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(Subject to Renew July 1, 2027 or next code cycle)

EVALUATION SUBJECT: **CAC-15 SERIES OUTDOOR UNITS**

TER-25-90389

REPORT HOLDER:

EVERWELL PARTS INC
10914 NW 33RD ST
DORAL, FL 33172, USA
(305) 406-2331
EVERWELLPARTS.COM



SCOPE OF EVALUATION (compliance with the following codes):

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This Product Evaluation Report is being issued in accordance with the requirements of the **Florida Building Code 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.

IN ACCORDANCE WITH THESE CODES EACH OF THESE REPORTS MUST BEAR THE ORIGINAL SIGNATURE & RAISED SEAL OR DIGITAL 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:

- Max. allowable (ASD) 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 and unit base shall be constructed of UTS = 36 ksi min. (or 250 MPa min.) galv. steel. Exterior panels shall be 22 GA min. thick. Unit base shall be 20 GA min. thick. Exterior panels shall be secured with #8 (0.164") min. Ø, UTS = 55 ksi min. (equiv. to AISI 1022 low-carbon steel or stronger) steel, corrosion-resistant sheet metal screws. Contact Report Holder for further unit construction information.

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

STRUCTURAL PERFORMANCE:

Models referenced herein are subject to the following design limitations:

Maximum-Rated ASD Wind Pressures*:
± 140 psf Lateral, 111 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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MODEL INFORMATION (Page 1 of 2)

Model Number	Unit Dimensions (in)		
	Width	Depth	Height
CAC1814CA15	23-3/5	23-3/5	25
CAC1814HA15	23-3/5	23-3/5	25
CAC2414CA15	23-3/5	23-3/5	25
CAC2414HA15	23-3/5	23-3/5	25
CAC3014CA15	23-3/5	23-3/5	25
CAC3014HA15	23-3/5	23-3/5	25
CAC3614CA15	29-1/7	29-1/7	25
CAC3614HA15	29-1/7	29-1/7	25
CAC4214CA15	29-1/7	29-1/7	32-7/8
CAC4214HA15	29-1/7	29-1/7	32-7/8
CAC4814CA15	29-1/7	29-1/7	32-7/8
CAC4814HA15	29-1/7	29-1/7	32-7/8
CAC6014CA15	29-1/7	29-1/7	32-7/8
CAC6014HA15	29-1/7	29-1/7	32-7/8

MODEL INFORMATION NOTES

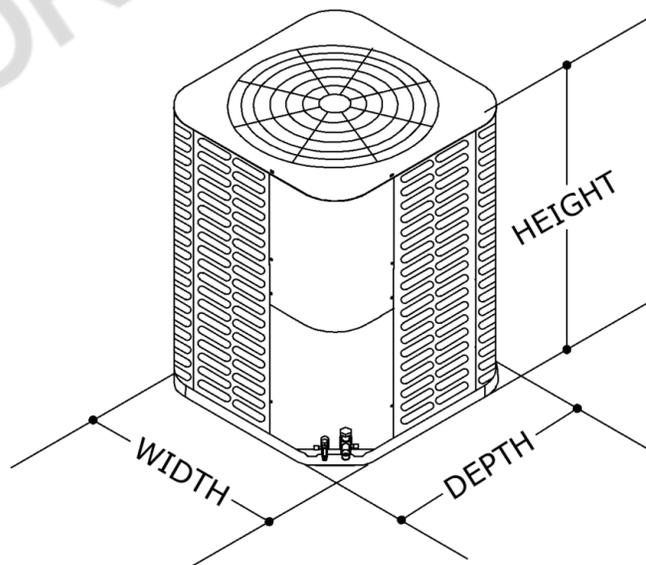
The model information listed herein is based on information provided by the client. Model numbers are sorted alphabetically.

Unit dimensions listed herein are unit net/operating dimensions (as opposed to gross/packing/shipping dimensions). Unit dimensions may be abbreviated herein as "H" for "unit height", "W" for "unit width", and "D" for "unit depth".

