

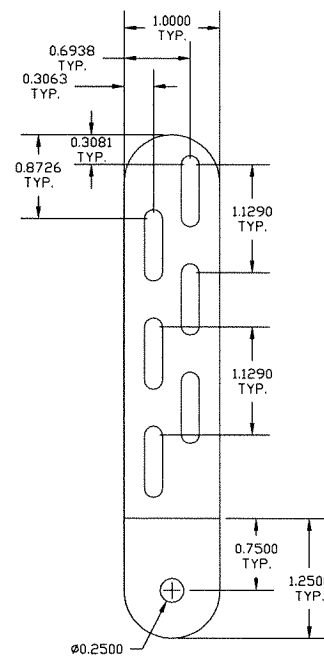
MIAMI TECH, INC.

MECHANICAL UNIT STEEL TIE-DOWN CLIP: AT GRADE & ROOF-TOP MOUNTED APPLICATIONS

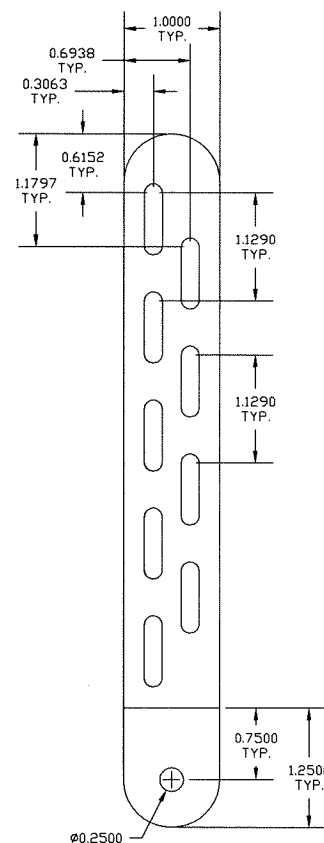
STEEL TIE-DOWN CLIP

SIDE VIEW TYP.

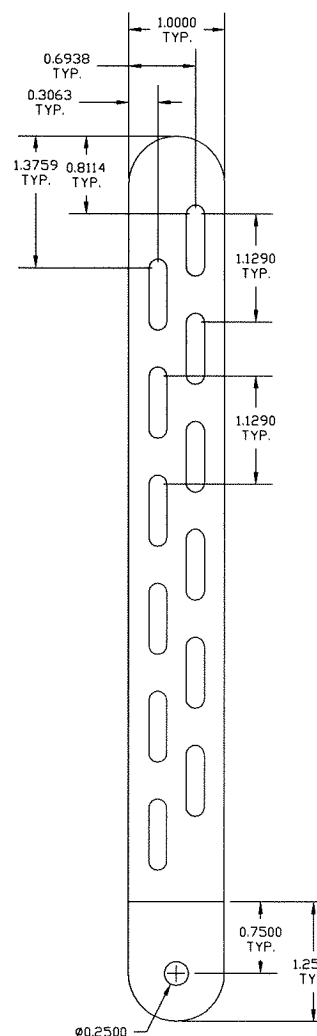
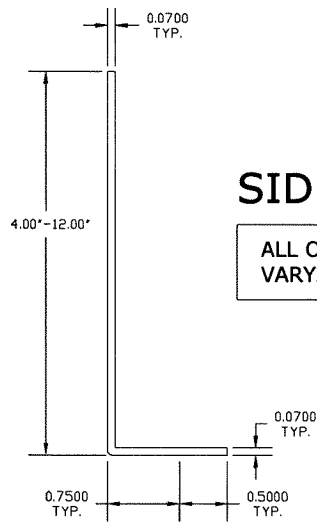
ALL OTHER CLIPS SIMILAR VARYING LENGTH ONLY



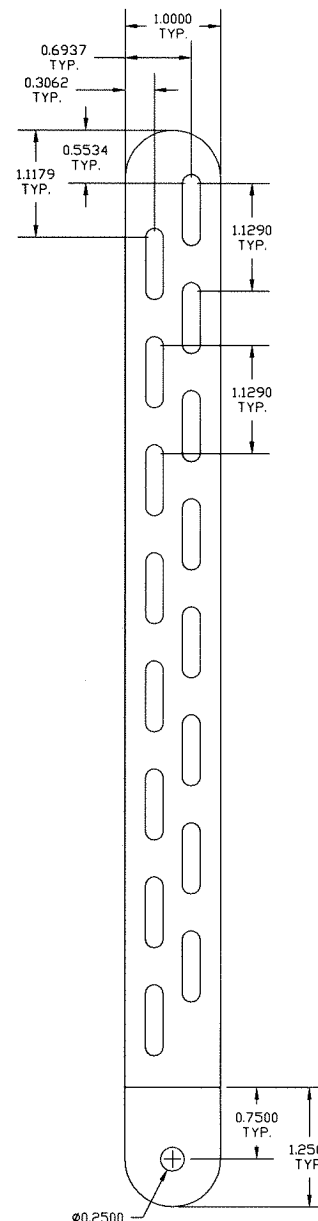
1 4" LONG CLIP
N.T.S. FLATTENED



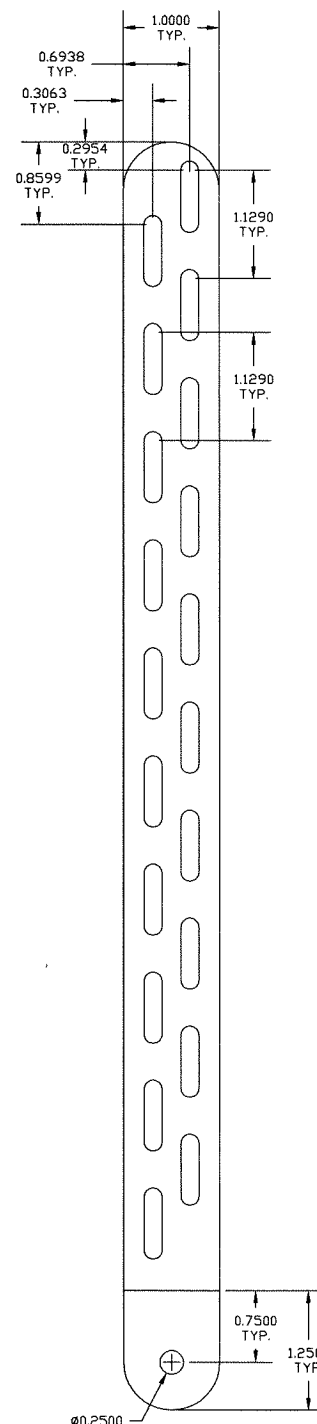
2 6" LONG CLIP
N.T.S. FLATTENED



3 8" LONG CLIP
N.T.S. FLATTENED



4 10" LONG CLIP
N.T.S. FLATTENED



5 12" LONG CLIP
N.T.S. FLATTENED

DESIGN NOTES:

