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Technical Evaluation Report

DIVISION: 23 08 00 – COMMISSIONING OF HVAC

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(Subject to Renew January 1, 2026 or next code cycle)

EVALUATION SUBJECT: **FREE JOINT MULTI (FJM) OUTDOOR UNITS** TER-23-69479

REPORT HOLDER:
SAMSUNG HVAC
776 HENRIETTA CREEK RD, STE. 100
ROANOKE, TX 76262, USA
(888) 699-6067 | SAMSUNGHVAC.COM

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SCOPE OF EVALUATION (compliance with the following codes):

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UNDER NO CIRCUMSTANCE DOES THIS PERFORMANCE EVALUATION GUARANTEE, IMPLY, OR STATE PERFORMANCE OF THE UNIT IS MAINTAINED DURING OR AFTER A DESIGN EVENT.

This Product Evaluation Report is being issued in accordance with the requirements of the **Florida Building Code Seventh Edition (2020) & Eighth Edition (2023)** per ASCE 7, FBC Building Ch. 16, FBC Building Sections 104.11 & 1522.2, FBC Existing Building Sections 707.1 & 707.2, FBC Mechanical 301.15, FBC Residential M1202.1 & M1301.1, FS 471.025, and Broward County Administrative Provisions 107.3.4. This report is also in accordance with the **International Building & Residential Codes (2012, 2015, 2018, & 2021).** The product noted in this report has been tested and/or evaluated as summarized herein.

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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:

- Max. allowable lateral & uplift wind pressures certified herein
- Max. allowable sliding forces, uplift forces, & overturning moments (see Unit Reactions from Wind Guide on last page)
- Tie-down configuration and anchor capacity for concrete, aluminum, and steel host substrates (host by others).
- Unit panel wind pressure connection integrity

Calculation summary is included in this TER and appears herein.

LIMITATIONS & CONDITIONS OF USE:
Use of the product(s) listed herein shall be in strict accordance with this TER as noted herein and manufacturer-provided model specifications. Installation shall conform to the minimum standards stated in the referenced building code(s) in addition to the specifications and limitations stated herein. See herein for complete limitations & conditions of use.

OPTIONS:
This evaluation is valid for the models described herein. The critical unit designs have been determined and used in this evaluation. Any structural changes outside of the design as described herein would void this certification.

UNIT CASING MATERIALS:
Exterior panels shall be 0.8 mm min. thick. Unit base and integrated feet/legs shall be 1.2 mm min. thick. Exterior panels, unit base, and integrated feet/legs shall be constructed of UTS = 270 MPa min. galv. steel. Exterior panels shall be secured with M4 min. Ø, SAE Gr. 2 or stronger sheet metal screws. Contact Report Holder for further unit construction information.

STRUCTURAL PERFORMANCE:
Models referenced herein are subject to the following design limitations:

Maximum-Rated ASD Wind Pressures*:
± 124 psf Lateral, 98 psf Uplift

- Required design wind pressures shall be determined according to the guide provided in the Appendix (see last page of this report) or on a site-specific basis in accordance with ASCE 7 and applicable sections of the building code(s) being referenced in accordance with ASD methodology.
- Required design wind pressures shall be less than or equal to the maximum pressures listed herein.
- *Maximum-Rated ASD Wind Pressures indicate the maximum pressures that all units listed herein are approved for. Valid for at-grade, wall-mounted, and rooftop applications. See limitations herein.
- Valid for use inside and outside the High-Velocity Hurricane Zone (HVHZ).
- Site-specific wind analysis may produce alternate limitations provided that the maximum-rated wind pressures stated herein are not exceeded.

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January 19, 2024

Richard Neet, P.E.
ENGINEERING EXPRESS®
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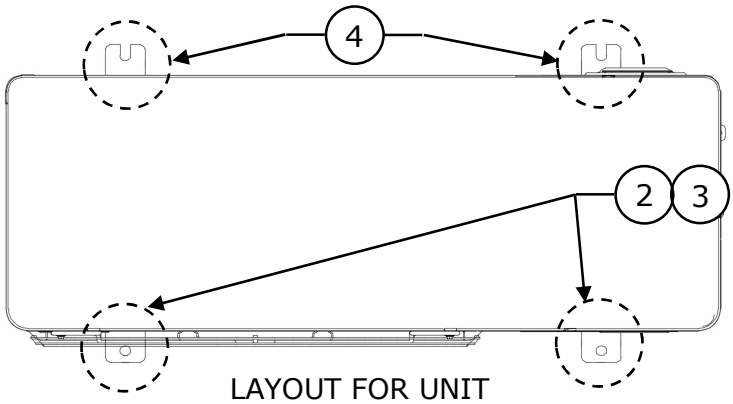
MODEL INFORMATION (Continued On Following Pages)

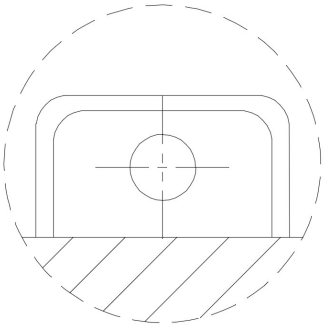
Model Number	US Code	Cabinet Group	Unit Dimensions [in] (mm)			Net Weight [lb] (kg)
			Width	Height	Depth	
AJ020BXJ2CH/AA	JXH20J2B	I	34.6 (880)	31.4 (798)	12.2 (310)	116.8 (53.0)
AJ024BXJ3CH/AA	JXH24J3B	I	34.6 (880)	31.4 (798)	12.2 (310)	125.7 (57.0)
AJ036BXJ4CH/AA	JXH36J4B	II	37.0 (940)	39.3 (998)	13.0 (330)	168.7 (76.5)
AJ048BXJ5CH/AA	JXH48J5B	III	37.0 (940)	47.6 (1210)	13.0 (330)	192.9 (87.5)

MODEL INFORMATION NOTES

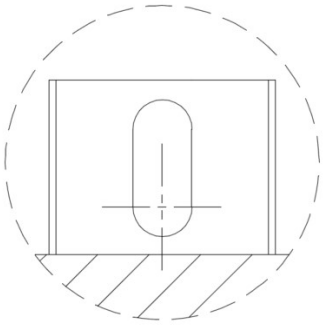
Unit dimensions listed above are unit net dimensions (as opposed to packing/shipping dimensions). Cabinet Groups are designated by Engineering Express based on the unit cabinet and panel layout. Model information listed herein is based on information provided by the client. See Details 1-4 below for unit integrated feet information. See Details 5-7 on the following pages for definitions of unit dimensions, cabinet groups, and panel designations (related to the Panel Integrity evaluation summarized herein). Unit appearance may vary. Please contact Report Holder for more information.



