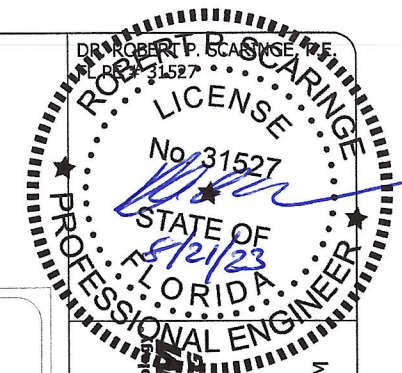


# MAINSTREAM ENGINEERING CORP.

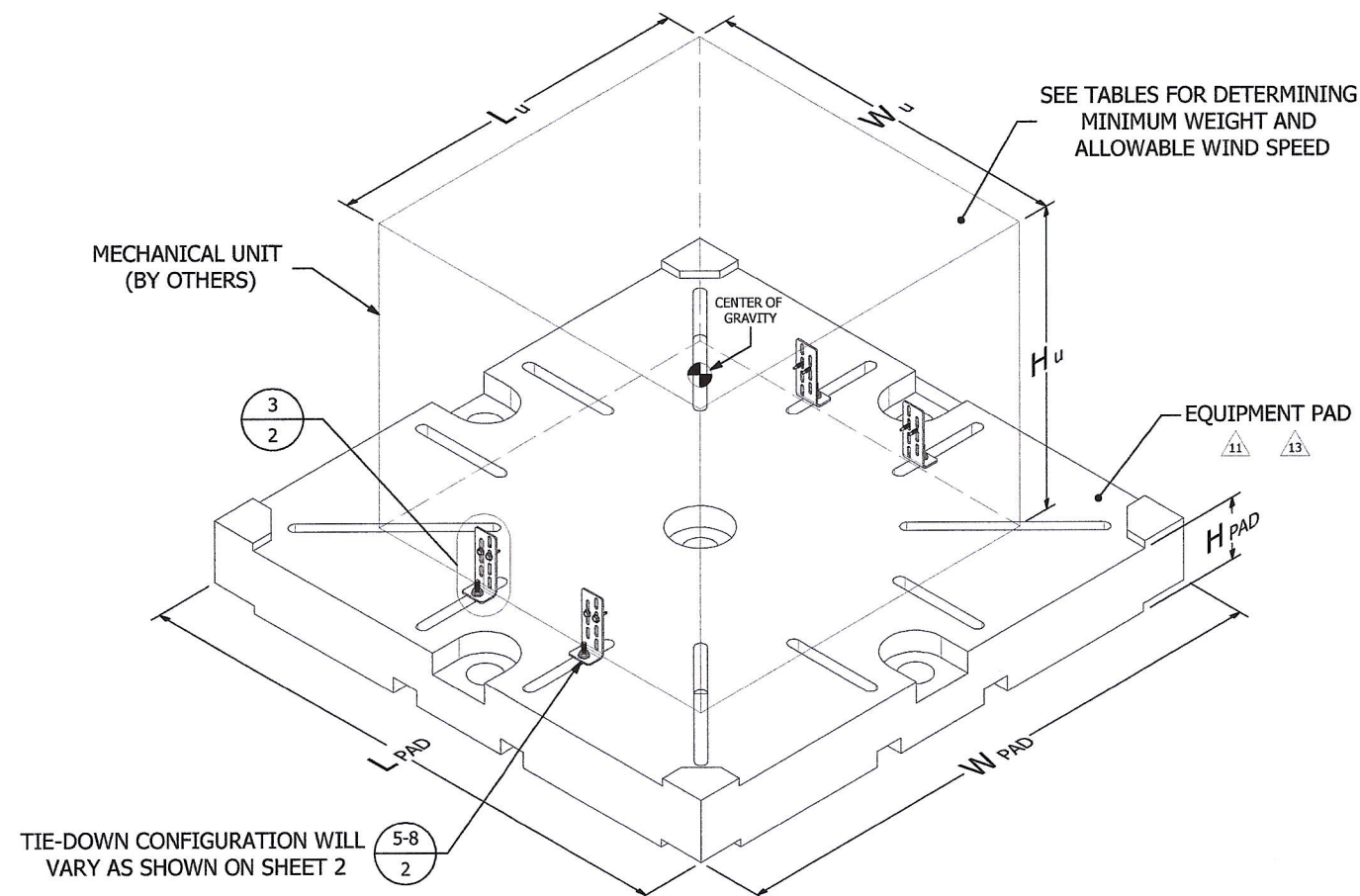
## QWIKPAD® FOR CONDENSERS

### EQUIPMENT TIE-DOWN SYSTEM FOR HIGH-VELOCITY HURRICANE-ZONE (HVHZ)



Solutions Through Advanced Technology  
**MAINSTREAM ENGINEERING**

200 YELLOW PLACE  
ROCKLEDGE, FL 32955  
PH: (321) 631-3550  
WWW.MAINSTREAM-ENGR.COM



TIE-DOWN CONFIGURATION WILL VARY AS SHOWN ON SHEET 2

1 EQUIPMENT TIE-DOWN SYSTEM  
1 1:10 SCALE ISOMETRIC

#### EQUIPMENT PAD SCHEDULE:

MODEL	INSTALLED WEIGHT LB	EQUIPMENT PAD			ALLOWABLE WIND SPEED MPH	ALLOWABLE PRESSURE PSF	MAX. EQUIPMENT SIZE			MIN. WEIGHT OF EQUIPMENT	
		L <sub>PAD</sub> IN	W <sub>PAD</sub> IN	H <sub>PAD</sub> IN			L <sub>u</sub> IN	W <sub>u</sub> IN	H <sub>u</sub> IN	NO ANCHORS	ANCHORED
QT8036	162	36	36	4	UP TO 180	UP TO 66.3	32	32	46	SEE TABLE 1	SEE TABLE 2
QT8040	200	40	40	4	UP TO 180	UP TO 66.3	36	36	48	SEE TABLE 3	SEE TABLE 4
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-

#### DESIGN NOTES:

- THIS PRODUCT HAS BEEN DESIGNED IN ACCORDANCE WITH ASCE 7-22 AND THE FLORIDA BUILDING CODE - EIGHTH EDITION (2023) FOR USE WITHIN AND OUTSIDE THE HIGH-VELOCITY HURRICANE ZONE (HVHZ).
- DESIGN CONSIDERS ASCE 7-22 SECTION 29.4 DESIGN WIND LOADS: OTHER STRUCTURES. ALL OTHER DESIGN VARIABLES AND LOADING FACTORS ARE IN ACCORDANCE WITH ASCE 7-22 CHAPTERS 26 & 29 FOR EXPOSURE CATEGORY C.
- TIE-DOWN CONFIGURATION CONSIDERS A MAXIMUM UNIT HEIGHT OF 48 IN.
