

# AC Condenser Clip

## THE METAL SHOP

2541 W. Dunnellon Road

Dunnellon, FL 34433

[www.metalshop.org](http://www.metalshop.org)

Phone: 888-441-2492 Fax: 352-522-0007

### Notes

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 8th EDITION FLORIDA BUILDING CODE, 2023, BUILDING VOLUME AND ASCE 7 - 2022 MINIMUM DESIGN LOADS ON BUILDINGS AND OTHER STRUCTURES.
2. IF, IN THE CONTRACTORS OPINION, ANY WORK THAT IS INDICATED IN THE DRAWINGS, OR SPECIFIED IN SUCH A MANNER WILL MAKE IT IMPOSSIBLE TO PRODUCE A FIRST CLASS PIECE OF WORK, OR SHOULD DISCREPANCIES APPEAR IN DIMENSIONS OR DETAILS THEY SHALL BE SUBMITTED TO OWNER BEFORE PROCEEDING WITH WORK.
3. ANY CHANGE FROM THE DRAWINGS AND / OR FIELD CHANGE CONDITIONS, MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER SO THAT NECESSARY CHANGES CAN BE MADE AND INTENT OF THE DESIGN IS CARRIED OUT TO ITS FULLEST EXTENT.
4. ALL ANCHOR/CONNECTION BOLTS SHALL BE IN ACCORDANCE WITH ASTM A-307 OR A-325 F.
5. MINIMUM DESIGN LOADS : DEAD LOADS AND LIVE LOADS IN ACCORDANCE WITH THE 2023 FLORIDA BUILDING CODES, CHAPTER 16.
6. SEE MANUFACTURE INSTALLATION FOR AC CONDENSER UNIT.
7. DESIGN AND ENGINEERING IS FOR THE METAL SHOP ANCHOR CLIP ONLY. SEE MANUFACTURE INSTRUCTIONS AND CERTIFICATIONS FOR PROPER INSTALLATION OF AC UNIT.

### Anchor Clip Notes:

1. The anchor clip shall be 0.080 gauge, 5052-H32 aluminum, rated for coastal applications.
2. The anchor clips shall be installed with #14-3/4" self tapping sheet metal screws at the base and #10x<sup>3</sup>/<sub>4</sub>" self tapping screws into condenser unit.
3. Anchor clip is intended for AC Condenser mounting installations only.
4. For ground installations, anchor clips shall be installed on 2000 psi minimum strength concrete pad of concrete slabs ONLY. Other pads or installation configurations must be custom designed. Concrete Anchors shall be <sup>1</sup>/<sub>4</sub>" diameter with 1 3/4" min. embedment.
5. Minimum 4 clips required per ac condenser unit. Clip anchors shall be equally space around base of condenser unit. See detail on A-4 for number of #14-3/4" self tapping screws corresponding to clip size. Self tapping screws to have neoprene washers. Anchor clip shall be anchored to the concrete pad with 1/4" Tapcons 1 3/4" min. embedment.
6. Attach Tapcon anchor into concrete base per Tapcon installation instructions. Do not over tighten anchor.
7. All hardware must be fastened prior to connecting refrigerant lines and electrical power to the unit.
8. 196 MPH Ultimate wind speed rating is based on 3-second gust on a condenser unit 10.2 sq-ft surface area facing the wind. calculations are based on ASCE 7 - 2023 and chapter 16 of 2023 FBC for exposure C, risk category II, unit weight 500 lbs.
9. 167 MPH Ultimate wind speed for 10.2 sf-ft of surface area facing the wind for exposure D, risk category III and IV for a unit weight of 500 lbs.

REVISIONS

DATE:

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AC Condensor Anchor Clip

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DATE: 1/16/2024

SCALE: AS NOTED

DRAWN BY: J. HILLER

JOB NO.