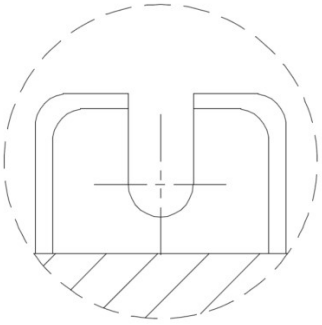
1 LAYOUT FOR UNIT INTEGRATED FEET
SCALE: NTS TOP VIEW



2 UNIT INTEGRATED FOOT, NO SLOT
SCALE: NTS TOP VIEW



3 UNIT INTEGRATED FOOT, CLOSED SLOT
SCALE: NTS TOP VIEW



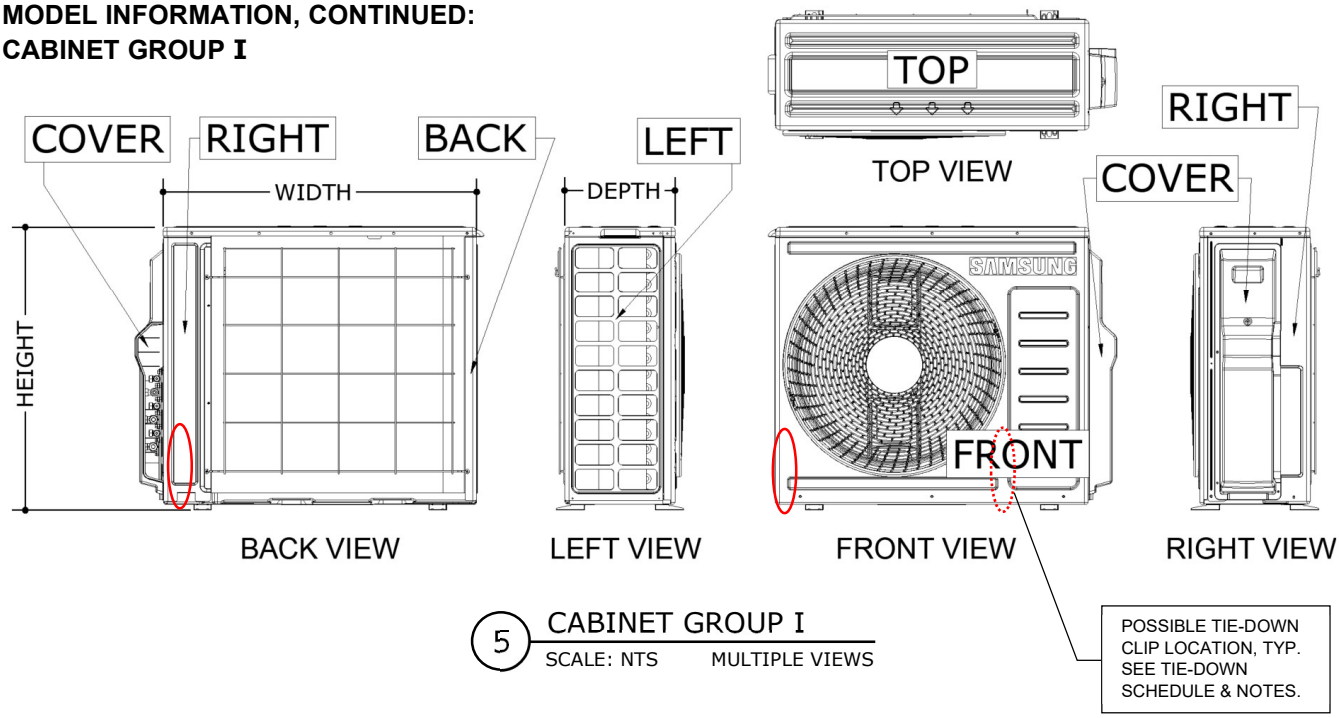
4 UNIT INTEGRATED FOOT, OPEN SLOT
SCALE: NTS TOP VIEW

UNIT INTEGRATED FEET NOTES

Fasten unit to host structure using anchors per the Tie-Down Schedule and Notes section herein. Position anchors at crosshairs shown in Details 2 - 4, typ. Details 1 - 4 are for illustrative purposes only. Unit and integrated feet may vary in appearance. Details 1 – 4 are applicable for all unit Cabinet Groups.

All units were considered to have (2) unit integrated feet with open slots per Detail 4, and (2) fully enclosed feet, as shown in Details 2 & 3. A reverse configuration to that shown in Detail 1 is also permitted, with open-slotted feet at the unit front side and fully enclosed feet at the unit back side. It is also permitted for units to have (4) fully enclosed feet with no open slots, per Details 2 & 3.

MODEL INFORMATION, CONTINUED:
CABINET GROUP I



MODEL INFORMATION CONTINUED: CABINET GROUP I NOTES

Panel layouts as designated above by the boxed call-outs above (e.g. “TOP”, “LEFT”, etc.) are as follows:
The unit front is composed of one solid panel, designated “FRONT”. This front panel bends slightly around and into the unit left and right sides. The unit right side has a panel, designated “RIGHT”, that covers most of the unit right side, bends around the right-back corner, and extends into part of the unit back side. The “RIGHT” Panel may also have an overlying “COVER” panel for controls/valves. The remainder of the unit back side is mostly open, exposing the coil/condenser assembly. Panel “LEFT” covers most of the left side and bends around the left-back corner. The “BACK” panel partition underlies the “LEFT” panel, bends around the left-back corner, and extends slightly into the unit back side. Optional wire guards may or may not be used on the unit left and back sides. (Detail 5 back view depicts a model with wire guard included). Cover panels and fan cages were considered in the Panel Integrity analysis summarized herein, but may not be specifically designated above.