- PRODUCTS DETAILED HEREIN ARE INCLUDED WITH QWIKPAD® FOR CONDENSERS (SERIES QT80XX) HIGH-VELOCITY HURRICANE ZONE EQUIPMENT MOUNTING PADS. APPROPRIATE PAD SIZE AND ANCHORING ASSUMED TO BE DETERMINED BY CONTRACTOR/INSTALLER BASED ON INSTALLATION SITE.
- THIS INSTALLATION SPECIFICATION IS FOR INSTALLATION OF THE EQUIPMENT ATOP ANY 4" QWIKPAD® FOR CONDENSERS (SERIES QT80XX), WITH THE PAD LEVELED AND LOCATED AT GRADE LEVEL OR AT 1" EMBEDMENT ON COMPACTED GROUND OR ATOP EXISTING CONCRETE SLAB.
- DESIGN IS BASED ON INSPECTED PRODUCTS AND MANUFACTURING DRAWINGS PRODUCED BY MAINSTREAM ENGINEERING CORP. NO SUBSTITUTIONS WITHOUT WRITTEN APPROVAL BY THIS ENGINEER SHALL BE PERMITTED.
- 304 STAINLESS STEEL TIE-DOWN BRACKETS AND BOLT RETAINERS SHALL BE ASTM A240 STAINLESS STEEL WITH YIELD STRENGTH=30 KSI OR BETTER.
- SELF-DRILLING SCREWS SHALL BE AISI 410 STAINLESS STEEL IN ACCORDANCE WITH ASME B18.6.3.
- CARRIAGE BOLTS SHALL BE 18-8 STAINLESS STEEL PER ASTM F593 IN ACCORDANCE WITH ANSI B18.5 WITH UNC CLASS 2A THREADS (PER ASME B1.1).
- SERRATED FLANGE HEX NUT MATERIAL SHALL BE 18-8 STAINLESS STEEL WITH UNC CLASS 2B THREADS (PER ASME B1.1).
- EQUIPMENT PAD SHALL BE LOW-DENSITY POLYETHYLENE (LDPE) WITH YIELD STRENGTH = 1.675 KSI OR BETTER PER ASTM D638 AND NOMINAL WALL THICKNESS = .220 (.1875 MIN.).
- GROUND OR CONCRETE ANCHORS SHALL BE USED IN ACCORDANCE WITH PROVIDED DESIGN TABLES 1-4. ALL ANCHORS MUST HAVE MIN. PULL-OUT RATING OF 205 LBS EACH.
- EQUIPMENT PAD SHALL BE FILLED WITH WATER AT INSTALLATION SITE TO ACHIEVE WEIGHTS GIVEN IN EQUIPMENT PAD SCHEDULE TABLE.