1. THIS PRODUCT HAS BEEN DESIGNED IN ACCORDANCE WITH ASCE 7-10 AND THE FLORIDA BUILDING CODE SIXTH EDITION (2017) 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 1609.8 FOR NON-HVHZ AND SECTION 1620.6 FOR HVHZ ($GC_{\text{Lateral}}=1.90$ WITHIN THE HVHZ & OUTSIDE THE HVHZ, $(GC_{\text{Uplift}})=1.5$ FOR ALL LOCATIONS (CONCURRENT)).
2. ALL OTHER DESIGN VARIABLES ARE IN ACCORDANCE WITH ASCE 7-10 CHAPTERS 26 & 29.
3. THE HEIGHTS LISTED IN THE DESIGN SCHEDULES REPRESENT THE ALLOWABLE HEIGHT OF THE BUILDING.
4. 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.
5. NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
6. DESIGN IS BASED ON CLIENT PROVIDED PRODUCT AND DIE SHEETS FROM TEST REPORT PROJECT #15-6206 BY FENESTRATION TESTING LABORATORY, INC.. NO SUBSTITUTIONS WITHOUT WRITTEN APPROVAL BY THIS ENGINEER SHALL BE PERMITTED.
7. STEEL CLIPS SHALL BE ASTM A653 STEEL WITH $F_y=33$ KSI OR BETTER. STEEL MEMBERS SHALL BE PROTECTED AGAINST CORROSION WITH AN APPROVED COAT OF PAINT, ENAMEL OR OTHER APPROVED PROTECTION. G90-RATED COATING REQUIRED FOR COASTAL INSTALLATIONS.

GENERAL NOTES:

1. THIS PRODUCT HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE & ASCE 7-10. THIS PRODUCT MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE.
2. 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.
3. FASTENERS TO BE #10 X 3/4" OR GREATER STAINLESS STEEL 410 UNLESS NOTED OTHERWISE. ANCHORS REFERRED TO HEREIN SHALL BE ELCO BRAND, STAINLESS STEEL ONLY, INSTALLED TO 3000 PSI MIN CONCRETE. SEE ANCHOR TO HOST SCHEDULE FOR ANCHOR REQUIREMENTS. ALL FASTENERS SHALL HAVE APPROPRIATE CORROSION PROTECTION TO PREVENT ELECTROLYSIS.
4. 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.
5. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
6. ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
7. 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.
8. 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.
9. 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.
10. FOR AN EXPLANATION OF EXPOSURE AND RISK CATEGORIES THAT ACCOMPANY THE VULT WIND SPEEDS USED IN THIS APPROVAL, SEE SECTION 26.7.3 OF ASCE 7-10.

FRANK L. BERNARDO, P.E.
PE# 0046549
08/16/2017
No PE0046549

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660 F: (954) 354-0443
E: HELLO@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM
CERT OF AUTH #9885

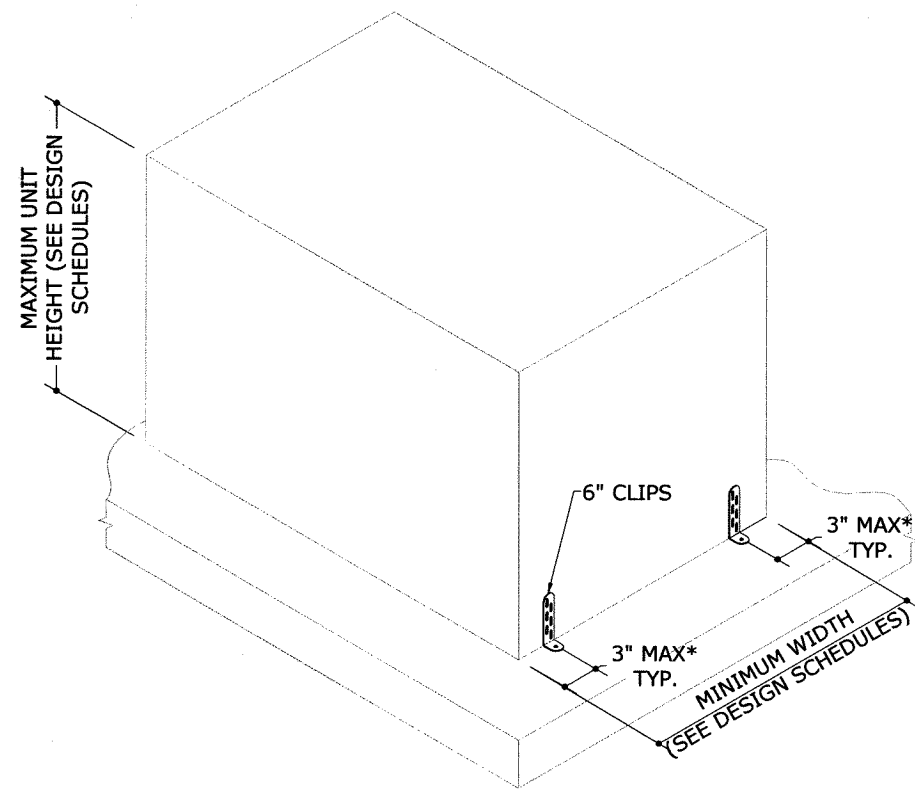
MIAMI TECH, INC.
3611 NW 74TH ST
MIAMI, FL
(305) 693-7054
MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS
FBC 6TH EDITION (2017) PRODUCT APPROVAL FL#19731.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LAO	TSB	02/05/16
REV (ADD DETAILS)	RWN	FLB	07/09/16
REV 2017 FBC UPDATE	LAO	FLB	08/14/17

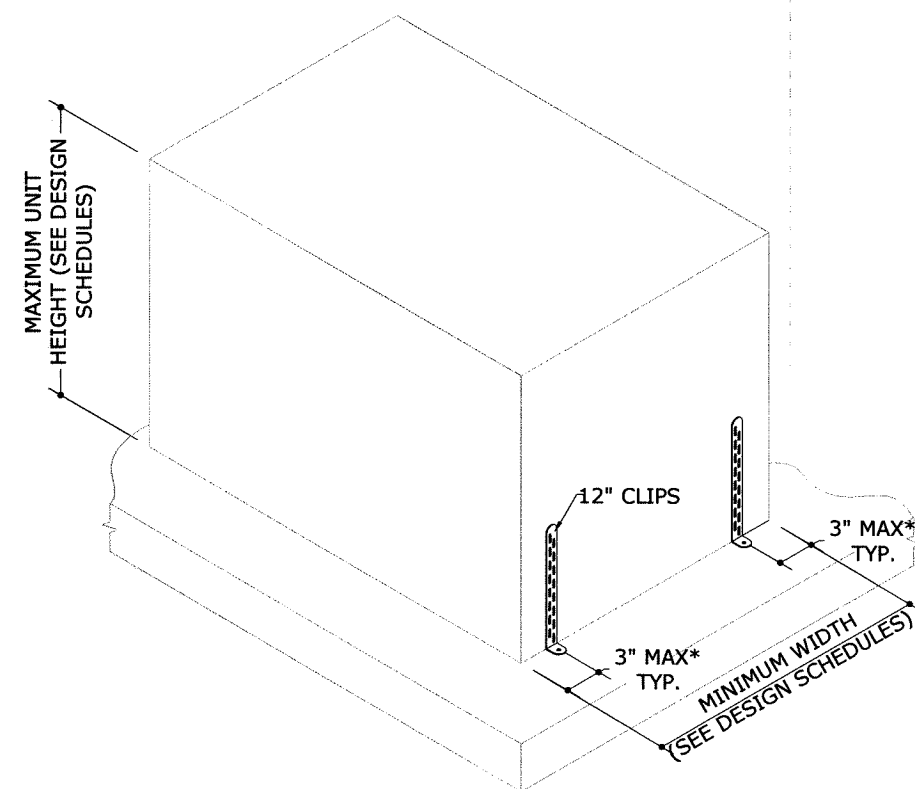
THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. ANY OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