SHEET

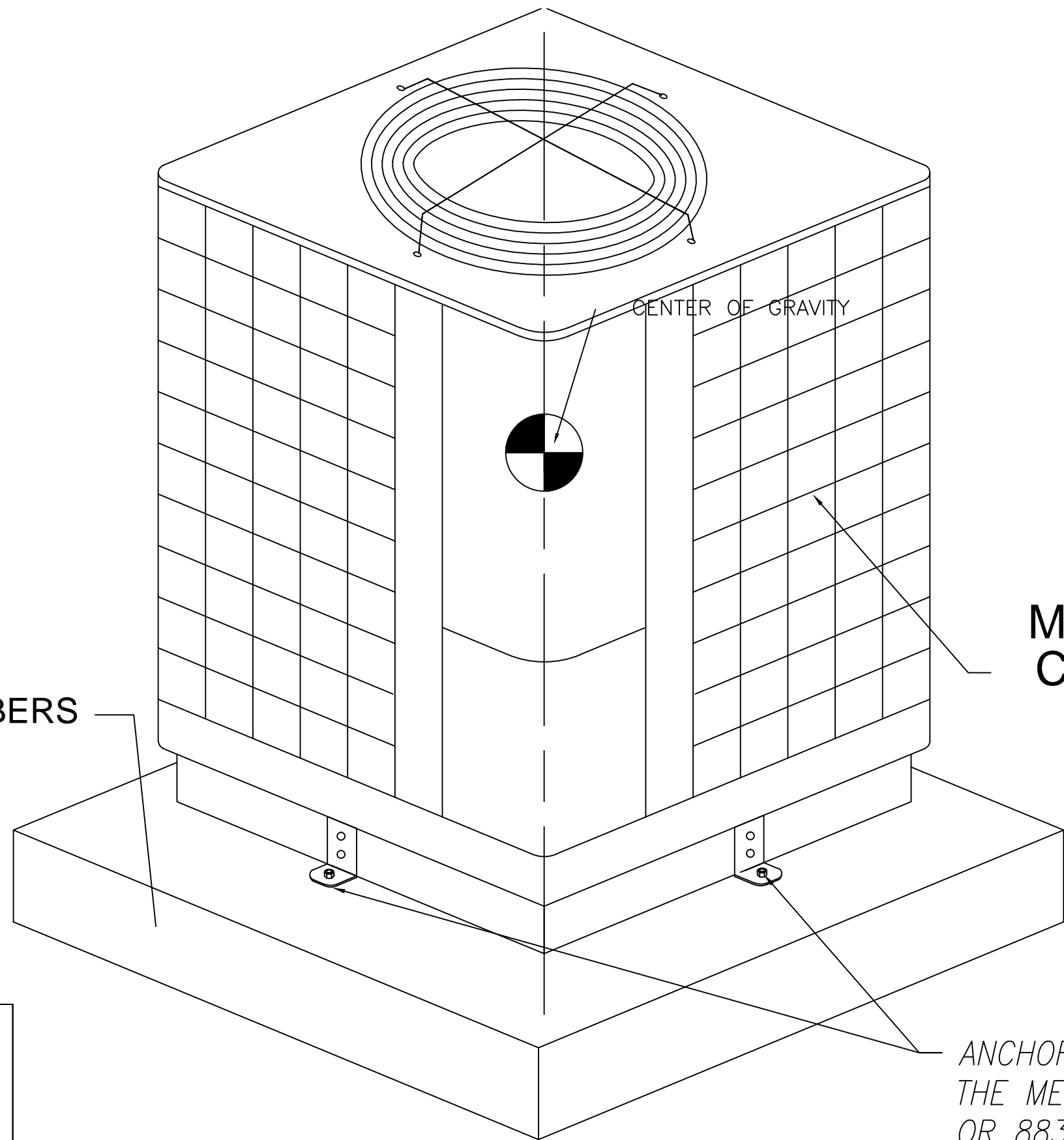
A-1

1 OF 4

CENTER OF GRAVITY OF UNIT IS ASSUMED TO AT THE GEOMETRIC CENTER OF THE MECHANICAL UNIT. ANCHORING IS FOR REGULAR SHAPED UNITS I.E. SQUARE OR RECTANGULAR. NO IRREGULAR SHAPED UNITS

CONCRETE BASE OR HOST STRUCTURE TO BE DESIGNED BY OTHERS. CONCRETE MUST BE 2000 PSI MINIMUM. SEE ENGINEERING FOR ROOF TOP MOUNTING APPLICATIONS OR WOOD SUPPORT MEMBERS

THIS ANCHORING DETAIL WILL WITHSTAND A MAXIMUM DESIGN WINDSPEED OF: 165 MPH Exp C, Cat II STRUCTURES. MAX WINDSPEED OF: 143 MPH for EXP D, Cat II STRUCTURES. SITE SPECIFIC ENGINEERING REQUIRED FOR CATEGORY III AND IV BUILDINGS.