#### GENERAL NOTES:

- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
- MAXIMUM AND MINIMUM DIMENSIONS AND MINIMUM WEIGHT OF UNIT SHALL CONFORM TO SPECIFICATIONS STATED IN RESPECTIVE QWIKPAD® FOR CONDENSERS (SERIES QT80XX) ENGINEERING DOCUMENTS.
- CENTER OF GRAVITY ASSUMED TO ACT AT GEOMETRIC CENTER OF UNIT.
- TIE-DOWN ASSEMBLY CONFIGURATION TO BE INSTALLED PER ONE OF THE DEPICTED CONFIGURATION VIEWS.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR METALS TO PREVENT ELECTROLYSIS.
- ELECTRICAL GROUND, WHEN REQUIRED, SHALL BE DESIGNED AND INSTALLED BY OTHERS.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER SHALL PREPARE SITE SPECIFIC DOCUMENTS IN CONJUNCTION WITH THIS DOCUMENT.
- FOR AN EXPLANATION OF RISK AND EXPOSURE CATEGORIES THAT ACCOMPANY THE VULT WIND SPEEDS USED IN THIS APPROVAL, SEE SECTIONS 1.5.1 AND 26.7.3, RESPECTIVELY, OF ASCE 7-22. VULT WIND SPEEDS FOR RISK CATEGORY II DETERMINED BY FIGURE 26.5-1B OF ASCE 7-22. LINEAR INTERPOLATION PERMITTED BETWEEN CONTOURS.
- ALL DIMENSIONS SHOWN ARE REFERENCE AND IN INCHES, UNLESS OTHERWISE SPECIFIED.

**QWIKPAD® FOR CONDENSERS**  
EQUIPMENT TIE-DOWN SYSTEM FOR HVHZ

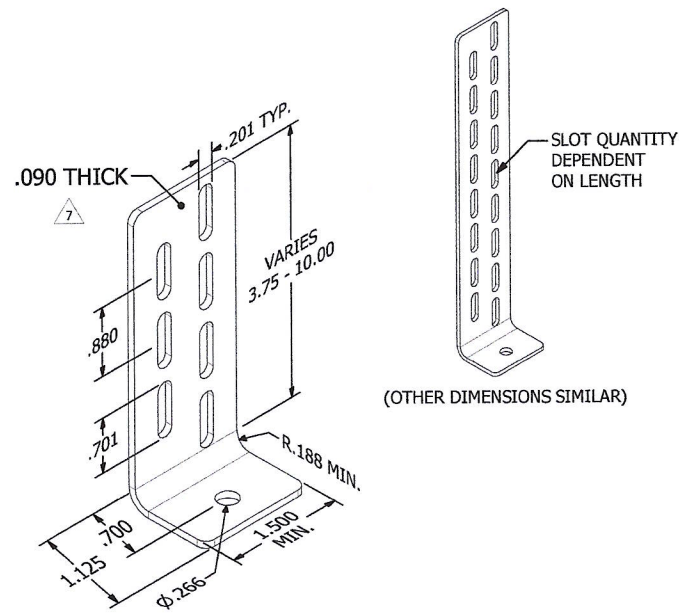
FBC 8TH EDITION (2023) PRODUCT APPROVAL  
**FL# 25896.1**

REV	REMARKS	DRWN	CHKD	DATE
A	INITIAL RELEASE	A. CARPENTER	R. SCARINGE	04/30/2018
B	UPDATE FOR FBC 7TH EDITION & ASCE 7-16 COMPLIANCE	B. WOODS	A. CARPENTER	12/10/2020
C	UPDATE FOR FBC 8TH EDITION & ASCE 7-22, 19 TO R	T. ABBOTT	A. CARPENTER	08/17/2023

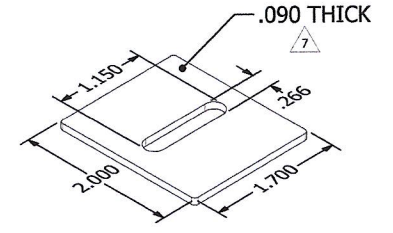
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**QT8000**  
SERIES

