



RHEEM SALES COMPANY, INC.

WIND LOAD CERTIFICATION OF MECHANICAL UNIT CABINETRY AND STEEL/ALUMINUM TIE-DOWN CLIPS
AT GRADE MOUNTED APPLICATIONS - 29.75" X 29.75" X 31" MAX AS SHOWN

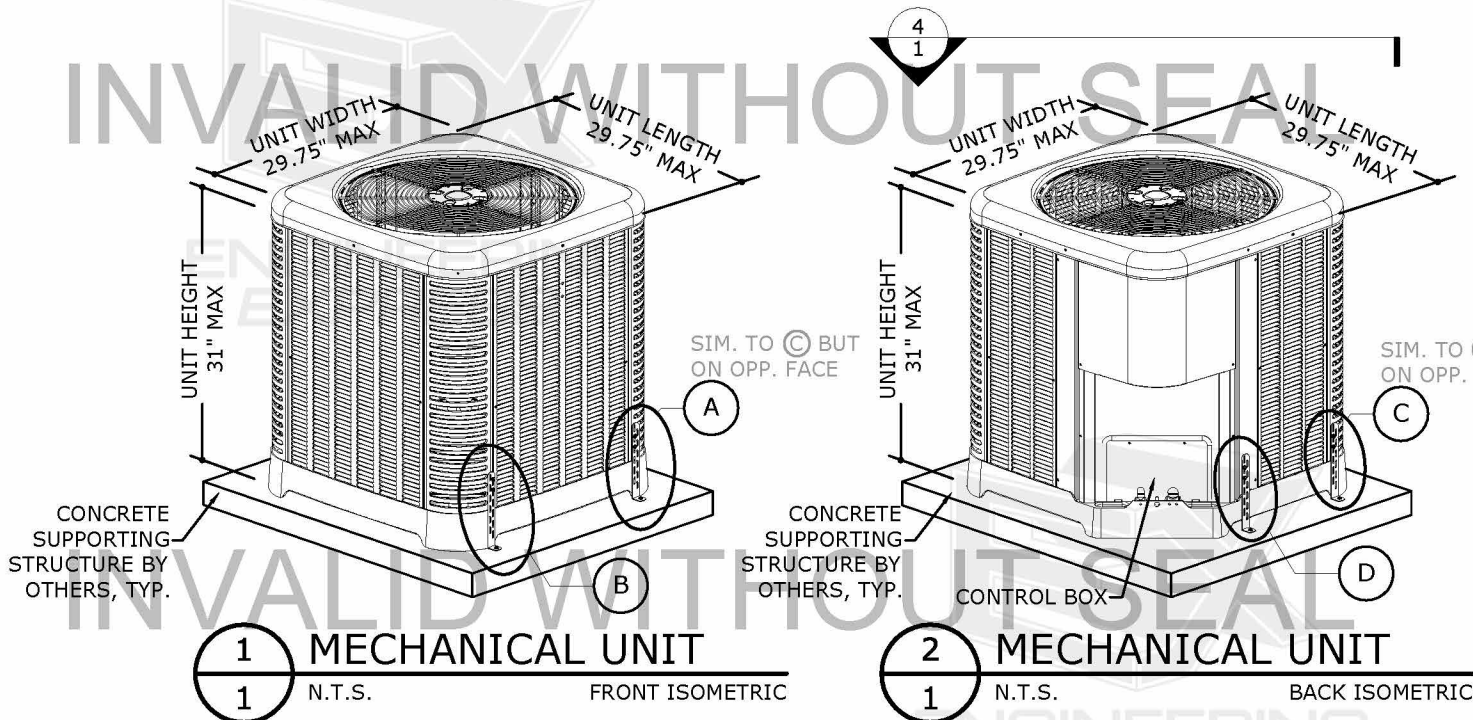
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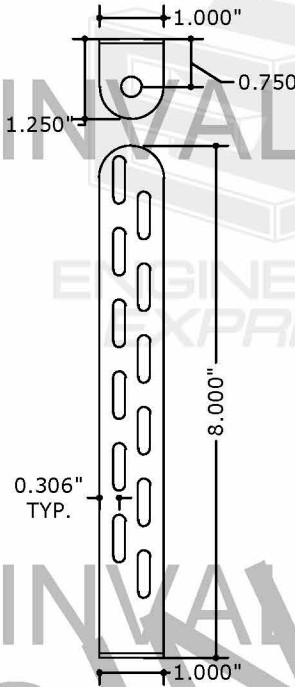
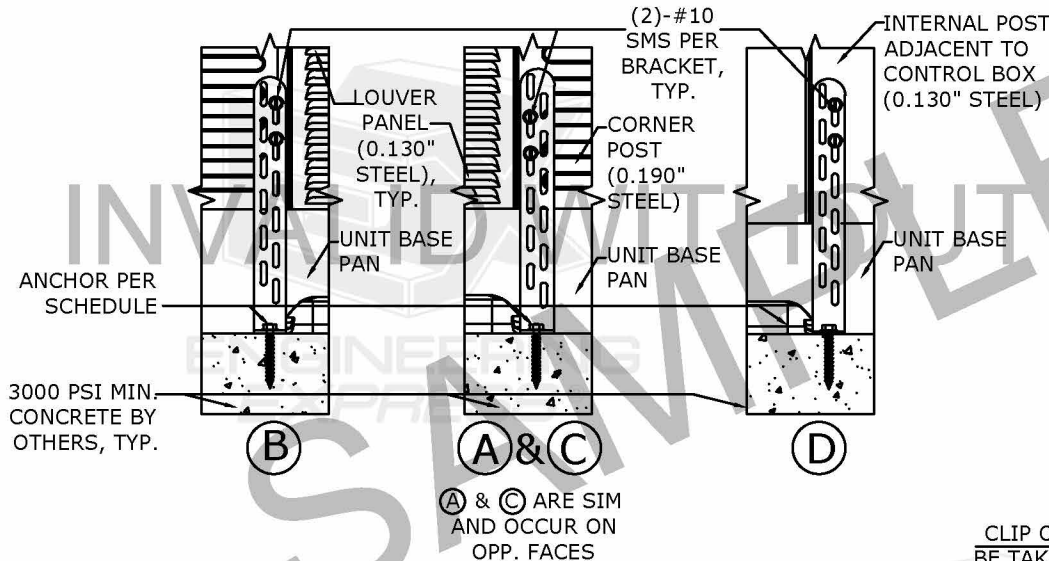
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02/02/2021

