CARRIER Chassis 7a:

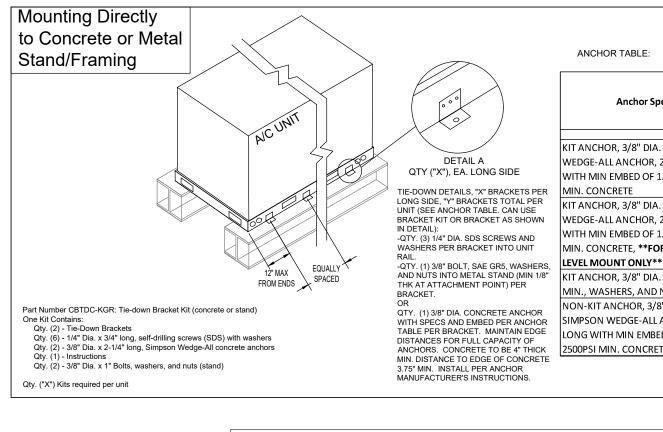
Models: 38AUD/AXD, AUZ/AXZ, and AUQ/AXQ size 25,28

Each condenser unit listed above conforms to the Florida Building Code 8th Edition (2023) requirements for installation including High Velocity Hurricane Zone (HVHZ), Risk Category III (V = 186 MPH), exposure category "D", and installation on a roof height of up to and including 60 feet above grade (i.e., 65' to mid-height of unit). Worst case is -25 (Chassis 7a) 86-3/8" x 67-1/8" x 50-3/8" tall.

SERVICE LEVEL PRESSURES (ASD) ARE AS FOLLOWS:

Design Lateral Pressure = 114.1 lb/ft^2 Design Uplift Pressure = 90.1 lb/ft²

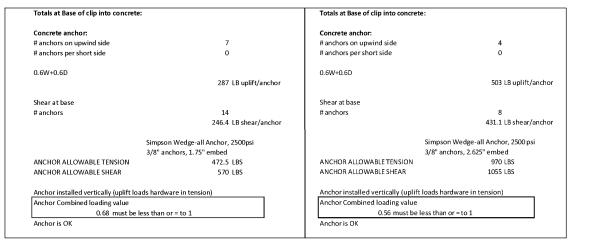
This sheet shows tie-down details of the unit to concrete or metal framing. Suitability of concrete or metal frame by others. See drawing 24008-3A for Miami-Dade BORA 2018 equipment analysis details if unit is installed in Miami-Dade.

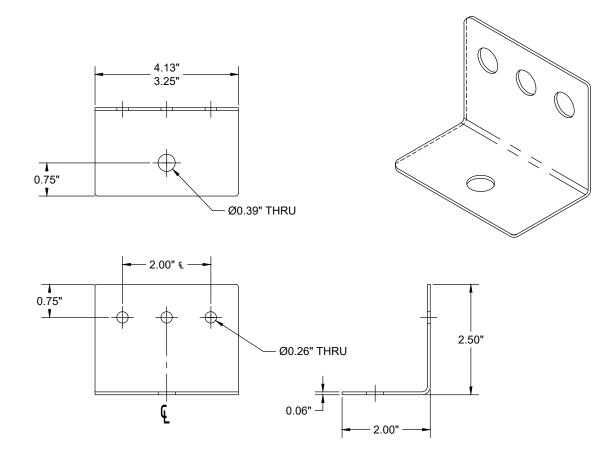


Tie-down Calculations (Direction A is normal to length of unit):