Unit net/operating weights (as opposed to gross/packing/shipping weights) shall be between 100 lb and 250 lb, typ;

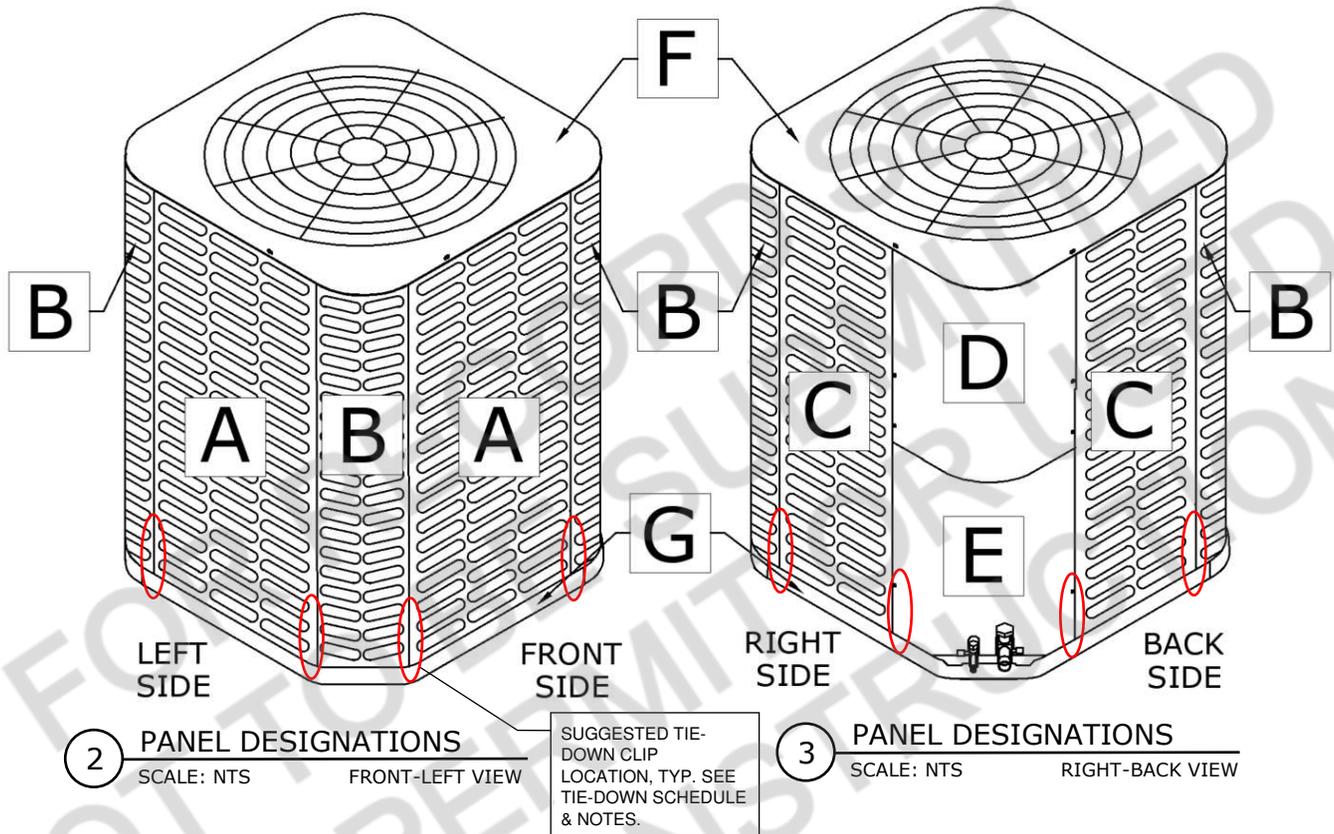
See Unit Details herein for definitions of unit dimensions, unit sides (front, back, left, and right) as defined in this evaluation, and depictions of exterior unit cabinetry (i.e. wall and roof panels) (related to the Panel Integrity evaluation summarized herein). Unit appearance may vary.

Unit constructions are per the client's documentation supplied to Engineering Express; see manufacturer documentation for more information on these unit construction(s) and additional views of the unit. Please contact Report Holder for more information.



1 UNIT DIMENSIONS
SCALE: NTS RIGHT-BACK VIEW

MODEL INFORMATION (Page 2 of 2)

**DETAIL 2 AND 3 NOTES:**

The unit depictions shown are generic and are for illustrative purposes only. Unit appearance may vary. Panel layouts as designated above by the boxed call-outs (e.g. "A", "B", etc.) are as follows:

- The unit front is comprised of a center Panel "A" and corner posts on each corner (each corner post designated as Panel "B"). Panel "A" has three columns of louver openings. The unit right side has a center Panel "C", which has two columns of louver openings.
- The unit right-back corner is comprised of two panels: an upper panel "D" (i.e. "upper side plate"), and a lower panel "E" (i.e. "lower side plate"). The relative sizes of panels "D" and "E" may vary across unit models; see Report Holder for more information.
- The remainder of the unit back side is comprised of a center Panel "C" and a corner post "B" for the back-left corner.
- The unit left side is comprised of a center Panel "A" and a corner post "B" on each corner. (3) corner posts total per unit, for the front-left, front-right, and back-left corners, typ.
- Panel "F" refers to the solid panel comprising the roof of the unit (excluding the fan cage) (i.e. "top cover plate") and fastens to the tops of all side panels.
- Panel "G" refers to the unit base that covers the bottom of the unit.
- The top fan cage was considered in this analysis but is not specifically designated above.