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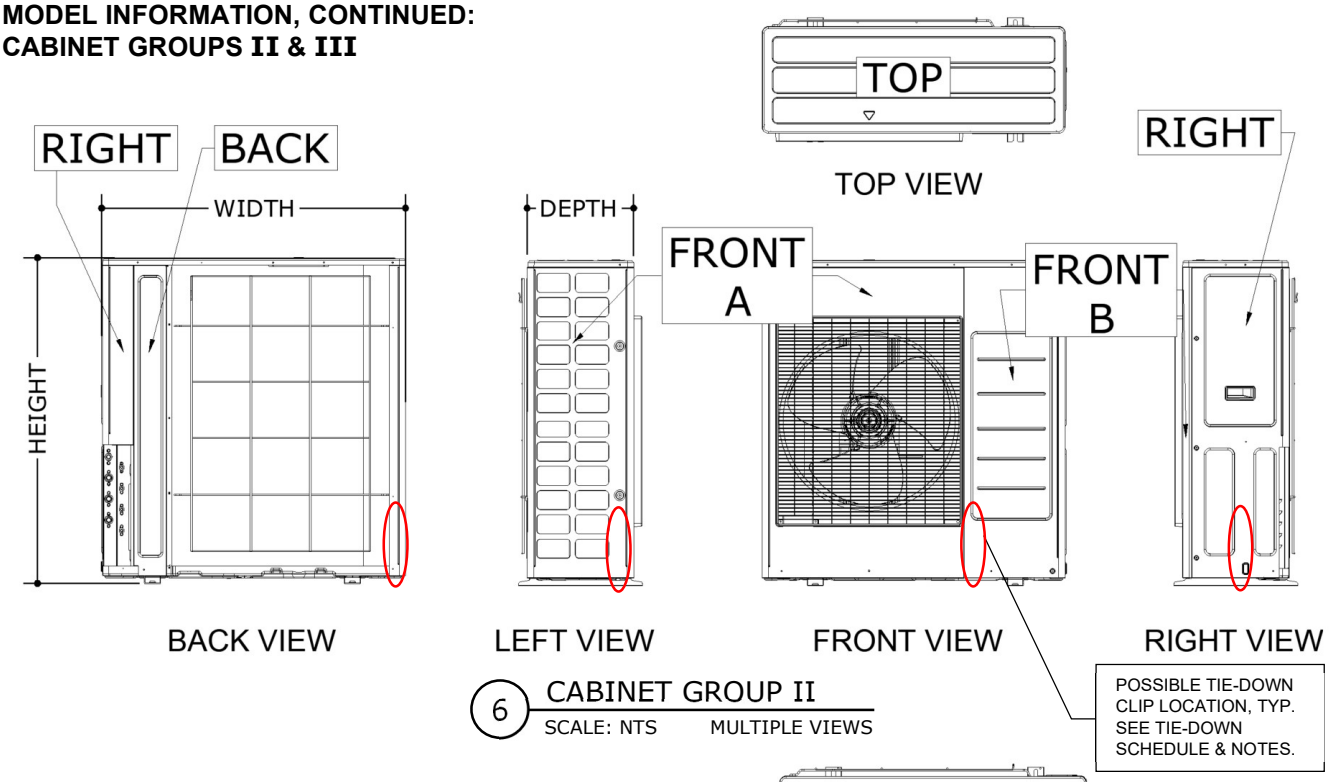
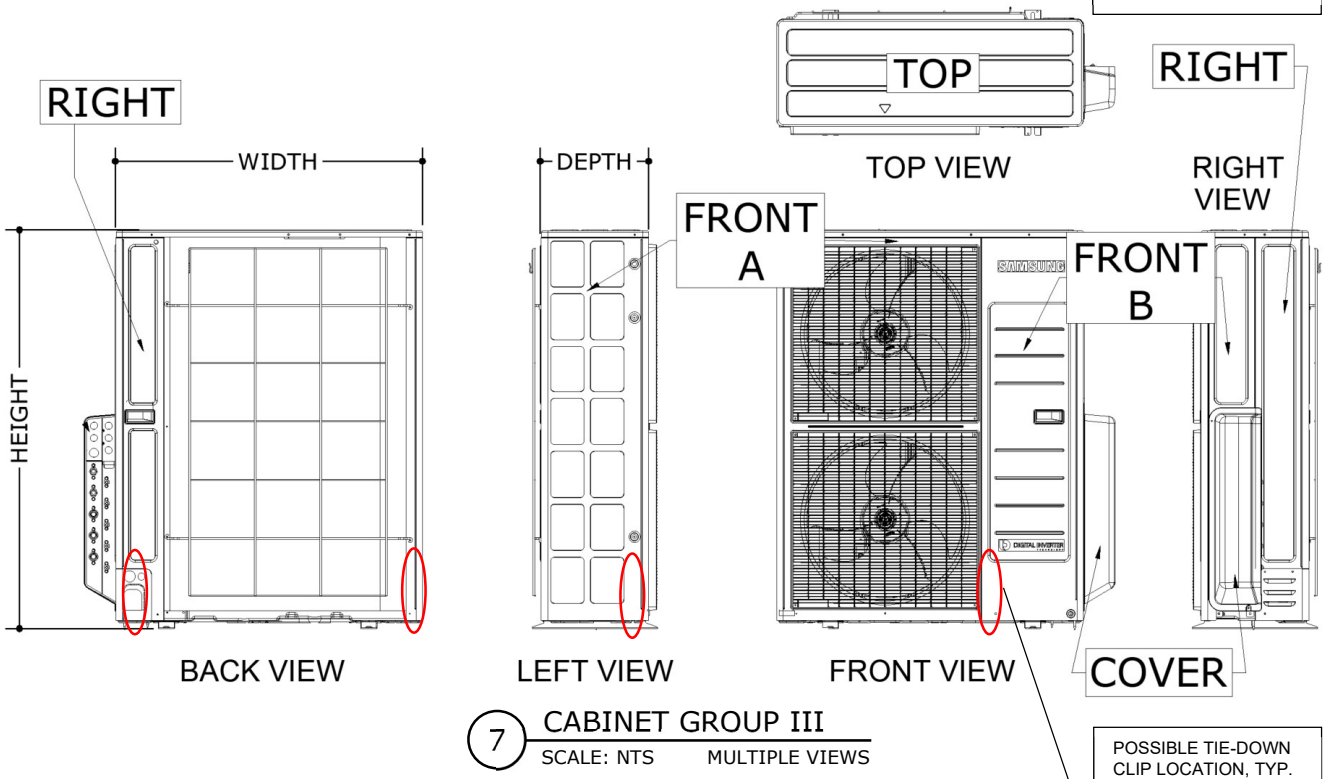
SEE NEXT PAGE FOR CABINET GROUPS II AND III

MODEL INFORMATION, CONTINUED:
CABINET GROUPS II & III



6 CABINET GROUP II
SCALE: NTS MULTIPLE VIEWS



7 CABINET GROUP III
SCALE: NTS MULTIPLE VIEWS

MODEL INFORMATION CONTINUED: CABINET GROUPS II & III NOTES

Panel layouts as designated above by the boxed call-outs above (e.g. “TOP”, “RIGHT”, etc.) are as follows:
The unit front is composed of two panels, designated “FRONT A” and “FRONT B”. Panel “FRONT A” is defined as the front-left solid panel containing the fan(s), bends around the front-left former to comprise the entire unit left side, and bends around back-left corner extending slightly into the unit back side. Panel “FRONT B” is defined as the front-right panel that bends slightly around the right side. The unit right side has a “RIGHT” panel that covers most of the right side, bends around the right-back corner, and extends into part of the unit back side. This “RIGHT” Panel may have knockouts or cover panels for controls/valves. The remainder of the unit back side is mostly open, exposing the coil/condenser assembly. Group II units also have a “BACK” panel adjacent to the “RIGHT” panel as shown. Optional wire guards may or may not be used on the unit left and back sides. (Details 6 & 7 back views above show models with wire guards included). Cover panels and fan cages were considered in the analysis, but are not specifically designated above.