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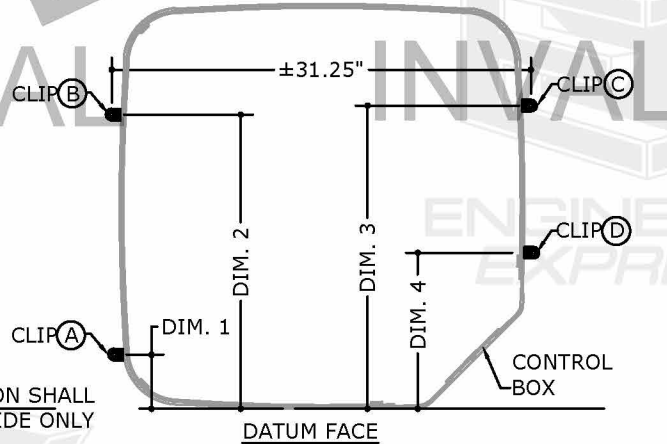
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THESE ISOMETRICS ARE INTENDED FOR
DIAGRAMMATICAL PURPOSES ONLY; ALTERNATE RHEEM
UNITS MAY VARY IN APPEARANCE



**TIE-DOWN
BRACKET**
MIAMI TECH CLIP: 14GA (0.07")
ASTM A653 Fu=90 KSI STEEL
(CUTD8) OR 0.080" 5052-H32
ALUMINUM (CUTDA8), MIAMI
TECH KIT # RRCUTDSMK OR
RRCUTDASMK



**APPROVED DESIGN
CRITERIA (ASD):**

**DESIGN LATERAL WIND LOAD: 60 PSF
DESIGN UPLIFT WIND LOAD: 0 PSF*
AT GRADE INSTALLATION ONLY**

*PER THE CODES AND STANDARDS REFERENCED HEREIN,
UPLIFT IS OPTIONAL FOR MECHANICAL EQUIPMENT AT GRADE
AND IS AT THE DISCRETION OF THE AUTHORITY HAVING
JURISDICTION. REFER DESIGN GUIDE APPENDIX ON FINAL
PAGE FOR MORE INFORMATION

DESIGN NOTES:

- THIS SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2018) AND THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) AS WELL AS CURRENT VERSIONS OF THE MN, NC, NJ, NY, OH, SC, & VA BUILDING CODES AS APPLICABLE. CODE ENFORCED COMPLIES WITH STATE OF SEAL AND IF MULTIPLE VERSIONS ARE LISTED THEN MOST STRINGENT APPLIES. DESIGN SHALL UTILIZE ASD DESIGN METHOD USING ASCE 7-16 OR ASCE 7-10 CODES FOR SITE SPECIFIC APPLICATIONS AS APPLICABLE. FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. THE DESIGN CRITERIA CONSIDERS ASCE 7 SECTION 29.4 FOR "OTHER STRUCTURES" INSTALLATIONS AT GRADE. ALL DESIGN VARIABLES ARE IN ACCORDANCE WITH ASCE 7 CHAPTERS 26 & 29.
- REQUIRED DESIGN WIND PRESSURES SHALL BE DETERMINED ACCORDING TO THE DESIGN PRESSURE GUIDE PROVIDED IN THE APPENDIX 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 PRESSURES SHALL BE LESS THAN OR EQUAL TO THE MAXIMUM PRESSURES LISTED HEREIN.
- *MAXIMUM RATED WIND PRESSURES INDICATE THE MAXIMUM PRESSURES THAT ALL UNITS LISTED HEREIN ARE APPROVED FOR. VALID FOR AT-GRADE 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 MAXIMUM RATED WIND PRESSURES STATED HEREIN ARE NOT EXCEEDED.

GENERAL NOTES:

- THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) & ASCE 7. THIS SYSTEM MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. THIS DESIGN IS NOT INTENDED TO CERTIFY IMPACT RESISTANCE OF THE MECHANICAL UNIT CABINETRY.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
- DESIGN & CERTIFICATION OF THE UNIT CABINETRY IS APPROVED THROUGH TEST REPORT#0323.01-15 BY AMERICAN TEST LAB OF SOUTH FLORIDA.
- ALL DIMENSIONS AND THE MINIMUM WEIGHT (120 LB MINIMUM) OF MECHANICAL UNIT SHALL CONFORM TO LIMITATIONS STATED HEREIN. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE AS PER MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
- TAPCONS REFERRED TO HEREIN SHALL BE ITW BUILDEX BRAND, ASTM F593 410 STAINLESS STEEL OR EQUIVALENT ONLY, INSTALLED TO 3000 PSI MIN CONCRETE. SEE ANCHOR SCHEDULE FOR ANCHOR REQUIREMENTS. ALL SHEET METAL SCREWS USED TO FASTEN BRACKETS TO MECHANICAL UNITS SHALL BE #10 (14 MIN THREADS PER INCH) ASTM F593 410 STAINLESS STEEL OR EQUIVALENT ONLY. PROVIDE (5) PITCHES MINIMUM PAST THE THREAD PLANE FOR SHEET METAL SCREWS. ALL FASTENERS SHALL HAVE APPROPRIATE CORROSION PROTECTION TO PREVENT ELECTROLYSIS.
- ALL CONCRETE SPECIFIED HEREIN IS NOT PART OF THIS CERTIFICATION. AS A MINIMUM, ALL CONCRETE SHALL BE STRUCTURAL CONCRETE 4" MIN. THICK AND SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
- THE ADEQUACY OF ANY EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS SHALL BE VERIFIED BY THE ONSITE DESIGN PROFESSIONAL AND IS NOT INCLUDED IN THIS CERTIFICATION. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
- THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS DOCUMENT.
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- FOR AN EXPLANATION OF EXPOSURE CATEGORIES THAT ACCOMPANY THE VULT WIND SPEEDS USED IN THIS DOCUMENT, SEE SECTION 26.7 OF ASCE 7

ANCHOR SCHEDULE:

SUBSTRATE	DESCRIPTION
CONCRETE: (4" THICK MIN, 3000 PSI MIN.)	(1)-1/4"Ø STAINLESS STEEL ITW BUILDEX TAPCON, 1 3/4" FULL EMBED TO CONCRETE, 2 1/2" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.