Tie-down clip locations shown relate to the tie-down provisions that appear herein. Unit appearance may vary from the Details shown above.

PANEL INTEGRITY SUMMARY

No additional screws are required for all unit installations up to the maximum-rated ASD wind pressures stated herein.

Panel integrity calculations were based on information provided by the client and manufacturer-listed specifications. Calculations are valid for all unit models listed herein, and specifications herein apply to all unit models listed herein (see "Model Information" section). 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.

DESIGN & GENERAL NOTES:

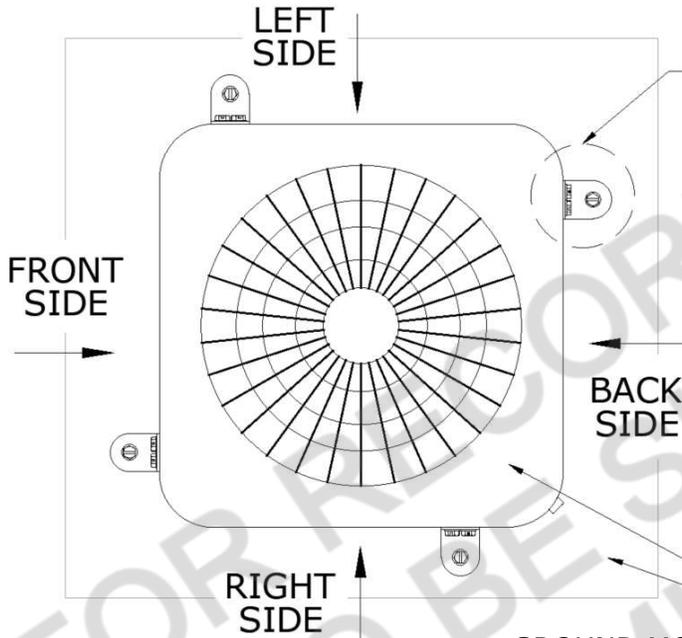
The following notes are applicable for all unit installations unless noted otherwise (U.N.O.):

1. All existing supporting host concrete shall have $f'c = 3,000$ psi min. compressive strength and shall be regular-weight, uncracked concrete, design and integrity by others.
2. All existing supporting aluminum host structure members (i.e. roof stand rails or wall brackets) shall be 0.090" min. thick, 6061-T6 or stronger aluminum, design and integrity by others.
3. All existing supporting steel host structure members (i.e. roof stand rails or wall brackets) shall be 12 GA (.098") min. thick, ASTM A653 Gr. 33 min. ($F_y=33$ ksi min, $F_u=45$ ksi min), design and integrity by others.
4. Permit holder shall verify the adequacy of the existing structure to withstand superimposed loads. Wood bucks (by others) shall be anchored properly to transfer loads to the existing structure.
5. "Mechanical Unit" or "Unit" where used herein refers to a unit included in and in compliance with the "Model Information" section prior. See prior for required specifications and approved unit sizes.
6. "Tie-Down Clip" or "Clip" where used herein: Each clip shall be 1" min. wide x 0.068" min. thick, UTS = 45 ksi min. (equivalent to ASTM A653 Gr. 33 or stronger) galv. steel, typ. Ensure clip sits flush on host structure and flush against the unit. Clip-to-unit screws shall be positioned as (1) screw per clip 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 the unit. Clip-to-host anchor shall be placed at the center of the tie-down clip leg, such that 1/2" min. edge distance is provided in all directions, typ. See herein for clip-to-unit screw and clip-to-host anchor quantities and specifications.
7. "Sheet Metal Screws" or "SMS" where used herein: screws shall be SAE Gr. 2 min. or SS self-drilling screws with standard-sized washers, typ.
8. "Thru-Bolt" where used herein: bolt shall be SAE Gr. 5 min. with 1" OD fender washers and ID sized for 1/4" diameter anchors at the top and bottom of the connection (under the bolt head and above the locking nut), and SAE Gr. 5 min. locking nut at the underside of the connection, typ. See the thru-bolt diagram on the second-to-last page of this report.
9. For all fasteners specified herein: provide 3x diameter minimum spacing and 1.5x diameter minimum edge distance for all steel-to-steel and steel-to-aluminum connections, typ. Provide 2.5x diameter minimum spacing and 1.5x diameter minimum edge distance for all aluminum-to-aluminum connections.
10. Refer to fastener manufacturer's published data sheets and recommendations for fastener installation instructions. Fasteners shall be cadmium-plated or otherwise corrosion-resistant material and shall comply with "Specifications for Aluminum Structures" Section J.3.7.2 by the Aluminum Association Inc., and any applicable federal, state, and/or local codes.
11. Alternate/equivalent anchors may be used in place of the listed anchors herein so long as all of the below conditions are satisfied and are subject to the approval of the Authority Having Jurisdiction:
 - i. The equivalent anchor is demonstrated to have allowable (ASD) tension and shear capacities equal to or greater than the listed anchor's allowable tension and shear capacities as verified by a Design Professional.
 - ii. All necessary reductions in capacity for edge distance, spacing, and other requirements as noted by the anchor manufacturer are considered in determining the equivalent anchor's tension and shear capacities.
 - iii. The alternate anchor is of equal or greater diameter than the listed anchor and is provided with the same minimum edge distance, spacing, and any other specifications as are required for the listed anchor; AND
 - iv. Anchor equivalents shall follow all requirements specified in this report in addition to the governing code(s) and allowable stress design (ASD) methodology.