15-2786b
SCALE: N.T.S.
1

V:\Projects\15-2786 Miami Tech CUTD Tie-Down Clip Certifications\WP\2017 FBC Update\15-2786-F-Dwg-FL19731.2.dwg
zacr
08/16/2017 - 2:10pm

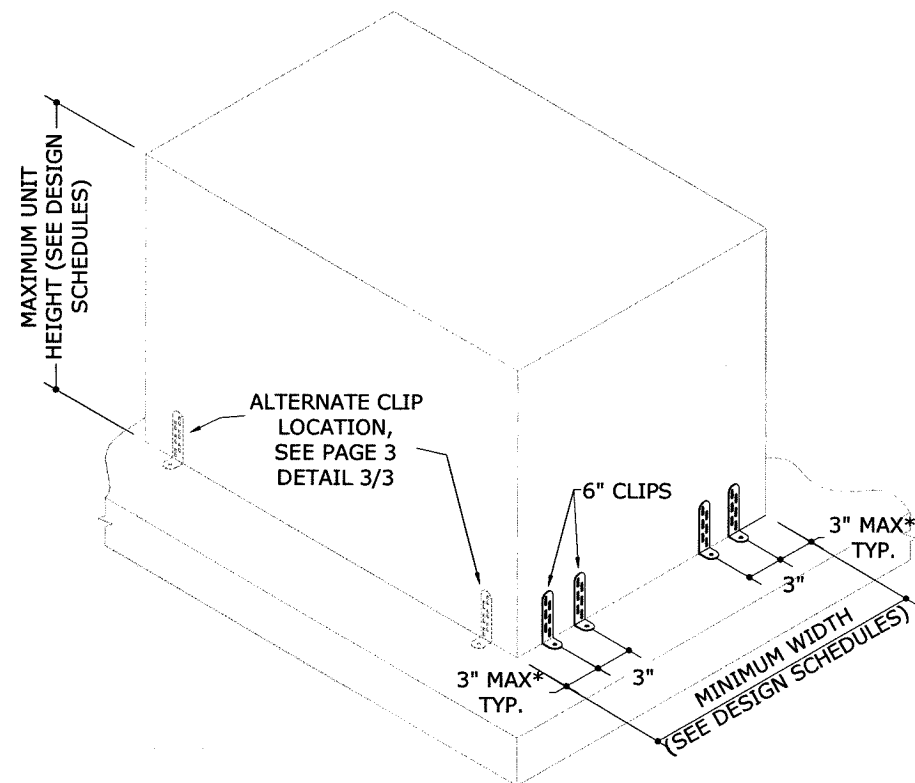


C1 CONNECTION TYPE C1
 1"X6" CLIP - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIP 4" LONG

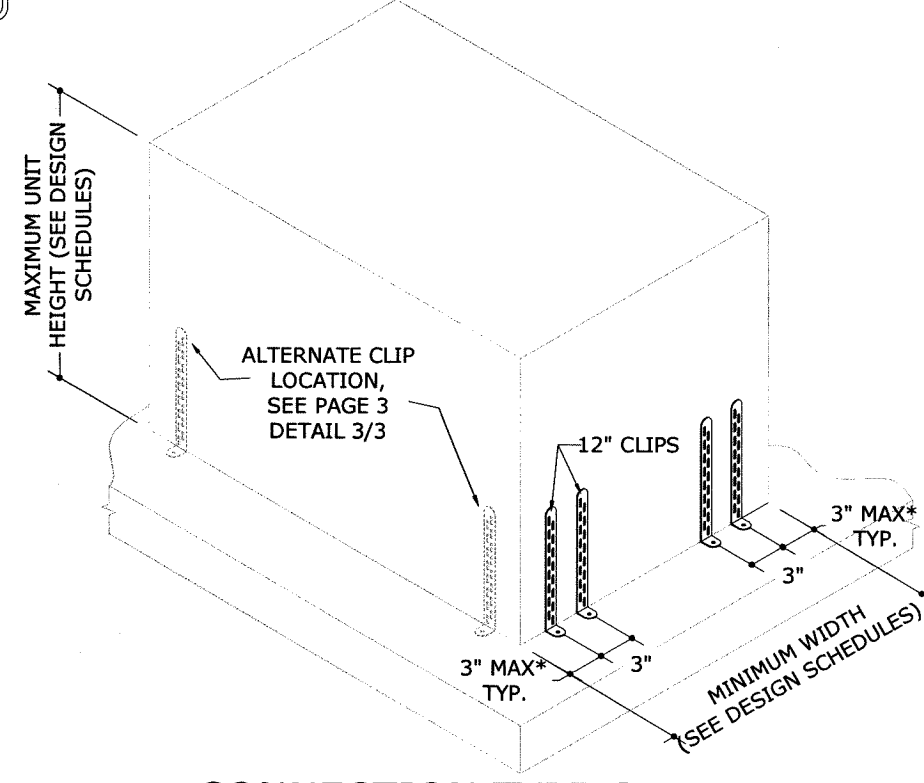


C3 CONNECTION TYPE C3
 1"X12" CLIP - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIPS 8" & 10" LONG

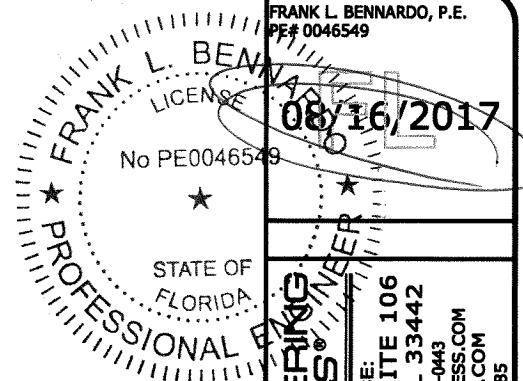
*NOTE: SEE ANCHOR TO HOST SCHEDULE FOR ALL EDGE DISTANCE TO ANCHOR SPACING LIMITATIONS. SEE PAGE 4.