MIN. UNIT WEIGHT: 130 lbs  
CONDENSER UNIT

ANCHOR CLIPS:  
THE METAL SHOP CLIP MODEL 771, 773 OR 883 CLIP ANCHOR AND FASTENERS. ONE ANCHOR CLIP PER SIDE OF UNIT. (4) TOTAL. USE MIN. 4-#10x $\frac{3}{4}$ " SCREWS TO CONDENSER AND 1-#14- $\frac{3}{4}$ " TO FASTEN TO BASE OF CONDENSER OR ATTACH TO CONCRETE PAD/SLAB USING 1/4"x 1  $\frac{3}{4}$ " TAPCON.

## GENERAL NOTES:

1. THIS PRODUCT HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2023 FLORIDA BUILDING CODE, 8th EDITION FOR USE WITH ASCE 7-22. THIS PRODUCT MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE.
2. NO 1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS ANCHOR SYSTEM.
3. ALLOWABLE DESIGN SHOWN ON TABLES IS BASED ON ALLOWABLE SHEAR AND TENSION LOADS OF MECHANICAL FASTENERS.
4. MAXIMUM & MINIMUM DIMENSIONS AND WEIGHT UNITS SHALL CONFORM TO SPECIFICATIONS STATED ON THESE ENGINEERING SHEETS
5. ALL MECHANICAL SPECIFICATIONS, CLEAR SPACE, TONNAGE, ETC. SHALL BE AS PER THE MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
6. FASTENERS TO BE #10 OR #14x3/4" SELF TAPPING SHEET METAL SCREWS. UNLESS NOTED OTHERWISE.
7. TAPCONS SHALL BE ITW BUILDEX OR ELCO BRAND, AND SHALL BE 1/4"x1 3/4" INSTALLED TO 2000 PSI MINIMUM COMPRESSIVE STRENGTH. SEE ANCHOR SCHEDULE FOR ANCHOR REQUIREMENTS.
8. ALL ALUMINUM CLIPS SHALL BE 5052-H32 ALUMINUM WITH  $F_y = 28$  KSI. THESE CLIPS ARE SUITABLE FOR ALL COASTAL INSTALLATIONS.
9. INSTALL AN ELECTRICAL GROUND, WHEN REQUIRED. ALL ELECTRICAL CONNECTIONS INCLUDING GROUNDS TO BE DESIGNED & INSTALLED BY OTHERS.
10. THE ADEQUACY OF ANY EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS SHALL BE VERIFIED AND IS NOT INCLUDED IN THIS CERTIFICATION. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
11. THE SYSTEM DETAILED HEREIN IS A GENERIC UNIT INSTALLATION. THIS INSTALLATION DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC INSTALLATION. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.

## EXTERIOR EQUIPMENT TIE DOWN

SCALE: N.T.S.

### STANDARD ANCHOR SCHEDULE

SUBSTRATE	ANCHOR
CONCRETE: (4" THICK MIN, 3192KSI MIN.)	(1)-1/4" x1 3/4" ITW BUILDEX OR ELCO TAPCON, 1 3/4" FULL EMBED TO CONCRETE, 2-1/2" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.

MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO CONCRETE PAD)  
ONE (1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT.)

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	(1) CLIP AT EACH CORNER
			TOTAL OF 4 CLIPS 1/4" TAPCON TO CONCRETE BASE
6 FT2	24" MAX	12" MIN	43 PSF
9 FT2	32" MAX	15" MIN	32 PSF
4 FT2			90 PSF
6 FT2			60 PSF
9 FT2	48" MAX	24" MIN	40 PSF
12 FT2			30 PSF
16 FT2			
20 FT2			29 PSF
25 FT2	60" MAX	48" MIN	
30 FT2			
36 FT2			

1. TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (2)-#14x3/4" STS GRADE 5 SHEET METAL SCREWS.
2. MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
  - A). ALUMINUM FRAME OR EXTERIOR HOUSING SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH  $F_{ty}$ =30 KSI, 0.0625" MIN. THICKNESS.
  - B). STEEL HOUSING UNITS SHALL BE 33KSI MIN . STEEL, GRADE 33, 22GA MIN. (t=0.0299").
3. MAXIMUM ALLOWABLE WIND PRESSURES MAY BE EQUIVALENT DUE TO THE LIMITING CAPACITY OF THE 1" CLIP.
4. A MAXIMUM ALLOWABLE VALUE OF 200 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