Contact Engineering Express to add additional anchoring options to this report, or to certify an anchor option for special site-specific conditions needed for a particular site installation.
12. The contractor is responsible for insulating all members from dissimilar materials to prevent electrolysis.
13. Water-tightness of the existing host substrate/structure shall be the full responsibility of the installing contractor. The contractor shall ensure that any removed or altered waterproofing membrane is restored after fabrication and installation of the structure evaluated herein. This engineer shall not be responsible for any waterproofing or leakage issues that may occur as water-tightness shall be the full responsibility of the installing contractor.
14. Large and small missile impact are not covered in this certification and shall be approved through a separate submittal if required.
15. Interior mechanisms and/or electrical circuitry are outside the scope of this performance evaluation. Electrical ground, when required, to be designed & installed by others. All mechanical specifications (clear space, tonnage, etc.) shall be as per manufacturer recommendations and are the express responsibility of the contractor.
16. The products and/or systems detailed herein are generic and do not provide information for a specific site. For site conditions different from the conditions listed herein, a licensed engineer or registered architect shall provide site-specific documents for use in conjunction with this evaluation report. Contact Engineering Express for site scenarios outside the bounds of this evaluation.
17. Engineering Express shall be notified and given an opportunity to reevaluate our work upon discovery of any inaccurate information prior to modification of existing field conditions and fabrication and installation of materials.
18. Alterations, additions, or other markings to this document are not permitted and invalidate this certification. Dimensions are shown to illustrate design forces and other design criteria. They may vary slightly but must remain within the limitations specified herein. Work shall be field-verified by others.
19. Engineer seal affixed hereto validates the structural design as shown only. Use of this specification by contractor, et. al. indemnifies and saves harmless this engineer for all costs and damages including legal fees and appellate fees resulting from material fabrication, system erection, and construction practices beyond that which is called for by local, state, and federal codes and from deviations of this plan.

GROUND MOUNT TO CONCRETE

Valid for ASD Wind Pressures up to ± 54 psf Lateral & 0 psf Uplift. Concrete Host by Others



TIE-DOWN DIRECTIVE:

ATTACH UNIT TO CONCRETE HOST BY OTHERS WITH (4) TIE-DOWN CLIPS, (1) PER UNIT CORNER. TIE-DOWN CLIP MAY BE POSITIONED ON EITHER SIDE OF THE UNIT CORNER, TYP.; SEE THE "MODEL INFORMATION" SECTION PRIOR FOR SUGGESTED TIE-DOWN CLIP LOCATIONS.

