

BMP INTERNATIONAL, INC.

MECHANICAL UNIT STEEL TIE-DOWN CLIPS: AT-GRADE AND ROOFTOP MOUNTED APPLICATIONS

VALID FOR USE INSIDE AND OUTSIDE THE HVHZ (SEE LIMITATIONS HEREIN)

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

FRANK BENNARDO, P.E.
PE# 0046549 CA# 9885

SEPTEMBER 26, 2023

DESIGN NOTES:

THIS PRODUCT HAS BEEN DESIGNED IN ACCORDANCE WITH ASCE 7 AND FLORIDA BUILDING CODE 2023 (8TH EDITION) FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE AS INDICATED IN THE ACCOMPANYING DESIGN SCHEDULES. THE DESIGN CRITERIA USED TO CALCULATE THE ALLOWABLE ROOF-TOP HEIGHTS CONSIDERS FBC SECTION 1609 FOR NON-HVHZ AND SECTION 1620 FOR HVHZ & ASCE 7 SECTION 29 FOR INSTALLATIONS AT GRADE. $(GC_r)_{Lateral} = 1.90$ WITHIN THE HVHZ & OUTSIDE THE HVHZ, $(GC_r)_{Uplift} = 1.5$ FOR ALL LOCATIONS (CONCURRENT). ALL OTHER DESIGN VARIABLES ARE IN ACCORDANCE WITH ASCE 7 CHAPTERS 26 & 29. THE HEIGHTS LISTED IN THE DESIGN SCHEDULES REPRESENT THE ALLOWABLE HEIGHT OF THE BUILDING. THIS PRODUCT APPROVAL ALLOWS FOR EACH UNIT TO BE INSTALLED ON A MAXIMUM 30" TALL A/C STAND (CERTIFICATION BY OTHERS) ON TOP OF THE HEIGHTS LISTED IN THE DESIGN SCHEDULES.

GENERAL NOTES:

- DESIGN IS BASED ON CLIENT PROVIDED PRODUCT AND DIE SHEETS FROM TEST REPORTS #TEL 01970387A, #TEL 01970387B BY TESTING EVALUATION LABORATORIES, INC.. NO SUBSTITUTIONS WITHOUT WRITTEN APPROVAL BY THIS ENGINEER SHALL BE PERMITTED.
- MAXIMUM & MINIMUM DIMENSIONS AND MINIMUM WEIGHT OF MECHANICAL UNIT SHALL CONFORM TO SPECIFICATIONS STATED HEREIN. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE AS PER MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
- FASTENERS TO BE #12 X 3/4" OR GREATER SAE GRADE 5 UNLESS NOTED OTHERWISE. TAPCONS REFERRED TO HEREIN SHALL BE ITW BUILDEX BRAND, CARBON STEEL ONLY, INSTALLED TO 3000 PSI MIN CONCRETE. SEE ANCHOR SCHEDULE FOR ANCHOR REQUIREMENTS. ALL FASTENERS SHALL HAVE APPROPRIATE CORROSION PROTECTION TO PREVENT ELECTROLYSIS.
- ALL STEEL CLIPS SHALL BE ASTM A283 STEEL (GRADE D) WITH $F_y = 33$ KSI OR BETTER. ALL STEEL MEMBERS SHALL BE PROTECTED AGAINST CORROSION WITH AN APPROVED COAT OF PAINT, ENAMEL OR OTHER APPROVED PROTECTION. G90-RATED COATING REQUIRED FOR ALL COASTAL INSTALLATIONS.
- REFER TO FASTENER MANUFACTURER'S PUBLISHED DATA SHEETS AND RECOMMENDATIONS FOR FASTENER INSTALLATION INSTRUCTIONS.
- ENGINEER SEAL AFFIXED HERETO VALIDATE STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
- EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
- PRESSURE VALUES ON THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES.
- ALTERATIONS ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.
- 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 ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE PERMITTING CONTRACTOR. WOOD BUCKS (BY OTHERS) SHALL BE ANCHORED PROPERLY TO TRANSFER LOADS TO EXISTING STRUCTURE.
- 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.
- WATER-TIGHTNESS OF EXISTING HOST SUBSTRATE SHALL BE THE FULL RESPONSIBILITY OF THE INSTALLING CONTRACTOR. CONTRACTOR SHALL ENSURE THAT ANY REMOVED OR ALTERED WATERPROOFING MEMBRANE IS RESTORED AFTER FABRICATION AND INSTALLATION OF STRUCTURE PROPOSED HEREIN. THIS ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY WATERPROOFING OR LEAKAGE ISSUES WHICH MAY OCCUR AS WATER-TIGHTNESS SHALL BE THE FULL RESPONSIBILITY OF THE INSTALLING CONTRACTOR.
- FOR AN EXPLANATION OF EXPOSURE CATEGORIES THAT ACCOMPANY THE Vult WIND SPEEDS USED IN THIS APPROVAL, SEE SECTION 26 OF ASCE 7.

NOTE REGARDING USE OF THIS DOCUMENT & USE OUTSIDE FLORIDA:

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. THIS PRODUCT EVALUATION IS VALID FOR USE IN **FLORIDA ONLY**. USE OF THIS EVALUATION REQUIRES A REVIEW & CERTIFICATION BY A LOCAL DESIGN PROFESSIONAL WHO SHALL BE RESPONSIBLE FOR THE PROPER ADAPTATION OF THIS GENERAL PERFORMANCE EVALUATION TO ANY SITE-SPECIFIC PROJECT. CONTACT THIS OFFICE AT **ENGINEERINGEXPRESS.COM/QUOTE** FOR ASSISTANCE WITH YOUR PROJECT-SPECIFIC NEEDS & FOR ADAPTATION & CERTIFICATION OF THIS DOCUMENT OUTSIDE OF FLORIDA.

