

WIND LOAD CALCULATION

HVAC Equipment Anchorage - Florida Building Code

WIND ZONE REQUIREMENTS

Design Wind Speed: 150 mph (Ultimate Wind Speed)

Wind Zone: Coastal (Wind-Borne Debris Region)

Exposure Category: C (Coastal)

Risk Category: II (Residential)

Code: Florida Building Code 2023 / ASCE 7-22

EQUIPMENT DATA

Equipment: Carrier 24ACC642A003

Capacity: 3.5 tons

Unit Weight: 350 lbs (estimated)

Unit Dimensions: 105" L x 84" W x 30" H (typical)

Mounting: Ground/Platform/Roof

WIND PRESSURE CALCULATION

Velocity Pressure (qh): 57.6 psf

Gust Effect Factor (G): 0.85

Force Coefficient (C_f): 1.8

Projected Area (A): 21.9 sq ft

Wind Force ($F = qh \times G \times C_f \times A$): 1927.8 lbs

REQUIRED ANCHORAGE: 1927.8 lbs minimum

ANCHORAGE REQUIREMENTS

- Minimum (4) anchor points (one at each corner)
- Anchor capacity: 723 lbs each (with 1.5x safety factor)
- Concrete anchors: 1/2" diameter, 4" embedment minimum
- Roof mount: Through-bolt to structural members
- Hardware: Stainless steel or hot-dip galvanized
- Anti-vibration pads with metal restraint

Ø β HURRICANE TIE-DOWN REQUIREMENTS

- Simpson Strong-Tie H2.5A or equivalent hurricane straps
- Welded metal frame secured to foundation or roof trusses
- No reliance on adhesives or caulk for structural attachment
- Equipment legs bolted through platform to anchors
- Electrical conduit secured with metal straps every 3 feet
- Inspector verification BEFORE covering any connections

INSTALLATION NOTES

1. Verify anchor substrate: concrete (3000 psi min) or structural wood (2x material min)
2. Use manufacturer-approved anchorage kit when available
3. Torque anchor bolts per manufacturer specifications
4. Provide electrical bonding for metal equipment and platform
5. Maintain clearance for service access (3 feet minimum)
6. Document installation with photos of anchor points

DISCLAIMER: This is a simplified wind load estimate based on Florida Building Code requirements for residential HVAC equipment. For rooftop installations, elevated platforms above 6 feet, or installations subject to special wind exposure, a professional engineer must provide sealed calculations and drawings. Contractor is responsible for verifying all load paths and anchor capacities.