### RECOMMENDED FASTENERS

1/4" x 1 3/4" TAPCON

MAXIMUM ALLOWABLE SHEAR LOAD  
FOR 1/4" DIA CONCRETE FASTENERS  
IN 2000 PSI MINIMUM STRENGTH  
CONCRETE IS: 325 LBS. PULL OUT  
(TENSION LOAD) STRENGTH OF TAPCON IS  
505 LBS WITH  
1 3/4" MIN. EMBEDMENT:

SINGLE SHEAR: 325 LBS  
TENSION: 505 LBS

REVISIONS

DATE:

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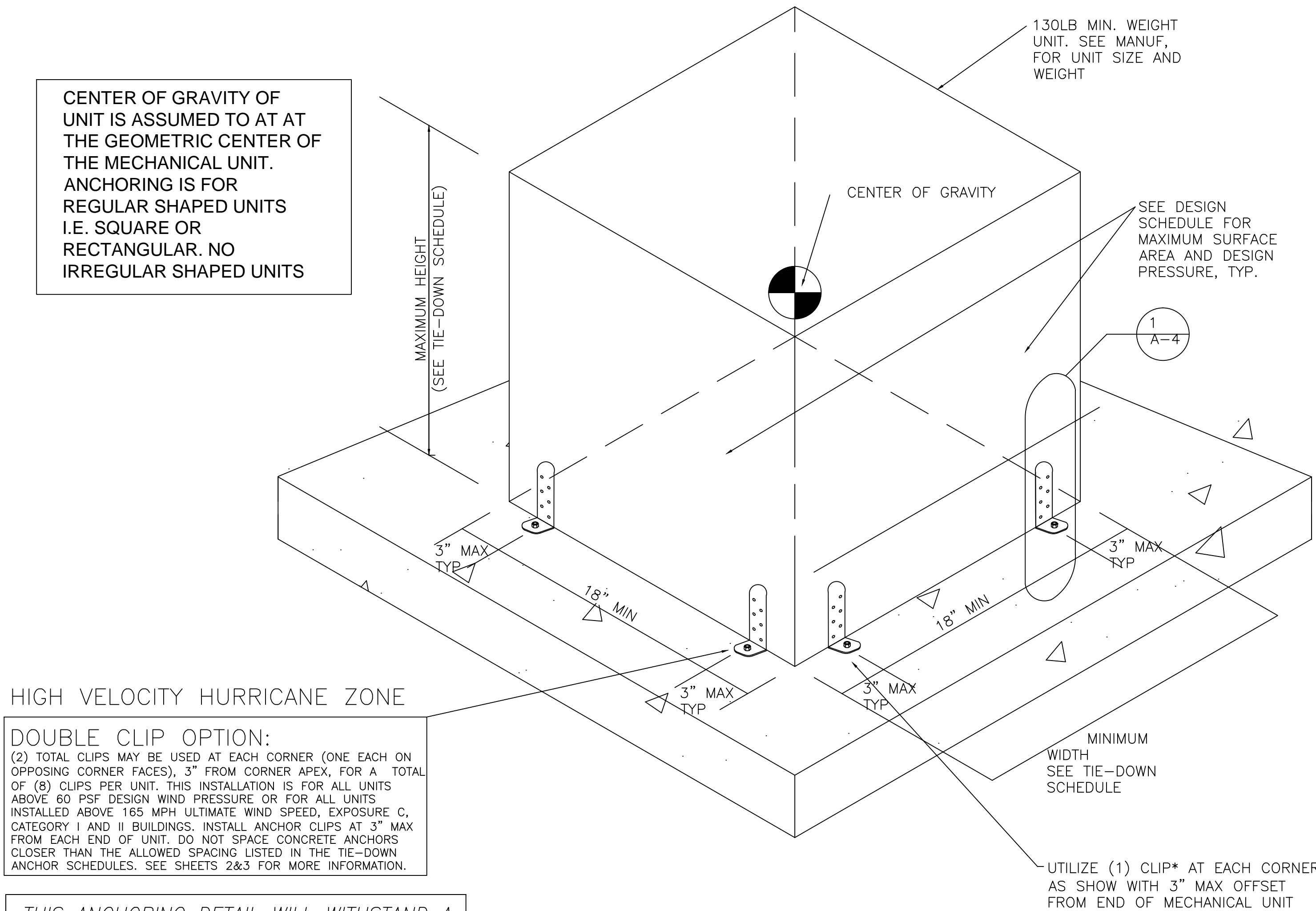
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JOB NO.  
SHEET  
A-2  
2 OF 4