TIE-DOWN BRACKET OFFSETS:

DIM. 1	4.50" MAX OFFSET FROM DATUM FACE
DIM. 2	24.50" MIN OFFSET FROM DATUM FACE
DIM. 3	25.25" MIN OFFSET FROM DATUM FACE
DIM. 4	13" MAX OFFSET FROM DATUM FACE

VISIT [ECALC.IO/35415](https://ecalculator.com/35415)

FOR SITE SPECIFIC DEVIATIONS
& MORE INFORMATION ABOUT THIS DOCUMENT
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RHEEM SALES COMPANY, INC
1100 ABERNATHY ROAD, SUITE 1400
ATLANTA, GA
(770) 351-3000
**MECHANICAL UNIT & CORRESPONDING
STEEL TIE-DOWN CLIPS**
FBC SEVENTH EDITION (2020) & IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	JAC	TSB	5/4/15
2017 FBC	JAC	FLB	1/12/19
2020 FBC	CCB	RWN	2/02/21

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AT GRADE MOUNTED APPLICATIONS - 33.75" X 33.75" X 39" MAX AS SHOWN

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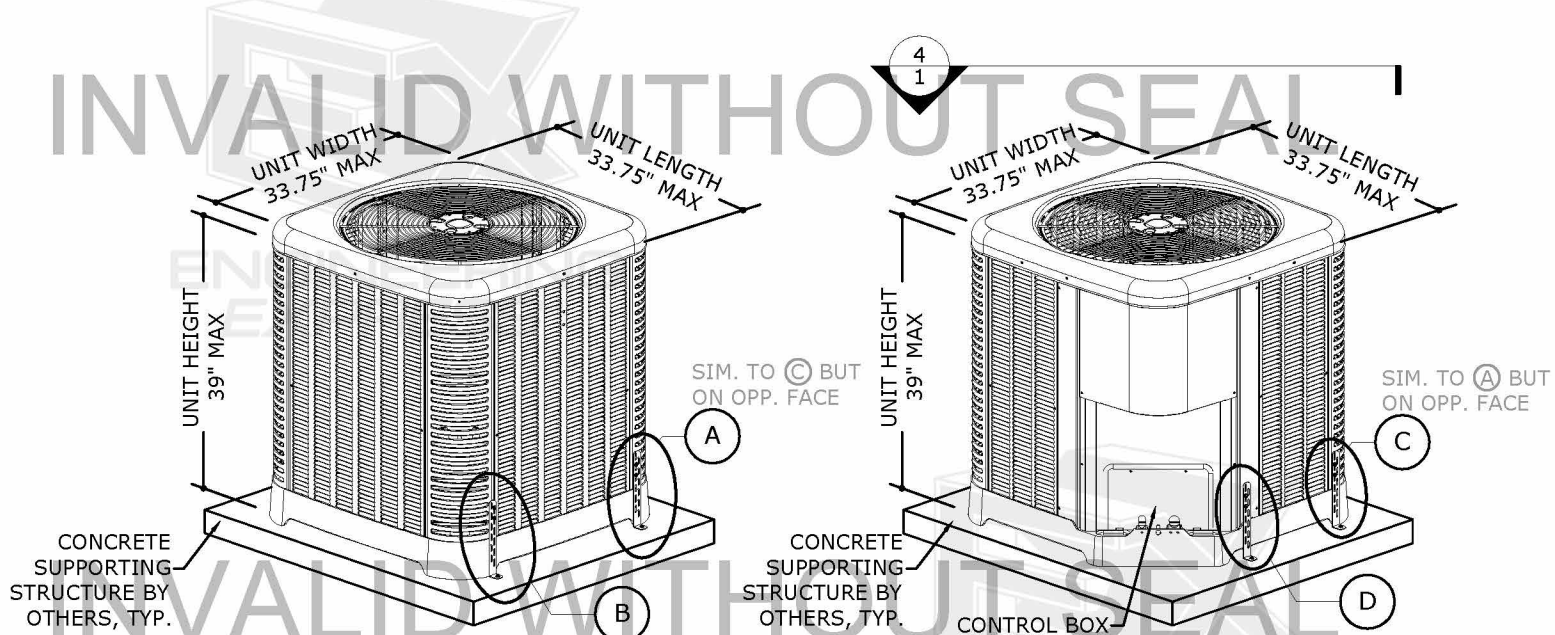
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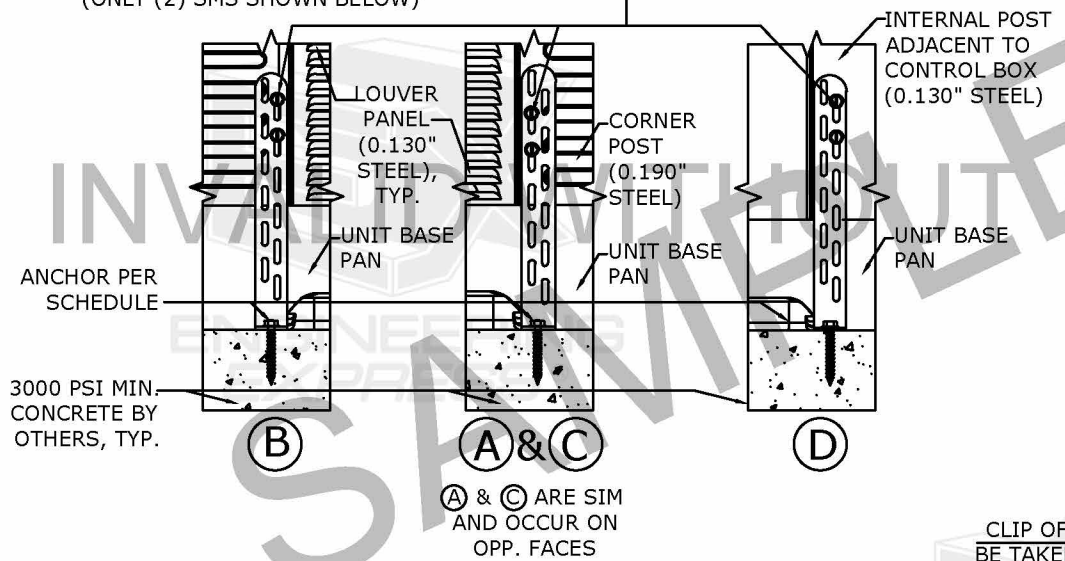


