

# High Wind Tie Down Kit

## INSTALLATION INSTRUCTIONS

For Anchoring (\*)SA1 Series Air Conditioners and (\*)SH1 Series Heat Pumps to a Slab (1.5 to 5 Ton Units)

### IMPORTANT SAFETY INFORMATION

INSTALLER: Please read all instructions before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** indicates a potentially hazardous situation that if not avoided, could result in personal injury or death.

### **WARNING:**

#### **ELECTRICAL SHOCK, FIRE OR EXPLOSION HAZARD**

Failure to follow safety warnings exactly could result in serious injury or property damage.

Improper servicing could result in dangerous operation, serious injury, death or property damage.

- Before servicing, disconnect all electrical power to the unit.
- When servicing controls, label all wires prior to disconnecting. Reconnect wires correctly.
- This unit may have more than one power supply.
- Verify proper operation after servicing.

### **WARNING:**

The safety information listed below must be followed during the installation, service, and operation of this unit. Unqualified individuals should not attempt to interpret these instructions or install this equipment. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

- Follow all precautions in the literature, on tags and labels provided with the equipment. Read and thoroughly understand the instructions provided with the equipment prior to performing the installation and operational checkout of the equipment.
- Unless noted otherwise in these instructions, only factory authorized parts or accessory kits may be used with this product. Improper installation, service, adjustment, or maintenance may cause fire, electrical shock or other hazardous conditions which may result in personal injury or property damage.
- Use caution when handling this equipment or removing components. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

### ABOUT THE KIT

#### Miami Tech Kit: NCUTD8KG

This high wind kit is used to anchor split-system air conditioners and heat pumps to adequately designed concrete base pads. This system is designed to meet the latest requirements of Florida Building Code when installed according to these instructions and the supplied Technical Evaluation Report.

### INSTALLATION OF THE ANCHOR KIT ON SPLIT-SYSTEM AC/HP UNITS:

It is recommended that this kit be installed on the unit prior to connecting refrigerant lines and electrical wiring. It may be installed later if necessary.

1. Position the unit in the center of the concrete pad.
2. Place the mounting brackets according to the ANCHOR LAYOUT.
3. Secure each bracket to the unit using (4) of the included #10-16 self-drilling screws.
  - **NOTE:** Install the screws at the top of the available slots.
  - **NOTE:** Verify the bottom of the bracket remains flush with the concrete pad.
4. Pre-drill for the concrete anchor bolts using the appropriate masonry bit.
  - **NOTE:** Holes must be located at least 4" from the edge of the concrete pad.
5. Secure the brackets to the pad using the included ¼" bolts.



EVALUATION SUBJECT: **PANELIZED SPLIT SYSTEMS**

**TER-19-8163.1**

**REPORT HOLDER:**

NORTEK GLOBAL HVAC  
8000 PHOENIX PARKWAY  
O'FALLON, MO 63368 USA  
(800) 422-4328 | NORTEK.COM



Florida Building Code Sixth Edition (2017)



**SCOPE OF EVALUATION (compliance with the following codes):**

THIS IS A STRUCTURAL (WIND) PERFORMANCE EVALUATION ONLY. NO ELECTRICAL OR TEMPERATURE PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN.

This Product Evaluation Report is being issued in accordance with the requirements of the Florida Building Code Sixth Edition (2017) per FBC Section 104.11.1, FMC 301.15, FBC Building Ch. 16, ASCE-7-10, FBC Existing Building sections 707.1, 707.2, FBC Building 1522.2, and FBC Residential M1202.1, M1301.1, FS 471.025, including Broward County Administrative Provisions 107.3.4. The product noted on this report has been tested and/or evaluated as summarized herein.

**IN ACCORDANCE WITH THESE CODES EACH OF THESE REPORTS MUST BEAR THE ORIGINAL SIGNATURE & RAISED SEAL OF THE EVALUATING ENGINEER.**

**SUBSTANTIATING DATA:**

• **Product Evaluation Documents**

Substantiating documentation has been submitted to provide this TER and is summarized in the sections below.