Wind Direction	A, equipment (excluding curb)			Calculation Results	
		F_h=q_h*(GC_r)*A_f		Totals at Base of Equip:	
н	50.375 in	GC_r =	1.9 Eq 29.4-2		
L	86.375 in	A_f	30.2 SQ FT		
w	67.125 in			Bracket to Equipment:	
		F_h=q_h*(GC_r)	190.2 lb/sq ft	#screws on upwind side	9
Weight	978 lbs	F min (lb/sq ft)	16 ASCE7, section 29.8	# screws per short side	0
		F_h=q_h*(GC_r)*A_f =	5748 lb		
				0.6W+0.6D	
V_ult	186 mph	F_v=q_h*(GC_r)*A_r			245.1 LB uplift/screw
V_ASD	144.1 mph	GC_r =	1.5 Eq 29.4-3		
				1/4" SMS, w 16ga steel	
				against h	e ad and 16ga
Risk Category	III	A_f	40.3 SQ FT	not against	
Exposure	D			ANCHOR ALLOWABLE TENSION	191 LBS
		Fv=qh*(GCr)	150.2 lb/sq ft	ANCHOR ALLOWABLE SHEAR	463 LBS
K_z	1.33 Table 29.3-1 (65 ft elev.)	F min (lb/sq ft)	16 ASCE7, section 29.8		
K_d	0.85 ASCE7, table 26.6-1	F_v=q_h*(GC_r)*A_f =	6047.0 lb	Anchor installed horizontally (uplift loads h	ardware in shear)
K_zt	1			Anchor Combined loading value	
				0.28 must be less than o	r = to 1
q_z=0.00256*K	_z*K_zt*K_d*V^2 (lb/sq ft)			Anchor is OK	
q_z=	100.1 psf				

Typical Base of Clip to concrete/metal tie down (metal and ground calculation similar, see Anchor Table for values):





BRACKET DETAIL, 16 GA GALV STEEL

ecs	X, # ANCHORS PER LONG SIDE	Y, # TOTAL ANCHORS
. SIMPSON 2.25" LONG L.75" IN 2500PSI	7	14
. SIMPSON 2.25" LONG L.75" IN 2500PSI R GROUND *	3	6
. BOLT SAE GR5 NUT	3	6
3" DIA. ANCHOR, 3.5" ED OF 2.625" IN TE	4	8

Anchor Sp

	SRRRA HANICAL DESIGN				
ENGI	EER:				
THIS SEAL ONLY VALID FOR- ###PROJ NAME###### ##ADDRESS######### Samuel Martin, PE, State of Florida, Professional Engineer, License No. 69293. This item has been digitally signed by Samuel Martin, PE on date as shown on timestamp above. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies. Samuel Martin, P.E. FL PE# 69293 SRM Mechanical Design, Inc. FL CA# 32380 20197 NE 16th PL Miami, FL 33179 tel: 305-318-5883					
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CA CA J CA	₩ RRIER CONDENSING NITS - CHASSIS 7A ID,AUZ,AUQ SIZE 25,28 ⟨D,AXZ,AXQ SIZE 25,28				
DRAWING TIT	E LIST AND TIE-DOWN DETAILS				
	07/2024 ORDER # -				
DRAWING SC					
DRAWING NU	LE NTS REF. 21138-3				

Rational Analysis: 20-25 Ton Chassis 7A- 86-3/8" x 67-1/8" x 50-3/8" tall.

Design Pressures complying to FBC Building 1620.6 (HVHZ): V = 186 mph (Risk Cat. III), For Exp.Cat. "D" and Z = 65 ft, K_z = 1.33, K_{zt} = 1.0, K_d = 0.85 $q_z = .00256K_zK_{zt}K_dV^2 = 100.12 \text{ lb/ft}^2$ Using 1620.6, Lateral Wind Pressure= W_L = $q_z(1.9) = 190.2 \text{ lb/ft}^2$ Uplift Wind Pressure= U_t = $q_z(1.5) = 150.2 \text{ lb/ft}^2$

Factoring in the required Load Combination factor (0.6): Design Lateral Pressure (ASD) = $W_L(0.6)$ = 114.1 lb/ft² Design Uplift Pressure (ASD) = $U_L(0.6)$ = 90.1 lb/ft²

Positive pressure acts toward the surface being considered and negative pressure acts away, only the negative pressure will remove a panel from the machine.