THIS ANCHORING DETAIL WILL WITHSTAND A MAXIMUM DESIGN WINDSPEED OF: 192 MPH Exp C, Cat II STRUCTURES. Max WINDSPEED OF: 167 MPH for EXP D, Cat II STRUCTURES. SITE SPECIFIC ENGINEERING REQUIRED FOR CATEGORY III AND IV BUILDINGS

## EXTERIOR EQUIPMENT TIE DOWN

SCALE: N.T.S.

### STANDARD ANCHOR SCHEDULE

SUBSTRATE	ANCHOR
CONCRETE: (4" THICK MIN, 3192KSI MIN.)	(1)-1/4" x1 3/4"ITW BUILDEX OR ELCO TAPCON, 1 3/4" FULL EMBED TO CONCRETE, 2-1/2" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	(2) CLIPS AT EACH SIDE
			TOTAL OF 8 CLIPS 1/4" TAPCON TO CONCRETE BASE
6 FT2	24" MAX	12" MIN	81 PSF
9 FT2	32" MAX	15" MIN	60 PSF
4 FT2	48" MAX	24" MIN	110 PSF
6 FT2			113 PSF
9 FT2			15 PSF
12 FT2			56 PSF
16 FT2			42 PSF
20 FT2	60" MAX	48" MIN	52 PSF
25 FT2			44 PSF
30 FT2			37 PSF
36 FT2			30 PSF

- TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (4)-#10x3/4" STS GRADE 5 OR S.S. SHEET METAL SCREWS.
- MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
  - ALUMINUM FRAME OR EXTERIOR HOUSING SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.0625" MIN. THICKNESS.
  - STEEL HOUSING UNITS SHALL BE 33KSI MIN . STEEL, GRADE 33, 22 GAGE MIN. (t=0.030").
- MAXIMUM ALLOWABLE WIND PRESSURES MAY BE EQUIVALENT DUE TO THE LIMITING CAPACITY OF THE 1" CLIP.
- A MAXIMUM ALLOWABLE VALUE OF 200 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

## GENERAL NOTES:

1. THIS PRODUCT HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2023 FLORIDA BUILDING CODE, 8th EDITION FOR USE WITH ASCE 7-22. THIS PRODUCT MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE.

2. NO 1/3 % INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS ANCHOR SYSTEM.

3. ALLOWABLE DESIGN SHOWN ON TABLES IS BASED ON ALLOWABLE SHEAR AND TENSION LOADS OF MECHANICAL FASTENERS.

4. MAXIMUM & MINIMUM DIMENSIONS AND WEIGHT UNITS SHALL CONFORM TO SPECIFICATIONS STATED ON THESE ENGINEERING SHEETS

5. ALL MECHANICAL SPECIFICATIONS, CLEAR SPACE, TONNAGE, ETC. SHALL BE AS PER THE MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.

6. FASTENERS TO BE #10x3/4" AND #14x3/4" SELF TAPPING SHEET METAL SCREWS. UNLESS NOTED OTHERWISE.

7. TAPCONS SHALL BE ITW BUILDEX OR ELCO BRAND, AND SHALL BE 1/4" WITH 1 3/4" MIN. EMBEDMENT. INSTALLED TO 2000 PSI MINIMUM COMPRESSIVE STRENGTH. SEE ANCHOR SCHEDULE FOR ANCHOR REQUIREMENTS.

8. ALL ALUMINUM CLIPS SHALL BE 5052-H32 ALUMIMUM WITH Fy = 28 KSI. THESE CLIPS ARE SUITABLE FOR ALL COASTAL INSTALLAT

9. INSTALL AN ELECTRICAL GROUND, WHEN REQUIRED. ALL ELECTRICAL CONNECTIONS INCLUDING GROUNDS TO BE DESIGNED & INSTALLED BY OTHERS.

