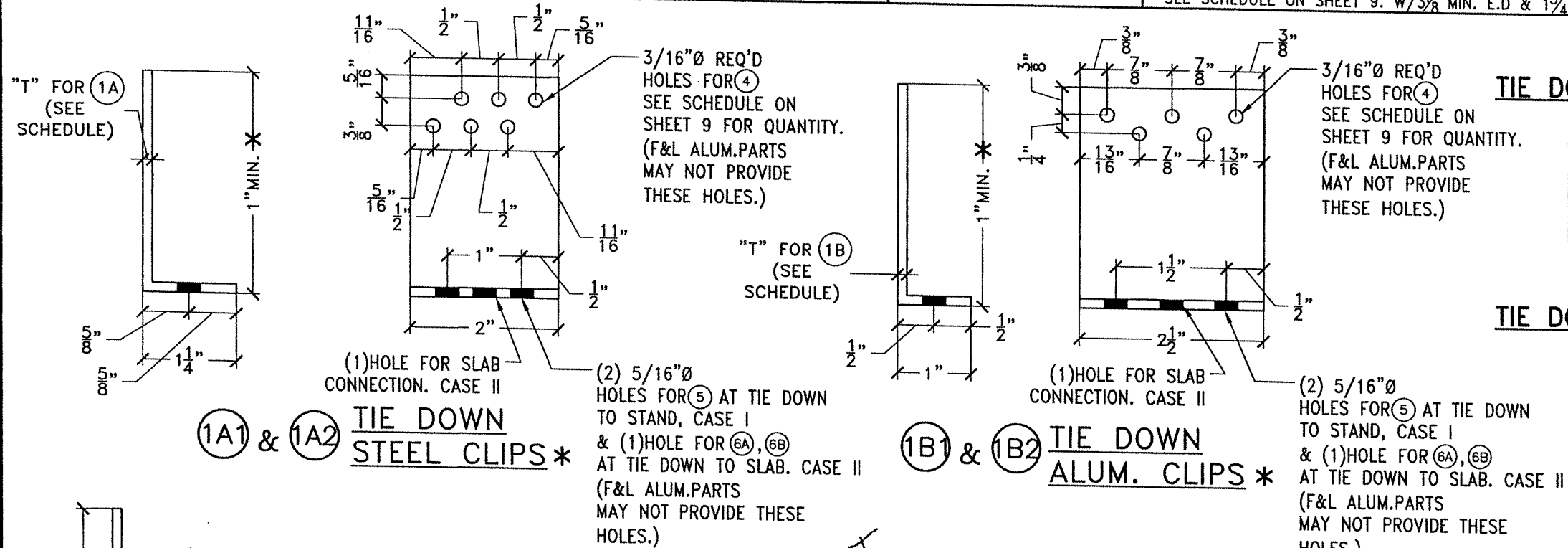
DRAWN BY: W.H		DATE 05/02/2025		DRAWING No 25-045		SHEET 1 OF 9	
TIE DOWN INSTALLATION OF MECHANICAL CU UNITS INTO APPROVED STANDS		F&L ALUMINUM PARTS, INC. 2087 N. POWERLINE RD. SUITE #1 POMPANO BEACH, FL. 33069		REV. No	DATE	DESCRIPTION	DATE
© 2025 TILTECO INC.		TILTECO INC.		1	-	-	-
TILLIT TESTING & ENGINEERING COMPANY 6355 N.W. 36th St., Ste. 305, VIRGINIA GARDENS, FL. 33166 Phone : (305)871-1530 . Fax : (305)871-1531 e-mail: tiltco@aol.com CA-0006719 WALTER A. TILLIT Jr., P.E. FLORIDA Lic. # 44167		TILTECO INC.		2	-	-	-



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BILL OF MATERIALS: VALID FOR CASES I & II INSTALLATION.

COMPONENT No.	DESCRIPTION	DIMENSIONS	MATERIAL	MANUFACTURER/DISTRIBUTOR	NOTES
1A	TIE DOWN STEEL CLIPS	SEE DETAIL.	ASTM A-653 GRADE 50 FU=90Ksi G-60 GALV.STL OR AISI 410-HT S.S W/Fu=90Ksi Fy=50Ksi.	F&L ALUMINUM PARTS.	SEE SCHEDULE ON SHEET 9 FOR QUANTITY REQ'D & SEE SCHEDULE ON THIS SHEET FOR 1A) & 1A2) THICKNESS.
1B	TIE DOWN ALUMINUM CLIPS	SEE DETAIL.	5052-H32 AT 1B) 6063-T5 AT 1B2)	F&L ALUMINUM PARTS.	SEE SCHEDULE ON SHEET 9 FOR QUANTITY REQ'D & SEE SCHEDULE ON THIS SHEET FOR 1B) & 1B2) THICKNESS.
2A	SUB RAIL	2"x3"x1/8"THK.	6063-T5 ALUMINUM ALLOY	EASTERN METAL SUPPLY OR EQUAL.	SEE SCHEDULE ON SHEET 9 FOR REQUIREMENTS.
2B	SUB RAIL	2"x3"x3/16"THK.	6061-T6 ALUMINUM ALLOY	EASTERN METAL SUPPLY OR EQUAL.	SEE SCHEDULE ON SHEET 9 FOR REQUIREMENTS.
3	TIE DOWN STRAP	1.00" x 0.030"	ASTM A-653 GRADE 33 G-60 GALV.STL Fy=33ksi Fu=45ksi	F&L ALUMINUM PARTS.	SEE SCHEDULE ON SHEET 9 FOR QUANTITY REQ'D
4	SCREW	#10 x 3/4"	AISI 401 SERIES S.S	ITW/BUILDEX	USE TO CONNECT TIE DOWN CLIPS 1A) OR 1B) TO CU. SEE SCHEDULE ON SHEET 9 FOR QUANTITY PER CLIP. CASES I & II
5	BOLT TO RAIL	1/4"Ø-20 x 3/4"W/NUT & 1"O.Dx0.050"thk WASHER.	AISI 304 OR 316 SERIES S.S	-	USE TO CONNECT TIE DOWN CLIPS 1A) OR 1B) TO SUB RAILS 2A) OR 2B) & TO CONNECT SUB RAILS TO STAND'S RAIL. CASE I
6A	ANCHOR TO SLAB	1/4"Ø ULTRACON	Fu=164Ksi Fy=148Ksi STALGARD COATED CARBON STEEL	DEWALT	USE TO CONNECT CLIPS 1A) OR 1B) TO SLAB W/ 5/16"Ø HOLE AT CASE II, SEE SCHEDULE ON SHEET 9. W/2 1/2"MIN. E.D & 1 3/4"MIN. EMBEDMENT.
6B	ANCHOR TO SLAB	5/16"Ø ULTRACON	Fu=177Ksi Fy=177Ksi STALGARD COATED CARBON STEEL	DEWALT	USE TO CONNECT CLIPS 1A) OR 1B) TO SLAB W/ 3/8"Ø HOLE AT CASE II, SEE SCHEDULE ON SHEET 9. W/3/8"MIN. E.D & 1 3/4"MIN. EMBEDMENT.