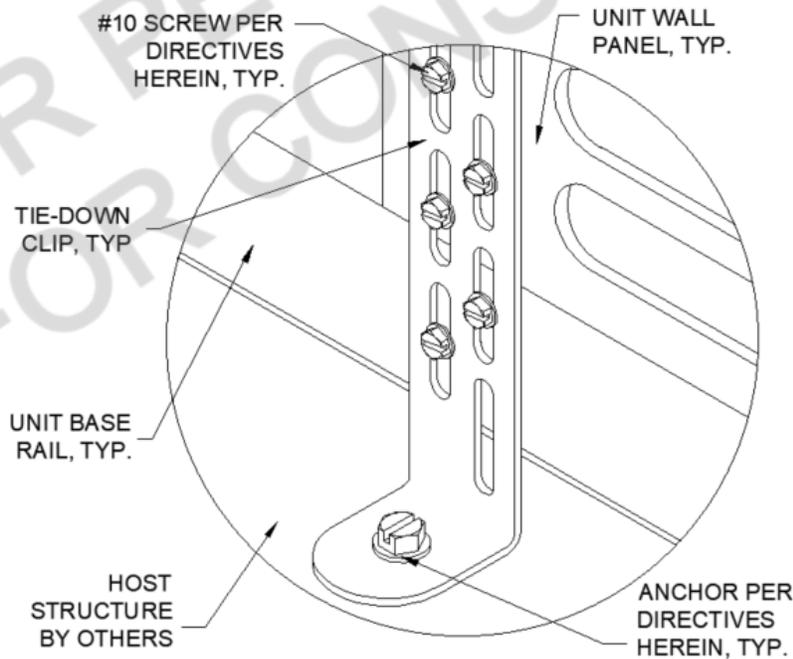
ATTACH EACH TIE-DOWN CLIP TO CONCRETE WITH (1) 1/4" Ø ITW TAPCON OR EQUIVALENT WITH 1-3/4" EMBEDMENT, 2" MIN. EDGE DISTANCE TO ANY EDGE OF CONCRETE, AND 4-1/4" MIN. SPACING FROM NEIGHBORING CONCRETE ANCHORS, TYP. USE (1) 1" OD FENDER WASHER WITH ID SIZED FOR 1/4" Ø ANCHORS UNDER ANCHOR HEAD, TYP.

ATTACH EACH TIE-DOWN CLIP TO UNIT WITH (5) #10 SMS. UTILIZE (5) CLIP SLOTS THAT HAVE FLUSH, SOLID CONTACT WITH THE UNIT, (1) SCREW PER SLOT, TYP. SCREWS MAY FASTEN TO THE UNIT BASE AND/OR THE UNIT WALL PANEL.

SEE TIE-DOWN CLIP ATTACHMENT DETAIL FOR ADDITIONAL REQUIREMENTS & SPECIFICATIONS.

GROUND MOUNT TIE-DOWN DIRECTIVE

4 SCALE: NTS TOP VIEW



TIE-DOWN CLIP ATTACHMENT, TYP.

5 SCALE: NTS ISOMETRIC VIEW

DETAILS 4 – 5 NOTES

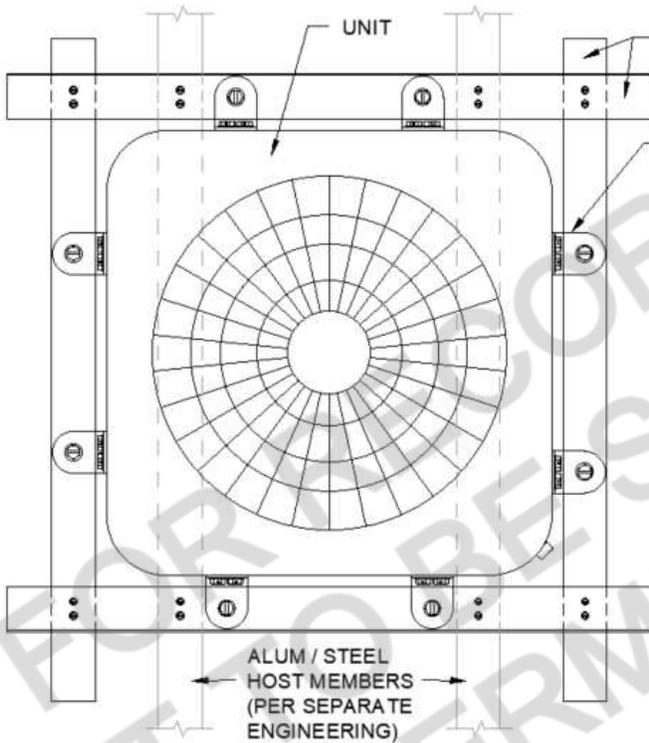
The units/components depicted in the Details on this page are for illustrative purposes only. Units/components may vary in appearance. The tie-down system may not be depicted in full. The sample tie-down layouts shown herein are for illustrative purposes only. Tie-down locations may vary per the specifications stated herein. Host structure shape may vary.

Detail 5 is applicable for ground and rooftop installations. Fender washer size is not depicted; ensure fender washers are used as specified.