1 MECHANICAL UNIT
1 N.T.S. FRONT ISOMETRIC

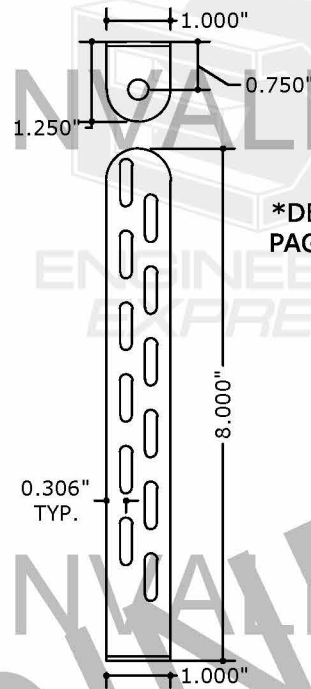
2 MECHANICAL UNIT
1 N.T.S. BACK ISOMETRIC

(2)-#10 SMS PER BRACKET FOR UNITS
UP TO 35" TALL. (3)-#10 SMS PER
BRACKET FOR UNITS UP TO 39" TALL
(ONLY (2) SMS SHOWN BELOW)

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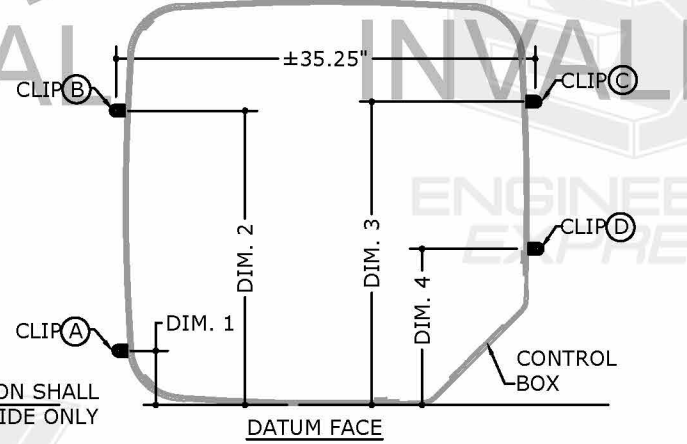


3 TIE-DOWN BRACKETS
1 N.T.S. ELEVATION



TIE-DOWN
BRACKET

MIAMI TECH CLIP: 14GA (0.07")
ASTM A653 Fu=90 KSI STEEL
(CUTD8) OR 0.080" 5052-H32
ALUMINUM (CUTDA8), MIAMI
TECH KIT # RRCUTDSMK OR
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4 TIE-DOWN BRACKET LAYOUT
1 N.T.S. PLAN

APPROVED DESIGN CRITERIA (ASD):

*DESIGN CRITERIA & NOTES FROM
PAGE 1 INCLUDED FOR REFERENCE

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TIE-DOWN BRACKET OFFSETS:

DIM. 1	4.50" MAX OFFSET FROM DATUM FACE
DIM. 2	28.00" MIN OFFSET FROM DATUM FACE
DIM. 3	29.00" MIN OFFSET FROM DATUM FACE
DIM. 4	13.00" MAX OFFSET FROM DATUM FACE

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ATLANTA, GA
(770) 351-3000
MECHANICAL UNIT & CORRESPONDING
STEEL TIE-DOWN CLIPS
FBC SEVENTH EDITION (2020) & IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	JAC	TSB	5/14/15
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2020 FBC	CCB	RWN	2/02/21

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WIND LOAD CERTIFICATION OF MECHANICAL UNIT CABINETRY AND STEEL/ALUMINUM TIE-DOWN CLIPS
AT GRADE MOUNTED APPLICATIONS - 35.75" X 35.75" X 35" MAX AS SHOWN