22 GA. posts, 20 panels, the 18 GA. cover, and 16 GA. base rails are fastened together using #10-12 serrated washer, self-tapping screws having 0.425" head diameter, 0.19" nominal diameter, and 0.14 minor diameter. These screws are expected to exhibit the following properties based upon ICC-ES Report ESR-2196:

ese screws are expected to exhibit the following properties	based upon ICC-ES Report ESR-2196:
Pullout Strength (22 GA.) = 306 lbs (ultimate)	Shear Strength (22 GA.) = 684 lbs
Pullout Strength (20 GA.) = 351 lbs (ultimate)	Shear Strength (18 GA.) = 723 lbs
Pullout Strength (18 GA. min.) = 450 lbs (ultimate)	Shear Strength (16 GA.) = 927 lbs

Components and Cladding:

"Top Cover" (50HE500278): 85.0" x 57.4" draw formed 18 GA. cover, with (4) large holes

- (4) cover-post screws at (2) corners by 22 GA. posts
- (10) cover-panel screws along (3) edges by 20 GA. panels
 (6) cover-cover screws along top seam of the unit by a second 18 GA. cover .

The overturning moment across the unit, applied to the cover-post screws (4), created the highest load approximation given the uplift design pressure, number of

fasteners and (1) edge trapped by adjacent cover connection. The individual screw load calculation simplifies to dividing the total uplift load by 6.

Total Area = 33.9 sq.ft. - 11.0 sq.ft. = 22.8 sq.ft.

Uplift Load= 22.8 (90.1) = 2054.3 lbs

Screw Load = 2054.3/6 = 342.4 lbs Safety Factor = 723/342.4 = 2.0x

OK for Components and Cladding

"Top Cover" (38AU500226): 84.96" x 8.90" draw formed 18 GA. panel, Area = 5.25 sq.ft.

- (8) screws through the inside flange, perpendicular to face
- (6) screws through the outside flange, parallel to face
- (1) screws through left side flange, parallel to face
- (1) screws through right side flange, parallel to face

Load = 5.25 (114.1) = 599.0 lbs

For top cover (15 screws, 6 in tension): Screw Load = 599.0 (6)/15 = 239.6 lbs (tension) Safety Factor= 450/239.6 = 1.9x Screw Load= 599.0 (9)/15 = 359.4 lbs (shear) Safety Factor = 927/359.4 = 2.6x OK for Components and Cladding

"Outdoor Panel" (38AU500661): 45.49" x 29.73" draw formed 20 GA. panel, Area = 9.39 sq.ft.

- (3) screws through top panel and into face at the top
- (2) screws through post (trapped) along right vertical edge, perpendicular to face
- (2) screws through left vertical edge of the flange, perpendicular to face
- (3) screws 7/16 inch above bottom edge through panel into base rail.

Load = 9.39 (114.1) = 1071.4 lbs Screw Load = 1071.4/10 = 107.1 lbs Safety Factor = 351/107.1 = 3.3x OK for Components and Cladding

FIELD MODIFICATION NOTES:

- INSTALL 5"X5"X 12 GA THICK GALVANIZED REINFORCING ANGLE TO CORNER AS SHOWN. TOP OF ANGLE WITH NOTCH TO BE INSTALLED UNDER TOP COVER OF UNIT.
- 2. INSTALL QTY. (5) 1/4" DIAMETER SHEETMETAL SCREWS PER LEG OF ANGLE. QTY (20) TOTAL. SCREWS TO HAVE CORROSION RESISTANT COATING SUITABLE FOR THE LOCATION. COASTAL INSTALLATIONS REQUIRE HOT DIP GALVANIZED OR STAINLESS STEEL SCREWS.
- 3. IT IS OWNER'S RESPONSIBILITY TO ENSURE THAT ALL MANUFACTURER'S SCREWS, PANEL SCREWS, AND REINFORCING ANGLE SCREWS ARE IN PLACE AS PART OF THEIR PERIODIC MAINTENANCE AND HURRICANE PREPARATION PLANS.
- 4. IT IS OWNER'S RESPONSIBILITY TO ENSURE THAT UNIT AND SCREWS ARE MAINTAINED AND DO NOT CORRODE OVER TIME.