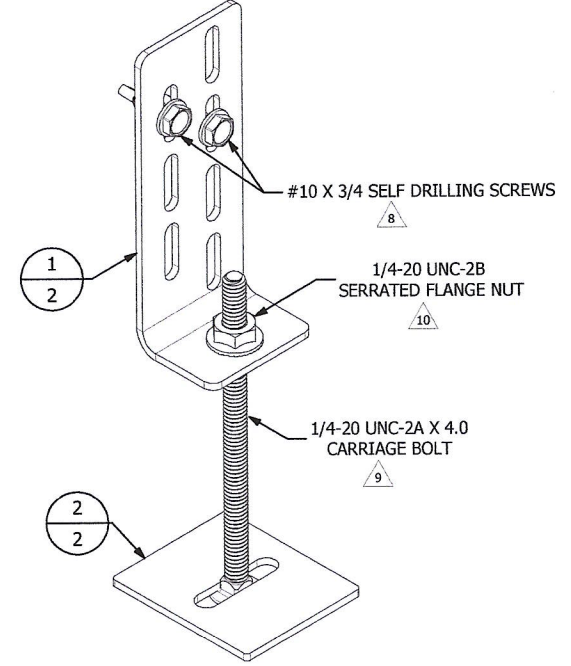
DWG NO. 5010248 REV C



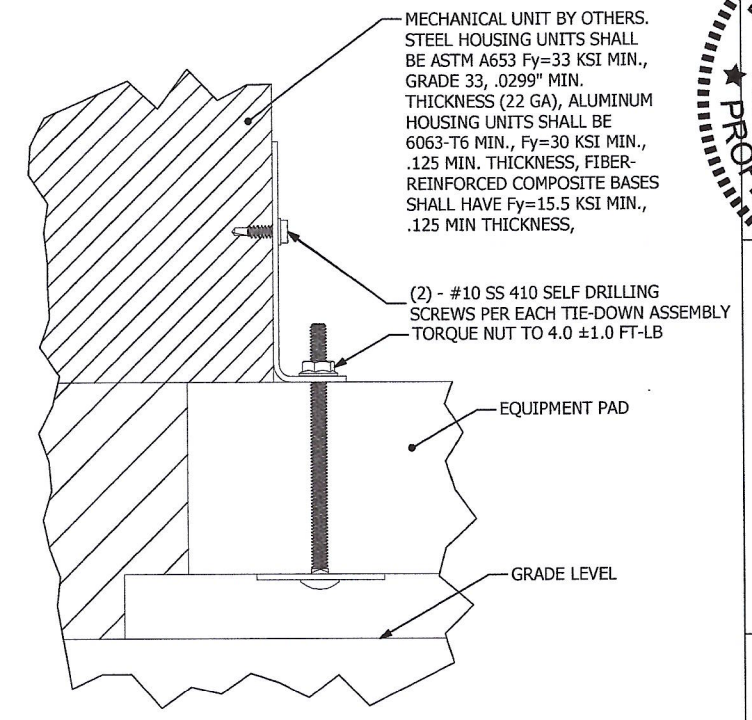
**1** TIE-DOWN BRACKET  
1:2 SCALE ISOMETRIC



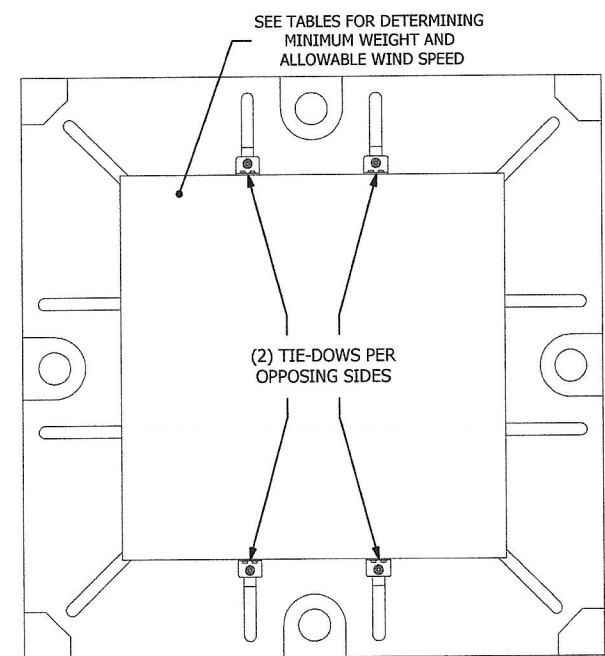
**2** BOLT RETAINER  
1:2 SCALE ISOMETRIC