* CLIP'S HEIGHT MUST BE SUCH THAT #10 SCREWS USED FOR ATTACHMENT TO EQUIPMENT SHALL BE ALWAYS DRIVEN INTO SOLID METAL AS THE EQUIPMENT LATERAL SURFACE

COMPONENTS:
SCALE: N.T.S

SCALE: N.T.S

③ TIE DOWN STRAP

TIE DOWN CLIPS (1A) SCHEDULE:

<u>CLIP</u>	<u>"T"</u>	<u>Gage</u>
(1A1)	0.075"	14
(1A2)	0.1084"	12

TIE DOWN CLIPS (1B) SCHEDULE:

<u>CLIP</u>	<u>"T"</u>
(1B1)	0.100"
(1B2)	0.125"

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

DRAWN BY:
W.H

DATE 05/02/2025

25-045
DRAWING No

SHEET 2 OF 9

**TIE DOWN INSTALLATION OF MECHANICAL
CU UNITS INTO APPROVED STANDS**

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

No.	DESCRIPTION	DATE	REV. No	DESCRIPTION	DATE
1		-	3	-	-
2	-	-	4	-	-

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WALTER A. TILLIT Jr. P.E.
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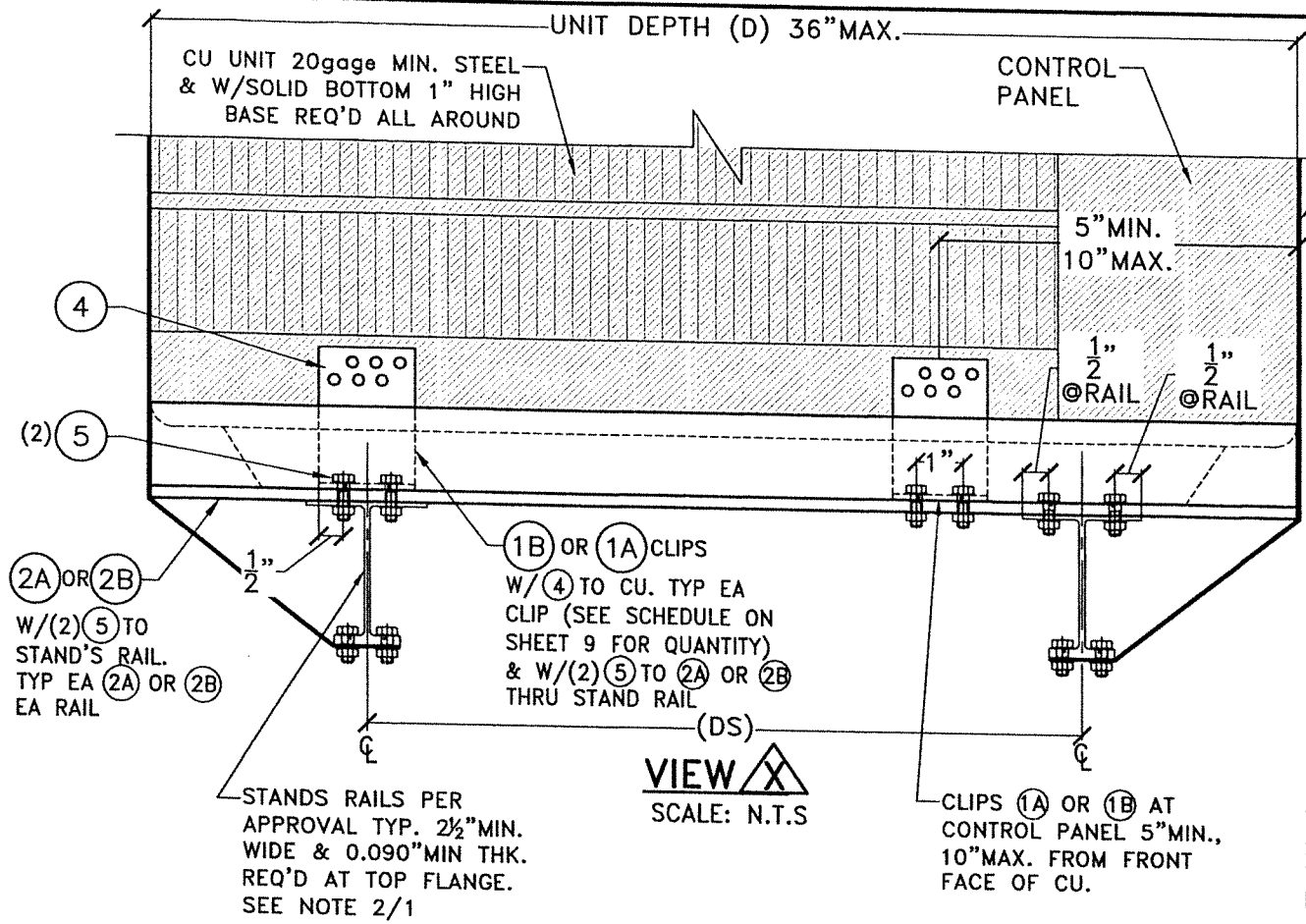


WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF FLORIDA
PROFESSIONAL ENGINEER

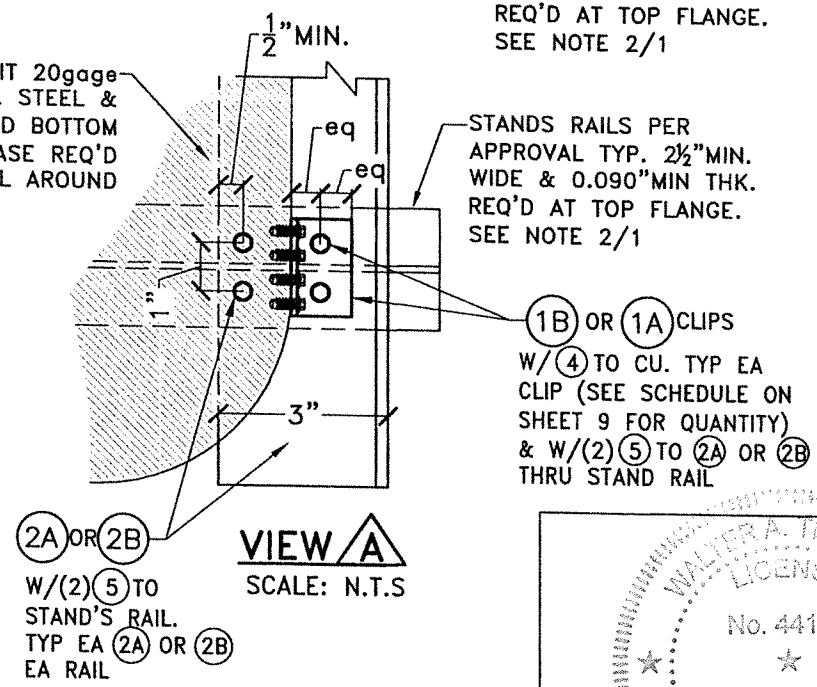
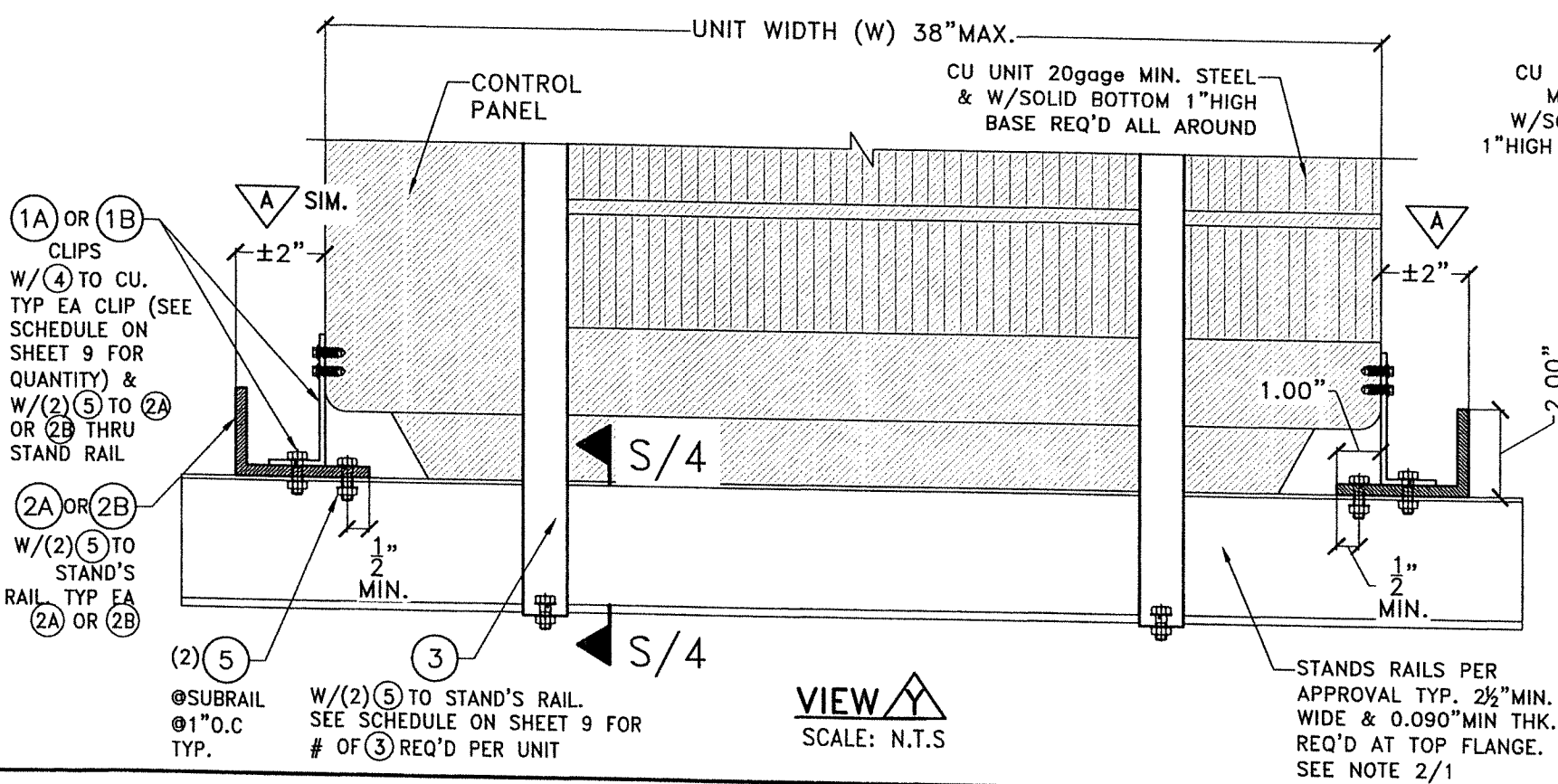
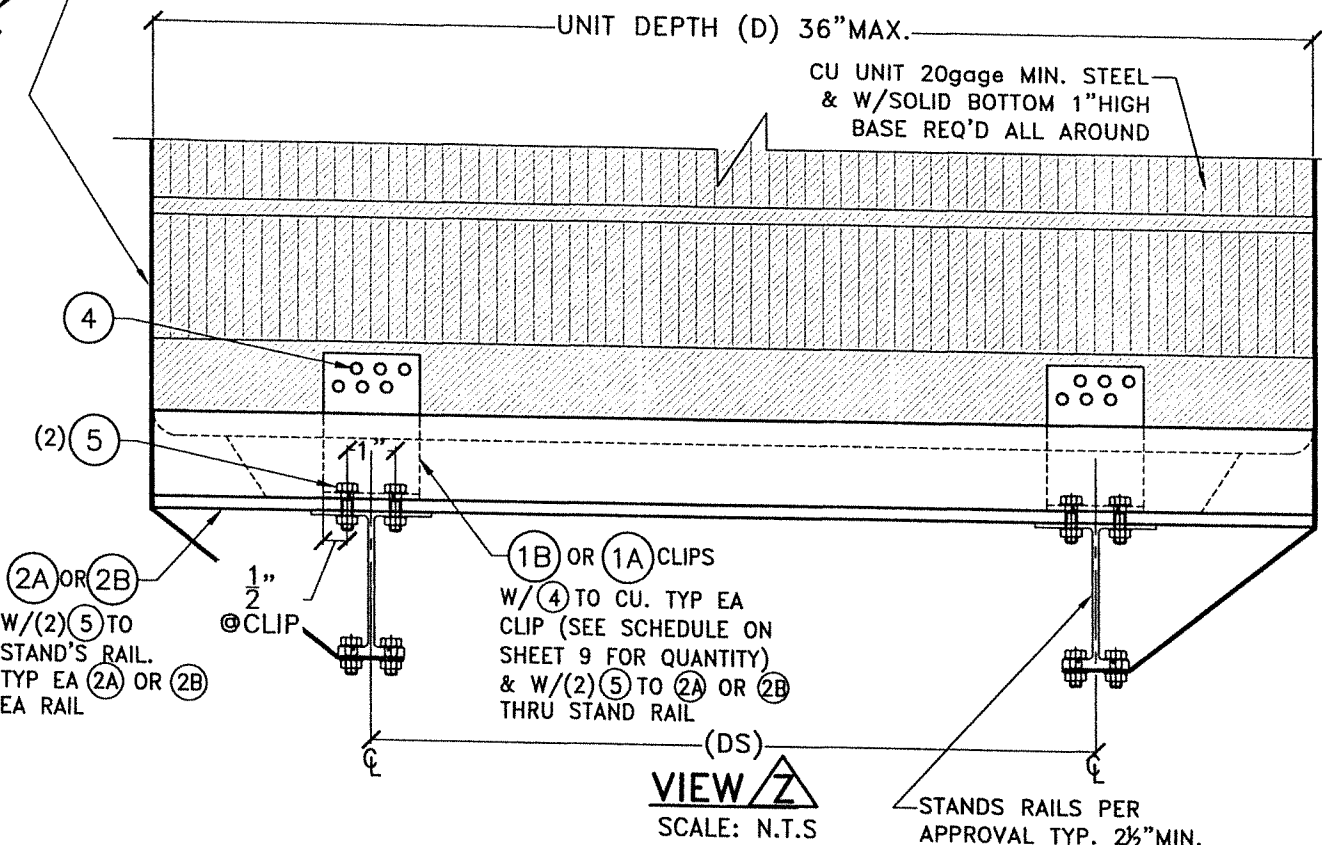
5/24/2025