"Side Panel" (38AU500664): 45.54" x 34.99" draw formed 20 GA. panel, Area = 11.07 sq.ft. screws through top panel into face at top (4) screws through left vertical edge through flange, parallel to face. (2)screws through right vertical edge through flange, perpendicular to face. (2)screws at 7/16 inch above bottom edge through panel into base rail. (4) Load= 11.07 (114.1) = 1263.1 lbs Screw Load = 1263.1/12= 105.3 lbs Safety Factor = 351/105.3 = 3.33x OK for components and cladding "Front Panel" (38AU500078): 43.2" x 45.1" draw formed 20 GA. panel, Half Area = 6.8 sq.ft. (2)screws through post (trapped) along the vertical edge screws along vertical edge (2) screws 7/16 inch above bottom edge through panel into base rail (3) Top edge of "Front Panel" is trapped inside the 'Top Cover" (38AU500226), the bottom subten along the bottom edge yields (5) screws for load consideration. Load = 6.8 (114.1)/2 = 389.0 lbs Screw Load = 389.0/5 = 77.5 lbs Safety Factor = 351/77.5 = 4.5x OK for components and cladding "Center Post" (38AU500662): 45.37" x 19.95" draw formed 20 GA. panel, Area = 6.29 sq.ft. screws through top panel and into face at the top (2)screws through post (trapped) along the vertical edge (2) (2) screws along vertical edge of flange (3) screws 7/16 inch above bottom edge through panel into base rail Load= 6.29 (114.1) = 717.7 lbs

Unit Construction:

Unit with Field Modifications shown below and all manufacturer's screws properly installed will w and satisfy Miami-Dade BORA interpretation of 2018.

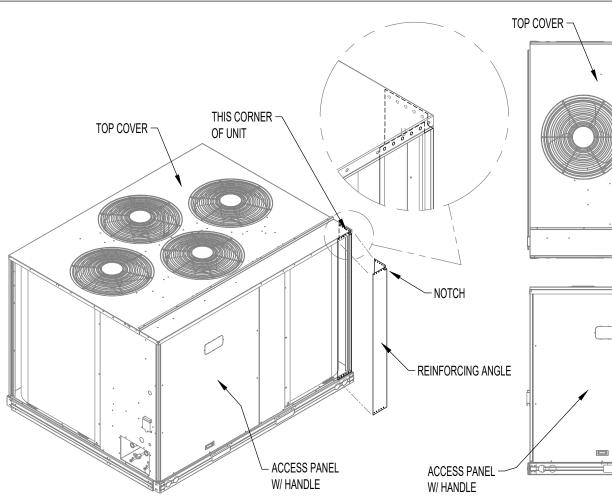
OK for components and cladding

For connection of unit base rails to properly designed metal stand, or structural concrete (by

See drawing 24008-3 for Tie-down details.

Screw Load= 717.7/9 = 79.7 lbs

Safety Factor = 351/79.7 = 4.4x



	SERVICAL DESIGN
ds the lower half of the panel, and the failure criterion	ENGINEER: DIGITAL SEAL EMBLEM ON PAGE 1. NOT NEEDED HERE FOR MULTIPAGE PDF FILE. Samuel Martin, PE, State of Florida, Professional Engineer, License No. 69293. This item has been digitally signed by Samuel Martin, PE on date as shown on timestamp above. Printed copies of this document are not considered signed and
vithstand wind loads imposed by the design conditions	sealed and the signature must be verified on any electronic copies.
others):	Samuel Martin, P.E. FL PE# 69293 SRM Mechanical Design, Inc. FL CA# 32380 20197 NE 16th PL
	Miami, FL 33179 tel: 305-318-5883 e-mail: sales@srmmech.com
	NEUSION HEUSION - -
	VISE DISCLAMER: COOPTIGHT RESERVED TO ALL DESIGN AND DRAWING AFF THE COPTIGHTS TO ALL DESIGN AND DRAWING AFF THE CONTON OF USE FOR ANY PURPOSE OTHER THAN THAT AUTHORIZED BY SRM MECHANICAL DESIGN IS PROJECT NAME: CARRIER CONDENSING UNITS - CHASSIS 7A 38AUD,AUZ,AUQ SIZE 25,28 38AXD,AXZ,AXQ SIZE 25,28 DRAWING TILE MIAMI-DADE BORA 2018 EQUIPMENT ANALYSIS DETAILS DATE 4/07/2024 ORDER#
REINFORCING ANGLE $\underline{\vee}$	DRAWING SUGLE NTS 21138-3A DRAWING NUMBER SHEET # DWG REVISION 24008-3A 1 OF 1 B 0