• **Structural Engineering Calculations**

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

- Maximum allowable unit panel wind pressure connection integrity
- Maximum allowable uplift, sliding, & overturning moment for ground and roof applications

Calculation summary is included in this TER and appears below.

NOTE: No 33% increase in allowable stress has been used in the design of this product.

**INSTALLATION:**

The product(s) listed above shall be installed in strict compliance with this TER & manufacturer-provided model specifications.

The product components shall be of the material specified in the manufacturer-provided product specifications. All screws must be installed in accordance with the applicable provisions & anchor manufacturer's published installation instructions.

**LIMITATIONS & CONDITIONS OF USE:**

Use of this product shall be in strict accordance with this TER as noted herein. See final page for complete limitations and conditions of use.

**INSTALLATION:**

Shall follow manufacturer specifications as well as information provided herein.

**FINISH:**

Baked enamel, casing color gray.

**NOTE: THE GRAPHICAL DEPICTIONS IN THIS REPORT ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE.**

**UNIT CASING MATERIAL:**

20ga galvanized steel sheet equivalent to ASTM A653 EDDS cold rolled steel for removable top panel. 30% Talc reinforced polypropylene for base pan. 24ga galvanized steel sheet ASTM A653 for side protector panels, secured with #12-14 C1016-C1024 at base pan and #10-16 C1016-C1024 sheet metal screws into top.

**OPTIONS:**

This evaluation is valid for all PANELIZED models that appear in the table located on the final page of this report.

**STRUCTURAL PERFORMANCE:**

Models referenced herein are subject to the following design limitations:

ASCE-710 Exposure Categories C

Up to and including 175mph (Vult) for up to See Page 2 MRH\*\*, HVHZ\*\*\*

Up to 200mph (Vult). Non-HVHZ\*\*\* Ground EXP D

Ground or Roof Application per installation instructions

\*\*Mean Roof Height \*\*\*High Velocity Hurricane Zone

Maximum Rated Wind Pressure:

**118psf Lateral 93psf Uplift** (ASD)

ORIGINAL SIGNATURE AND RAISED SEAL  
OR DIGITAL SEAL REQUIRED TO BE VALID PER CODE:

**P.E. SEAL REQUIRED**

**NOT FOR USE**

February 10, 2020

Frank L. Bennardo, P.E., SECB

Signed by If Checked:

ENGINEERING EXPRESS®

Gordon DiBattisto, PE

FL PE #0046549

FLCA #9885

FL PE #82328

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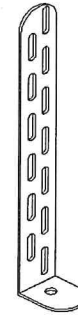
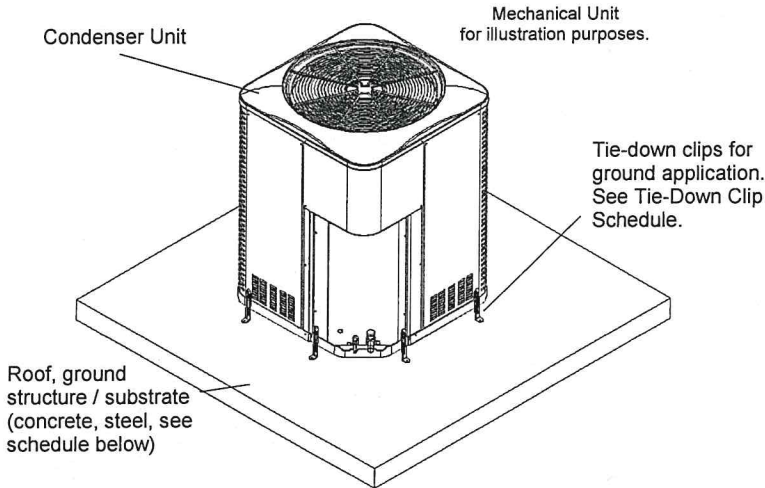
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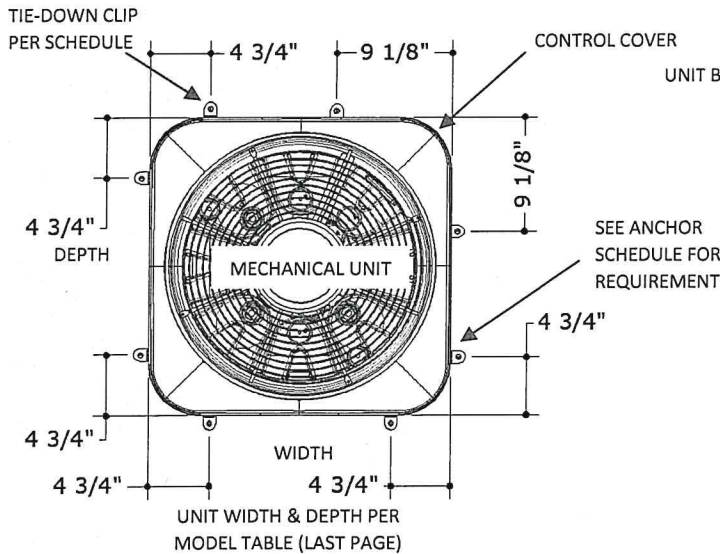
**SECTION 2 PRODUCT INSTALLATION**