SHEET INDEX

| # SHEET | DESCRIPTION |
|---------|---------------------------|
| 1 | COVER SHEET |
| 2 | ANCHOR SCHEDULE & DETAILS |
| 3 | DETAILS |
| 4-5 | APPLICATION TABLES |
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| | |

TERMINOLOGY:

THE FOLLOWING ABBREVIATIONS APPEAR IN THIS APPROVAL: "U.N.O." FOR "UNLESS NOTED OTHERWISE", "FBC" FOR "FLORIDA BUILDING CODE", "CORP." FOR "CORPORATION", "ALUM" FOR "ALUMINUM", "ASD" FOR "ALLOWABLE STRESS DESIGN", "ASTM" FOR "AMERICAN SOCIETY FOR TESTING AND MATERIALS", "CS" FOR "CARBON STEEL", "CONN" FOR "CONNECTION", "EMBED" FOR "EMBEDMENT", "DIST." FOR "DISTANCE", "GA" FOR "GAUGE", "HVHZ" FOR "HIGH-VELOCITY HURRICANE ZONE", "LB" FOR "POUND", "MAX" FOR "MAXIMUM", "N.T.S." FOR "NOT TO SCALE", "PSF" FOR "POUNDS PER SQUARE FOOT (lb/ft²)", "KSI" FOR "KILOPOUNDS PER SQUARE INCH (klb/in²)", "SPECS" FOR "SPECIFICATIONS", "&" FOR "AND", "MAX" FOR "MAXIMUM", "W/" FOR "WITH", "EXIST." FOR "EXISTING", "STRUCT." FOR "STRUCTURE", "SHT" FOR "SHEET", "REF" FOR "REFERENCE". CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

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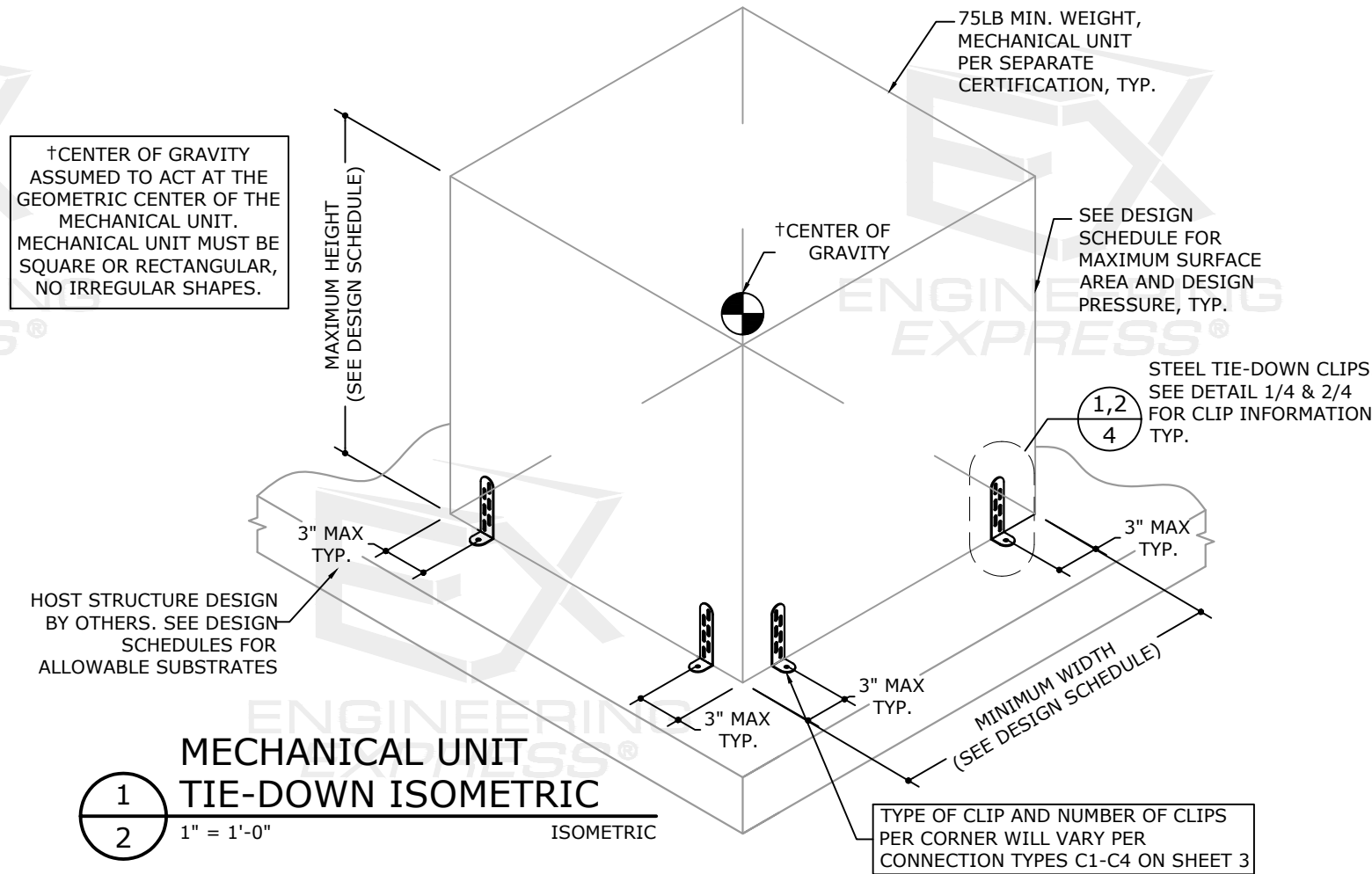
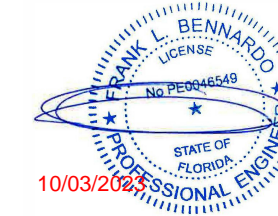
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FOR SITE-SPECIFIC DEVIATIONS
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1
2
MECHANICAL UNIT TIE-DOWN ISOMETRIC
ISOMETRIC
1" = 1'-0"

TIE-DOWN CLIP DIRECTIVE EXAMPLE

(THE FOLLOWING EXAMPLE ILLUSTRATES THE PROCEDURE USED TO DETERMINE THE MAXIMUM ALLOWABLE ROOF-TOP INSTALLATION HEIGHT, H, FOR ANY GIVEN MECHANICAL UNIT THAT CONFORMS TO THE DIMENSION RESTRICTIONS AND DESIGN CRITERIA LISTED HEREIN. SEE SHEETS 5-6 FOR DESIGN SCHEDULES.)