**3** TIE-DOWN ASSEMBLY  
1:2 SCALE ISOMETRIC

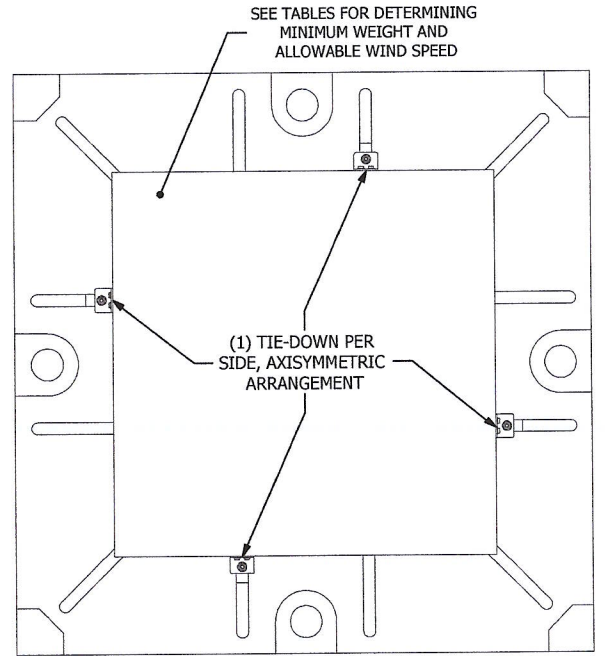


**4** UNIT TIE-DOWN DETAIL  
1:3 SCALE DETAIL



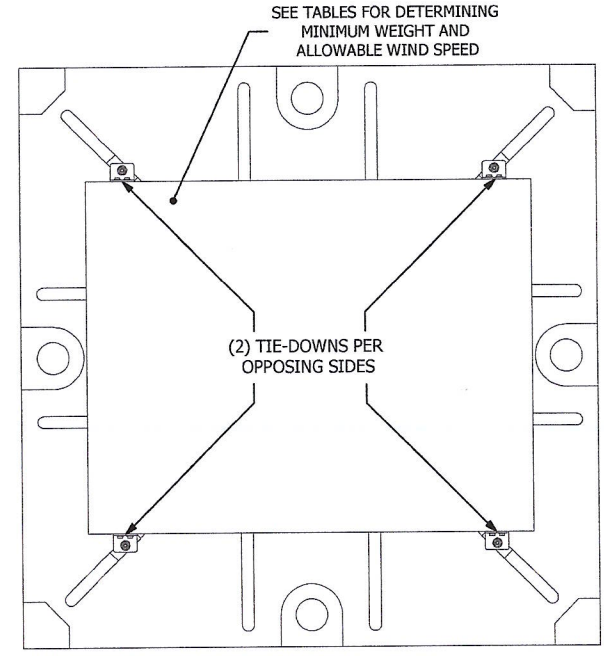
1. TIE-DOWN CONFIGURATION APPLICABLE TO SQUARE, RECTANGULAR OR ROUND† UNITS.
2. TIE-DOWN CONFIGURATION APPLICABLE FOR USE WITH EQUIPMENT PAD MODELS QT8036 AND QT8040.

**5** TIE-DOWN CONFIGURATION  
1:16 SCALE TOP VIEW



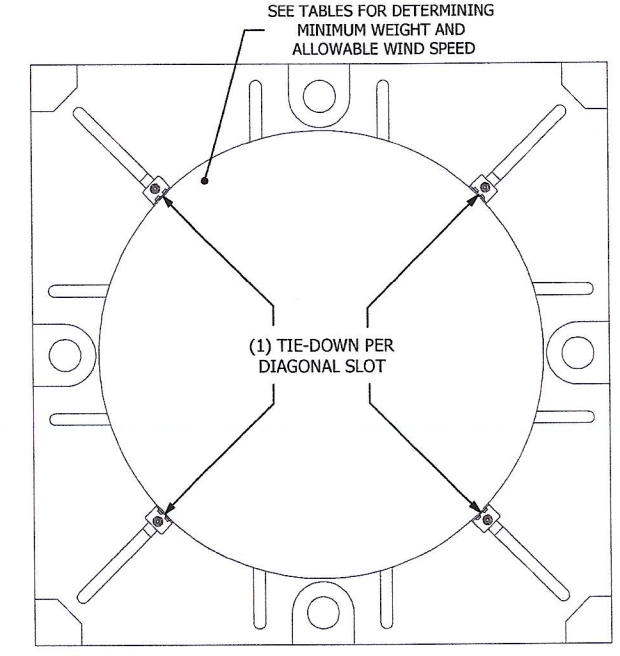
1. ALTERNATE TIE-DOWN CONFIGURATION APPLICABLE TO SQUARE, RECTANGULAR OR ROUND† UNITS.
2. TIE-DOWN CONFIGURATION APPLICABLE FOR USE WITH EQUIPMENT PAD MODELS QT8036 AND QT8040.

**6** TIE-DOWN CONFIG. - ALT.  
1:16 SCALE TOP VIEW



1. ALTERNATE TIE-DOWN CONFIGURATION USING DIAGONAL SLOTS APPLICABLE FOR RECTANGULAR UNITS.
2. TIE-DOWN CONFIGURATION APPLICABLE FOR USE WITH EQUIPMENT PAD MODELS QT8036 AND QT8040.

**7** TIE-DOWN CONFIG. - ALT. RECT  
1:16 SCALE TOP VIEW



1. ALTERNATE TIE-DOWN CONFIGURATION USING DIAGONAL SLOTS APPLICABLE FOR ROUND† UNITS OR SQUARE UNITS WITH ROUNDED CORNERS.
2. TIE-DOWN CONFIGURATION APPLICABLE FOR USE WITH EQUIPMENT PAD MODELS QT8036 AND QT8040.

**8** TIE-DOWN CONFIG. - ALT. RND  
1:16 SCALE TOP VIEW

† ROUND UNITS MUST ASSUME LENGTH (L<sub>u</sub>) AND WIDTH (W<sub>u</sub>) USED IN TABLES TO BE EQUAL TO DIAMETER OF UNIT.