ROOFTOP/WALL MOUNT TO ALUMINUM OR STEEL HOST MEMBERS (Page 1 of 2)

Valid for ASD Wind Pressures up to ± 140 psf Lateral & 111 psf Uplift.

Aluminum/Steel Host Members (i.e. Stand Rails or Wall Brackets) by Others.



SUPPORT ANGLE, TYP.

TIE-DOWN DIRECTIVE:

ATTACH UNIT TO ALUMINUM/STEEL HOST MEMBERS WITH (8) TIE-DOWN CLIPS, (2) PER UNIT CORNER, APPROXIMATELY AS SHOWN, TYP; SEE ALSO THE "MODEL INFORMATION" SECTION PRIOR FOR SUGGESTED TIE-DOWN CLIP LOCATIONS.

ATTACH EACH TIE-DOWN CLIP TO ALUMINUM/STEEL HOST MEMBER WITH (1) 1/4" Ø THRU-BOLT, TYP.

ATTACH EACH TIE-DOWN CLIP TO UNIT WITH (5) #10 SMS. UTILIZE (5) CLIP SLOTS THAT HAVE FLUSH, SOLID CONTACT WITH THE UNIT, (1) SCREW PER SLOT, TYP. SCREWS MAY FASTEN TO THE UNIT BASE AND/OR THE UNIT WALL PANEL.

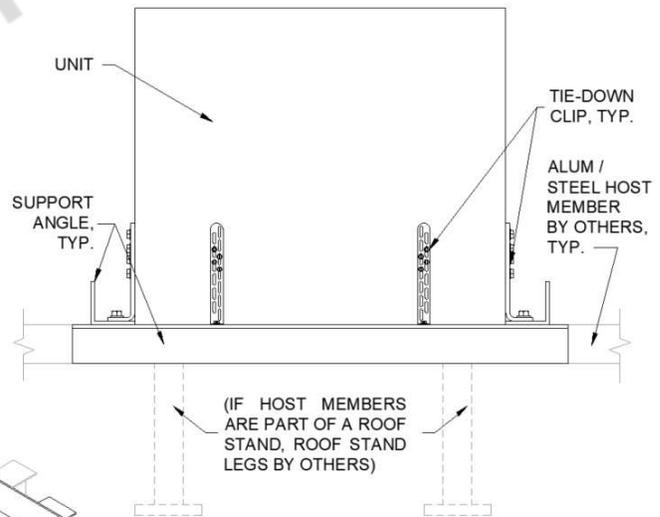
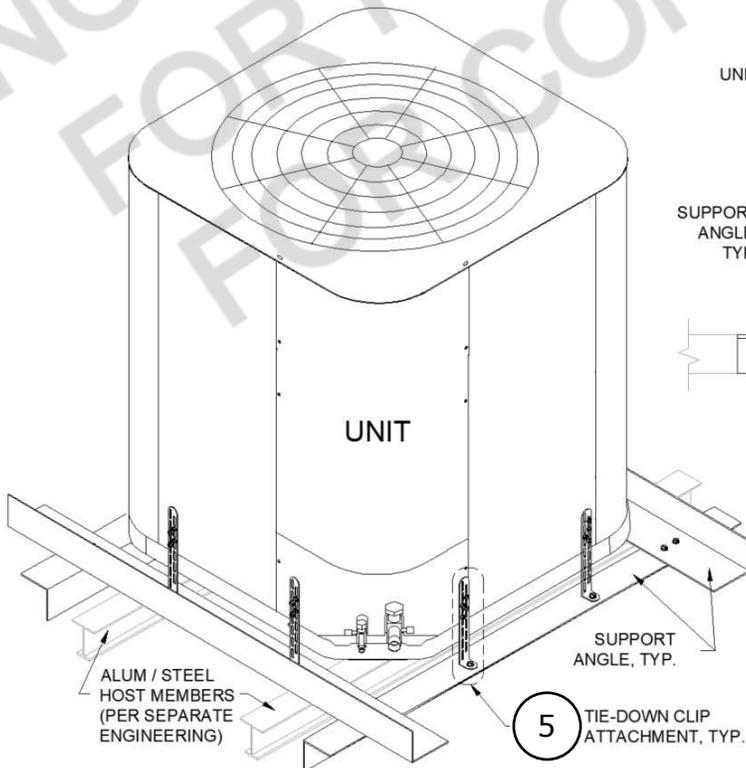
SEE TIE-DOWN CLIP ATTACHMENT DETAIL FOR ADDITIONAL REQUIREMENTS & SPECIFICATIONS.