MECHANICAL UNIT CRITERIA:

CONSIDER THE INSTALLATION OF (1) MECHANICAL UNIT WITH THE FOLLOWING CRITERIA=

- Vult=170 MPH, EXPOSURE 'B'
- 48" TALL x 48" DEEP x 48" WIDE, 100 LB (WEIGHT AS VERIFIED BY OTHERS)
- INSTALLED TO 3000 PSI MIN CONCRETE WITH (1)-2" CLIP AT EACH CORNER OF UNIT (TOTAL OF (4) CLIPS)

PROCEDURE:

| PROCEDURE STEP | RESULT |
|--|--|
| 1 DETERMINE THE CONNECTION TYPE BASED ON THE DIAGRAMS ON SHEET 3 | CONNECTION TYPE 3 |
| 2 DETERMINE WHICH DESIGN SCHEDULE TABLE TO USE | THIS INSTALLATION IS INTENDED FOR A Vult=170 MPH, EXPOSURE 'B'. THIS DESIGN CRITERIA CORRESPONDS TO TABLE 5 |
| 3 DETERMINE LARGEST FACE AREA OF MECHANICAL UNIT TO BE INSTALLED | 48"x48"=16FT ² |
| 4 CHECK MAXIMUM UNIT HEIGHT RESTRICTION | THIS UNIT HEIGHT OF 48" IS EQUAL TO THE MAXIMUM ALLOWABLE HEIGHT OF 48". NOTE: THIS PRODUCT APPROVAL ALLOWS THE UNIT TO BE INSTALLED ON TOP OF AN A/C STAND THAT IS A MAXIMUM 30" TALL. IF AN A/C STAND IS UTILIZED, CHECK TO SEE THAT THE STAND DOES NOT EXCEED 30" IN HEIGHT |
| 5 CHECK MINIMUM UNIT WIDTH RESTRICTION | UNIT WIDTH IS 48" WHICH IS GREATER THAN THE MINIMUM ALLOWABLE WIDTH OF 24" |
| 6 DETERMINE THE ALLOWABLE ROOF-TOP HEIGHT OF THE INSTALLATION | THIS UNIT MAY BE INSTALLED AT ROOF HEIGHTS LESS THAN OR EQUAL TO 15 FT. SEE (*) ON TABLE 5 FOR THE NUMERICAL VALUES OF THIS DESIGN EXAMPLE |

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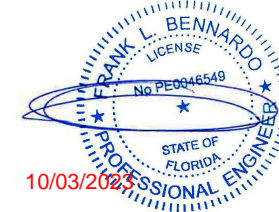
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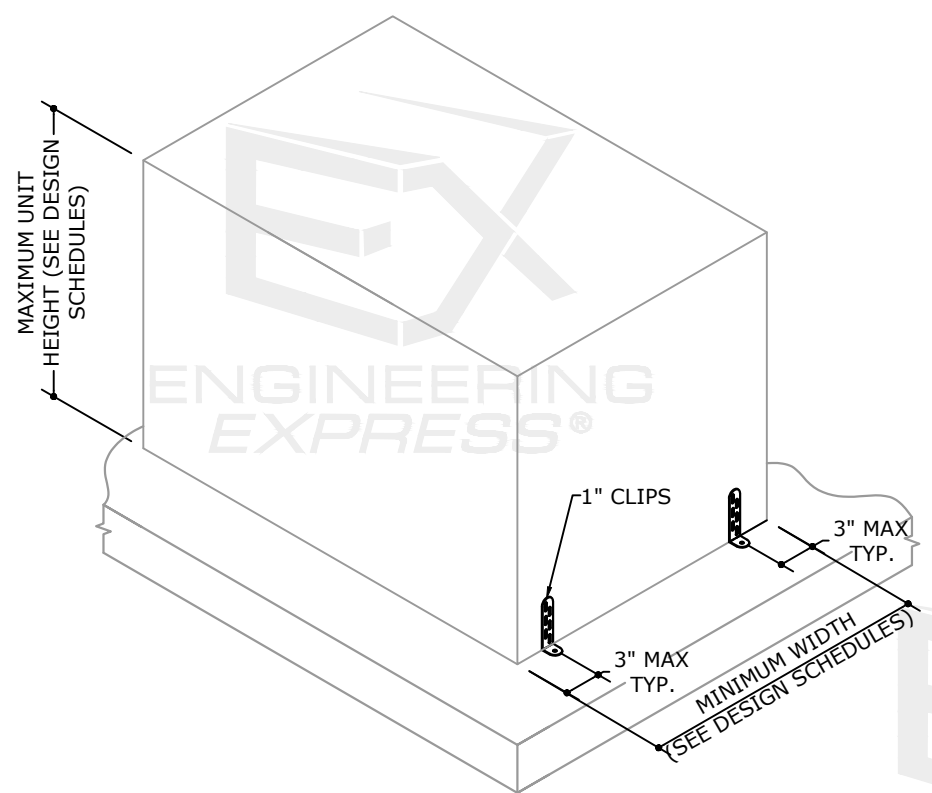
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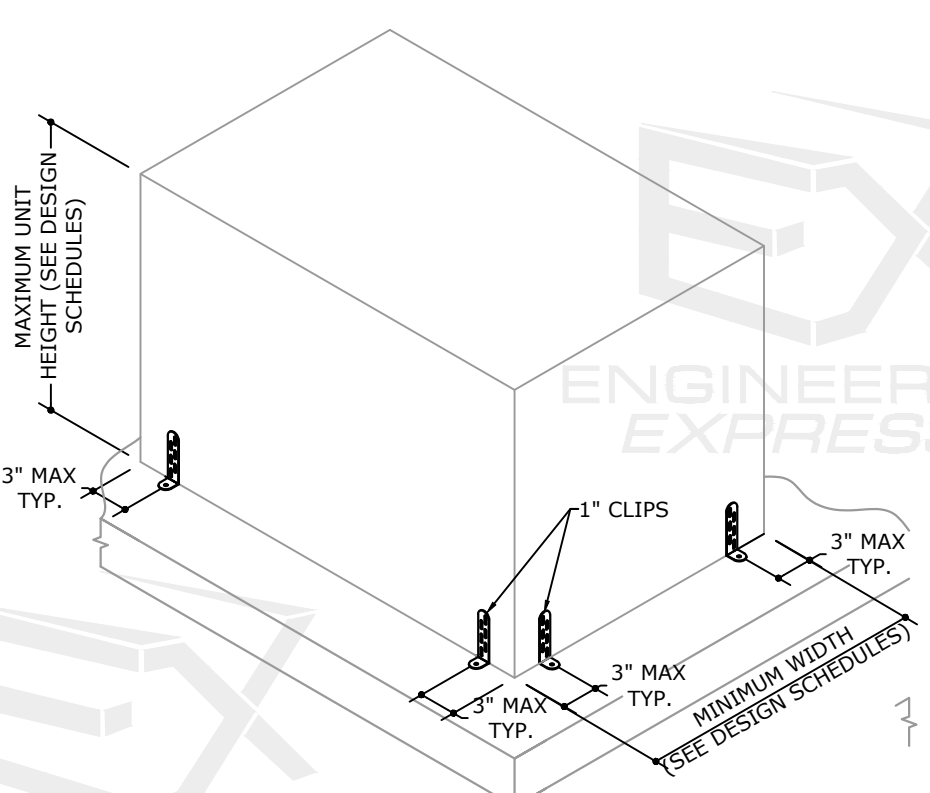
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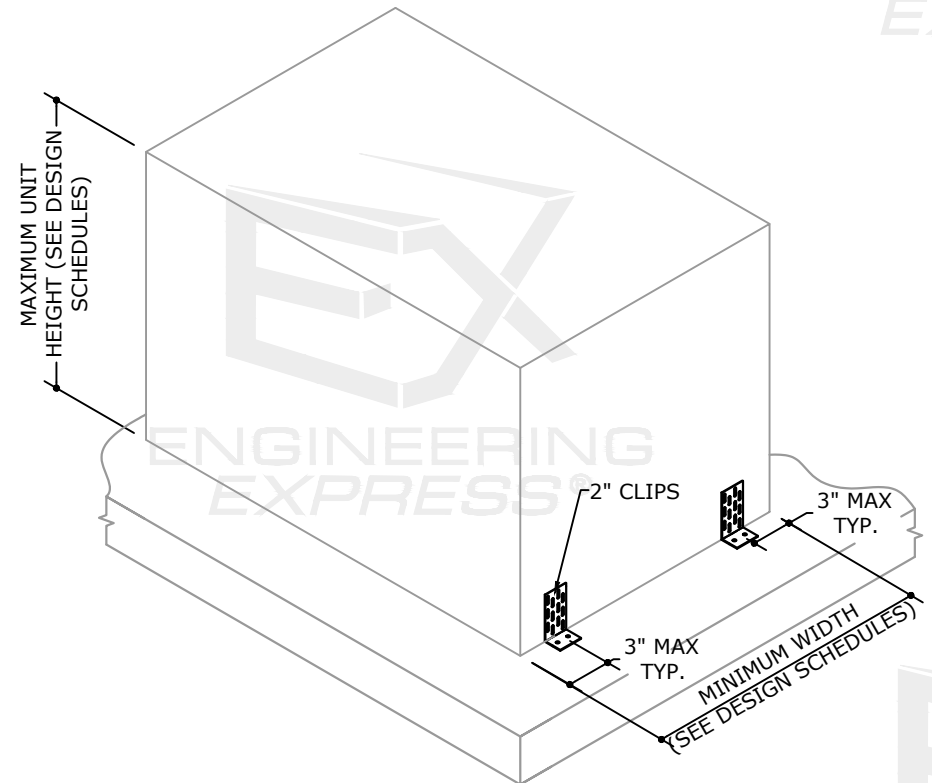
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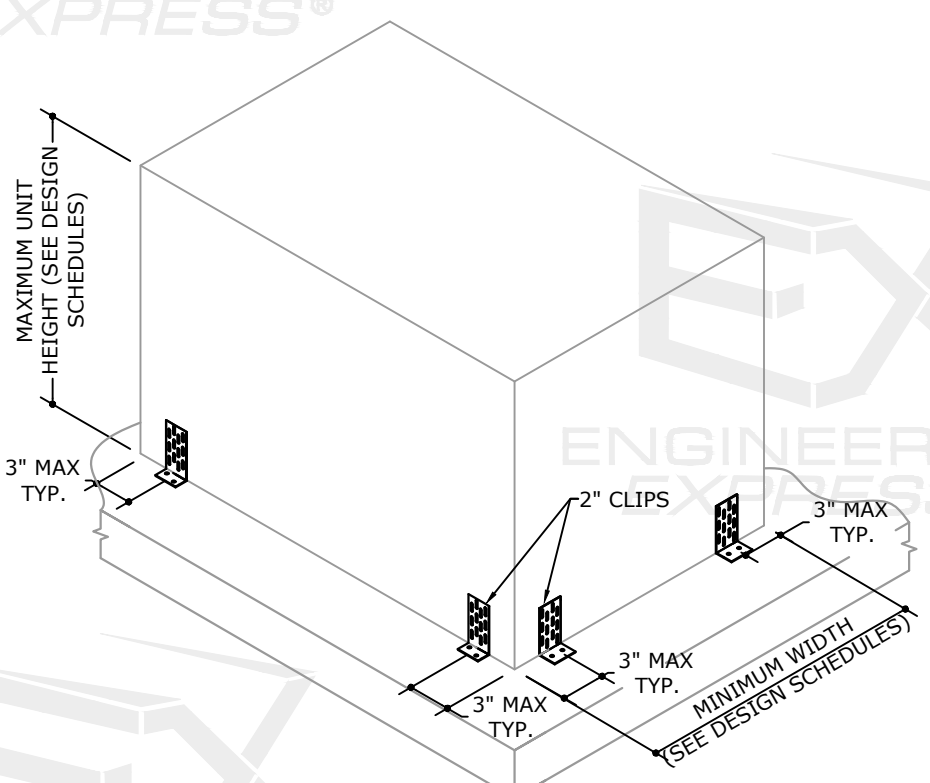
C1 CONNECTION TYPE C1
1" CLIP - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT



C2 CONNECTION TYPE C2
1" CLIP - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT



C3 CONNECTION TYPE C3
2" CLIPS - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT



C4 CONNECTION TYPE C4
2" CLIPS - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT

**ANCHOR SCHEDULE:
1" CLIPS**

| SUBSTRATE | DESCRIPTION |
|---|---|
| CONCRETE: (4" THICK MIN, 3000 PSI MIN.) | (1)-5/16"Ø CARBON STEEL ITW BUILD EX TAPCON, 2¼" FULL EMBED TO CONCRETE, 3⅝" MIN. EDGE DISTANCE, 3¾" MIN. SPACING TO ANY ADJACENT ANCHOR. |
| ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM) | (1)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) PITCHES MIN. PAST THREAD PLANE |
| STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL) | (1)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) PITCHES MIN. PAST THREAD PLANE |

2" CLIPS

| SUBSTRATE | DESCRIPTION |
|---|---|
| CONCRETE: (4" THICK MIN, 3000 PSI MIN.) | (1)-5/16"Ø CARBON STEEL ITW BUILD EX TAPCON, 2¼" FULL EMBED TO CONCRETE, 3⅝" MIN. EDGE DISTANCE, 3¾" MIN. SPACING TO ANY ADJACENT ANCHOR. |
| ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM) | (2)-#14 SAE GRADE 5 SHEET METAL SCREWS TO ALUMINUM, PROVIDE (5) PITCHES MIN. PAST THREAD PLANE |
| STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL) | (2)-#14 SAE GRADE 5 SHEET METAL SCREWS TO STEEL, PROVIDE (5) PITCHES MIN. PAST THREAD PLANE |

1. EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE.
2. ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE.
3. SEE DETAILS ON SHEET 4 FOR ANCHORS ATTACHING TO MECHANICAL UNIT.