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LICENSE  
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**QWIKPAD® FOR CONDENSERS**  
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FBC 8TH EDITION (2023) PRODUCT APPROVAL  
FL # 25896.1

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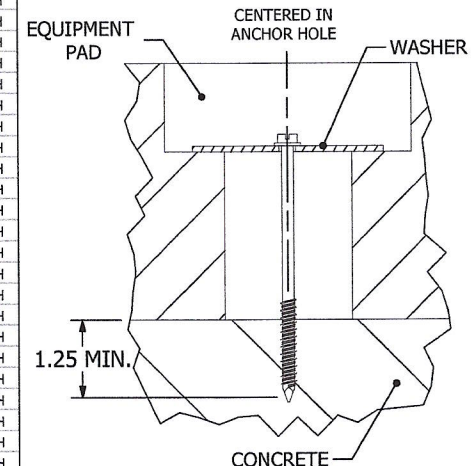
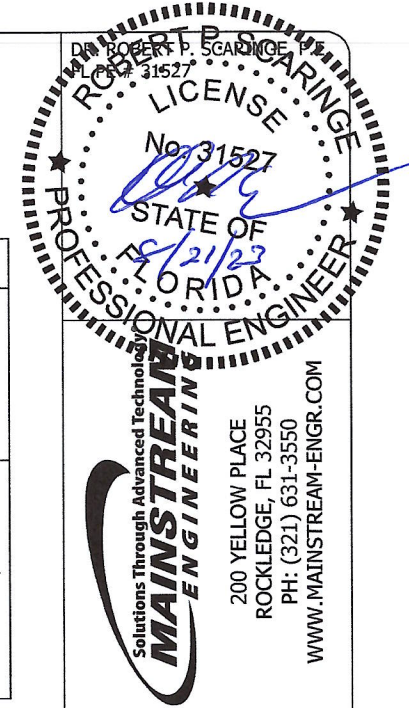
QT8036 EQUIPMENT PAD - ANCHORED

TABLE 2. MINIMUM WEIGHT OF EQUIPMENT REQUIRED FOR V<sub>ULT</sub> = 130 MPH, 150 MPH, AND 180 MPH (EXPOSURE 'C') USING QT8036 EQUIPMENT PAD AND ANCHORS (FOR USE WITH RISK CATEGORY II STRUCTURE IN THE HIGH-VELOCITY HURRICANE ZONE)

EQUIPMENT DIMENSIONS			V <sub>ULT</sub> = 130 MPH ALLOWABLE WIND SPEED (35.0 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED								V <sub>ULT</sub> = 150 MPH ALLOWABLE WIND SPEED (46.0 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED								V <sub>ULT</sub> = 180 MPH ALLOWABLE WIND SPEED (66.3 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED								V <sub>ULT</sub> = 180 MPH ALLOWABLE WIND SPEED (66.3 PSF ALLOWABLE WIND PRESSURE) 4 ANCHORS REQUIRED							
L <sub>u</sub>	W <sub>u</sub>	H <sub>u</sub>	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR	F <sub>WIND,TOT</sub>	F <sub>WIND,UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR	F <sub>WIND,TOT</sub>	F <sub>WIND,UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR	F <sub>WIND,TOT</sub>	F <sub>WIND,UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR	F <sub>WIND,TOT</sub>	F <sub>WIND,UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK				
																															LB	LB	FT-LB	LB
22	22	26	0	97.2	514.8	171.7	137.2	120.1	OK FOR 130 MPH	0	97.2	514.8	228.7	182.7	159.9	OK FOR 150 MPH	0	97.2	514.8	329.3	263.0	230.2	OK FOR 180 MPH	0	97.2	883.8	329.3	263.0	230.2	OK FOR 180 MPH				

ANCHOR SCHEDULE:

SUBSTRATE	DESCRIPTION	PULL-OUT STRENGTH
GROUND/SOIL (LEVELED, COMPACTED)	A356 AL, SHEAR = 20KSI MIN., UTS = 26KSI MIN., Ø1.75" FLIGHT, 1.125" THREAD PITCH, 22" LONG (19" EMBED TO GROUND)	205 LB MIN. (EACH)
CONCRETE (4" MIN. THICK, 2000 PSI MIN.)	Ø1/4" X 4" ITW TAPCON CONCRETE SCREWS, 1.25" EMBED TO CONCRETE, 4" MIN. SPACING, 2.5" EDGE DISTANCE, MUST USE Ø3" 304 SS FENDER WASHER (13 GA MIN.)	205 LB MIN. (EACH)