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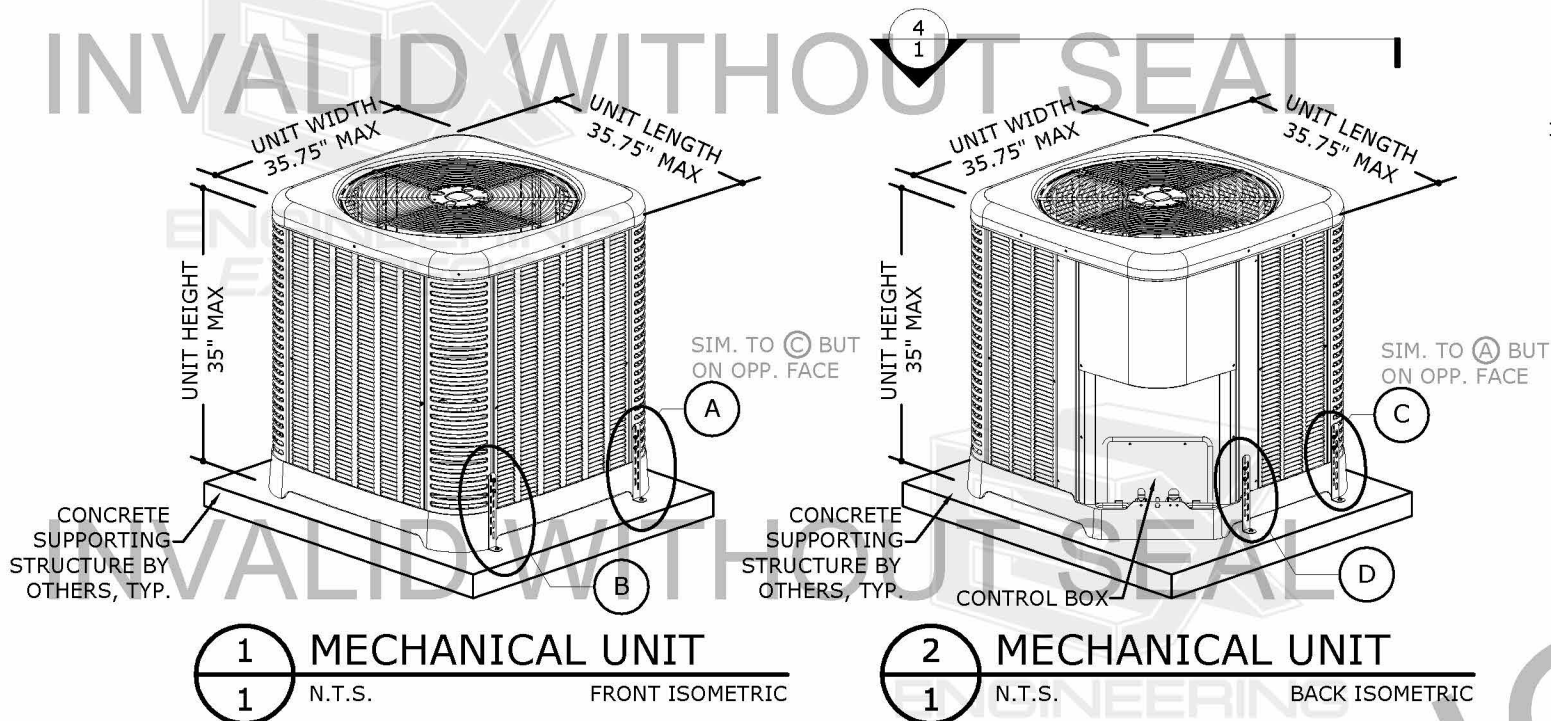
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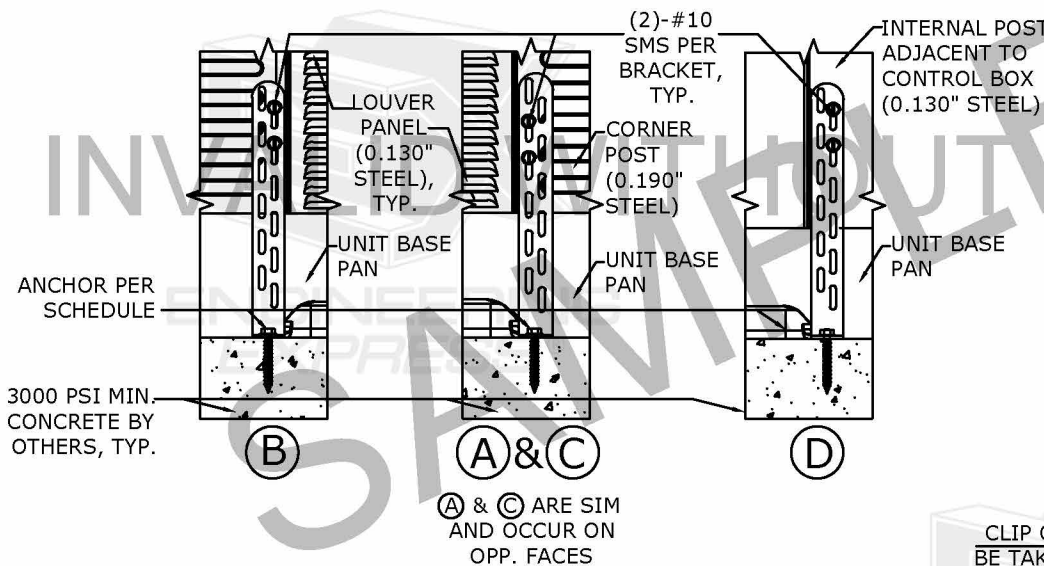
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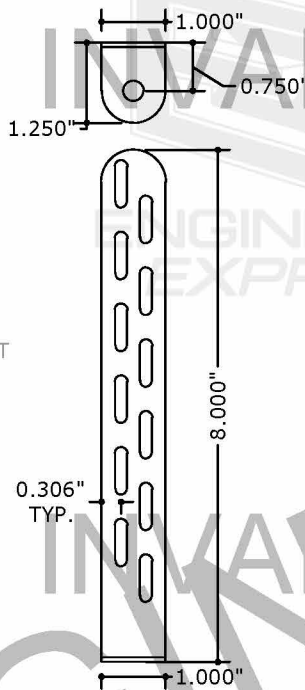
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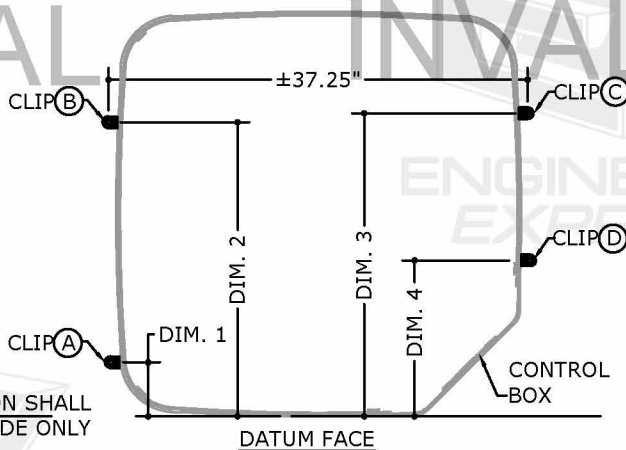


CLIP OFFSET DIMENSION SHALL
BE TAKEN FROM THIS SIDE ONLY



TIE-DOWN BRACKET

MIAMI TECH CLIP: 14GA (0.07")
ASTM A653 Fu=90 KSI STEEL
(CUTD8) OR 0.080" 5052-H32
ALUMINUM (CUTDA8), MIAMI
TECH KIT # RRCUTDSMK OR
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- ALL CONCRETE SPECIFIED HEREIN IS NOT PART OF THIS CERTIFICATION. AS A MINIMUM, ALL CONCRETE SHALL BE STRUCTURAL CONCRETE 4" MIN. THICK AND SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
- THE ADEQUACY OF ANY EXISTING STRUCTURE TO WITHSTAND SUPERIMPOSED LOADS SHALL BE VERIFIED BY THE ONSITE DESIGN PROFESSIONAL AND IS NOT INCLUDED IN THIS CERTIFICATION. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
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- FOR AN EXPLANATION OF EXPOSURE CATEGORIES THAT ACCOMPANY THE VULNERABILITY WIND SPEEDS USED IN THIS DOCUMENT, SEE SECTION 26.7 OF ASCE 7.