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(3) W/(2) (5) TO STAND'S RAIL. SEE SCHEDULE ON SHEET 9 FOR # OF (3) REQ'D PER UNIT



CASE I: INSTALLATION

WALTER A. TILLIT JR.
LICENSE
No. 44167
STATE OF
FLORIDA
PROFESSIONAL ENGINEER
7/21/2025

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

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TIE DOWN INSTALLATION OF MECHANICAL CU UNITS INTO APPROVED STANDS

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

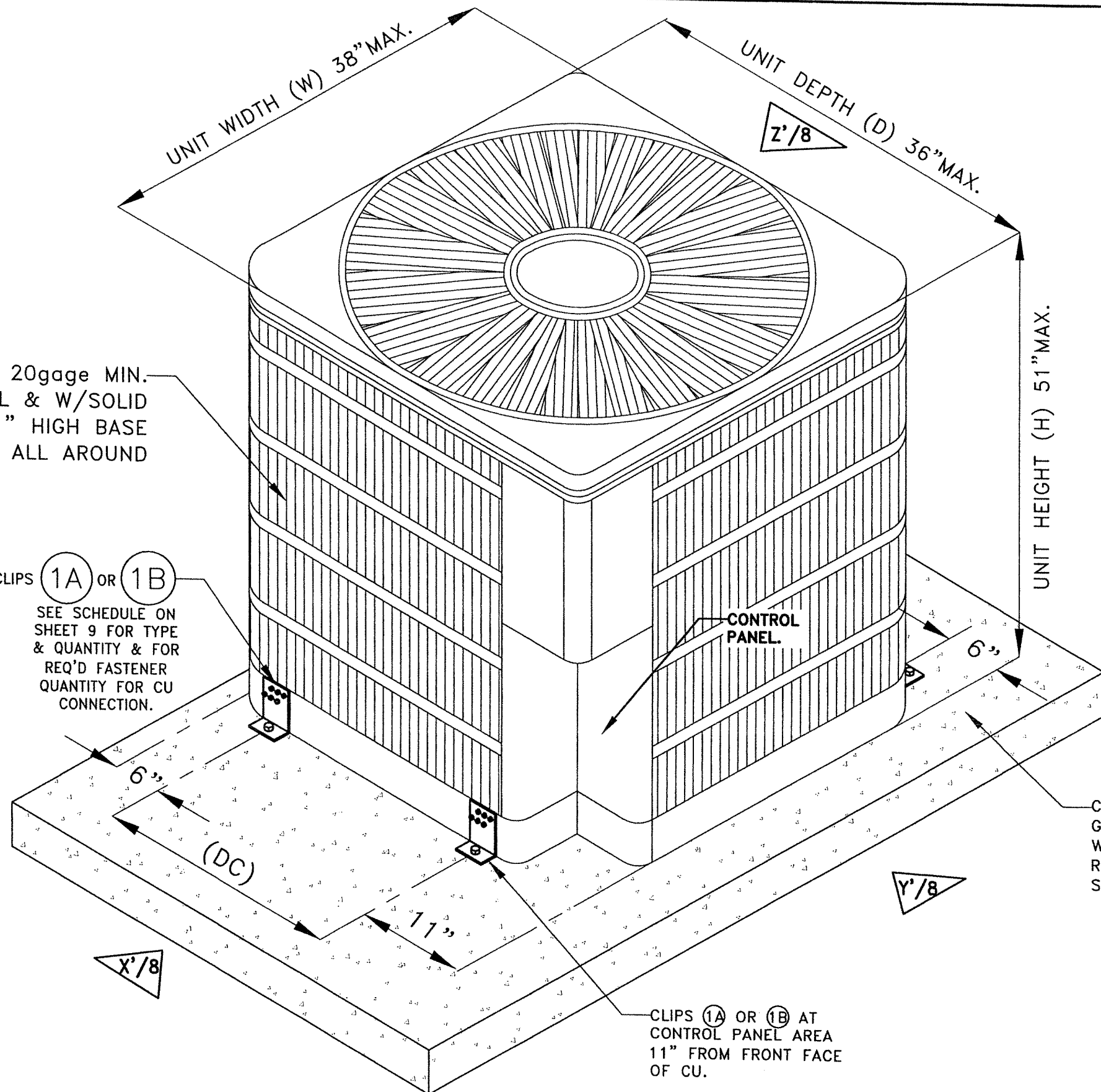
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DRAWN BY:	W.H
DATE	05/02/2025
DRAWING No	25-045
SHEET	5 OF 9

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CU UNIT 20gage MIN.
STEEL & W/SOLID
BOTTOM 1" HIGH BASE
REQ'D ALL AROUND

CLIPS (1A) OR (1B)
SEE SCHEDULE ON
SHEET 9 FOR TYPE
& QUANTITY & FOR
REQ'D FASTENER
QUANTITY FOR CU
CONNECTION.



CONCRETE SLAB ON
GRADE MIN. 4\"THK.
W/ $f'c=3Ksi$ MIN.
REQ'D.
SEE NOTE 8/1

CLIPS (1A) OR (1B) AT
CONTROL PANEL AREA
11\" FROM FRONT FACE
OF CU.