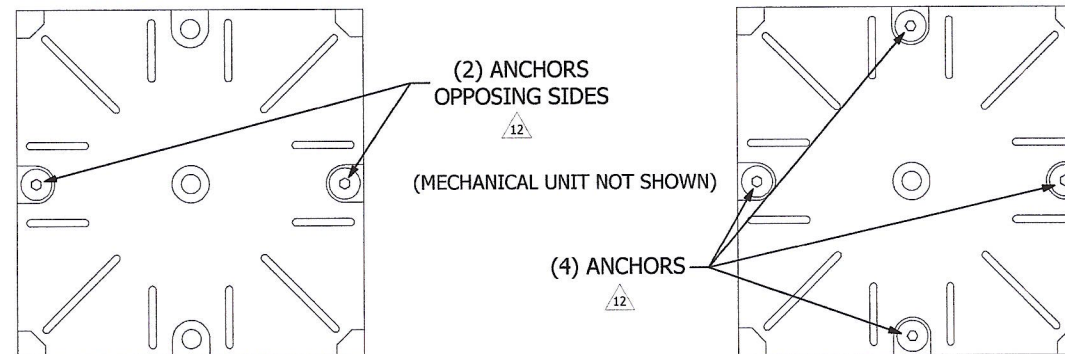


3 ANCHOR INSTALL  
4 1:3 SCALE  
DETAIL

PROCEDURE FOR USE OF TABLE 2 FOR EQUIPMENT PAD MODEL QT8036 WITH ANCHORS:

1. DETERMINE SIZE AND WEIGHT OF EQUIPMENT TO BE INSTALLED.
2. FIND APPROPRIATE EQUIPMENT SIZE IN TABLE. (IF UNIT SIZE IS BETWEEN LISTED DIMENSIONS, USE NEXT LARGER SIZE IN TABLE.)
3. FOR A GIVEN WIND SPEED AND ANCHOR QUANTITY, DETERMINE IF WEIGHT OF EQUIPMENT TO BE INSTALLED MEETS MIN. WEIGHT OF EQUIPMENT REQUIREMENT. IF SO, DESIGN IS OK FOR GIVEN WIND SPEED WITH THE USE OF GIVEN ANCHOR QUANTITY.

NOTE: (2) ANCHORS MUST BE INSTALLED ON OPPOSING SIDES OF EQUIPMENT PAD AS SHOWN IN (2) ANCHOR PLACEMENT QT8036' VIEW.



1 (2) ANCHOR PLACEMENT QT8036  
4 1:20 SCALE  
TOP VIEW

2 (4) ANCHOR PLACEMENT QT8036  
4 1:20 SCALE  
TOP VIEW

QWIKPAD® FOR CONDENSERS  
EQUIPMENT TIE-DOWN SYSTEM FOR HVHZ  
FBC 8TH EDITION (2023) PRODUCT APPROVAL  
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**QT8000** SERIES

DWG NO. 5010248 REV C

SHEET 4 OF 6



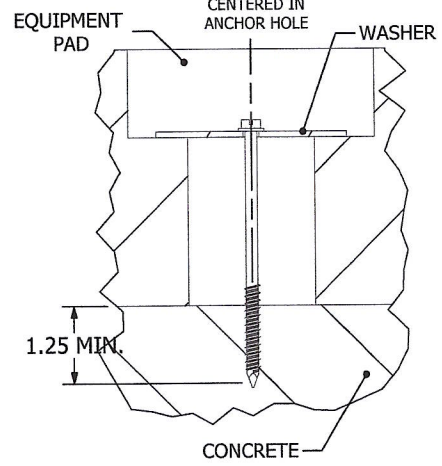
**QT8040 EQUIPMENT PAD - ANCHORED**

**TABLE 4. MINIMUM WEIGHT OF EQUIPMENT REQUIRED FOR VULT = 130 MPH, 150 MPH, AND 180 MPH (EXPOSURE 'C') USING QT8040 EQUIPMENT PAD AND ANCHORS (FOR USE WITH RISK CATEGORY II STRUCTURE IN THE HIGH-VELOCITY HURRICANE ZONE)**

EQUIPMENT DIMENSIONS			V <sub>ULT</sub> = 130 MPH ALLOWABLE WIND SPEED (35.0 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED							V <sub>ULT</sub> = 150 MPH ALLOWABLE WIND SPEED (46.0 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED							V <sub>ULT</sub> = 180 MPH ALLOWABLE WIND SPEED (66.3 PSF ALLOWABLE WIND PRESSURE) 2 ANCHORS REQUIRED							V <sub>ULT</sub> = 180 MPH ALLOWABLE WIND SPEED (66.3 PSF ALLOWABLE WIND PRESSURE) 4 ANCHORS REQUIRED						
L <sub>u</sub>	W <sub>u</sub>	H <sub>u</sub>	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR MOMENT	F <sub>WIND, TOT</sub>	F <sub>WIND, UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR MOMENT	F <sub>WIND, TOT</sub>	F <sub>WIND, UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR MOMENT	F <sub>WIND, TOT</sub>	F <sub>WIND, UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK	MIN. WEIGHT OF EQUIPMENT	.6 X (UNIT + PAD)	DEAD LOAD + ANCHOR MOMENT	F <sub>WIND, TOT</sub>	F <sub>WIND, UNIT</sub>	.6 X (WIND MOMENT)	DESIGN CHECK
24	24	32	0	120.0	610.0	222.6	184.2	188.1	OK FOR 130 MPH	0	120.0	610.0	296.4	245.3	250.4	OK FOR 150 MPH	0	120.0	610.0	426.7	353.2	360.5	OK FOR 180 MPH	0	120.0	1020.0	426.7	353.2	360.5	OK FOR 180 MPH
36	36	48	0	120.0	610.0	452.9	414.5	584.1	OK FOR 130 MPH	169	221.4	779.0	602.9	551.8	777.7	OK FOR 150 MPH	101	180.6	1121.0	868.2	794.6	1119.8	OK FOR 180 MPH							