TIE-DOWN SCHEDULE

Max. ASD Wind Pressures Lateral (Uplift)	Anchor Schedule to Host Structure By Others			# of Tie-Down Clips Required	# of Tie-Down Cables Required	Min. WLL per Cable
	3000 psi min. Concrete Host	1/8" min. thick, UTS = 58 ksi min. Steel Host	1/8" min. thick 6061-T6 Aluminum Host			
± 42 psf (0 psf)	A	N/A	N/A	0	0	N/A
± 54 psf (0 psf)	A	N/A	B	2	0	N/A
± 75 psf (60 psf)	N/A	B	B	0	2	750 lb
± 100 psf (79 psf)	N/A	B	B	2	2	1000 lb
± 124 psf (98 psf)	N/A	B	B	2	3	850 lb

TIE-DOWN SCHEDULE NOTES (Continued Next Page)

TIE-DOWN SCHEDULE DIRECTIVE: The Tie-Down Schedule table above is divided into maximum wind pressure tiers (each row of table). Site-specific wind pressures up to ± 42 psf lateral & 0 psf uplift shall use, at-minimum, the tie-down specifications as stated in the ± 42 psf lateral (0 psf uplift) pressure tier row. Site-specific wind pressures that fall in-between pressure tiers shall use, at-minimum, the tie-down specifications as specified by the higher pressure tier. Ensure the host structure by others meets the minimum specifications as stated in the Tie-Down Schedule table. This schedule applies to all units described in this evaluation. See tie-down specifications and Details herein.

Example 1: Say your particular installation site has site-specific wind pressures of ± 45 psf lateral and 0 psf uplift. In this case, you would need to follow, at-minimum, the tie-down specifications corresponding to the ± 54 psf (0 psf) wind pressure tier row. This row only permits anchoring to concrete host structures. If your host structure is aluminum or steel, you would need to use, at-minimum, the tie-down specifications corresponding to the ± 75 psf (60 psf) wind pressure tier row.

Example 2: Say your particular installation site has site-specific wind pressures of ± 96 psf lateral and 76 psf uplift. In this case, you would need to follow, at-minimum, the tie-down specifications corresponding to the ± 100 psf (79 psf) wind pressure tier row. This row permits aluminum and steel host structures only. Anchoring to a concrete host structure would not be permitted in this example.

ANCHOR SCHEDULE NOTES: In all cases, host structure is by others. Anchor shall be selected per site-specific wind pressures and host structure substrate. Utilize (1) anchor per mounting hole/slot - (4) mounting holes/slots per unit. Refer to Details 1 – 4 for unit integrated feet anchor placement. Anchor specifications as represented in the Tie-Down Schedule are as follows:

A: 1/4" Ø Carbon Steel DeWalt (formerly Elco) UltraCon+ or equivalent with 1-3/4" embedment, 2-1/2" min. edge distance to any edge of concrete, and 4" min. spacing from neighboring concrete anchors, typ. Use (1) washer under each anchor head as follows:

- Unit integrated feet anchors: 1" min. OD fender washer sized for 1/4" Ø anchors
- Tie-down clip anchors (if applicable): 5/8" min. OD washer

B: 3/8" Ø, SAE Gr. 5 or stronger Thru-Bolt with 1" min. OD fender washers sized for 3/8" Ø bolts top and bottom and SAE Gr. 5 or stronger locking nut sized for 3/8" Ø bolt, typ. Provide 1" min. edge distance to any edge of host structure and 1" min. spacing from neighboring Thru-Bolts, typ.

N/A: Not applicable.

TIE-DOWN CLIP NOTES: For at-grade installations to concrete host structures up to ± 42 psf lateral & 0 psf uplift wind pressures, tie-down clips are not required. For wall-mounted and rooftop installations to aluminum and steel host structures up to ± 75 psf lateral & 60 psf uplift, tie-down clips are not required.

Tie-down clips shall be 1" min. wide, 6"-10" tall, 0.068" min. thick, A653 Gr. 33 or stronger galv. steel. Fasten clip to host structure with (1) anchor per tie-down clip according to the "Anchor Schedule to Host Structure" specifications stated herein. Ensure anchor is placed at center of tie-down clip leg to provide 1/2" min. edge distance, typ. Fasten clip to unit base rail with (6) #10, SAE Gr. 2 min. or SS self-drilling screws with 1/2" min. OD washers, typ. Utilize (6) slots that have flush, solid contact with unit, (1) screw per slot, typ. Care must be taken to avoid screw contact with internal piping and components. Exercise caution with screw installation. Ensure all screws fully engage with unit. Tie-down clips shall sit flush on host structure and flush against unit. See tie-down clip details herein.

*Position tie-down clips at front and back sides of unit, (1) per unit long side, typ. See "Model Information" section for suggested tie-down clip locations. *Note: For tie-down clips to concrete hosts, it is permitted for tie-down clips to be installed on corners of unit short sides instead of unit long sides in order to provide the required minimum anchor spacing. Ensure all other specifications listed herein are achieved.

Depending on unit orientation when placed onto aluminum/steel host members (i.e. stand rails or wall brackets), it may be necessary to add (2) support angles to accommodate unit placement. If needed, support angles shall be added as depicted in the tie-down details herein. Support angle(s) shall be L-angle(s) with the following specifications: 3" min. wide legs x 1/8" min. thick, 6061-T6 aluminum. Support angle length may vary so long as the support angle attachment conditions are achieved.

Attach each support angle to host structure member with (2) 1/4" Ø, SAE Gr. 5 or stronger Thru-Bolt each end, (4) per angle. Provide 1" min. OD fender washers sized for 1/4" Ø bolts top and bottom and SAE Gr. 5 or stronger locking nut, typ. Provide 1/2" min. edge distance to any edge of members in contact (support angle and host structure member).

TIE-DOWN SCHEDULE (Schedule reproduced from the previous page for ease of reference)

Max. ASD Wind Pressures Lateral (Uplift)	Anchor Schedule to Host Structure By Others			# of Tie-Down Clips Required	# of Tie-Down Cables Required	Min. WLL per Cable
	3000 psi min. Concrete Host	1/8" min. thick, UTS = 58 ksi min. Steel Host	1/8" min. thick 6061-T6 Aluminum Host			
± 42 psf (0 psf)	A	N/A	N/A	0	0	N/A
± 54 psf (0 psf)	A	N/A	B	2	0	N/A
± 75 psf (60 psf)	N/A	B	B	0	2	750 lb
± 100 psf (79 psf)	N/A	B	B	2	2	1000 lb
± 124 psf (98 psf)	N/A	B	B	2	3	850 lb

TIE-DOWN SCHEDULE NOTES (Continued From Previous Page)

TIE-DOWN CABLE NOTES: For at-grade installations to concrete host structures up to ± 54 psf lateral & 0 psf uplift wind pressures, tie-down cables are not required.

Working load limit (WLL) is per cable's manufacturer, specified per cable. *See starred WLL note below. Cable length shall be verified on-site for all units. Cables shall be galvanized, wrapped over Front/Back sides and top of the unit, and tightened to 50 lb using a turnbuckle, (1) turnbuckle per cable. If a snug fit is not achieved with 50 lb, continue incrementally tightening cable using the turnbuckle until a secure, snug fit is achieved. Turnbuckle shall have WLL equal to or greater than the WLL of the cable as stated in the table above. Neoprene pads may be placed between the unit and cable to protect the unit from damage/distortion. Tie-down cable may be removed for maintenance purposes but shall be replaced following maintenance. **Tie-down cables must be in place before any named storm or similar high-wind event.**

Attach each tie-down cable to support angles or aluminum/steel host structures by others with (2) 1/2" Ø, SAE Gr. 2 min. or SS shoulder eyebolts, (1) per side, typ. Each shoulder eyebolt shall have 1-1/2" min. OD fender washers sized for 1/2" Ø bolts top and bottom and a 1/2" Ø, SAE Gr. 2 or stronger locking nut, typ. Provide 1" min. edge distance from any edge of host structure and 1-1/2" min. spacing from neighboring shoulder eyebolts and Thru-Bolts, typ. Shoulder eyebolts shall attach to the horizontal face of the member, such that the eyebolt is oriented vertically. Cable angle shall not exceed 30° from shoulder eyebolt vertical.