ANCHOR SCHEDULE:

SUBSTRATE	DESCRIPTION
CONCRETE: (4" THICK MIN, 3000 PSI MIN.)	(1)-1/4"Ø STAINLESS STEEL ITW BUILDEX TAPCON, 1 3/4" FULL EMBED TO CONCRETE, 2 1/2" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.

TIE-DOWN BRACKET OFFSETS:

DIM. 1	4.50" MAX OFFSET FROM DATUM FACE
DIM. 2	30.00" MIN OFFSET FROM DATUM FACE
DIM. 3	31.00" MIN OFFSET FROM DATUM FACE
DIM. 4	13.00" MAX OFFSET FROM DATUM FACE



RHEEM SALES COMPANY, INC.

WIND LOAD CERTIFICATION OF MECHANICAL UNIT CABINETRY AND STEEL/ALUMINUM TIE-DOWN CLIPS
AT GRADE MOUNTED APPLICATIONS - 35.75" X 35.75" X 51" MAX AS SHOWN

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RHEEM SALES COMPANY, INC
1100 ABERNATHY ROAD, SUITE 1400
ATLANTA, GA
(770) 351-3000

**MECHANICAL UNIT & CORRESPONDING
STEEL TIE-DOWN CLIPS**
FBC SEVENTH EDITION (2020) & IBC (2018)

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	JAC	TSB	5/14/15
2017 FBC	JAC	FLB	1/12/19
2020 FBC	CCB	RWN	2/02/21

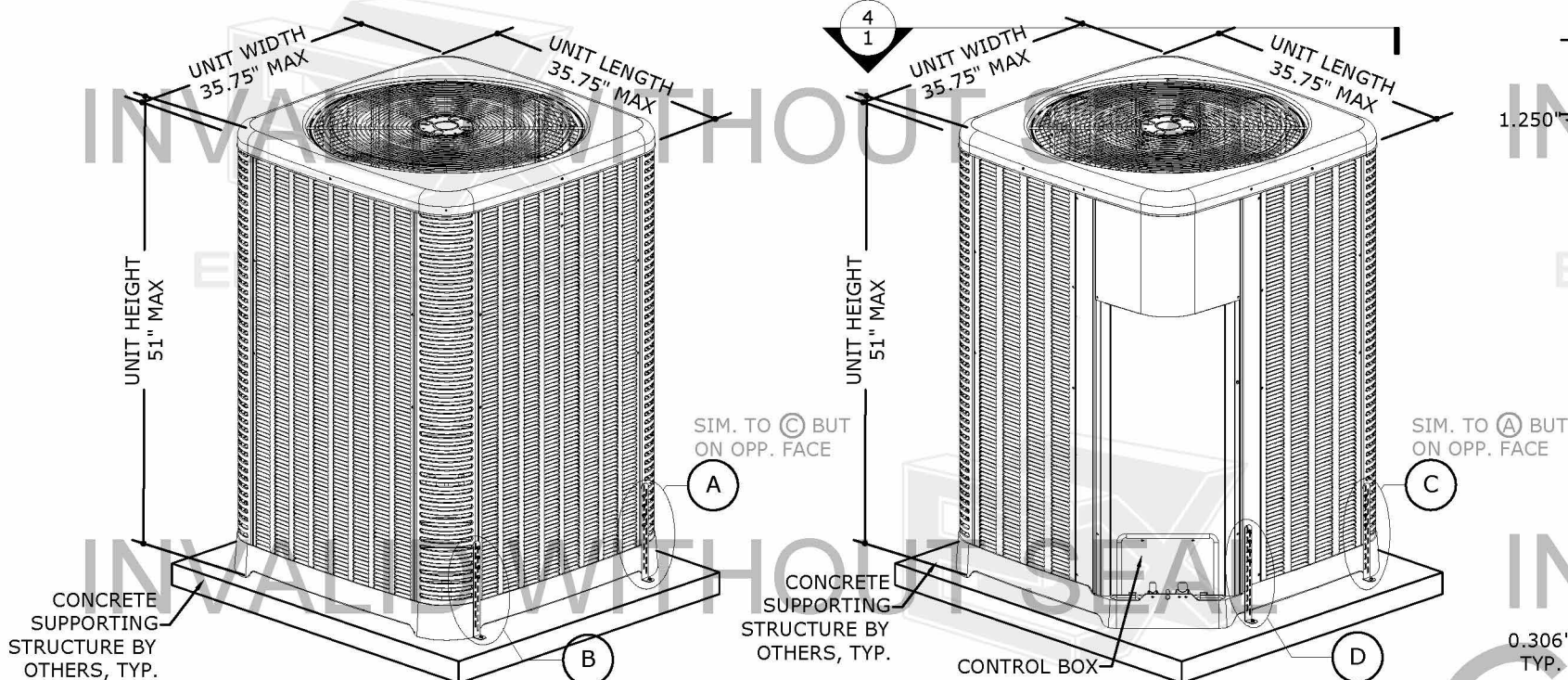
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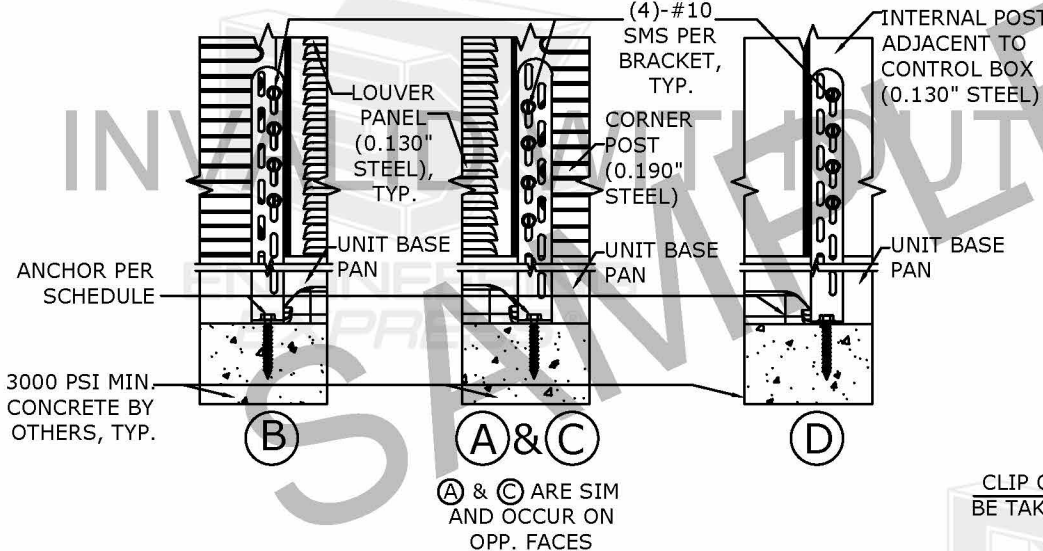
4 OF 5