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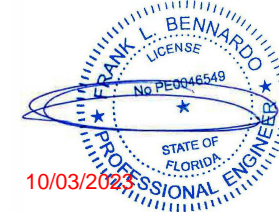
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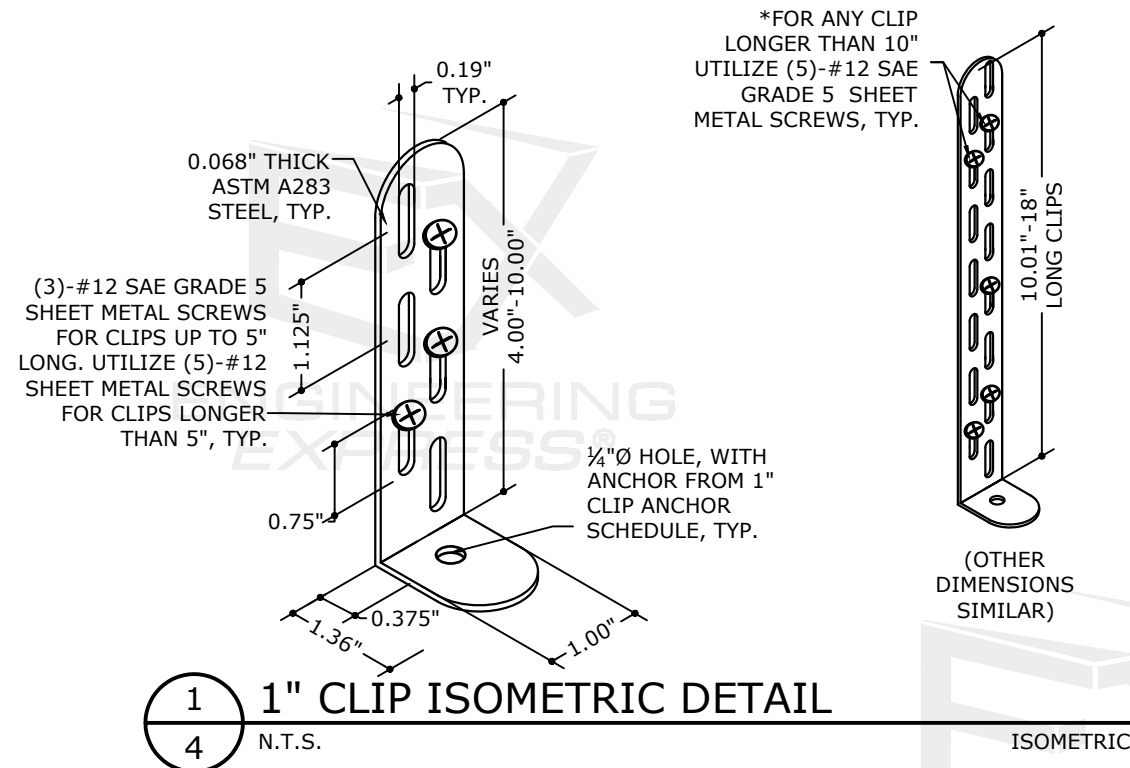
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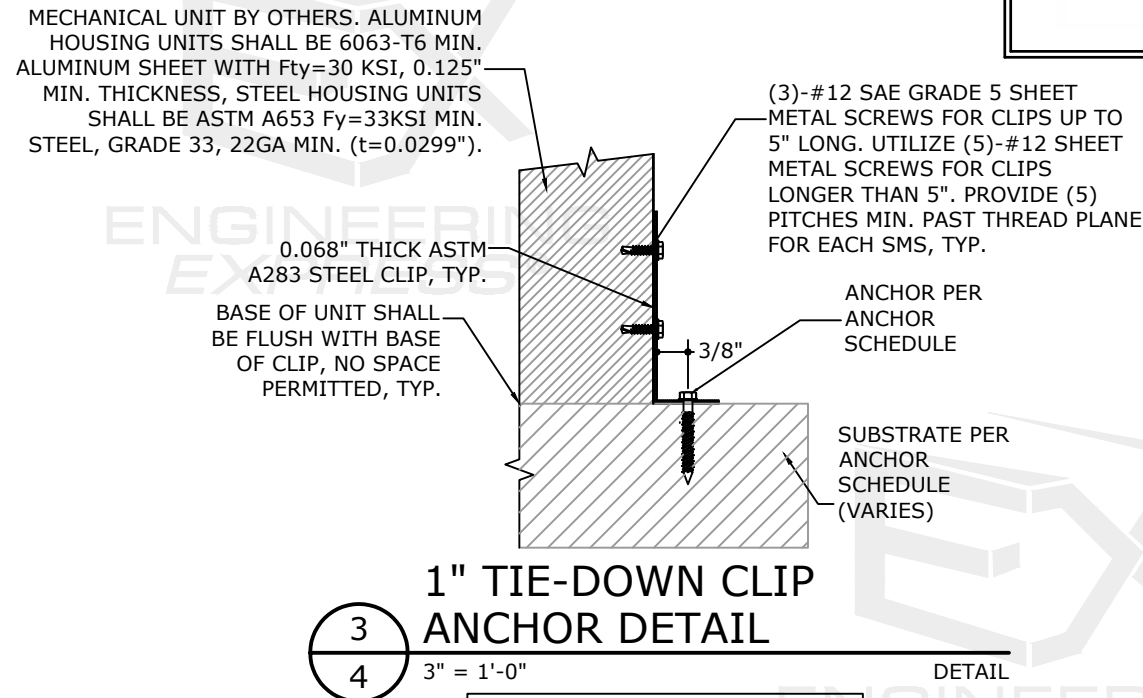
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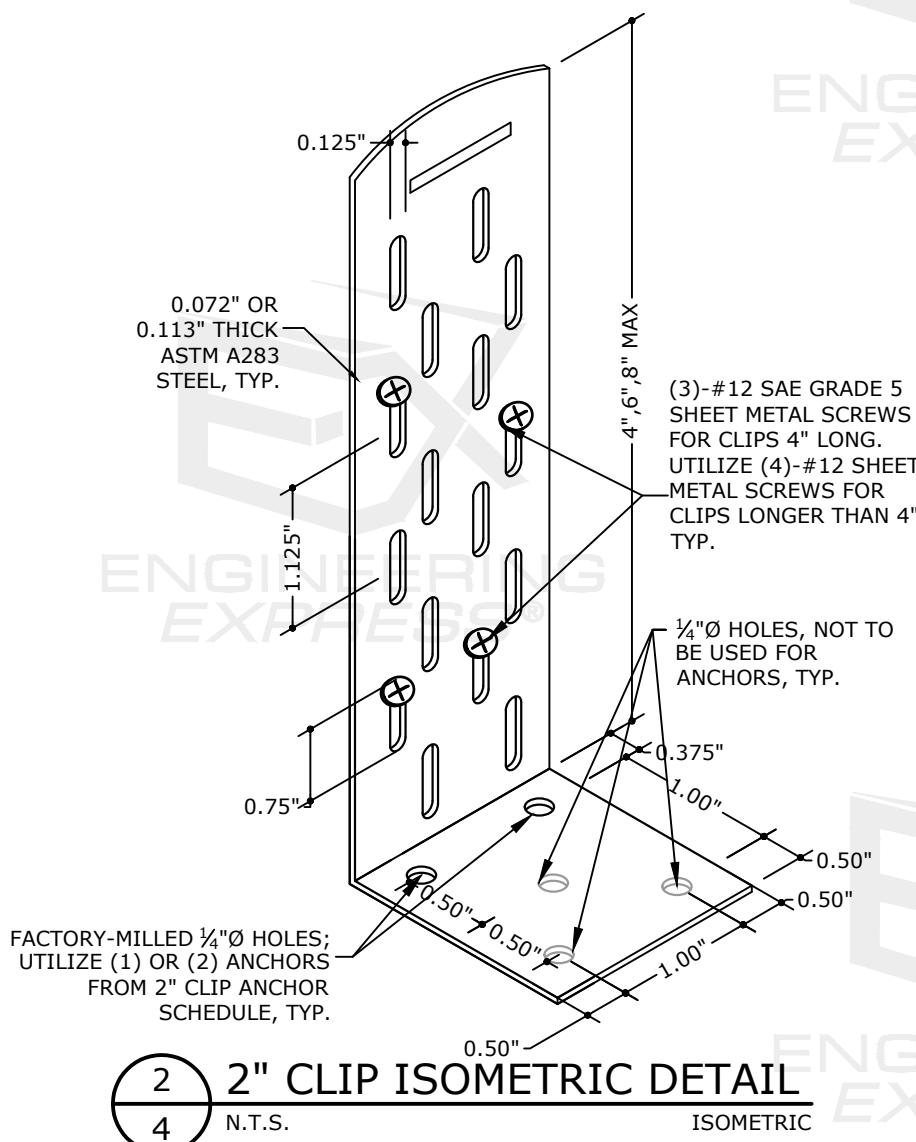
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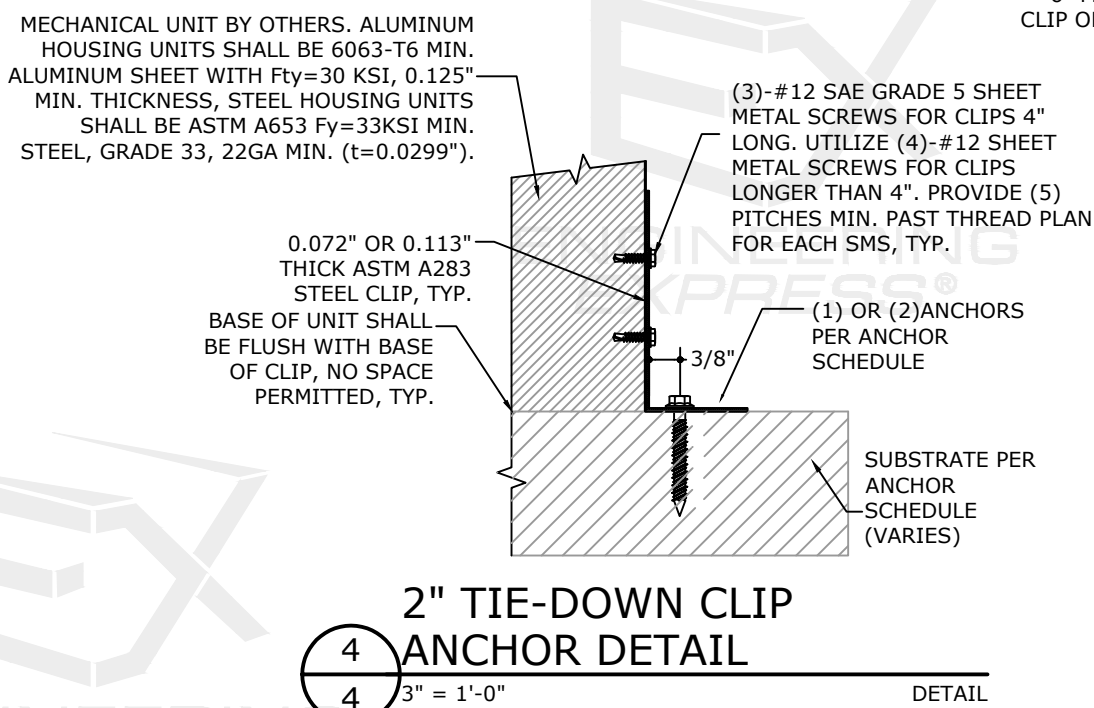
1 1" CLIP ISOMETRIC DETAIL
N.T.S. ISOMETRIC