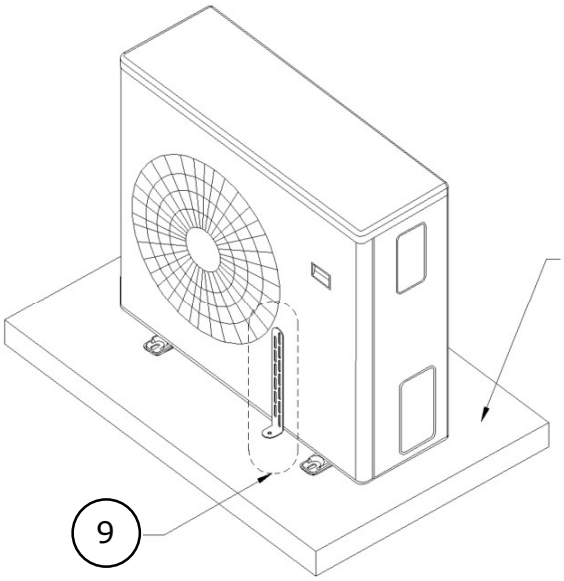
Attach tie-down cable to shoulder eyebolt for aluminum/steel host by others with a carabiner, hook, or cable loop. Ensure shoulder eyebolt and carabiner or hook if used each have a WLL equal to or greater than the cable WLL. *See starred WLL note below.

*For tie-down cable components (cables, turnbuckles, shoulder eyebolts, carabiners, and/or hooks), WLL is per the component's manufacturer, specified per component. If component is rated to a capacity or breaking strength instead of WLL, the capacity or breaking strength shall be divided by the component manufacturer's specified safety factor to obtain an equivalent WLL that complies with the parameters above.

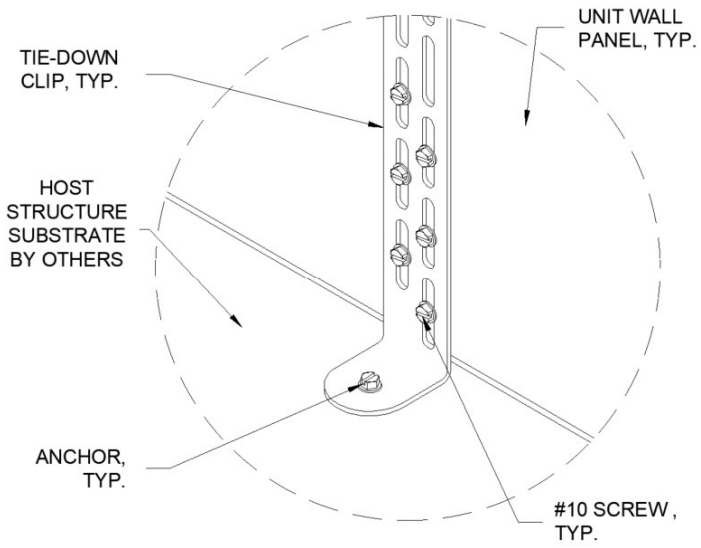
See tie-down cable Details herein.

SEE TIE-DOWN DETAILS ON THE FOLLOWING PAGES

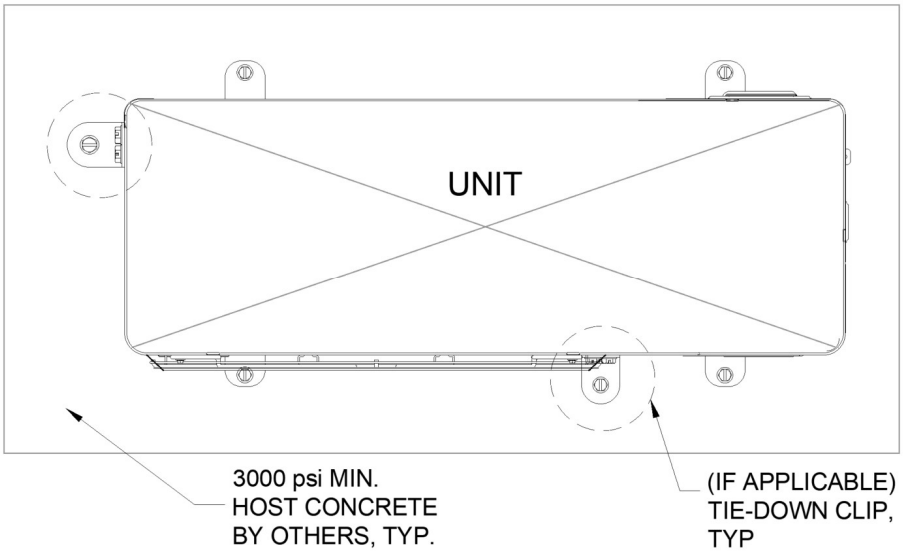
TIE-DOWN DETAILS, 8 - 10



8 SAMPLE TIE-DOWN CLIP PLACEMENT, TYP.
SCALE: NTS ISOMETRIC VIEW



9 TIE-DOWN CLIP ATTACHMENT, TYP.
SCALE: NTS ISOMETRIC VIEW



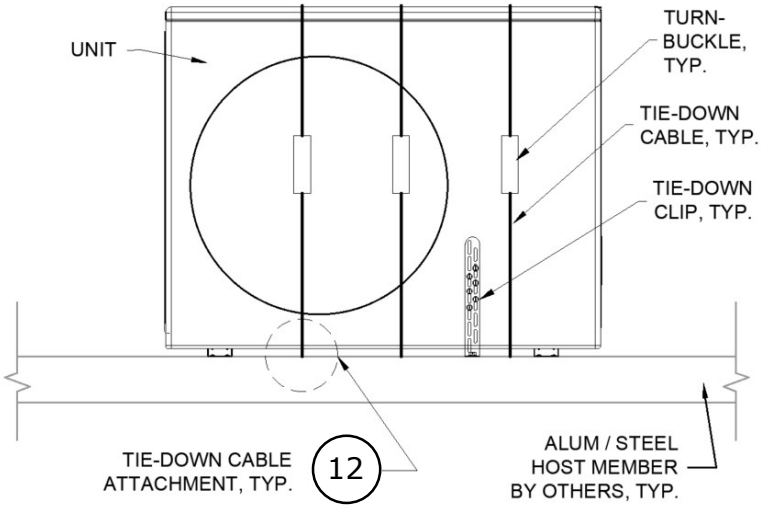
10 SAMPLE TIE-DOWN LAYOUT TO CONCRETE, TYP.
SCALE: NTS PLAN VIEW

TIE-DOWN DETAILS, 8 - 10 NOTES

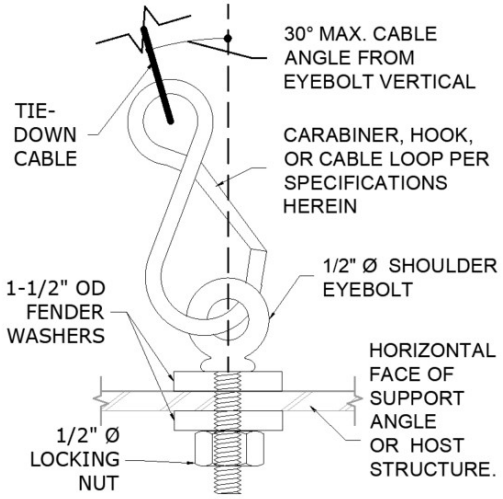
For each Detail in this section, consult Tie-Down Schedule and Notes herein for all tie-down components & specifications required.