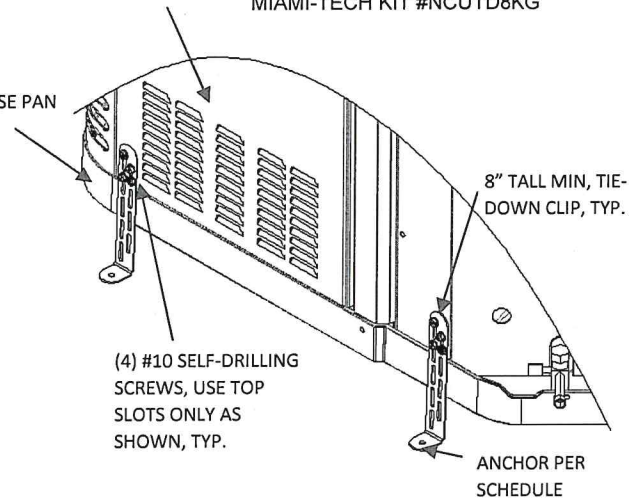
**TIE-DOWN CLIP (GROUND APPLICATION)**

Miami Tech CUTD 1" wide and 8" long min ASTM A653 galvanized steel 0.07" thick for all cabinets tied down at ground; fasten clip to host structure using anchor from Anchor Schedule to Host Structure Table and (4) #10-16 x 1/2" SS316 min self-drilling screw to fasten clip to unit. MIAMI-TECH KIT #NCUTD8KG