C2 CONNECTION TYPE C2
 1"X6" CLIP - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIP 4" LONG



C4 CONNECTION TYPE C4
 1"X12" CLIP - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIPS 8" & 10" LONG



ENGINEERING EXPRESS
 CORPORATE OFFICE:
 160 SW 12th AVE, SUITE 106
 DEERFIELD BEACH, FL 33442
 P: (954) 354-0660 F: (954) 354-0443
 E: HELLO@ENGINEERINGEXPRESS.COM
 CERT OF AUTH #9885

MIAMI TECH, INC.
 3611 NW 74TH ST
 MIAMI, FL
 (305) 693-7054
 MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS
 MIAMI TECH EDITION (2017) PRODUCT APPROVAL FL#19731.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LAO	TSB	02/05/16
REV (ADD DETAILS)	RWN	FLB	07/08/16
REV 2017 FBC UPDATE	LAO	FLB	08/14/17

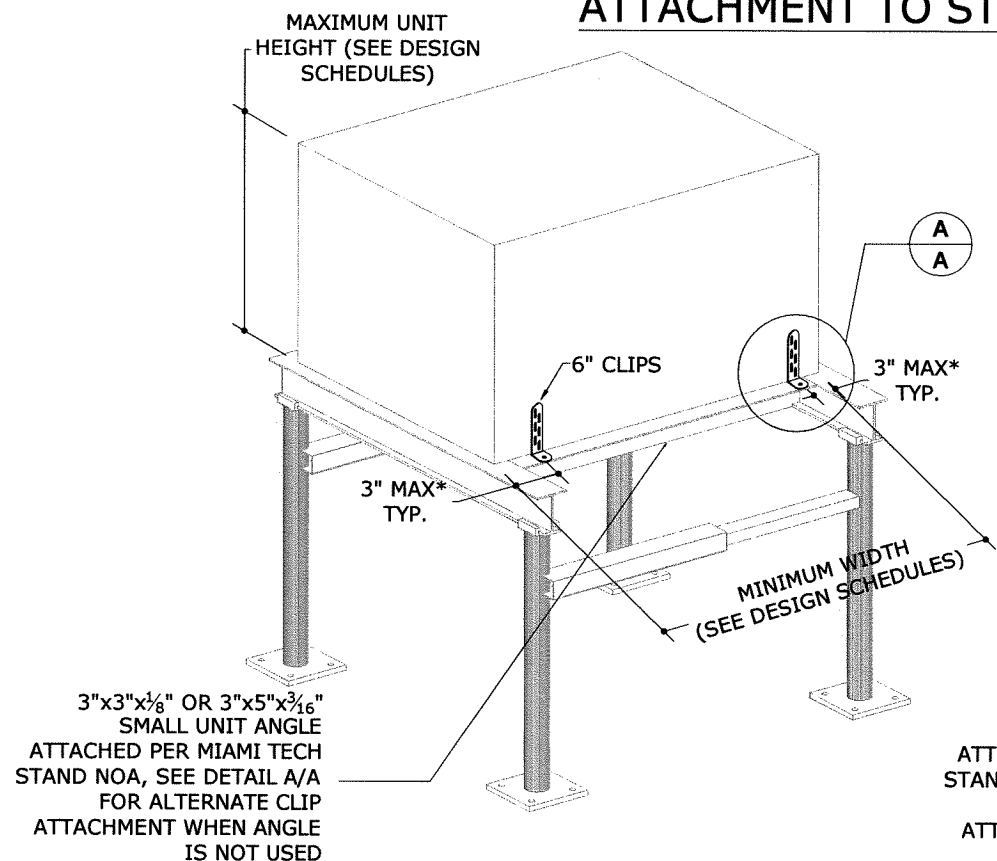
THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERNATIONS, ADJUSTMENTS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

15-2786b
 SCALE: N.T.S.

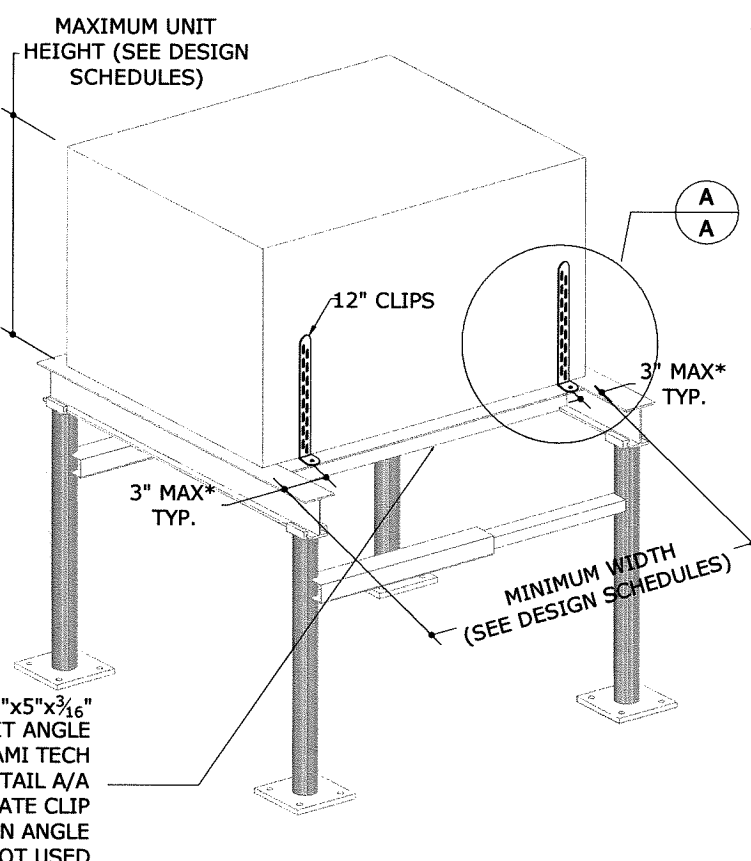
08/16/2017 - 2:11pm zachr V:\Projects\15-2786 Miami Tech CUTD Tie-Down Clip Certifications\WP\2017 FBC Update\15-2786-F-Dwg-FL19731.2.dwg

08/16/2017 - 2:11pm zachr V:\Projects\15-2786 Miami Tech CUTD Tie-Down Clip Certifications\WP\2017 FBC Update\15-2786-Dwg-FL19731.2.dwg