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11. THE SYSTEM DETAILED HEREIN IS A GENERIC UNIT INSTALLATION. THIS INSTALLATION DOES NOT PROVIDE INFORMATION FOR A SITE SPECIFIC INSTALLATION. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.

### RECOMMENDED FASTENERS

1/4" x 1 3/4" TAPCON

MAXIMUM ALLOWABLE SHEAR LOAD FOR 1/4" DIA CONCRETE FASTENERS IN 2000 PSI MINIMUM STRENGTH CONCRETE IS: 325 LBS. PULL OUT (TENSION LOAD) STRENGTH OF TAPCON IS 505 LBS WITH 1 3/4" MIN. EMBEDMENT:

SINGLE SHEAR: 325 LBS  
TENSION: 505 LBS

REVISIONS

DATE:

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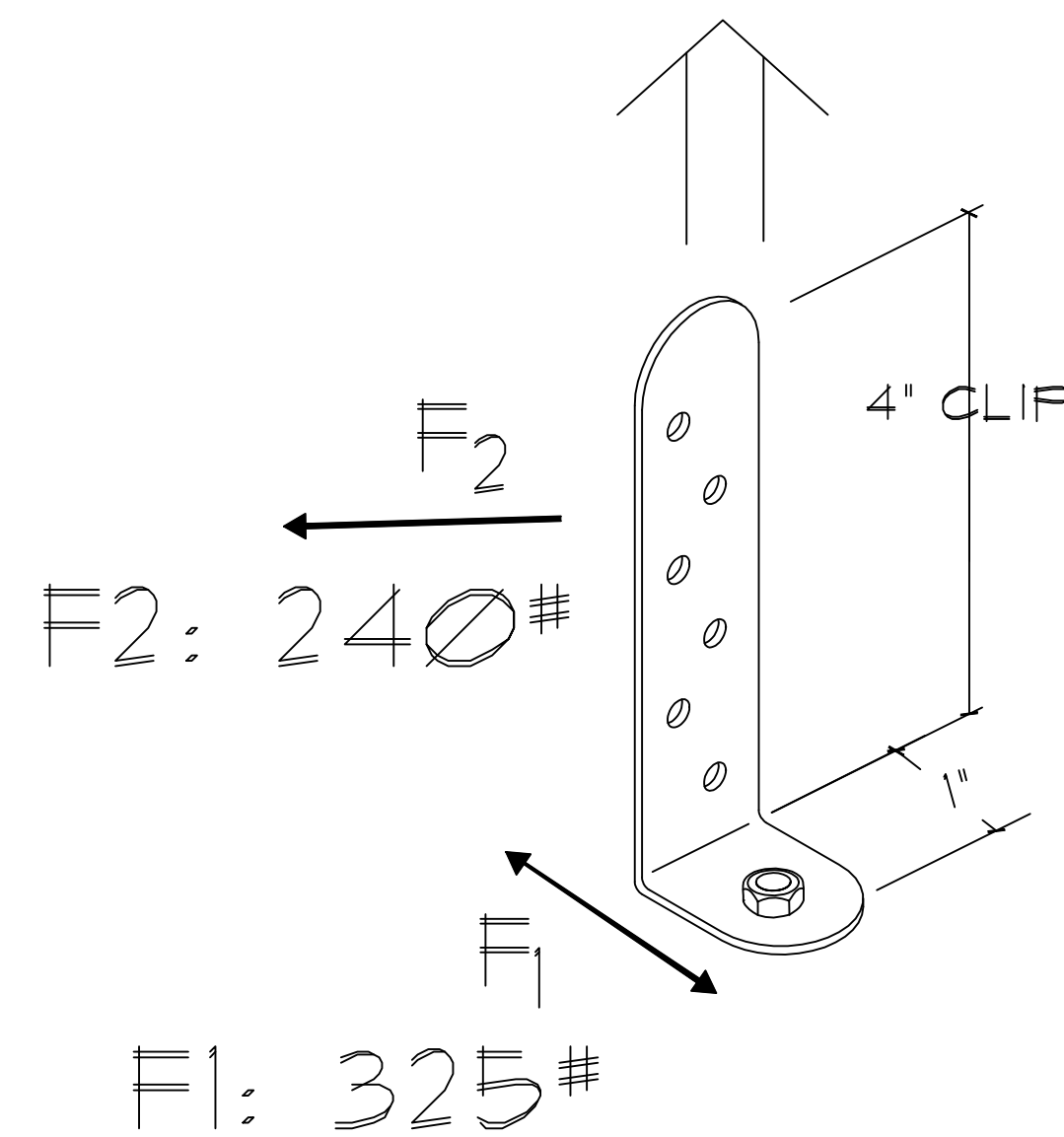
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SHEET