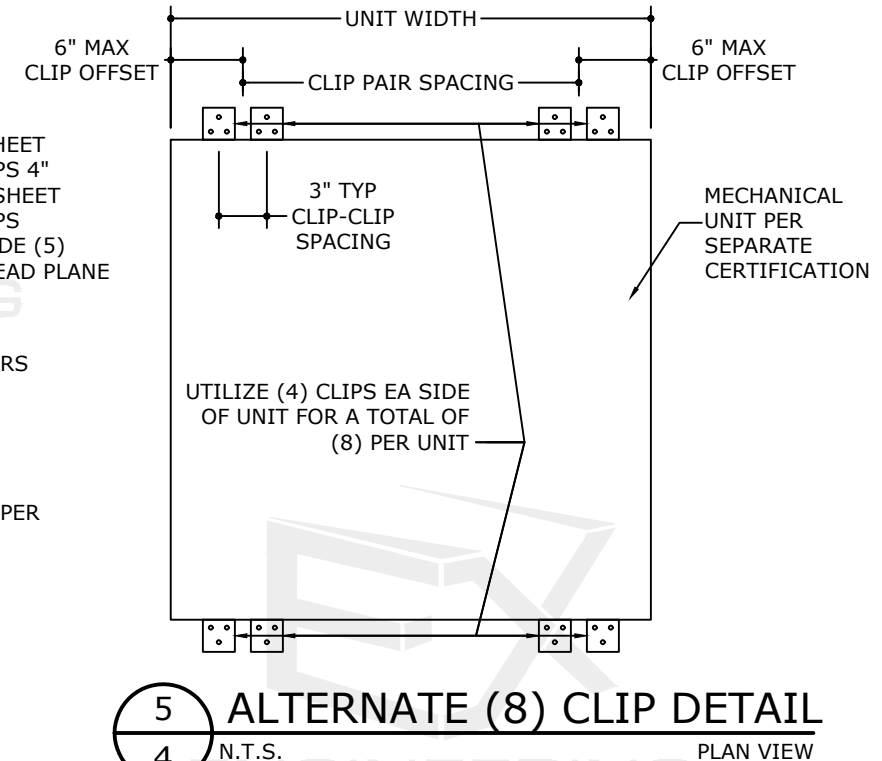
3 1" TIE-DOWN CLIP ANCHOR DETAIL
3" = 1'-0" DETAIL