**ANCHOR LAYOUT AT GRADE LEVEL CABINET A**

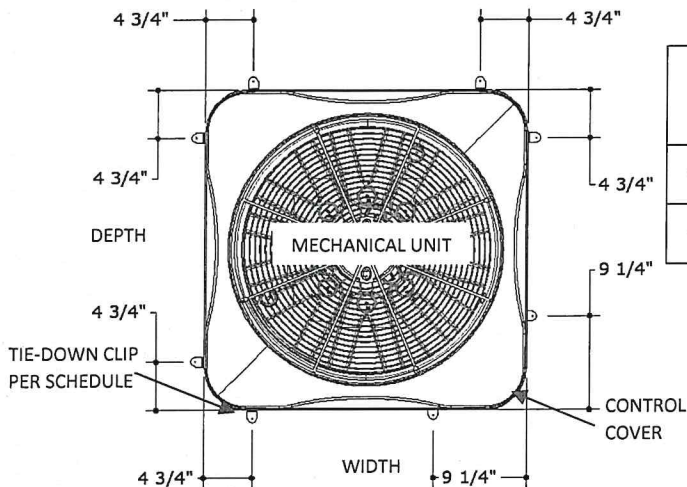


**MECHANICAL UNIT**



**TIE-DOWN CLIP DETAIL**

**ANCHOR LAYOUT AT GRADE LEVEL CABINET B**



**ANCHOR SCHEDULE TO HOST STRUCTURE**

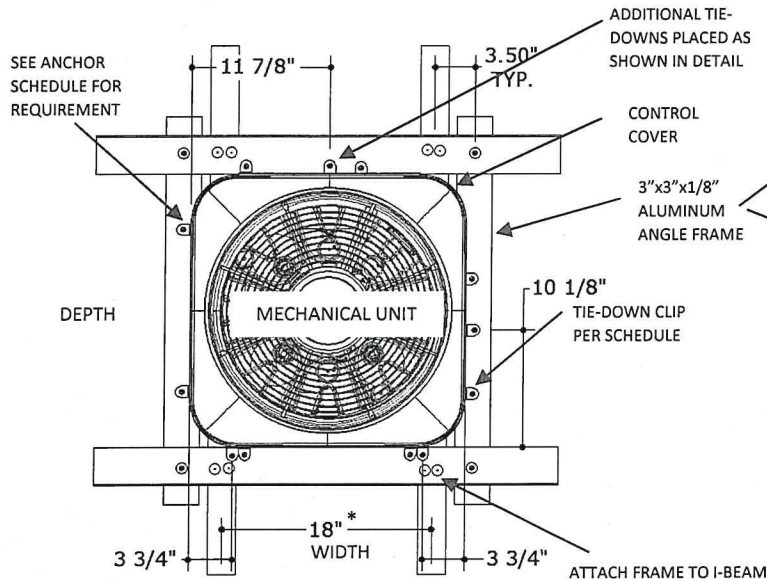
| Cabinet   | Pressure Lateral / Uplift (PSF) |    | Mean Roof Height (feet) | Anchor Type        |                    |                           | Tie down Clips |            |
|-----------|---------------------------------|----|-------------------------|--------------------|--------------------|---------------------------|----------------|------------|
|           |                                 |    |                         | Concrete 3,000 Psi | 1/8" Min A36 Steel | 1/8" Min 6061-T6 Aluminum | Ground (Pcs)   | Roof (Pcs) |
| Cabinet A | Ground                          |    | 200                     | A                  | NA                 | NA                        | 8              | -          |
|           | 118                             | 93 | 200                     | NA                 | B                  | B                         | -              | 12         |
| Cabinet B | Ground                          |    | 200                     | A                  | NA                 | NA                        | 8              | -          |
|           | 118                             | 93 | 200                     | NA                 | B                  | B                         | -              | 12         |

**Anchor Types to Host Structure:**

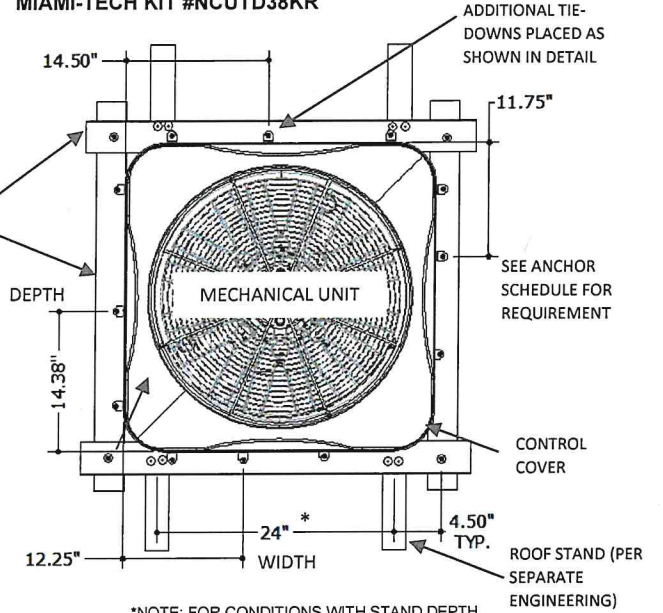
- A. - 1/4" HILTI KBV Expansion Anchor embedded 2" in 4,000 psi concrete. 4" from edge minimum.
- B. - 1/4" UNC SS 410 bolt minimum 1/2" from edges with nut and washer specified for installation at roof level.
- NA. - NOT APPLICABLE

IN ALL CONDITIONS IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO ENSURE THE HOST STRUCTURE IS CAPABLE OF WITHSTANDING THE RATED GRAVITY, LATERAL, AND UPLIFT FORCES BY SITE-SPECIFIC DESIGN. NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, IS OFFERED BY ENGINEERING EXPRESS AS TO THE INTEGRITY OF THE HOST STRUCTURE TO CARRY DESIGN FORCE LOADS INCURRED BY THIS UNIT.