The units depicted in the Details on this page are for illustrative purposes only. Units may vary in appearance. Tie-down system may not be depicted in full. The sample tie-down layout shown in Detail 10 is for illustrative purposes only. Tie-down locations may vary per the specifications of the Tie-Down Schedule and Notes herein.

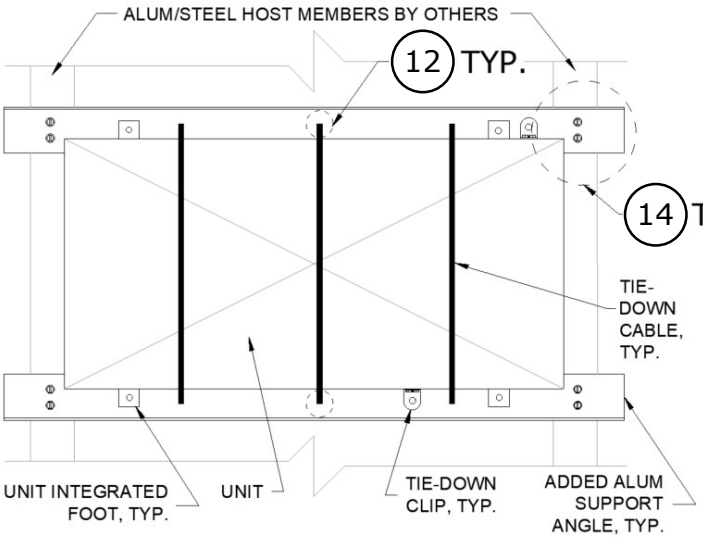
TIE-DOWN DETAILS, 11 - 14 (*For Wall-Mount & Rooftop Applications)



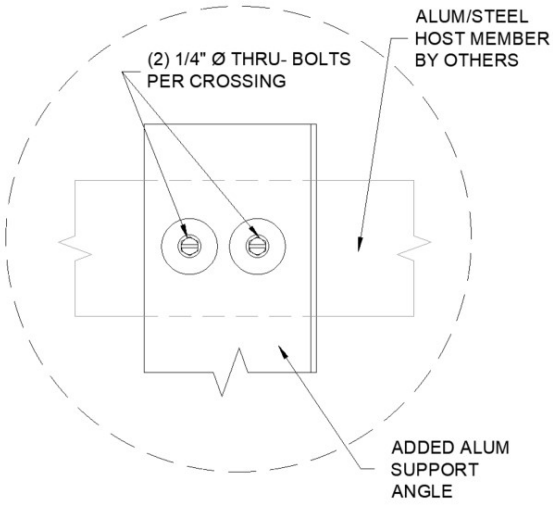
11 ALUMINUM / STEEL HOST
SCALE: NTS SIDE VIEW



12 ATTACHMENT, TYP.
SCALE: NTS SECTION VIEW



13 SAMPLE TIE-DOWN LAYOUT W/ ADDED SUPPORT ANGLES
SCALE: NTS TOP VIEW, UNIT ⊥ TO HOST SUPPORTS



14 SUPPORT ANGLE ATTACHMENT TO ALUM/STEEL HOST, TYP.
SCALE: NTS TOP VIEW

TIE-DOWN DETAILS, 11 - 14 NOTES

For each Detail in this section, consult Tie-Down Schedule and Notes herein for all tie-down components & specifications required.

*NOTE: Details 11 - 14 may also apply for at-grade applications to aluminum & steel host structures up to ± 54 psf lateral and 0 psf uplift.

The units depicted in the Details on this page are for illustrative purposes only. Units may vary in appearance. Tie-down system may not be depicted in full. The sample tie-down layout shown in Details 11 & 13 is for illustrative purposes only. Detail 13 shows a scenario in which support angles are required to accommodate all required tie-down components; typically, this occurs when the unit's long side is oriented perpendicularly to the host structure members.

PANEL INTEGRITY SUMMARY

No additional screws are required for ASD wind pressures up to ± 100 psf lateral & 79 psf uplift.

For site-specific pressures greater than ± 100 psf lateral & 79 psf uplift ASD Wind Pressures, follow the directives and specifications as noted in the Panel Integrity Summary Table and Notes below:

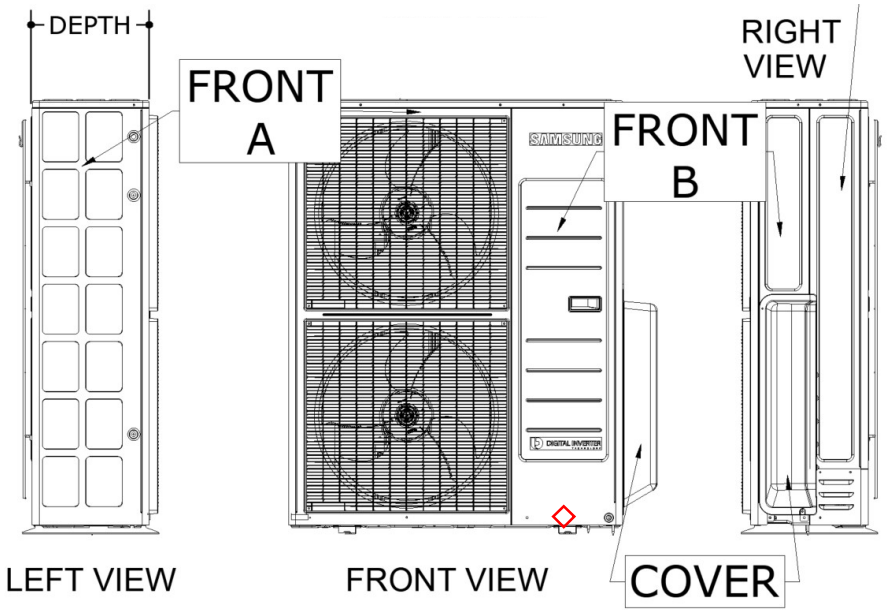
Up to ± 124 psf Lateral & 98 psf Uplift ASD Wind Pressures		
Panel Designations	**Additional Screws Required**	**Additional Screws Directive**
Front B Panel	1	Install (1) additional screw into bottom of panel to join with unit base.
(1) Additional Screw Required per Unit. Additional screws shall be #10 min. Ø, SAE Gr. 2 min. or SS self-drilling screws. See notes below for addtl. specifications.		