2 2" CLIP ISOMETRIC DETAIL
N.T.S. ISOMETRIC



4 2" TIE-DOWN CLIP ANCHOR DETAIL
3" = 1'-0" DETAIL



5 ALTERNATE (8) CLIP DETAIL
N.T.S. PLAN VIEW

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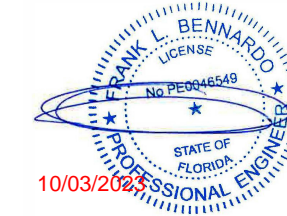


TABLE 1: Vult=175 MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE IN THE HIGH VELOCITY HURRICANE ZONE*)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE ROOF-TOP HEIGHT (H) TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|--|------------|------------|------------|
| | | | C1 | C2 | C3 | C4 |
| 6 FT ² | 24" MAX | 12" MIN | N/A | H ≤ 100 FT | AT GRADE | H ≤ 200 FT |
| 9 FT ² | 32" MAX | 15" MIN | N/A | H ≤ 15 FT | AT GRADE | H ≤ 200 FT |
| 4 FT ² | 48" MAX | 24" MIN | AT GRADE | H ≤ 200 FT | H ≤ 200 FT | H ≤ 200 FT |
| 6 FT ² | | | N/A | H ≤ 200 FT | H ≤ 30 FT | H ≤ 200 FT |
| 9 FT ² | | | N/A | H ≤ 40 FT | AT GRADE | H ≤ 200 FT |
| 12 FT ² | | | N/A | AT GRADE | N/A | H ≤ 200 FT |
| 16 FT ² | 60" MAX | 48" MIN | N/A | AT GRADE | N/A | H ≤ 60 FT |
| 20 FT ² | | | N/A | AT GRADE | N/A | H ≤ 60 FT |
| 25 FT ² | | | N/A | N/A | N/A | H ≤ 15 FT |
| 30 FT ² | | | N/A | N/A | N/A | AT GRADE |
| 36 FT ² | | | N/A | N/A | N/A | AT GRADE |

*THIS TABLE IS PERMISSIBLE TO BE USED WITHIN THE HVHZ WHICH CONTAINS BROWARD AND MIAMI-DADE COUNTIES. CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICABILITY OF THIS TABLE WITHIN CERTAIN FLORIDA COUNTIES.

TABLE 2 : Vult=175 MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE IN THE HIGH VELOCITY HURRICANE ZONE*)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE ROOF-TOP HEIGHT (H) TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|--|------------|------------|------------|
| | | | C1 | C2 | C3 | C4 |
| 6 FT ² | 24" MAX | 12" MIN | N/A | H ≤ 40 FT | AT GRADE | H ≤ 200 FT |
| 9 FT ² | 32" MAX | 15" MIN | N/A | AT GRADE | N/A | H ≤ 200 FT |
| 4 FT ² | 48" MAX | 24" MIN | AT GRADE | H ≤ 200 FT | H ≤ 160 FT | H ≤ 200 FT |
| 6 FT ² | | | N/A | H ≤ 200 FT | AT GRADE | H ≤ 200 FT |
| 9 FT ² | | | N/A | H ≤ 15 FT | AT GRADE | H ≤ 200 FT |
| 12 FT ² | | | N/A | AT GRADE | N/A | H ≤ 140 FT |
| 16 FT ² | 60" MAX | 48" MIN | N/A | N/A | N/A | H ≤ 15 FT |
| 20 FT ² | | | N/A | N/A | N/A | H ≤ 30 FT |
| 25 FT ² | | | N/A | N/A | N/A | AT GRADE |
| 30 FT ² | | | N/A | N/A | N/A | AT GRADE |
| 36 FT ² | | | N/A | N/A | N/A | AT GRADE |

*THIS TABLE IS PERMISSIBLE TO BE USED WITHIN THE HVHZ WHICH CONTAINS BROWARD AND MIAMI-DADE COUNTIES. CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICABILITY OF THIS TABLE WITHIN CERTAIN FLORIDA COUNTIES.

TABLE 3 : Vult=170 MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE*)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE INSTALLATION ROOF HEIGHT TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|---|-----------|-----------|-----------|
| | | | C1 | C2 | C3 | C4 |
| 6 ft ² | 24 in | 12 in | N/A | ≤ 140 FT | AT GRADE | ≤ 200 FT |
| 9 ft ² | 32 in | 15 in | N/A | H ≤ 15 FT | AT GRADE | ≤ 200 FT |
| 4 ft ² | 48" MAX | 24" MIN | AT GRADE | ≤ 200 FT | N/A | ≤ 200 FT |
| 6 ft ² | | | AT GRADE | ≤ 200 FT | H ≤ 40 FT | ≤ 200 FT |
| 9 ft ² | | | N/A | > 60 FT | AT GRADE | ≤ 200 FT |
| 12 ft ² | | | N/A | AT GRADE | N/A | ≤ 200 FT |
| 16 ft ² | 60" MAX | 48" MIN | N/A | AT GRADE | N/A | ≤ 80 FT |
| 20 ft ² | | | N/A | AT GRADE | N/A | ≤ 100 FT |
| 25 ft ² | | | N/A | N/A | N/A | H ≤ 30 FT |
| 30 ft ² | | | N/A | N/A | N/A | AT GRADE |
| 36 ft ² | | | N/A | N/A | N/A | AT GRADE |

*AS AN EXAMPLE, THIS TABLE IS PERMISSIBLE TO BE USED WITHIN PALM BEACH COUNTY. CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICABILITY OF THIS TABLE WITHIN CERTAIN FLORIDA COUNTIES.