A-3  
3 OF 4



F1: 505# UPLIFT



USE MIN. OF 4- #10x3/4" SCREWS FOR 4" CLIP TO CONDENSER  
USE MIN. OF 4- #10x3/4" SCREWS FOR 6" CLIP TO CONDENSER  
USE 1/4" x1 3/4" TAPCON STAINLESS STEEL TO CONCRETE PAD

METAL SHOP # 008110A - 4" ANCHOR CLIP WITH DRILL BIT  
METAL SHOP # 008111A - 4" ANCHOR CLIP (4 PK)  
METAL SHOP # 008111AS - 4" ANCHOR CLIP WITH SCREWS

METAL SHOP # 008113A - 6" ANCHOR CLIP (4 PK)  
METAL SHOP # 008113AS - 6" ANCHOR CLIP WITH SCREWS  
METAL SHOP # 008114A - 6" DELUXE ANCHOR CLIP WITH DRILL BIT

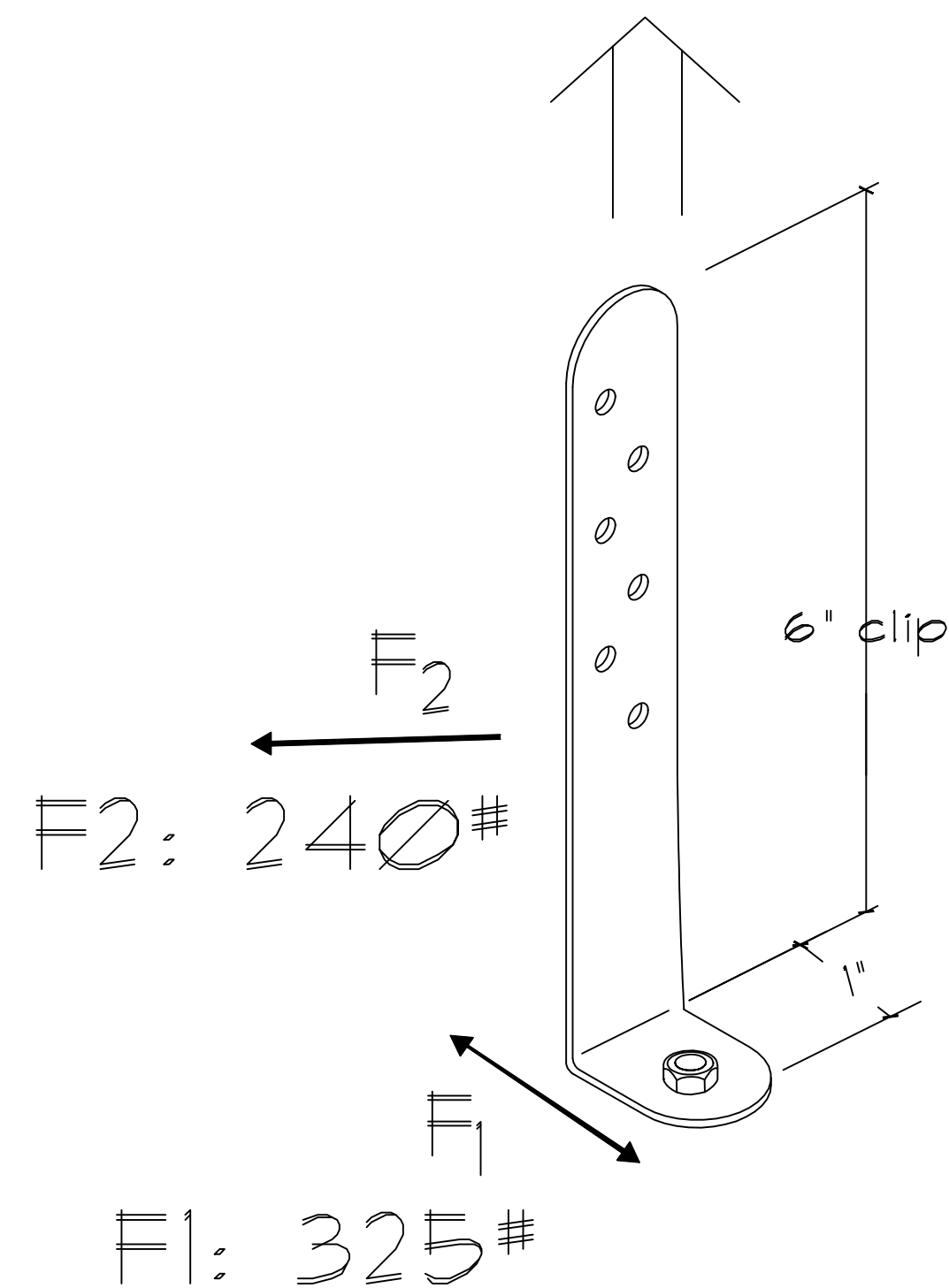
LOAD CAPACITIES FOR TAPCONS

	Anchor Size	Emd. Depth	2,000 psi Concrete	4,000 psi Concrete	6,000 psi Concrete	Concrete Block	Red Brick
Tension Load (lbs.)	1/4"	1"	760	930	1,140	720	940
		1-1/4"	1,090	1,540	1,690	880	1,160
		1-1/2"	1,520	1,850	2,210	1,090	1,320
		1-3/4"	2,020	2,330	2,740	1,290	1,420
Shear Load (lbs.)	1/4"	1"	725	1,420	2,140	690	1,720
		1-1/4"	1,053	2,150	2,390	925	1,840
		1-1/2"	1,270	2,270	2,580	1,125	1,930
		1-3/4"	1,305	2,390	2,840	1,305	2,130

NOTE:

The values listed above are ultimate load capacities for TAPCONS which should be reduced by minimum safety factor of 4 or greater to determine the allowable working load. Refer to the section on product selection guidelines for