ATTACHMENT TO STAND

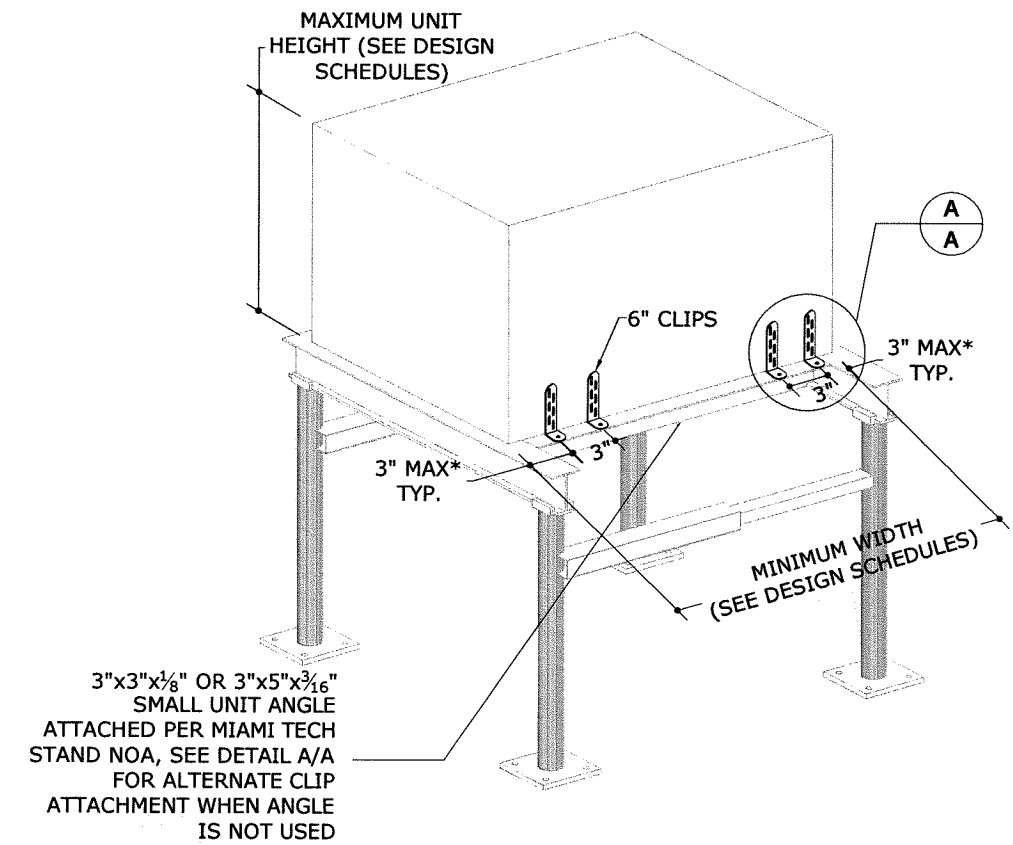


C1 CONNECTION TYPE C1
 1"x6" CLIP - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIP 4" LONG

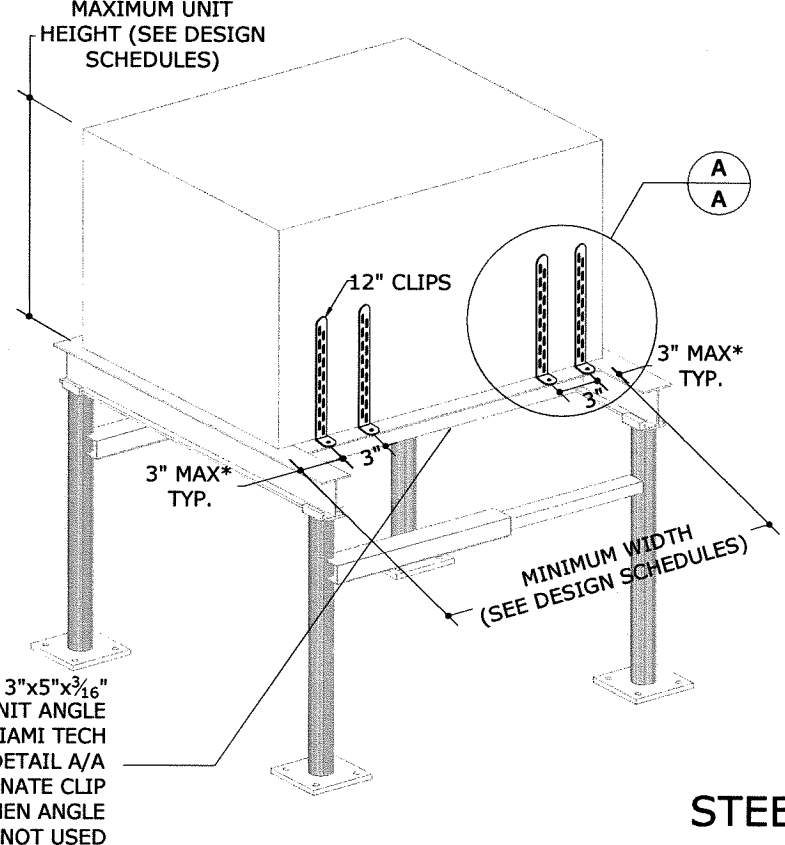


C3 CONNECTION TYPE C3
 1"x12" CLIP - UTILIZE (1) AT EACH CORNER FOR A TOTAL OF (4) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIPS 8" & 10" LONG

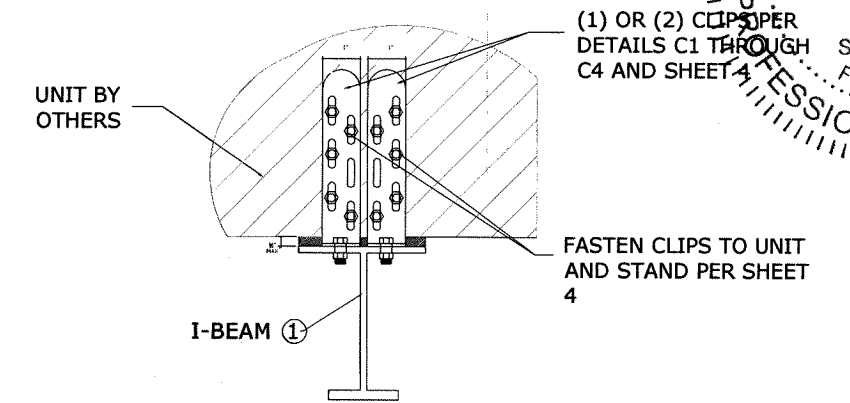
*NOTE: SEE ANCHOR TO HOST SCHEDULE FOR ALL EDGE DISTANCE TO ANCHOR SPACING LIMITATIONS. SEE PAGE 4.



C2 CONNECTION TYPE C2
 1"x6" CLIP - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIP 4" LONG



C4 CONNECTION TYPE C4
 1"x12" CLIP - UTILIZE (2) AT EACH CORNER FOR A TOTAL OF (8) PER UNIT
 NOTE: ALSO APPLICABLE FOR CLIPS 8" & 10" LONG



A ALTERNATE CLIP TO STAND DETAIL
 SCALE: N.T.S.