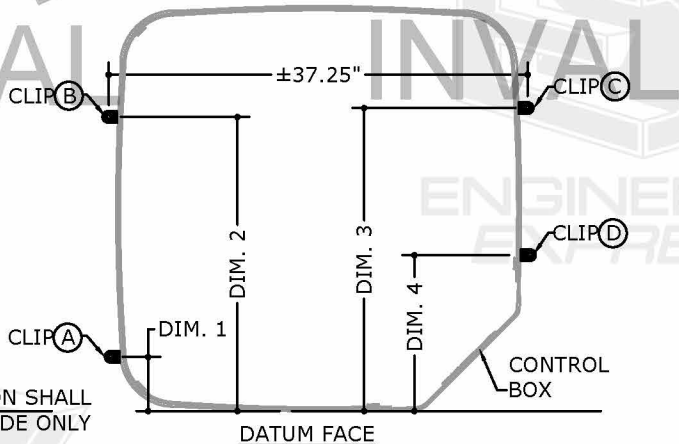
1 MECHANICAL UNIT
1 N.T.S. FRONT ISOMETRIC

2 MECHANICAL UNIT
1 N.T.S. BACK ISOMETRIC

THESE ISOMETRICS ARE INTENDED FOR
DIAGRAMMATICAL PURPOSES ONLY; ALTERNATE RHEEM
UNITS MAY VARY IN APPEARANCE



3 TIE-DOWN BRACKETS
1 N.T.S. ELEVATION



4 TIE-DOWN BRACKET LAYOUT
1 N.T.S. PLAN

ANCHOR SCHEDULE:

SUBSTRATE	DESCRIPTION
CONCRETE: (4\"	(1)-1/4\"Ø CARBON STEEL SIMPSON STRONG BOLT 2, 1 3/4\" MIN EMBED TO CONCRETE, 3\" MIN. EDGE DISTANCE, 3\" MIN. SPACING TO ANY ADJACENT ANCHOR.
	(1)-1/4\"Ø CARBON STEEL DEWALT WEDGE BOLT+, 2 1/2\" MIN EMBED TO CONCRETE, 3\" MIN. EDGE DISTANCE, 3\" MIN. SPACING TO ANY ADJACENT ANCHOR.

SUPPORTING CONCRETE SUBSTRATE DEPTH SHALL BE A MINIMUM 1.5xANCHOR EMBED.
EITHER ANCHOR FROM THIS SCHEDULE MAY BE USED FOR INSTALLATION.

TIE-DOWN BRACKET OFFSETS:

DIM. 1	4.50\"
DIM. 2	30.00\"
DIM. 3	31.00\"
DIM. 4	13.00\"

APPROVED DESIGN CRITERIA (ASD):

*DESIGN CRITERIA & NOTES FROM
PAGE 1 INCLUDED FOR REFERENCE

DESIGN NOTES:

- THIS SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (2018) AND THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) AS WELL AS CURRENT VERSIONS OF THE MN, NC, NJ, NY, OH, SC, & VA BUILDING CODES AS APPLICABLE. CODE ENFORCED COMPLIES WITH STATE OF SEAL AND IF MULTIPLE VERSIONS ARE LISTED THEN MOST STRINGENT APPLIES. DESIGN SHALL UTILIZE ASD DESIGN METHOD USING ASCE 7-16 OR ASCE 7-10 CODES FOR SITE SPECIFIC APPLICATIONS AS APPLICABLE. FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. THE DESIGN CRITERIA CONSIDERS ASCE 7 SECTION 29.4 FOR "OTHER STRUCTURES" INSTALLATIONS AT GRADE. ALL DESIGN VARIABLES ARE IN ACCORDANCE WITH ASCE 7 CHAPTERS 26 & 29.
- REQUIRED DESIGN WIND PRESSURES SHALL BE DETERMINED ACCORDING TO THE DESIGN PRESSURE GUIDE PROVIDED IN THE APPENDIX 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 PRESSURES SHALL BE LESS THAN OR EQUAL TO THE MAXIMUM PRESSURES LISTED HEREIN.
- *MAXIMUM RATED WIND PRESSURES INDICATE THE MAXIMUM PRESSURES THAT ALL UNITS LISTED HEREIN ARE APPROVED FOR. VALID FOR AT-GRADE 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 MAXIMUM RATED WIND PRESSURES STATED HEREIN ARE NOT EXCEEDED.