PANEL INTEGRITY SUMMARY NOTES

Panel integrity calculations were based on information provided by the client and manufacturer-listed specifications. Calculations were performed on a worst-case unit, which was determined by this office to be a Cabinet Group III unit. Specifications herein apply to all unit models listed herein (see "Model Information" on page 2). For units with one single Front Panel: follow the screw directive for the "Front B" panel and use on the single Front Panel. All exterior panels were considered in the calculations and are covered by this certification. Panels were assigned various porosities depending on the ratio of louver/aperture area to total panel area, for the purposes of calculating the acting wind force on each panel. Screw sizes, quantities on panels, and panel characteristics were considered based on client-provided information and additional conservative assumptions. Screw quantities were checked to reinforce unit panels as needed.

"Additional screws" are screws that are required to be installed ***in addition to*** the existing screws present as part of the original unit design(s) submitted to this office, unless noted otherwise (U.N.O.). The purpose of additional screws is to ensure panel connection integrity, referred to herein as "panel integrity", is sufficiently validated, such that the panel in question can withstand a high-speed wind gust and not detach or otherwise become flying debris.

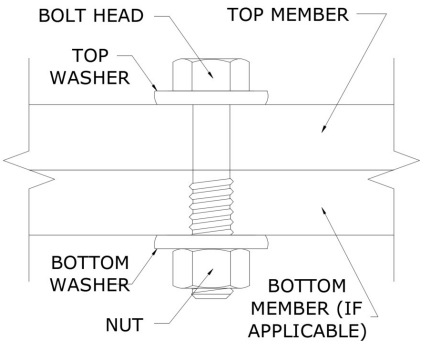
1000 hours of ASTM B117 with zero red rust is required for all additional screws. Position additional screw(s) as directed by the respective "Additional Screws Directive" specifications for the panel in question. See sample additional screw locations in the Detail below (diamond "◇" depict sample additional screw locations). Provide 1" min. spacing between neighboring screws (existing or additional). Validate that each additional screw joins the panel in question to the other specified member (as specified in the "Additional Screws Directive" where applicable).



15 SAMPLE ADDITIONAL SCREW LOCATIONS, TYP.
SCALE: NTS MULTIPLE VIEWS

TERMINOLOGY

The following abbreviations may appear in this report: “Addtl.” for “additional”, “AHJ” for “Authority Having Jurisdiction”, “alum” for “aluminum”, “ASCE” for “American Society of Civil Engineers”, “ASD” for “Allowable Stress Design”, “ASTM” for “American Society for Testing and Materials”, “EA.” for “each”, “E.D.” for edge distance”, “EDDS” for “extra deep drawing steel”, “e.g.” for “*exempli gratia*” or “for example”, “equiv.” for “equivalent”, “FBC” for “Florida Building Code”, “FEA” for “Finite Element Analysis”, “FLCA” for “Florida Certificate of Authorization”, “FS” for “Florida Statutes”, “Fu” for “ultimate tensile strength” or “ultimate tensile stress”, “Fy” for “yield strength” or “yield stress” “GA” for “gauge”, “GR.” or “Gr.” for “grade”, “HVAC” for “heating, ventilation, and air conditioning”, “HVHZ” for “High-Velocity Hurricane Zone”, “i.e. ” for “*id est*” or “in other words”, “in” for “inch”, “lb” for “pound (force)”, “max.” for “maximum”, “min.” for “minimum”, “mm” for “millimeter”, “NTS” for “not to scale”, “O.C. ” for “on center”, “OD” for “outer diameter”, “pcf” for “pounds (force) per cubic foot”, “PE” for “Professional Engineer”, “qty” for “quantity”, “SAE” for “Society of Automotive Engineering”, “SMS” for “sheet metal screws”, “SS” for “stainless steel”, “TER” for “Technical Evaluation Report”, “typ.” for “typical”, “ult” for “ultimate loads”, “U.N.O.” for “unless noted otherwise”, “UTS” for “ultimate tensile strength” or “ultimate tensile stress”, “WLL” for “working load limit”, “w/o” for “without”, “YS” for “yield strength” or “yield stress”, “#” for “number”, “&” for “and”, and “Ø” for “diameter”. Please visit ecalc.io/glossary for additional abbreviation clarifications.



SAMPLE THRU-BOLT
SCALE: NTS SECTION VIEW

Note: The term “Thru-Bolt” or through bolt, if used herein, refers to a bolt passing through the member(s) in contact and is fastened by a nut at the end opposite the screw head. Nut shall be equivalent to or exceed the strength of the bolt U.N.O. Nut shall be sized to accommodate the same nominal diameter as the bolt U.N.O. See diagram above-right for a sample thru-bolt configuration.

Note: For instances herein which list material specifications as *“[material type] or stronger”:*
U.N.O. herein, the term “stronger” refers to a material with a UTS value equal to or greater than the UTS value of the stated material type. Consult appropriate literature for established material UTS values.

Note: Equivalent steel gauge thicknesses as used in this evaluation, U.N.O., are as follows:
22 GA (.030”), 20 GA (.036”), 18 GA (.048”), 16 GA (.060”), 14 GA (.075”), 12 GA (.098”).

LIMITATIONS & CONDITIONS OF USE, CONTINUED

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 that 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 building codes must be considered, where applicable. Product components shall be of the material(s) specified in the manufacturer-provided product specifications. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. All fasteners and anchors shall be installed in accordance with the applicable provisions specified herein in addition to the anchor/fastener manufacturers’ published installation instructions. Fasteners must penetrate the supporting members such that the full length of the threaded portion is embedded within the main member.

All of the wind-resisting exterior panels (with accompanying retrofits) individually meet or exceed their capacity to resist the design wind loads as stated in the calculations as required by the codes and standards stated herein. Due to the indeterminate nature of these units, distortion, deflection, and material deformation cannot be accurately evaluated, but with the diaphragm action of external components and internal stiffeners, the base unit (with accompanying retrofits stated herein as applicable) has the capacity to withstand the design wind loads without detaching from the unit and becoming flying debris.

Survivability: Evaluation reports are valid for a newly installed unit and do not include certification of the product beyond a design event or if impacted by any debris. Inspections shall be implemented annually by the end user and after every named storm. All fasteners and cabinet components are to be verified, and all damaged, loose, corroded and/or broken fasteners and cabinet components shall be replaced to ensure structural integrity against hurricane wind forces. Contact this office for any reevaluation needs or as designated by the Authority Having Jurisdiction.

Durability: Components or component assemblies shall not deteriorate, crack, fail, or lose functionality due to galvanic corrosion or weathering. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Each component or component assembly shall be supported and oriented in its intended installation position. All exposed plastic components shall be certified to resist sunlight exposure as specified by ASTM B117, or ASTM G155 in Broward or Miami-Dade counties.