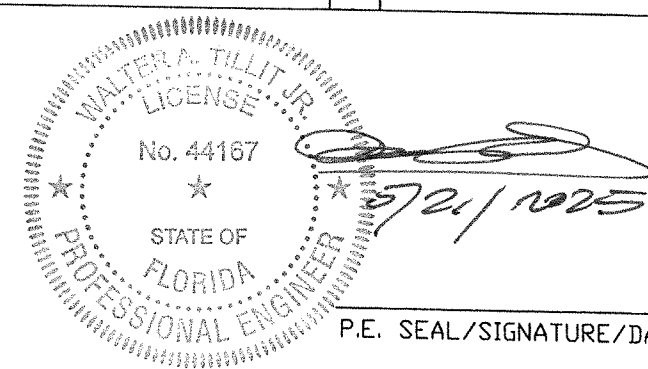
**CASE II: MECHANICAL UNIT CU TIE DOWN TO CONCRETE SLAB ON GRADE
(SCHEMATIC)**

SCALE: N.T.S

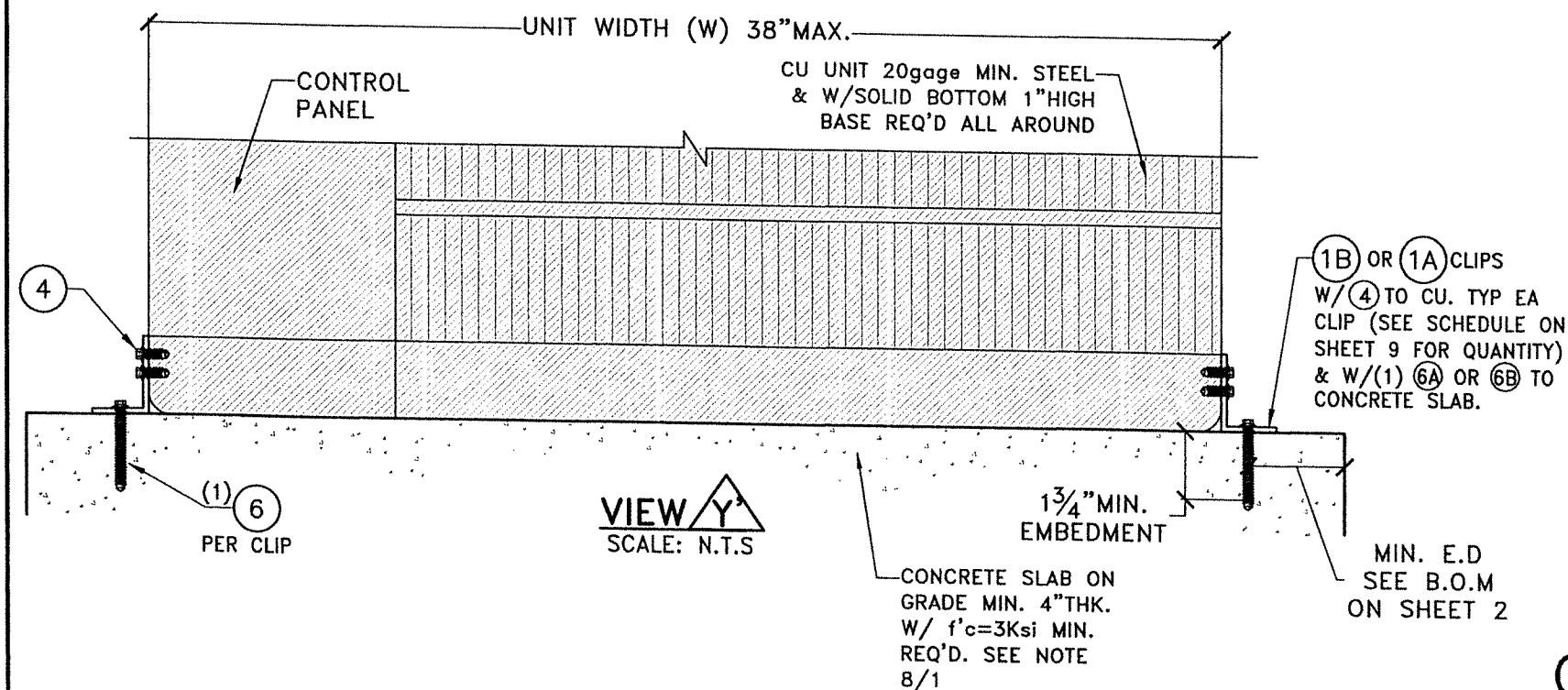
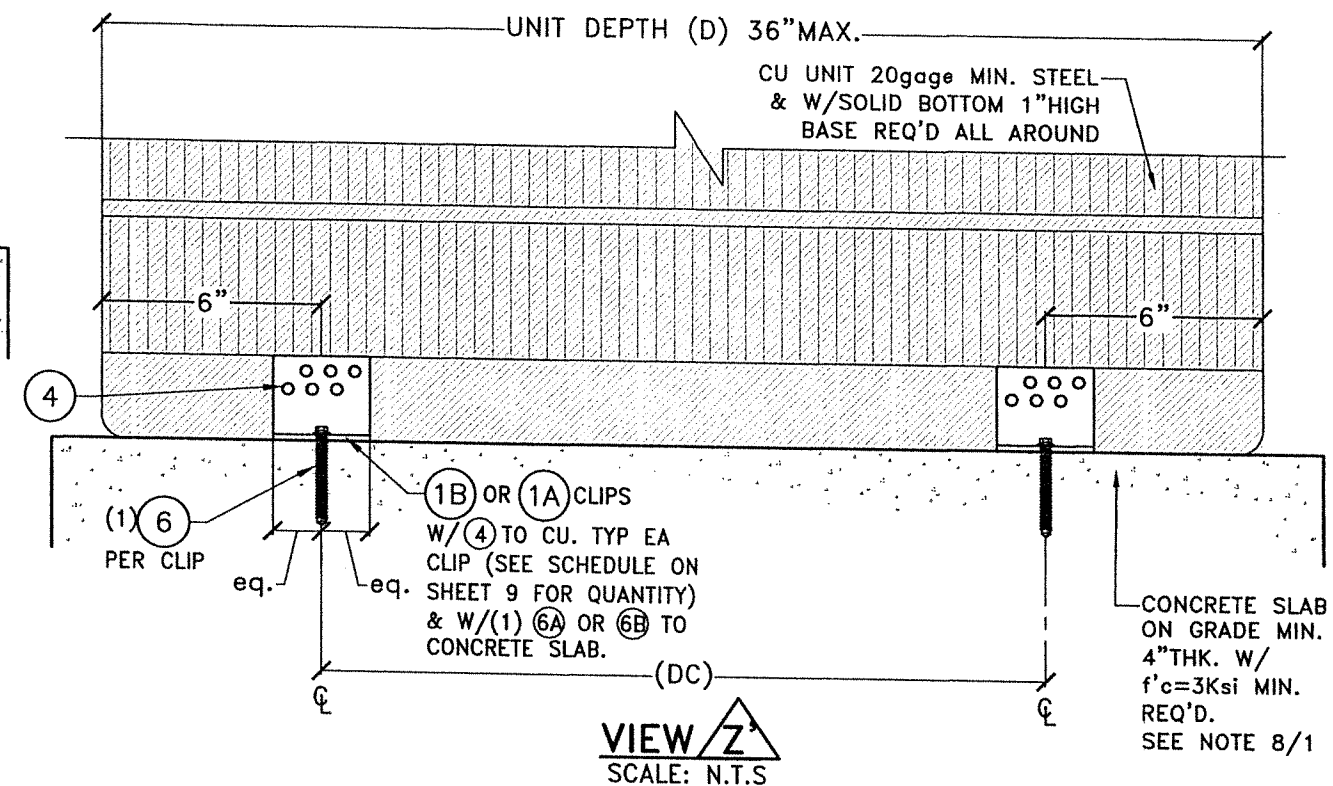
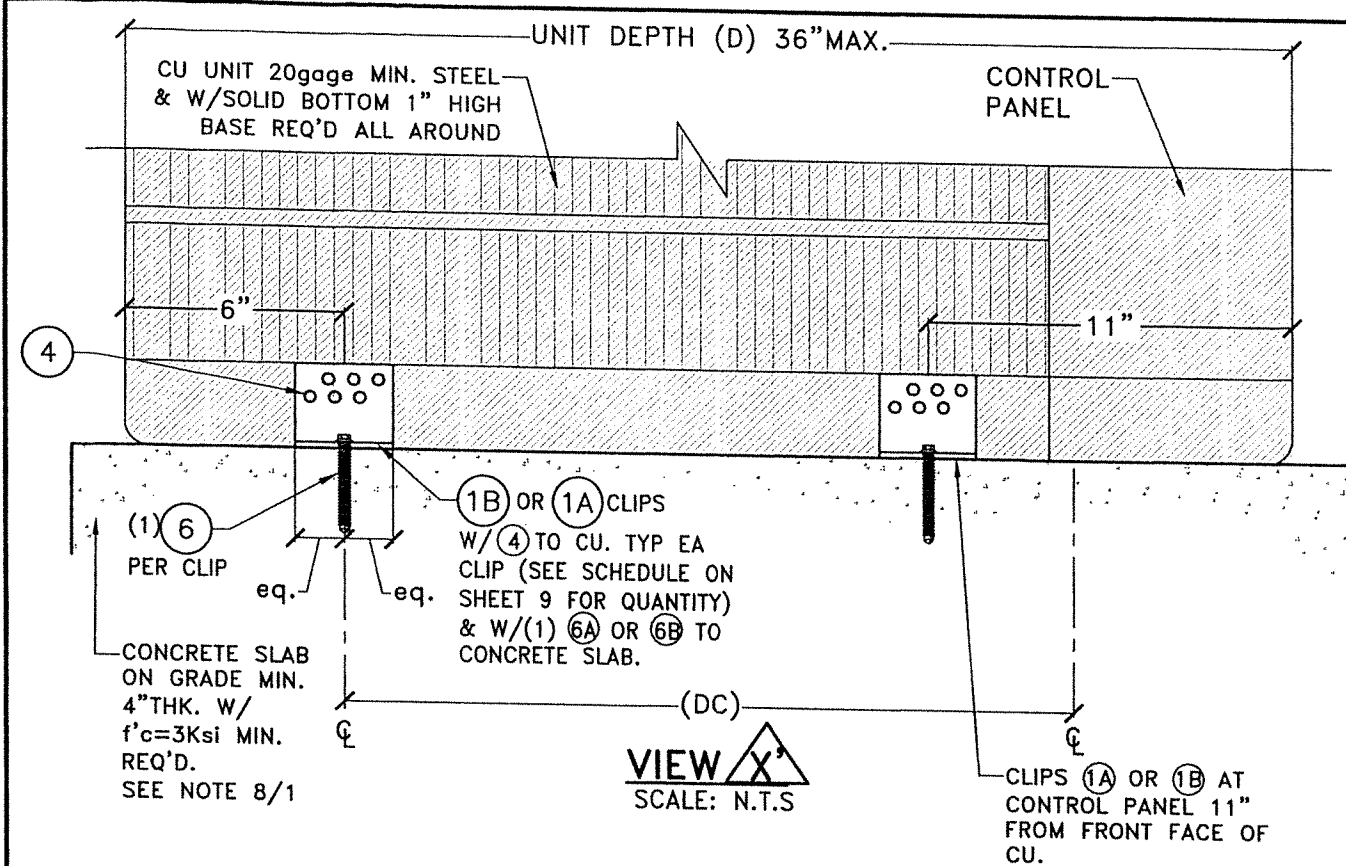
NOTE: SEE PLAN VIEW ON SHEET 7