**ANCHOR LAYOUT AT ROOF LEVEL CABINET A  
MIAMI-TECH KIT #NCUTD30KR**

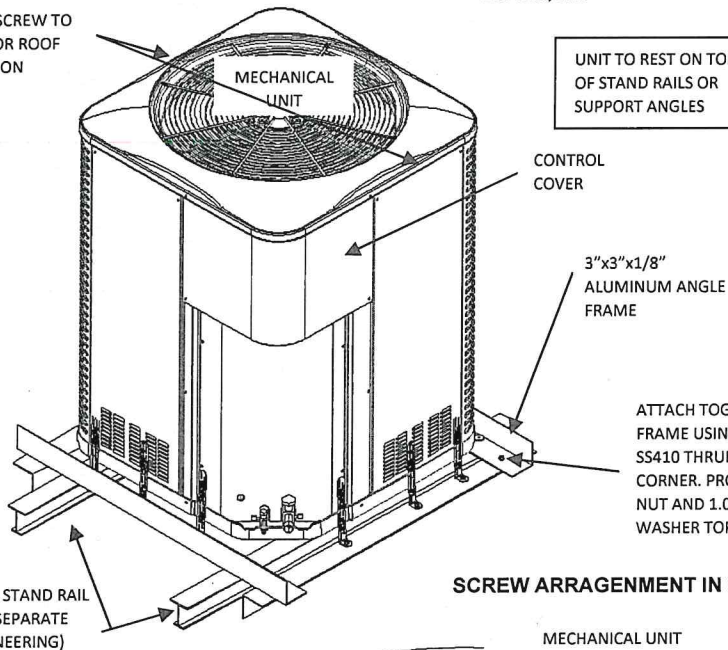


**ANCHOR LAYOUT AT ROOF LEVEL CABINET B  
MIAMI-TECH KIT #NCUTD38KR**

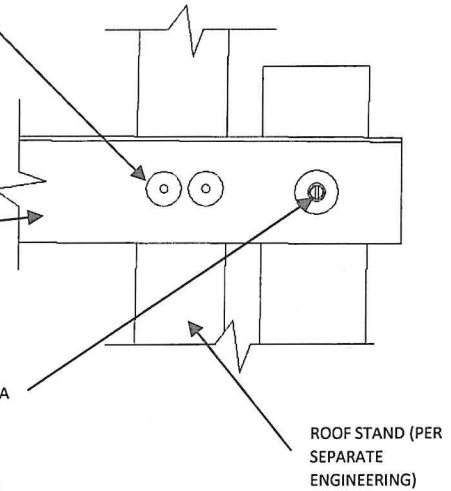


**MECHANICAL UNIT ROOF MOUNTED**

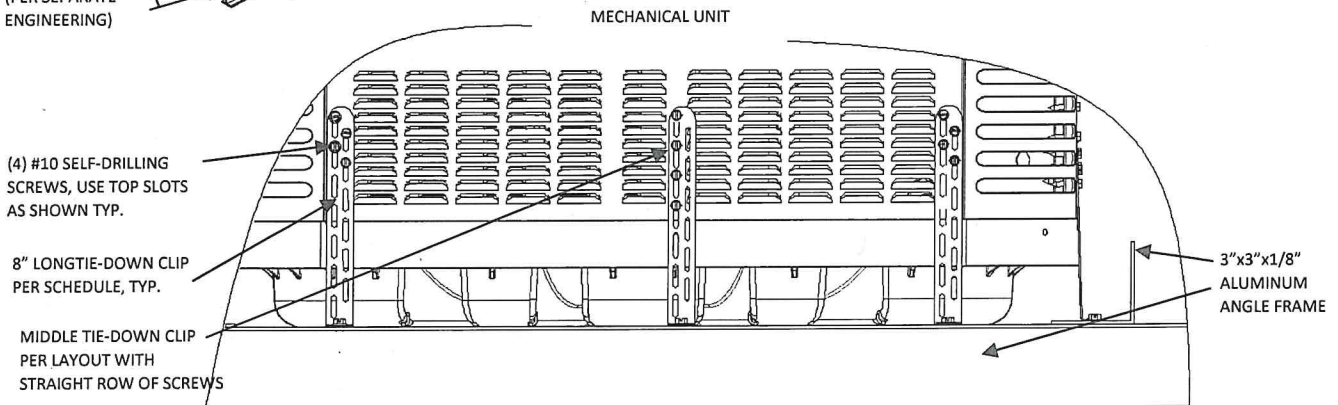
ADD (2) #10 SCREW TO CABINET B FOR ROOF MOUNT OPTION