GENERAL NOTES:

- THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE SEVENTH EDITION (2020) & ASCE 7. THIS SYSTEM MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE. THIS DESIGN IS NOT INTENDED TO CERTIFY IMPACT RESISTANCE OF THE MECHANICAL UNIT CABINETRY.
- NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
- DESIGN & CERTIFICATION OF THE UNIT CABINETRY IS APPROVED THROUGH TEST REPORT#0323.01-15 BY AMERICAN TEST LAB OF SOUTH FLORIDA.
- ALL DIMENSIONS AND THE MINIMUM WEIGHT (120 LB MINIMUM) OF MECHANICAL UNIT SHALL CONFORM TO LIMITATIONS STATED HEREIN. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE AS PER MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
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- ALL CONCRETE SPECIFIED HEREIN IS NOT PART OF THIS CERTIFICATION. AS A MINIMUM, ALL CONCRETE SHALL BE STRUCTURAL CONCRETE 4\"
- THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
- ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
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- FOR AN EXPLANATION OF EXPOSURE CATEGORIES THAT ACCOMPANY THE VULT WIND SPEEDS USED IN THIS DOCUMENT, SEE SECTION 26.7 OF ASCE 7

DESIGN LATERAL WIND LOAD: 60 PSF
DESIGN UPLIFT WIND LOAD: 0 PSF*
AT GRADE INSTALLATION ONLY

*PER THE CODES AND STANDARDS REFERENCED HEREIN,
UPLIFT IS OPTIONAL FOR MECHANICAL EQUIPMENT AT GRADE
AND IS AT THE DISCRETION OF THE AUTHORITY HAVING
JURISDICTION. REFER DESIGN GUIDE APPENDIX ON FINAL
PAGE FOR MORE INFORMATION



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APPENDIX A: DESIGN WIND PRESSURE GUIDE & UNIT REACTION GUIDE

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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	21* psf
		D	31 psf	25* psf
	100 ft	C	67 psf	53 psf
		D	75 psf	59 psf
	200 ft	C	76 psf	60 psf
		D	84 psf	67 psf
175 mph	At-Grade (0 ft)	C	40 psf	32* psf
		D	49 psf	39* psf
	100 ft	C	104 psf	82 psf
		D	117 psf	93 psf
	200 ft	C	119 psf	94 psf
		D	131 psf	104 psf
186 mph	At-Grade (0 ft)	C	46 psf	36* psf
		D	55 psf	44* psf
	100 ft	C	117 psf	93 psf
		D	132 psf	105 psf
	200 ft	C	135 psf	106 psf
		D	148 psf	117 psf

100 psf

indicates a design wind pressure that is not approved for use by this evaluation. Seek additional engineering or contact this office 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 on a site-specific basis by others. 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 above values, consult with an engineer for a site-specific analysis.

The required ASD design pressures listed in the above guide were calculated based on the parameters listed below. The project design professional or permitting contractor shall verify that the site-specific conditions are equal to or less than the design parameters listed below.

*Note: Per the codes and standards referenced herein, uplift is optional for mechanical equipment at-grade. At the discretion of the AHJ, uplift may be taken as 0 psf or as the value listed in the guide.

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 = 1 ft min.
- Uplift Pressure = Lateral Pressure x 1.5 / 1.9 (if considered)

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FOR HELP DETERMINING DESIGN PARAMETERS AND TO SEE MORE EXAMPLES, OR SCAN THE QR CODE TO THE RIGHT >



UNIT REACTIONS FROM WIND GUIDE

DIRECTIVE: This guide is intended for use by a project 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 governing building codes. 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

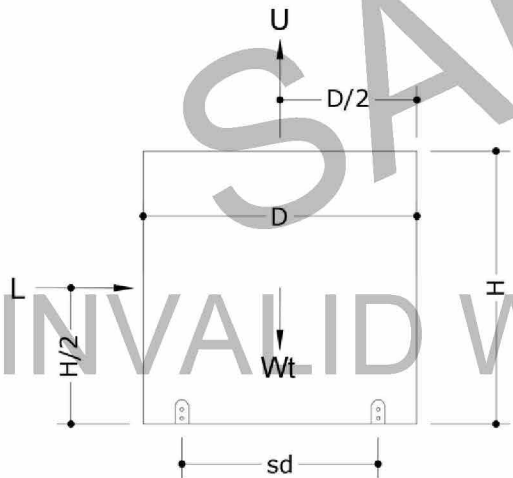
Unit Reaction Equations:

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 sd/2 - Wt x 0.6 x sd/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)

$$\begin{aligned} 1. \text{ Sliding Force, } L &= P_{\text{lat}} \times W \times H \\ &= (120 \text{ psf}) \times (48 \text{ in}) \times (42 \text{ in}) \times (1 \text{ in}^2 / 144 \text{ ft}^2) = \mathbf{1680 \text{ lb}} \\ 2. \text{ Uplift Force, } U &= P_{\text{up}} \times W \times D \\ &= (95 \text{ psf}) \times (48 \text{ in}) \times (36 \text{ in}) \times (1 \text{ in}^2 / 144 \text{ ft}^2) = \mathbf{1140 \text{ lb}} \\ 3. \text{ Total Tension per Long Side} &= \\ &= (L \times H/2 + U \times sd/2 - Wt \times 0.6 \times sd/2) / sd \\ &= ((1680 \text{ lb} \times 42/2 \text{ in}) + (1140 \text{ lb} \times 24/2 \text{ in}) - (250 \text{ lb} \times 0.6 \times 24/2 \text{ in})) / 24 \text{ in} = \mathbf{1965 \text{ lb}} \end{aligned}$$

Short Side (Depth x Height):

$$\begin{aligned} 1. \text{ Sliding Force, } L &= P_{\text{lat}} \times D \times H \\ &= (120 \text{ psf}) \times (36 \text{ in}) \times (42 \text{ in}) \times (1 \text{ in}^2 / 144 \text{ ft}^2) = \mathbf{1260 \text{ lb}} \\ 2. \text{ Uplift Force, } U &= P_{\text{up}} \times W \times D \\ &= (95 \text{ psf}) \times (48 \text{ in}) \times (36 \text{ in}) \times (1 \text{ in}^2 / 144 \text{ ft}^2) = \mathbf{1140 \text{ lb}} \\ 3. \text{ Total Tension per Short Side} &= \\ &= (L \times H/2 + U \times sd/2 - Wt \times 0.6 \times sd/2) / sw \\ &= ((1260 \text{ lb} \times 42/2 \text{ in}) + (1140 \text{ lb} \times 24/2 \text{ in}) - (250 \text{ lb} \times 0.6 \times 24/2 \text{ in})) / 48 \text{ in} = \mathbf{1046 \text{ lb}} \end{aligned}$$

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