FOR ATTACHMENT TO ALUMINUM OR STEEL HOST MEMBERS: IF THE HOST MEMBERS DO NOT ACCOMMODATE TIE-DOWN CLIP PLACEMENT FOR ALL (8) REQUIRED TIE-DOWN CLIPS, SUPPORT ANGLES SHALL BE ADDED AS NEEDED TO ALLOW FOR THE TIE-DOWN CLIP INSTALLATION. SUPPORT ANGLES SHALL BE 3" MIN. WIDE LEGS X 1/8" THICK, 6061-T6 ALUMINUM ANGLES, TYP. SUPPORT ANGLE LENGTH MAY VARY; PROVIDE LONG ENOUGH ANGLES SUCH THAT THE SUPPORT ANGLE ATTACHMENT SPECIFICATIONS HEREIN ARE ACHIEVED.

6 ROOFTOP/WALL MOUNT TIE-DOWN DIRECTIVE

SCALE: NTS

TOP VIEW



8 SAMPLE ROOF/WALL MOUNT W/ SUPPORT ANGLES, TYP.

SCALE: NTS

ELEVATION VIEW

7 SAMPLE ROOF/WALL MOUNT W/ SUPPORT ANGLES, TYP.

SCALE: NTS

ISOMETRIC VIEW

DETAILS 6 – 8 NOTES

The units/components depicted in the Detail on this page are for illustrative purposes only and may vary in appearance. The tie-down system may not be depicted in full. The sample tie-down layouts shown herein are for illustrative purposes only and depict a (4) support angle installation. See specifications herein. Tie-down locations may vary per the specifications stated herein. Host structure shape may vary.

ROOFTOP/WALL MOUNT TO ALUMINUM OR STEEL HOST MEMBERS (Page 2 of 2)

Valid for ASD Wind Pressures up to ± 140 psf Lateral & 111 psf Uplift.

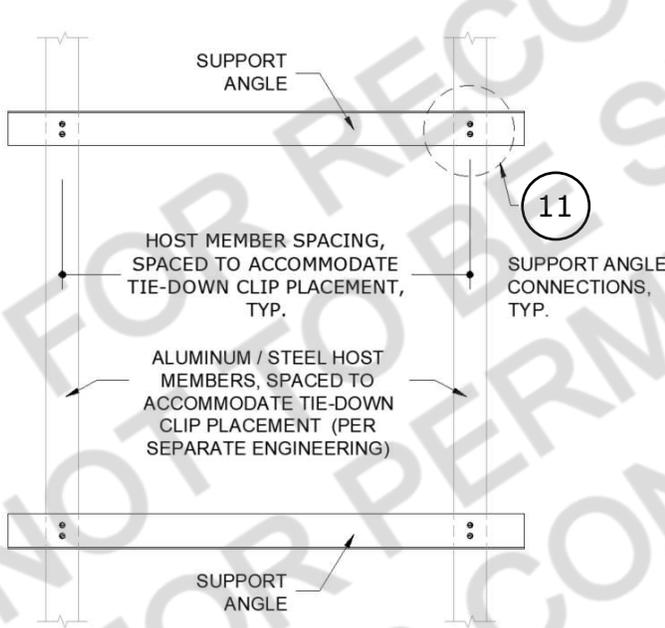
Aluminum/Steel Host Members (i.e. Stand Rails or Wall Brackets) by Others.

SUPPORT ANGLE DIRECTIVE:

If host structure members can be positioned to accommodate all (8) tie-down clips required, no additional support angles are required.

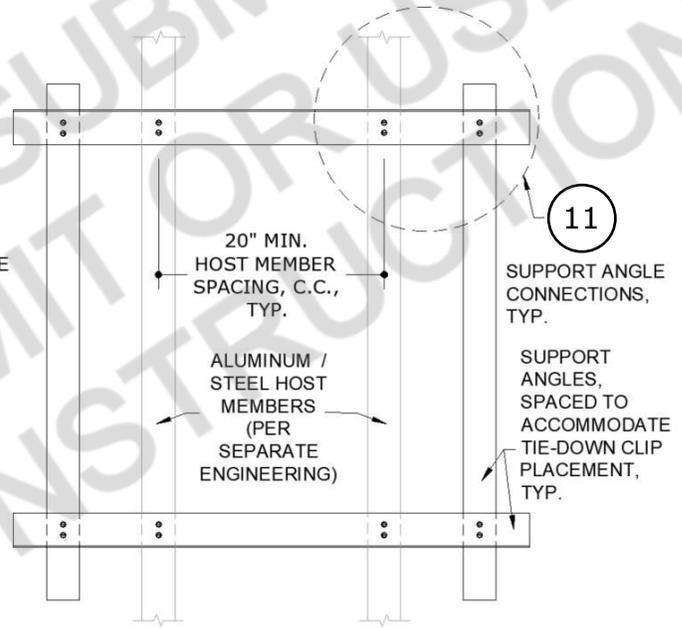
If host structure members can accommodate all (8) tie-down clips with (2) support angles, (2) support angles shall be installed per Details 9 and 11 below. (Or separate engineering is required).