**FRAME TYPICAL CONNECTIONS**



**SCREW ARRANGEMENT IN CLIPS**



SECTION 3 SUPPORTING CALCULATIONS & SUMMARY

FORCES SUMMARY

| Cabinet   | Ground or Roof | Mean Roof Height (feet) | Lateral Pressure (Psf) | Uplift Pressure (Psf) | Side Force (lbs) | Side Overturn (lbs-in) | Anchor Side Tension (lbs) | Uplift Force (lbs) |
|-----------|----------------|-------------------------|------------------------|-----------------------|------------------|------------------------|---------------------------|--------------------|
| Cabinet A | Ground         |                         | 66.3                   | 53.8                  | 399.2            | 7285.3                 | 410.4                     | 210.8              |
|           | Roof           | 200                     | 118.3                  | 93.4                  | 712.0            | 12994.3                | 263.7                     | 365.8              |
| Cabinet B | Ground         |                         | 66.3                   | 53.8                  | 661.6            | 14968.5                | 689.3                     | 376.6              |
|           | Roof           | 200                     | 118.3                  | 93.4                  | 1180.0           | 26698.3                | 275.1                     | 653.7              |

PANEL INTEGRITY SUMMARY

| Cabinet   | Wind Pressure Lateral (Uplift) | Mean Roof Height (feet) | Additional Reinforcement Beyond Original Manufactured Cabinet | Cabinet   | Wind Pressure Lateral (Uplift) | Mean Roof Height (feet) | Additional Reinforcement Beyond Original Manufactured Cabinet   |
|-----------|--------------------------------|-------------------------|---|-----------|--------------------------------|-------------------------|---|
| Cabinet A | Ground                         |                         | Tie-down Clips shown in detail page                           | Cabinet B | Ground                         |                         | Tie-down Clips shown in detail page                             |
|           | 118 (93)                       | 200                     | Tie-down Clips shown in detail page                           |           | 118 (93)                       | 200                     | Tie-down Clips shown in detail page plus (2) screw at top panel |

Note:

1. Calculations performed according to the information provided by the client.
2. Screw quantities were checked to reinforce unit panels as needed. Validate that the screw joins the panel with the supporting element.
3. Additional screw shall be at least #10 x 1/2" long Gr 2.
4. Installer shall insulate dissimilar metals if needed.
5. See screw location on detail page.