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DRAWN BY: W.H		DATE 05/02/2025		SHEET 6 OF 9	
				REV. No. 1 DATE - DESCRIPTION -	
				REV. No. 2 DATE - DESCRIPTION -	
				REV. No. 3 DATE - DESCRIPTION -	
				REV. No. 4 DATE - DESCRIPTION -	
				REV. No. 5 DATE - DESCRIPTION -	



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CASE II: INSTALLATION

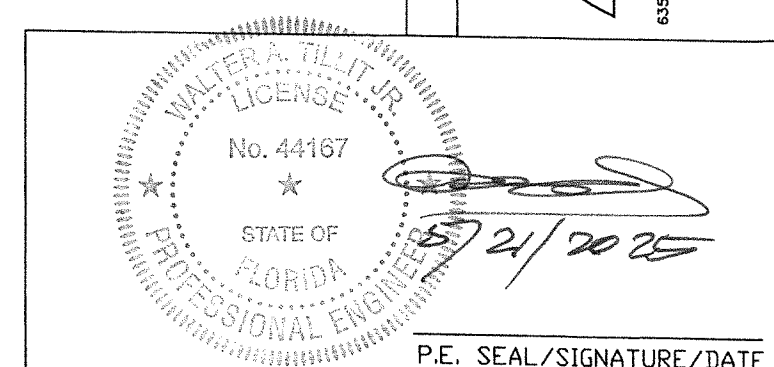
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REV.	DATE	DESCRIPTION	DATE	DESCRIPTION
1	-	-	-	-
2	-	-	-	-