FRANK L. BENNARDO, P.E.
 PE# 0046549
 LICENSED PROFESSIONAL ENGINEER
 STATE OF FLORIDA
 No PE0046549
 08/16/2017

ENGINEERING EXPRESS
 CORPORATE OFFICE:
 160 SW 12th AVE, SUITE 106
 DEERFIELD BEACH, FL 33442
 P: (954) 354-0660 F: (954) 354-0443
 E: HELLO@ENGINEERINGEXPRESS.COM
 ENGINEERINGEXPRESS.COM
 CERT OF AUTH #9885

MIAMI TECH, INC.
 3611 NW 74TH ST
 MIAMI, FL
 (305) 693-7054
 MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS
 PRODUCT APPROVAL FL#19731.2

REMARKS	DRWN/CHKD	DATE
INIT ISSUE	LAO TSB	02/05/16
REV (ADD DETAILS)	FRWN FLB	07/08/16
REV 2017 FBC UPDATE	LAO FLB	08/14/17

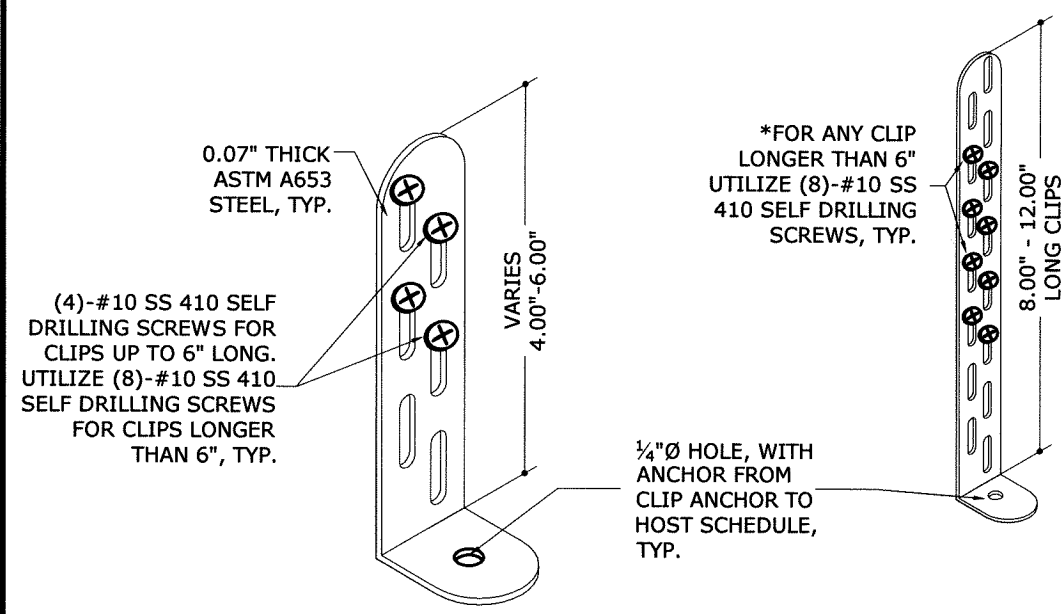
THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS, AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERNATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT ENGINEERING EXPRESS
15-2786b
 SCALE: N.T.S.

V:\Projects\15-2786 Miami Tech CUTD Tie-Down Clip Certifications\WP\2017 FBC Update\15-2786-Dwg-FL19731.2.dwg

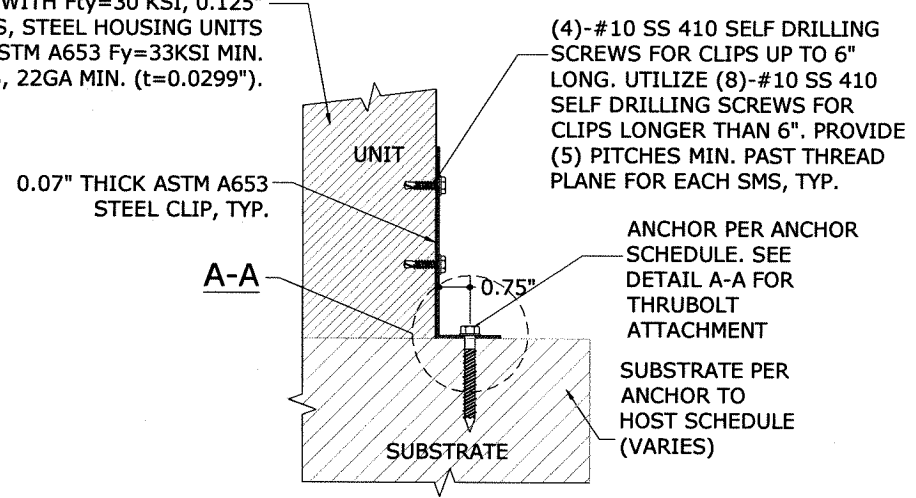
zackr

08/16/2017 - 2:11pm



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

MECHANICAL UNIT BY OTHERS. ALUMINUM HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.125" MIN. THICKNESS, STEEL HOUSING UNITS SHALL BE ASTM A653 Fy=33KSI MIN. STEEL, GRADE 33, 22GA MIN. (t=0.0299").



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

CLIP IS DESIGNED FOR FULL CONTACT WITH THE BASE OF EACH MECHANICAL UNIT, TYP.

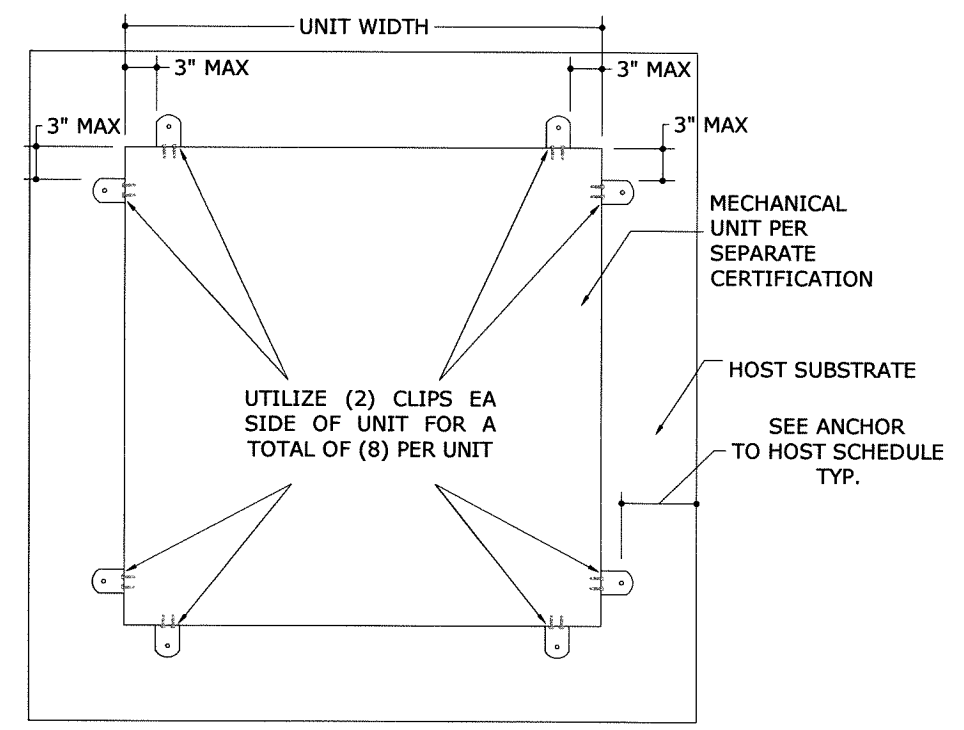
FRANK L. BENNARDO, P.E.
 PE# 0046549
 08/16/2017
 No PE0046549
 STATE OF FLORIDA
 PROFESSIONAL ENGINEER