ELEVATIONS & DIMENSIONS

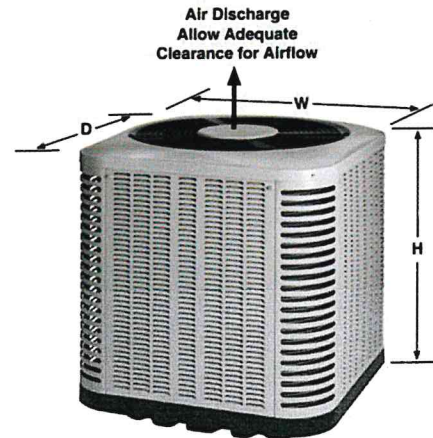
| Model Number   | Weight (lbs) | Height (in) | Width (in) | Depth (in) | Cabinet |
|----------------|--------------|-------------|------------|------------|---------|
| *SA1BD4M1SN18K | 129          | 24.5        | 23.75      | 23.75      | A       |
| *SA1BD4M1SN24K | 126          | 24.5        | 23.75      | 23.75      | A       |
| *SA1BD4M1SN30K | 133          | 28.5        | 23.75      | 23.75      | A       |
| *SA1BD4M1SN36K | 140          | 28.5        | 23.75      | 23.75      | A       |
| *SA1BD4M1SN42K | 195          | 29.25       | 31.75      | 31.75      | B       |
| *SA1BD4M1SN48K | 197          | 29.25       | 31.75      | 31.75      | B       |
| *SA1BD4M1SN60K | 217          | 33.25       | 31.75      | 31.75      | B       |
| *SA1BE4M1RN18K | 129          | 32.5        | 23.75      | 23.75      | A       |
| *SA1BE4M1RN24K | 145          | 32.5        | 23.75      | 23.75      | A       |
| *SA1BE4M1RN30K | 165          | 29.25       | 31.75      | 31.75      | B       |

| Model Number   | Weight (lbs) | Height (in) | Width (in) | Depth (in) | Cabinet |
|----------------|--------------|-------------|------------|------------|---------|
| *SA1BE4M1SN18K | 143          | 28.5        | 23.75      | 23.75      | A       |
| *SA1BE4M1SN24K | 151          | 32.5        | 23.75      | 23.75      | A       |
| *SA1BE4M1SN30K | 160          | 29.25       | 31.75      | 31.75      | B       |
| *SA1BE4M1SN36K | 183          | 37.25       | 31.75      | 31.75      | B       |
| *SA1BE4M1SN42K | 213          | 41.25       | 31.75      | 31.75      | B       |
| *SA1BE4M1SN48K | 215          | 41.25       | 31.75      | 31.75      | B       |
| *SA1BE4M1SN60K | 251          | 45.25       | 31.75      | 31.75      | B       |
| *SA1BF4M1SN24K | 145          | 36.5        | 23.75      | 23.75      | A       |
| *SA1BF4M1SN30K | 164          | 29.25       | 31.75      | 31.75      | B       |
| *SA1BF4M1SN36K | 233          | 41.25       | 31.75      | 31.75      | B       |

| Model Number    | Weight (lbs) | Height (in) | Width (in) | Depth (in) | Cabinet |
|-----------------|--------------|-------------|------------|------------|---------|
| *SA1BF4M1SN42K  | 230          | 45.25       | 31.75      | 31.75      | B       |
| *SA1BF4M1SN48K  | 226          | 45.25       | 31.75      | 31.75      | B       |
| *SA1BF4M2SN24K  | 133          | 36.5        | 23.75      | 23.75      | A       |
| *SA1BF4M2SN36K  | 205          | 37.25       | 31.75      | 31.75      | B       |
| *SA1BF4M2SN48K  | 232          | 41.25       | 31.75      | 31.75      | B       |
| *SA1BF4M2SN60K  | 251          | 45.25       | 31.75      | 31.75      | B       |
| *SA1BG4MVRN24K  | 166          | 36.5        | 23.75      | 23.75      | A       |
| *SA1BG4MVRN36K  | 218          | 37.25       | 31.75      | 31.75      | B       |
| *SA1BG4MVRN48K  | 246          | 45.25       | 31.75      | 31.75      | B       |
| *SA1BG4MVRN60K  | 261          | 45.25       | 31.75      | 31.75      | B       |
| *SA1QD4M1RN24K  | 138          | 28.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1RN30K  | 141          | 28.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1RN36K  | 149          | 36.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1SN24K  | 134          | 24.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1SN30K  | 137          | 28.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1SN36K  | 145          | 28.5        | 23.75      | 23.75      | A       |
| *SA1QD4M1SN42K  | 156          | 29.25       | 31.75      | 31.75      | B       |
| *SA1QD4M1SN48K  | 188          | 29.25       | 31.75      | 31.75      | B       |
| *SA1QD4M1SN60K  | 198          | 33.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1RN24K  | 148          | 32.5        | 23.75      | 23.75      | A       |
| *SA1QE4M1RN30K  | 169          | 29.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1SN24K  | 151          | 32.5        | 23.75      | 23.75      | A       |
| *SA1QE4M1SN30K  | 160          | 29.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1SN36K  | 183          | 37.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1SN42K  | 213          | 41.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1SN48K  | 215          | 41.25       | 31.75      | 31.75      | B       |
| *SA1QE4M1SN60K  | 251          | 45.25       | 31.75      | 31.75      | B       |
| *SA1QD4M1RN24KA | 136          | 28.50       | 23.75      | 23.75      | A       |
| *SA1QD4M1RN30KA | 140          | 28.50       | 23.75      | 23.75      | A       |
| *SA1QD4M1RN36KA | 143          | 36.50       | 23.75      | 23.75      | A       |
| *SH1BE4M1SP60KA | 236          | 45.25       | 31.75      | 31.75      | B       |