If host structure members cannot accommodate tie-down clip placement, a support frame shall be constructed per Details 10 and 11 below. (or separate engineering is required). Frame shall be constructed from (4) support angles.



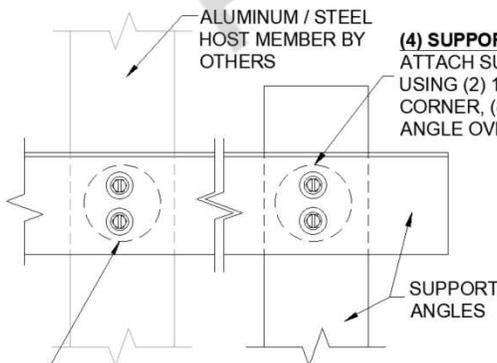
**SUPPORT ANGLE LAYOUT,
(2) SUPPORT ANGLES**

9 SCALE: NTS ELEVATION VIEW



**SUPPORT ANGLE LAYOUT,
(4) SUPPORT ANGLES**

10 SCALE: NTS ELEVATION VIEW



(2) AND (4) SUPPORT ANGLE INSTALLATIONS:
ATTACH SUPPORT ANGLE PERPENDICULAR TO THE HOST MEMBER TO THE HOST MEMBERS WITH (2) 1/4" Ø THRU-BOLTS PER HOST MEMBER CROSSING, (4) PER PERPENDICULAR SUPPORT ANGLE, TYP.

**SUPPORT ANGLE
ATTACHMENT DIRECTIVE**

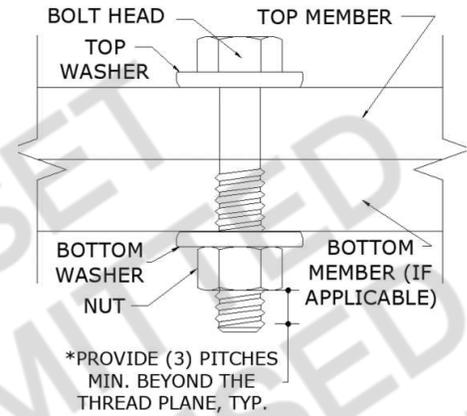
11 SCALE: NTS DETAIL VIEW

DETAILS 9 – 11 NOTES

The components depicted in the Detail on this page are for illustrative purposes only and may vary in appearance. Host structure shape may vary. The tie-down system may not be depicted in full.

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 ecal.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 (3) pitches minimum beyond the thread plane of the connecting members in contact. For thru-bolt connections, provide (3) pitches minimum beyond end of nut. For screw connections, provide (3) pitches minimum beyond the bottom member. See Sample Thru-Bolt Detail herein.

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
25-90389	Initial Issue	EPR	RWN	08/26/25					

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

±00-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://ecalcalc.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:

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

Rooftop (>15 ft MRH) Required Design Pressures:

- o ASCE 7 "Design Wind Loads: Other Structures: Rooftop Structures and Equipment for Buildings"
- o Structure Shape = Square, flat terrain
- o z = up to 7 ft, where z = height of curb/stand/slab/pad + 1/2 unit height
- o Lateral GC_r = 1.90; Uplift GC_r = 1.50

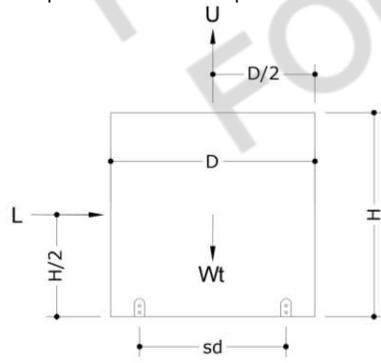
VISIT [ECALC.IO/FORCES](https://ecalcalc.io/forces)

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 in² / 144 ft²) = **1680 lb**
2. Uplift Force, U = P_{up} x W x D = (95 psf) x (48 in) x (36 in) x (1 in² / 144 ft²) = **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 in² / 144 ft²) = **1260 lb**
2. Uplift Force, U = P_{up} x W x D = (95 psf) x (48 in) x (36 in) x (1 in² / 144 ft²) = **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.