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CASE I

TIE DOWN SCHEDULE: CU TO APPROVED STANDS

MAX. ASD PRESSURE RATING		"DS" AT STAND	REQ'D TOTAL NUMBER & TYPE OF CLIPS (1A) OR (1B)/CU		REQ'D NUMBER OF STRAP (3)	REQ'D SUB-RAIL (2A) OR (2B)	# OF (4) PER CLIP			
LATERAL	UPLIFT		FOR H ≤ 43 3/4"	FOR H >43 3/4" TO ≤51"			(1A)	(1A2)	(1B)	(1B2)
≤55.0 psf	≤43.4 psf	20" MIN. 24" MAX	(4)(1A1) OR (1B1) OR (1B2) W/NO STRAPS REQ'D	(4)(1A1) W/NO STRAPS REQ'D (4)(1B1) OR (1B2) W/(2)STRAPS REQ'D	VARIES. SEE REQUIREMENTS	(2A)	4		5	
>55.0 psf TO 82.1 psf	>43.4 psf TO 64.8 psf	20" MIN. 24" MAX	(4)(1A1) OR (1B1) OR (1B2) W/STRAPS REQ'D	(4)(1A1) OR (1B1) OR (1B2) W/STRAPS REQ'D	2	(2A)	4		5	
>82.1 psf TO 103.2 psf	>64.8 psf TO 81.4 psf	20" MIN. 24" MAX	(4)(1A1) OR (1A2) OR (4)(1B1) OR (1B2) W/STRAPS REQ'D	(4)(1A1) W/STRAPS REQ'D	2	(2A)	4		5	
>103.2 psf TO 112.7psf	>81.4 psf TO 89.0 psf	20" MIN. 24" MAX	(4)(1A1) OR (1A2) OR (4)(1B1) OR (1B2) W/STRAPS REQ'D	(4)(1A2) W/STRAPS REQ'D	2	(2A)	4		5	
>112.7 psf TO 121.7psf	>89.0 psf TO 96.1psf	20" MIN. 24" MAX	(4)(1A1) OR (1A2) OR (4)(1B1) OR (1B2) W/STRAPS REQ'D	(4)(1A2) W/STRAPS REQ'D	2	(2A)	4		5	
>121.7 psf TO 131.1psf	>96.1 psf TO 103.5psf	20" MIN. 24" MAX	(4)(1A1) OR (1A2) W/STRAPS REQ'D	(4)(1A2) W/STRAPS REQ'D	2	(2B)	6		5	

CASE II:

TIE DOWN SCHEDULE: CU TO CONCRETE SLAB ON GRADE.

MAX. ASD PRESSURE RATING		"DC"	REQ'D TOTAL NUMBER & TYPE OF CLIPS (1A) OR (1B)/CU & ANCHOR TYPE EA CLIP.		# OF (4) PER CLIP			
LATERAL	UPLIFT		FOR H ≤ 43 3/4"	FOR H >43 3/4" TO ≤51"*	(1A)	(1A2)	(1B)	(1B2)
≤60.0 psf	≤47.4 psf	SEE PLAN ON SHEET 7 FOR CLIP LOCATION.	(4)(1A1) W/ (6A) (4)(1A2) W/ (6A) (4)(1B1) W/ (6A) (4)(1B2) W/ (6A)	(4)(1A2) W/ (6B)*	4		5	

* NOTE: (4) (1A2) W/ (6A) MAY BE USED FOR H ≤ 47 1/2"

DESIGN PRESSURE REQUIREMENTS FOR SOME WIND SPEED .

MAX. ULTIMATE WIND SPEED (m.p.h)	MAX. MEAN ROOF HEIGHT (ft)	EXPOSURE CATEGORY	REQUIREMENT ASD WIND PRESSURES (p.s.f)	
			LATERAL	UPLIFT
142	≤20'-0"	C	45.0	35.6
		D	54.1	42.7
	>20' TO 75'	C	59.5	46.9
		D	67.9	53.6
	>75' TO 125'	C	66.2	52.3
		D	74.2	58.6
	>125' TO 195'	C	72.7	57.3
		D	80.1	63.3
175	≤20'-0"	C	68.4	54.0
		D	82.1	64.8
	>20' TO 75'	C	90.3	71.3
		D	103.2	81.4
	>75' TO 125'	C	100.5	79.4
		D	112.7	89.0
	>125' TO 195'	C	110.4	87.1
		D	121.7	96.1
186	≤20'-0"	C	120.8	95.4
		D	131.1	103.5
	>20' TO 75'	C	77.3	61.0
		D	92.7	73.2
	>75' TO 125'	C	102.0	80.5
		D	116.6	91.9
	>125' TO 195'	C	113.5	89.7
		D	127.3	100.5
	>195' TO 300'	C	124.7	98.4
		D	-	-
	>20' TO 75'	C	-	-
		D	-	-
	>75' TO 125'	C	-	-
		D	-	-
	>125' TO 195'	C	-	-
		D	-	-

NOTE: WIND SPEED IS BASED ON RISK CATEGORY OF BUILDING WHERE INSTALLATION WILL BE MADE, AND SHALL BE CHOSEN BASED ON ASCE 7-22 CRITERIA.

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

TIE DOWN INSTALLATION OF MECHANICAL CU UNITS INTO APPROVED STANDS

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SHEET 9 OF 9

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5/21/2025

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