| Model Number   | Weight (lbs) | Height (in) | Width (in) | Depth (in) | Cabinet |
|----------------|--------------|-------------|------------|------------|---------|
| *SH1BE4M1SP18K | 185          | 33.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP24K | 192          | 33.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP30K | 208          | 41.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP36K | 212          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP42K | 232          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP48K | 234          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BE4M1SP60K | 236          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M1SP24K | 185          | 37.25       | 31.75      | 31.75      | B       |
| *SH1BF4M1SP30K | 193          | 37.25       | 31.75      | 31.75      | B       |
| *SH1BF4M1SP36K | 201          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M1SP42K | 236          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M1SP48K | 241          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M2SX24K | 211          | 37.25       | 31.75      | 31.75      | B       |
| *SH1BF4M2SX36K | 227          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M2SX48K | 261          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BF4M2SX60K | 249          | 45.25       | 31.75      | 31.75      | B       |
| *SH1BG4CVRX24K | 228          | 37.25       | 31.75      | 31.75      | B       |
| *SH1BG4CVRX36K | 297          | 41.25       | 31.75      | 31.75      | B       |
| *SH1BG4CVRX48K | 291          | 41.25       | 31.75      | 31.75      | B       |
| *SH1BG4CVRX60K | 291          | 45.25       | 31.75      | 31.75      | B       |
| *SH1QE4M1SP24K | 154          | 33.25       | 31.75      | 31.75      | B       |
| *SH1QE4M1SP30K | 161          | 41.25       | 31.75      | 31.75      | B       |
| *SH1QE4M1SP36K | 183          | 45.25       | 31.75      | 31.75      | B       |
| *SH1QE4M1SP42K | 232          | 45.25       | 31.75      | 31.75      | B       |
| *SH1QE4M1SP48K | 234          | 45.25       | 31.75      | 31.75      | B       |

Note:  
(\* ) in table represents a single brand designator.



**LIMITATIONS & CONDITIONS OF USE:**

Use of this product shall be in strict accordance with this TER as noted herein. The supporting host structure shall be designed to resist all superimposed loads as determined by others on a site-specific basis as may be required by the Authority Having Jurisdiction. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer. No evaluation is offered for the host supporting structure by use of this document; Adjustment factors noted herein and the applicable codes must be considered, where applicable. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Fasteners must penetrate the supporting members such that the full length of the threaded portion is embedded within the main member. This evaluation does not offer any evaluation to meet large missile impact debris requirements which typically are not required for this type of product. All of the wind resisting exterior panels, individually meet or exceed their capacity to resist the design wind loads as stated in the calculations as required by the FBC. Due to the indeterminate nature of these units, distortion and deflection cannot be accurately evaluated, but with diaphragm action of external components and internal stiffeners, the base unit has the capacity to withstand these forces with individual external parts being contained. Yearly inspections, during equipment maintenance or after named storm, all screws, cabinet components, clips and anchor bolts are to be verified by the AVC contractor. All damaged cabinet components, loose, corroded, broken tech screws or anchor bolts shall be replaced to ensure structural integrity for hurricane wind forces.

| Revision # | Description       | Initials | Date     |
|------------|-------------------|----------|----------|
| 0          | Initial Submittal | LAO      | 11/19/19 |
|            |                   |          |          |
|            |                   |          |          |