TABLE 4 : Vult=170 MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE*)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE INSTALLATION ROOF HEIGHT TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|---|-----------|-----------|-----------|
| | | | C1 | C2 | C3 | C4 |
| 6 ft ² | 24 in | 12 in | N/A | > 60 FT | AT GRADE | ≤ 200 FT |
| 9 ft ² | 32 in | 15 in | N/A | AT GRADE | N/A | ≤ 200 FT |
| 4 ft ² | 48" MAX | 24" MIN | AT GRADE | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 6 ft ² | | | N/A | ≤ 200 FT | H ≤ 15 FT | ≤ 200 FT |
| 9 ft ² | | | N/A | H ≤ 15 FT | AT GRADE | ≤ 200 FT |
| 12 ft ² | | | N/A | AT GRADE | N/A | ≤ 200 FT |
| 16 ft ² | 60" MAX | 48" MIN | N/A | N/A | N/A | H ≤ 40 FT |
| 20 ft ² | | | N/A | AT GRADE | N/A | H ≤ 40 FT |
| 25 ft ² | | | N/A | N/A | N/A | AT GRADE |
| 30 ft ² | | | N/A | N/A | N/A | AT GRADE |
| 36 ft ² | | | N/A | N/A | N/A | AT GRADE |

*AS AN EXAMPLE, THIS TABLE IS PERMISSIBLE TO BE USED WITHIN PALM BEACH COUNTY. CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICABILITY OF THIS TABLE WITHIN CERTAIN FLORIDA COUNTIES.

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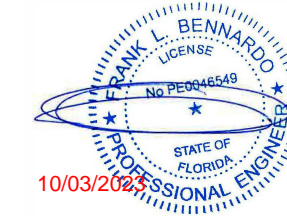
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TABLE 5 : Vult=140 MPH, EXPOSURE B

(FOR USE WITH A RISK CATEGORY II STRUCTURE)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE INSTALLATION ROOF HEIGHT TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|--|-----------|-----------|----------|
| | | | C1 | C2 | C3 | C4 |
| 6 ft ² | 24 in | 12 in | H ≤ 15 FT | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 9 ft ² | 32 in | 15 in | AT GRADE | ≤ 200 FT | > 60 FT | ≤ 200 FT |
| 4 ft ² | 48" MAX | 24" MIN | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 6 ft ² | | | H ≤ 40 FT | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 9 ft ² | | | AT GRADE | ≤ 200 FT | ≤ 120 FT | ≤ 200 FT |
| 12 ft ² | | | AT GRADE | ≤ 200 FT | H ≤ 40 FT | ≤ 200 FT |
| * 16 ft ² | 60" MAX | 48" MIN | N/A | ≤ 80 FT | H ≤ 15 FT | ≤ 200 FT |
| 20 ft ² | | | N/A | ≤ 100 FT | H ≤ 15 FT | ≤ 200 FT |
| 25 ft ² | | | N/A | H ≤ 40 FT | AT GRADE | ≤ 200 FT |
| 30 ft ² | | | N/A | H ≤ 15 FT | AT GRADE | ≤ 200 FT |
| 36 ft ² | | | N/A | AT GRADE | AT GRADE | ≤ 200 FT |
| | | | N/A | AT GRADE | AT GRADE | ≤ 120 FT |

TABLE 6 : Vult=140 MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE INSTALLATION ROOF HEIGHT TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|--|-----------|-----------|-----------|
| | | | C1 | C2 | C3 | C4 |
| 6 ft ² | 24 in | 12 in | AT GRADE | ≤ 200 FT | ≤ 80 FT | ≤ 200 FT |
| 9 ft ² | 32 in | 15 in | N/A | ≤ 180 FT | H ≤ 15 FT | ≤ 200 FT |
| 4 ft ² | 48" MAX | 24" MIN | ≤ 80 FT | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 6 ft ² | | | AT GRADE | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 9 ft ² | | | AT GRADE | ≤ 200 FT | H ≤ 40 FT | ≤ 200 FT |
| 12 ft ² | | | N/A | ≤ 100 FT | AT GRADE | ≤ 200 FT |
| 16 ft ² | 60" MAX | 48" MIN | N/A | H ≤ 15 FT | AT GRADE | ≤ 200 FT |
| 20 ft ² | | | N/A | H ≤ 30 FT | AT GRADE | ≤ 200 FT |
| 25 ft ² | | | N/A | AT GRADE | AT GRADE | ≤ 200 FT |
| 30 ft ² | | | N/A | AT GRADE | N/A | ≤ 80 FT |
| 36 ft ² | | | N/A | AT GRADE | N/A | H ≤ 30 FT |
| | | | N/A | AT GRADE | N/A | H ≤ 30 FT |

TABLE 7 : Vult=140 MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE)

| MAXIMUM SURFACE AREA OF UNIT'S LARGEST FACE | UNIT HEIGHT | UNIT WIDTH | ALLOWABLE INSTALLATION ROOF HEIGHT TIE-DOWN CONFIGURATION TYPE | | | |
|---|-------------|------------|--|-----------|-----------|-----------|
| | | | C1 | C2 | C3 | C4 |
| 6 ft ² | 24 in | 12 in | N/A | ≤ 200 FT | H ≤ 30 FT | ≤ 200 FT |
| 9 ft ² | 32 in | 15 in | N/A | ≤ 100 FT | AT GRADE | ≤ 200 FT |
| 4 ft ² | 48" MAX | 24" MIN | H ≤ 40 FT | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 6 ft ² | | | AT GRADE | ≤ 200 FT | ≤ 200 FT | ≤ 200 FT |
| 9 ft ² | | | N/A | ≤ 200 FT | H ≤ 15 FT | ≤ 200 FT |
| 12 ft ² | | | N/A | H ≤ 40 FT | AT GRADE | ≤ 200 FT |
| 16 ft ² | 60" MAX | 48" MIN | N/A | AT GRADE | N/A | ≤ 200 FT |
| 20 ft ² | | | N/A | AT GRADE | AT GRADE | ≤ 200 FT |
| 25 ft ² | | | N/A | AT GRADE | N/A | ≤ 120 FT |
| 30 ft ² | | | N/A | N/A | N/A | H ≤ 40 FT |
| 36 ft ² | | | N/A | N/A | N/A | AT GRADE |
| | | | N/A | N/A | N/A | AT GRADE |

*AS AN EXAMPLE, THESE TABLES ARE PERMISSIBLE TO BE USED WITHIN BREVARD COUNTY. CHECK WITH LOCAL AUTHORITY HAVING JURISDICTION FOR THE APPLICABILITY OF THIS TABLE WITHIN CERTAIN FLORIDA COUNTIES.

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