details. The consistency of hollow block and brick varies greatly. The load capacities listed above for hollow block and brick should be used as guidelines only. Job site tests should be conducted to determine the actual load capacities in these materials.

F1: 505# UPLIFT



MAX UPLIFT: 505#  
WITH 4- #10x3/4" SCREWS PER CLIP

**A/C ANCHOR CLIP**

Tapcon

1/4"x 1 3/4"  
INTO  
CONCRETE  
PAD

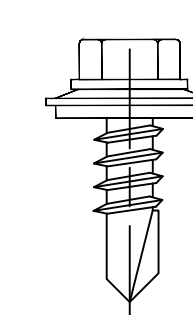
RECOMMENDED FASTENERS

1/4" x 1 3/4" TAPCON

MAXIMUM ALLOWABLE SHEAR LOAD  
FOR 1/4" DIA CONCRETE FASTENERS  
IN 2000 PSI MINIMUM STRENGTH  
CONCRETE IS: 325 LBS. PULL OUT  
(TENSION LOAD) STRENGTH OF TAPCON IS  
505 LBS WITH  
1 3/4" MIN. EMBEDMENT:

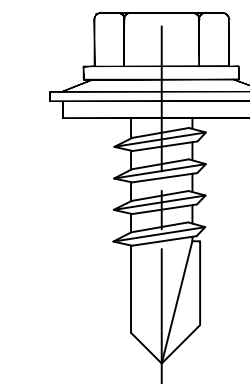
SINGLE SHEAR: 325 LBS  
TENSION: 505 LBS

SHEET  
METAL  
SCREWS



#10x3/4"  
W/  
Neoprene  
washer into  
Condenser

SHEET  
METAL  
SCREWS



#14x3/4"  
W/  
Neoprene  
washer into  
AC Stand  
and  
Condenser

**METAL FASTENERS**

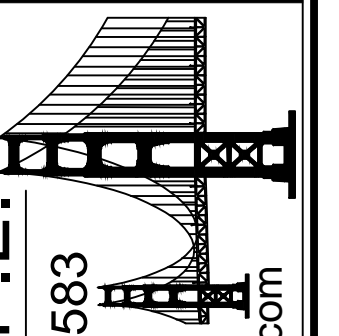
Notes:

1. Alternative fasteners may be used as shown in the details. All fasteners must meet or exceed the safe working load values specified by the manufacturer, and shall be approved by the building official.

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OF 4