ENGINEERING EXPRESS
 CORPORATE OFFICE:
 160 SW 12th AVE, SUITE 106
 DEERFIELD BEACH, FL 33442
 P: (954) 354-0660 F: (954) 354-0443
 E: HELLO@ENGINEERINGEXPRESS.COM
 ENGINEERINGEXPRESS.COM
 CERT OF AUTH. #9885

ANCHOR TO HOST SCHEDULE:

SUBSTRATE	DESCRIPTION
CONCRETE: (4" THICK MIN, 3000 PSI MIN.)	(1)-1/4"Ø STAINLESS STEEL 410 ELCO ULTRACON, 1 3/4" FULL EMBED TO CONCRETE, 2 1/2" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.
ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	(1)-#14 SAE STAINLESS STEEL BOLT 410 WITH NUT AND WASHER TOP & BOTTOM SS OD 1", 1/2" MINIMUM EDGE DISTANCE TO METAL EDGE
STEEL: (0.125" MIN. THICK, 50 KSI MIN. STEEL)	(1)-#14 SAE STAINLESS STEEL BOLT 410 WITH NUT AND WASHER TOP & BOTTOM SS OD 1", 1/2" MINIMUM EDGE DISTANCE TO METAL EDGE

1. EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE.
2. ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE.
3. ENSURE MINIMUM SPACING TO ANY ADJACENT ANCHORS.
4. SEE DETAILS ON SHEET 4 FOR ANCHORS ATTACHING TO MECHANICAL UNIT.
5. PROTECT ALL METALS FROM DISSIMILAR METALS GENERAL NOTE #5



3 **ALTERNATE (8) CLIP DETAIL**
 4 N.T.S. PLAN VIEW

THIS DETAIL MAY BE USED AS AN ALTERNATE GEOMETRIC PATTERN FOR ALL CONNECTION TYPES THAT UTILIZE (2) CLIPS AT EACH CORNER FOR A TOTAL OF (8) CLIPS PER UNIT.

MIAMI TECH, INC.
 3611 NW 74TH ST
 MIAMI, FL
 (305) 693-7054

MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS
 FBC 6TH EDITION (2017) PRODUCT APPROVAL FL#19731.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LAO	TSB	02/05/16
REV (ADD DETAILS)	RWN	FLB	07/08/16
REV 2017 FBC UPDATE	LAO	FLB	08/14/17

THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT ENGINEERING EXPRESS ©
15-2786b
 SCALE: N.T.S.
 4 OF 6

STEEL TIE-DOWN CLIP

TABLE 1 PERMISSIBLE INSTALLATION HEIGHTS: $V_{ult}=175$ MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE IN THE HIGH VELOCITY HURRICANE ZONE (HVHZ)*)
RISK CATEGORY II IS PER ASCE 7-10

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	29" MAX	15" MIN	AT GRADE	H ≤ 200 FT	AT GRADE	H ≤ 200 FT
9 FT ²	36" MAX	27" MIN	AT GRADE	H ≤ 200 FT	AT GRADE	H ≤ 200 FT
4 FT ²	48" MAX	36" MIN	H ≤ 160 FT	H ≤ 200 FT	H ≤ 200 FT	H ≤ 200 FT
6 FT ²			H ≤ 15 FT	H ≤ 200 FT	H ≤ 30 FT	H ≤ 200 FT
9 FT ²			AT GRADE	H ≤ 200 FT	AT GRADE	H ≤ 200 FT
12 FT ²			N/A	H ≤ 60 FT	N/A	H ≤ 100 FT
16 FT ²	60" MAX	48" MIN	N/A	H ≤ 15 FT	N/A	H ≤ 15 FT
20 FT ²			N/A	AT GRADE	N/A	AT GRADE
25 FT ²			N/A	AT GRADE	N/A	AT GRADE
30 FT ²			N/A	N/A	N/A	N/A
36 FT ²			N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

*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 PERMISSIBLE INSTALLATION HEIGHTS: $V_{ult}=175$ MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE IN THE HIGH VELOCITY HURRICANE ZONE (HVHZ)*)
RISK CATEGORY II IS PER ASCE 7-10

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	29" MAX	15" MIN	N/A	H ≤ 200 FT	AT GRADE	H ≤ 200 FT
9 FT ²	36" MAX	27" MIN	N/A	H ≤ 140 FT	N/A	H ≤ 200 FT
4 FT ²	48" MAX	36" MIN	H ≤ 80 FT	H ≤ 200 FT	H ≤ 140 FT	H ≤ 200 FT
6 FT ²			AT GRADE	H ≤ 200 FT	AT GRADE	H ≤ 200 FT
9 FT ²			N/A	H ≤ 160 FT	AT GRADE	H ≤ 200 FT
12 FT ²			N/A	H ≤ 30 FT	N/A	H ≤ 40 FT
16 FT ²	60" MAX	48" MIN	N/A	AT GRADE	N/A	AT GRADE
20 FT ²			N/A	AT GRADE	N/A	AT GRADE
25 FT ²			N/A	N/A	N/A	N/A
30 FT ²			N/A	N/A	N/A	N/A
36 FT ²			N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A

*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 PERMISSIBLE INSTALLATION HEIGHTS: $V_{ult}=170$ MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE**)
RISK CATEGORY II IS PER ASCE 7-10

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	29 in	15 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
9 ft ²	36 in	27 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
4 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
6 ft ²	48 in	36 in	H ≤ 30 FT	≤ 200 FT	H ≤ 40 FT	≤ 200 FT
9 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
12 ft ²	48 in	36 in	N/A	≤ 80 FT	N/A	≤ 140 FT
16 ft ²	48 in	36 in	N/A	H ≤ 15 FT	N/A	H ≤ 30 FT
20 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
25 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
30 ft ²	60 in	48 in	N/A	N/A	N/A	AT GRADE
36 ft ²	60 in	48 in	N/A	N/A	N/A	N/A

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

TABLE 4 PERMISSIBLE INSTALLATION HEIGHTS: $V_{ult}=170$ MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE**)
RISK CATEGORY II IS PER ASCE 7-10