Extent of Certification: Certification pertains to the overall structural integrity of the unit components listed within the evaluation as required by code, subject to the limitations and criteria stated herein. Operability during or after a design event is not included in this certification. Water infiltration is outside the bounds of this certification. No other certifications are intended other than as described herein. This evaluation alone does not offer any evaluation for large missile impact debris or cyclic wind requirements unless specifically stated herein.

Proj. #	Remarks	By	Checked	Date	Proj. #	Remarks	By	Checked	Date
21-48764	Initial Issue	EPR	RWN	04/26/22					
23-69479	2023 FBC Update	MRT	ER/RN	01/19/24					

APPENDIX A: DESIGN WIND PRESSURE GUIDE

Max. Ult. Wind Speed (V_{ult})	Max. MRH (Roof Height)	Exposure Category	Required Design Wind Pressures (ASD)	
			Lateral Pressure	Uplift Pressure
140 mph	At-Grade (0 ft)	C	± 26 psf	0* psf
		D	± 31 psf	0* psf
	100 ft	C	± 63 psf	50 psf
		D	± 71 psf	56 psf
	200 ft	C	± 72 psf	57 psf
		D	± 80 psf	63 psf
175 mph	At-Grade (0 ft)	C	± 40 psf	0* psf
		D	± 49 psf	0* psf
	100 ft	C	± 98 psf	77 psf
		D	± 111 psf	87 psf
	200 ft	C	± 113 psf	89 psf
		D	± 124 psf	98 psf
186 mph	At-Grade (0 ft)	C	± 46 psf	0* psf
		D	± 54 psf	0* psf
	100 ft	C	± 111 psf	87 psf
		D	± 125 psf	99 psf
	~~200 ft~~	~~C~~	± 127 psf	100 psf
		~~D~~	± 140 psf	111 psf

~~100 psf~~ Note: Any table values with the format shown left, if present, indicate design wind pressures and site conditions that are **not approved for use** by this evaluation. Seek additional engineering or contact this firm for design solutions.

DIRECTIVE: This design pressure guide is for reference only and shall be approved for use by the Authority Having Jurisdiction (AHJ). If the design pressures listed in this guide are not used, required design pressures shall be calculated separately. For site-specific scenarios classified as Exposure Category B, the required design pressures stated for Exposure Category C in the above guide shall be used or design pressures shall be calculated separately. For heights and parameters beyond the parameters listed in this guide, visit our Online Calculator via the website link (https://ecalc.io/forces) or QR Code below, or obtain calculations separately by others.

The required ASD design pressures listed in this guide were calculated per the table's listed corresponding site conditions. The project design professional or permitting contractor shall verify that the site-specific conditions are equal to or less than the approved design parameters listed in the guide. Per the note below table: any values shown as "~~XX psf~~", indicate wind pressures and corresponding site conditions that are **not valid for use** with this evaluation (exceeds the max. rated pressures).

*Note: Per the codes and standards referenced herein, uplift is not required for mechanical equipment at-grade. If uplift at-grade is required by the AHJ, contact this firm for a site-specific evaluation.

At-Grade (0 ft MRH) Required Design Pressures:

- ASCE 7 "Design Wind Loads: Other Structures"
- Structure Shape = Square, flat terrain
- Height of structure (unit + stand or curb, if used) = 6 ft max.
- Width of unit = 1 ft min., Depth of unit = 11 in min.

Rooftop (>15 ft MRH) Required Design Pressures:

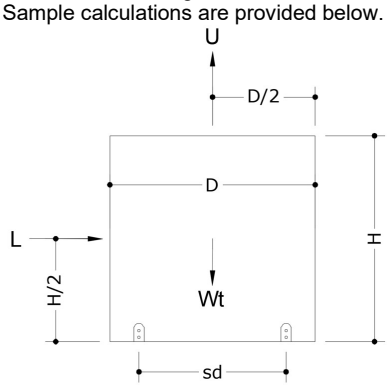
- ASCE 7 "Design Wind Loads: Other Structures: Rooftop Structures and Equipment for Buildings"
- Structure Shape = Square, flat terrain
- z = up to 7 ft, where z = height of stand or curb + ½ unit height
- Lateral GC_f = 1.90; Uplift GC_f = 1.50

VISIT ECALC.IO/FORCES

FOR DESIGN AID CALCULATORS AND RESOURCES RELATED TO THIS TER & GUIDES HEREIN, OR SCAN THE QR CODE RIGHT >

UNIT REACTIONS FROM WIND GUIDE

DIRECTIVE: This guide is intended for use by a design professional. Design parameters shall abide all specifications and limitations stated in this report. Design professional shall consider all forces, including seismic and snow loads, per the governing building code. Unit reactions obtained from this guide shall be verified by a registered Professional Engineer. Reactions are applicable for unit-to-host connections only. Sample calculations are provided below.



Design Parameters:

- Lateral Wind Pressure, P_lat
- Unit Height, H
- Unit Width, W
- Support Spacing across Depth, sd
- Uplift Wind Pressure, P_up
- Unit Depth, D
- Unit Weight, Wt
- Support Spacing across Width, sw

Unit Reaction Equations:

Long Side (Width x Height):

- Sliding Force, L = P_lat x W x H
- Uplift Force, U = P_up x W x D
- Total Tension per Long Side = (L x H/2 + U x sd/2 – Wt x 0.6 x sd/2) / sd

Short Side (Depth x Height):

- Sliding Force, L = P_lat x D x H
- Uplift Force, U = P_up x W x D
- Total Tension per Short Side = (L x H/2 + U x sw/2 – Wt x 0.6 x sw/2) / sw

Example: A (48" W x 36" D x 42" H), 250 lb net weight unit at wind pressures of 120 psf lateral and 95 psf uplift, on a 24" wide roof stand, shall have the following unit reactions:

Long Side (Width x Height):

1. Sliding Force, L = P_lat x W x H
   = (120 psf) x (48 in) x (42 in) x (1 in^2 / 144 ft^2) = **1680 lb**
2. Uplift Force, U = P_up x W x D
   = (95 psf) x (48 in) x (36 in) x (1 in^2 / 144 ft^2) **= 1140 lb**
3. Total Tension per Long Side =
   = (L x H/2 + U x sd/2 – Wt x 0.6 x sd/2) / sd
   = ((1680 lb x 42/2 in) + (1140 lb x 24/2 in) – (250 lb x 0.6 x 24/2 in)) / 24 in **= 1965 lb**

Short Side (Depth x Height):

1. Sliding Force, L = P_lat x D x H
   = (120 psf) x (36 in) x (42 in) x (1 in^2 / 144 ft^2) **= 1260 lb**
2. Uplift Force, U = P_up x W x D
   = (95 psf) x (48 in) x (36 in) x (1 in^2 / 144 ft^2) **= 1140 lb**
3. Total Tension per Short Side =
   = (L x H/2 + U x sw/2 – Wt x 0.6 x sw/2) / sw
   = ((1260 lb x 42/2 in) + (1140 lb x 48/2 in) – (250 lb x 0.6 x 48/2 in)) / 48 in **= 1046 lb**

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.