**ANCHOR SCHEDULE:**

SUBSTRATE	DESCRIPTION	PULL-OUT STRENGTH
GROUND/SOIL (LEVELED, COMPACTED)	A356 AL, SHEAR = 26KSI MIN., UTS = 26KSI MIN., Ø1.75" FLIGHT, 1.125" THREAD PITCH, 22" LONG (19" EMBED TO GROUND)	205 LB MIN. (EACH)
CONCRETE (4" MIN. THICK, 2000 PSI MIN.)	Ø1/4" X 4" ITW TAPCON CONCRETE SCREWS, 1.25" EMBED TO CONCRETE, 4" MIN. SPACING, 2.5" EDGE DISTANCE, MUST USE Ø3" 304 SS FENDER WASHER (13 GA MIN.)	205 LB MIN. (EACH)

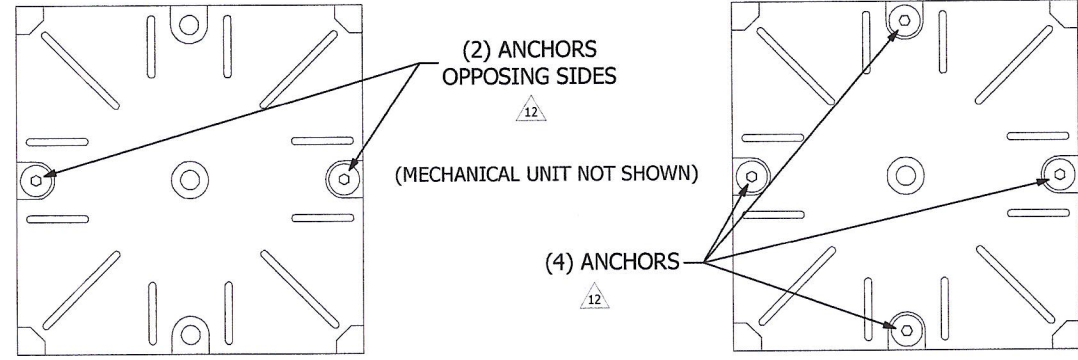


**3 ANCHOR INSTALL**  
1:3 SCALE  
**6** DETAIL

**PROCEDURE FOR USE OF TABLE 4 FOR EQUIPMENT PAD MODEL QT8040 WITH ANCHORS:**

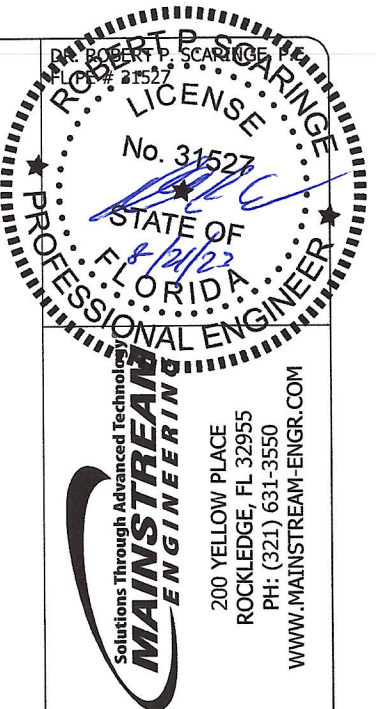
1. DETERMINE SIZE AND WEIGHT OF EQUIPMENT TO BE INSTALLED.
2. FIND APPROPRIATE EQUIPMENT SIZE IN TABLE. (IF UNIT SIZE IS BETWEEN LISTED DIMENSIONS, USE NEXT LARGER SIZE IN TABLE.)
3. FOR A GIVEN WIND SPEED AND ANCHOR QUANTITY, DETERMINE IF WEIGHT OF EQUIPMENT TO BE INSTALLED MEETS MIN. WEIGHT OF EQUIPMENT REQUIREMENT. IF SO, DESIGN IS OK FOR GIVEN WIND SPEED WITH THE USE OF GIVEN ANCHOR QUANTITY.

NOTE: (2) ANCHORS MUST BE INSTALLED ON OPPOSING SIDES OF EQUIPMENT PAD AS SHOWN IN '(2) ANCHOR PLACEMENT QT8040' VIEW.



**1 (2) ANCHOR PLACEMENT QT8040**  
1:20 SCALE  
TOP VIEW

**2 (4) ANCHOR PLACEMENT QT8040**  
1:20 SCALE  
TOP VIEW



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B	UPDATE FOR FBC 8TH EDITION & ASCE 10 COMM ANGLE	B. WOODS	A. CARPENTER	12/10/2020
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