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	29 in	15 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
9 ft ²	36 in	27 in	N/A	≤ 200 FT	AT GRADE	≤ 200 FT
4 ft ²	48 in	36 in	≤ 120 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
6 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	H ≤ 15 FT	≤ 200 FT
9 ft ²	48 in	36 in	N/A	≤ 200 FT	AT GRADE	≤ 200 FT
12 ft ²	48 in	36 in	N/A	H ≤ 40 FT	N/A	H ≤ 60 FT
16 ft ²	48 in	36 in	N/A	AT GRADE	N/A	AT GRADE
20 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
25 ft ²	60 in	48 in	N/A	N/A	N/A	N/A
30 ft ²	60 in	48 in	N/A	N/A	N/A	N/A
36 ft ²	60 in	48 in	N/A	N/A	N/A	N/A

FRANK L. BENNARDO, P.E.
PE# 0046549
08/16/2017
No PE0046549

STATE OF FLORIDA
FRANK L. BENNARDO
PROFESSIONAL ENGINEER

ENGINEERING EXPRESS
CORPORATE OFFICE:
160 SW 12th AVE, SUITE 306
DEERFIELD BEACH, FL 33440
P: (954) 354-0660 F: (954) 354-0443
E: HELLO@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM
CERT OF AUTH #9885

MIAMI TECH, INC.

3611 NW 74TH ST
MIAMI, FL
(305) 693-7054

MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS

FBC 6TH EDITION (2017) PRODUCT APPROVAL FL# 19731.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LAO	TSB	02/05/16
REV (ADD DETAILS)	LRN	FLB	07/08/16
REV 2017 FBC UPDATE	LAO	FLB	08/14/17

THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS. IT SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

COPYRIGHT ENGINEERING EXPRESS

15-2786b

SCALE: N.T.S.

5

STEEL TIE-DOWN CLIP

TABLE 5 PERMISSIBLE INSTALLATION HEIGHTS: $v_{ult}=140$ MPH, EXPOSURE B

(FOR USE WITH A RISK CATEGORY II STRUCTURE***)
RISK CATEGORY II IS PER ASCE 7-10

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	29 in	15 in	≤ 100 FT	≤ 200 FT	≤ 140 FT	≤ 200 FT
9 ft ²	36 in	27 in	≤ 80 FT	≤ 200 FT	≤ 100 FT	≤ 200 FT
4 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
6 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
9 ft ²	48 in	36 in	≤ 80 FT	≤ 200 FT	≤ 120 FT	≤ 200 FT
12 ft ²	48 in	36 in	H ≤ 30 FT	≤ 200 FT	H ≤ 40 FT	≤ 200 FT
16 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	H ≤ 15 FT	≤ 200 FT
20 ft ²	60 in	48 in	AT GRADE	≤ 160 FT	AT GRADE	≤ 200 FT
25 ft ²	60 in	48 in	N/A	H ≤ 60 FT	AT GRADE	≤ 100 FT
30 ft ²	60 in	48 in	N/A	H ≤ 30 FT	N/A	H ≤ 40 FT
36 ft ²	60 in	48 in	N/A	H ≤ 15 FT	N/A	H ≤ 15 FT

TABLE 6 PERMISSIBLE INSTALLATION HEIGHTS: $v_{ult}=140$ MPH, EXPOSURE C

(FOR USE WITH A RISK CATEGORY II STRUCTURE***)
RISK CATEGORY II IS PER ASCE 7-10

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	29 in	15 in	H ≤ 30 FT	≤ 200 FT	H ≤ 40 FT	≤ 200 FT
9 ft ²	36 in	27 in	H ≤ 15 FT	≤ 200 FT	H ≤ 30 FT	≤ 200 FT
4 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
6 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
9 ft ²	48 in	36 in	H ≤ 15 FT	≤ 200 FT	H ≤ 40 FT	≤ 200 FT
12 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
16 ft ²	48 in	36 in	N/A	≤ 140 FT	AT GRADE	≤ 200 FT
20 ft ²	60 in	48 in	N/A	H ≤ 40 FT	N/A	≤ 80 FT
25 ft ²	60 in	48 in	N/A	H ≤ 15 FT	N/A	H ≤ 30 FT
30 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
36 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE

TABLE 7 PERMISSIBLE INSTALLATION HEIGHTS: $v_{ult}=140$ MPH, EXPOSURE D

(FOR USE WITH A RISK CATEGORY II STRUCTURE***)
RISK CATEGORY II IS PER ASCE 7-10

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	29 in	15 in	AT GRADE	≤ 200 FT	H ≤ 15 FT	≤ 200 FT
9 ft ²	36 in	27 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
4 ft ²	48 in	36 in	≤ 200 FT	≤ 200 FT	≤ 200 FT	≤ 200 FT
6 ft ²	48 in	36 in	≤ 100 FT	≤ 200 FT	≤ 180 FT	≤ 200 FT
9 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	H ≤ 15 FT	≤ 200 FT
12 ft ²	48 in	36 in	AT GRADE	≤ 200 FT	AT GRADE	≤ 200 FT
16 ft ²	48 in	36 in	N/A	≤ 80 FT	N/A	≤ 120 FT
20 ft ²	60 in	48 in	N/A	H ≤ 15 FT	N/A	H ≤ 40 FT
25 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
30 ft ²	60 in	48 in	N/A	AT GRADE	N/A	AT GRADE
36 ft ²	60 in	48 in	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.

FRANK L. BENNARDO, P.E.
PE# 0046549
08/16/2017
No PE0046549

FRANK L. BENNARDO
PROFESSIONAL ENGINEER

ENGINEERING EXPRESS
CORPORATE OFFICE
160 SW 12th AVE, SUITE 1106
DEERFIELD BEACH, FL 33442
P: (954) 354-0660 F: (954) 354-0445
E: HELLO@ENGINEERINGEXPRESS.COM
ENGINEERINGEXPRESS.COM
CERT OF AUTH #9885

MIAMI TECH, INC.
3611 NW 74TH ST
MIAMI, FL
(305) 693-7054

MIAMI TECH CUTD TIE-DOWN CLIP CERTIFICATIONS
FBC 6TH EDITION (2017) PRODUCT APPROVAL FL#19731.2

REMARKS	DRWN	CHKD	DATE
INIT ISSUE	LAO	TSB	02/05/16
REV (ADD DETAILS)	RWN	FLB	07/08/16
REV 2017 FBC UPDATE	LAO	FLB	08/14/17

THIS DOCUMENT IS THE PROPERTY OF ENGINEERING EXPRESS AND SHALL NOT BE REPRODUCED IN WHOLE OR PART WITHOUT WRITTEN CONSENT OF ENGINEERING EXPRESS. ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE OUR CERTIFICATION.

15-2786b

SCALE: N.T.S.

6

STEEL TIE-DOWN CLIP

V:\Projects\15-2786 Miami Tech CUTD Tie-Down Clip Certifications\WP1\2017 FBC Update\15-2786-F-Dwg-FL19731.2.dwg
zchr
08/16/2017 - 2:11pm