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Search Criteria			Refine Search
Code Version	2010	FL#	ALL
Application Type	ALL	Product Manufacturer	BMP International Inc.
Category	ALL	Subcategory	ALL
Application Status	ALL	Compliance Method	ALL
Quality Assurance Entity	ALL	Quality Assurance Entity Contract Expired	ALL
Product Model, Number or Name	ALL	Product Description	ALL
Approved for use in HVHZ	ALL	Approved for use outside HVHZ	ALL
Impact Resistant	ALL	Design Pressure	ALL
Other	ALI		

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Search Results - A	Applications			
<u>FL#</u>	<u>Type</u>	<u>Manufacturer</u>	Validated By	<u>Status</u>
FL14239-R2 History	Revision	BMP International Inc. Category: Structural Components Subcategory: Anchors	Ryan J. King, P.E. (813) 787-8283	Approved

^{*}Approved by DBPR. Approvals by DBPR shall be reviewed and ratified by the POC and/or the Commission if necessary.

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<u>Product Approval Menu</u> > <u>Product or Application Search</u> > <u>Application List</u> > **Application Detail**

▶ OFFICE OF THE SECRETARY FL # FL14239-R2
Application Type Revision
Code Version 2010
Application Status Approved

Comments Archived

Product Manufacturer

Product Manufacturer

Address/Phone/Email

Address/Phone/Email

BMP International Inc.

4710 28th Street N

St. Petersburg, FL 33714

(727) 458-0544

benmeng8@yahoo.com

Authorized Signature Xianbin Meng

benmeng8@yahoo.com

Technical Representative Address/Phone/Email

Quality Assurance Representative

Address/Phone/Email

Category Structural Components

Subcategory Anchors

Compliance Method Evaluation Report from a Florida Registered Architect or a Licensed Florida

Professional Engineer

✓ Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the Frank L. Bennardo, P.E.

Evaluation Report

Florida License PE-0046549

Quality Assurance Entity National Accreditation & Management Institute,

Quality Assurance Contract Expiration Date 12/31/2013
Validated By Ryan J. King, P.E.

✓ Validation Checklist - Hardcopy Received

Certificate of Independence FL14239 R2 COI COI.pdf

Referenced Standard and Year (of Standard) <u>Standard</u> <u>Year</u>

ASTM D1761-06 2006 ASTM D1761-88 2000

Equivalence of Product Standards

Certified By Florida Licensed Professional Engineer or Architect

FL14239 R2 Equiv Equiv.pdf

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Sections from the Code

Product Approval Method Method 1 Option D

Date Submitted 02/21/2013 Date Validated 02/22/2013 Date Pending FBC Approval 02/27/2013 Date Approved 04/09/2013

Summary of Products

FL#	Model, Number or Name	Description
14239.1 Slotted Steel Tie-Down Clips, 1" and 2" Models		Steel Tie-Down Clip System (For Use with Mechanical Units at Roof or Grade)
system. The required site	ide HVHZ: Yes	Installation Instructions FL14239 R2 II Dwg.pdf Verified By: Frank L. Bennardo, P.E. 0046549 Created by Independent Third Party: Yes Evaluation Reports FL14239 R2 AE Eval.pdf Created by Independent Third Party: Yes





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Product Evaluation Report

February 21, 2013

Application Number: FLB Project Number: FL #14239.1 11-BMP-0001-01

Product Manufacturer: BMP International

Manufacturer Address: 4710 28th Street North

St. Petersburg, FL 33714

Product Name:

Slotted Steel Tie-Down Clips, 1" and 2" Models

Product Description:

Steel Tie-Down Clip System (For Use with Mechanical Units at Roof or Grade)

Scope of Evaluation:

This Product Evaluation Report is being issued in accordance with the requirements of the Florida Department of Community Affairs (Florida Building Commission) Rule Chapter 9N-3.005, F.A.C., for statewide acceptance per Method 1(d). The product noted above has been tested and/or evaluated as summarized herein to show compliance with the 2010 Florida Building Code and is, for the purpose intended, at least equivalent to that required by the Code. Re-evaluation of this product shall be required following pertinent Florida Building Code modifications or revisions.

Substantiating Data:

PRODUCT EVALUATION DOCUMENTS

FLB drawing #11-BMP-0001-01 titled "Mechanical Unit Steel Tie-Down Clip Capacities: At-Grade and Roof-Top Mounted Applications", sheets 1-4, prepared by Engineering Express, signed & sealed by Frank L. Bennardo, P.E. is an integral part of this Evaluation Report.

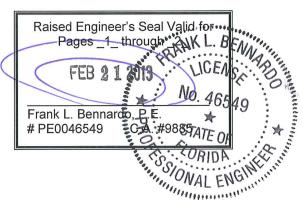
TEST REPORTS

Ultimate test loading structural performance has been tested in accordance with ASTM D1761-88 test standards per test report(s) #TEL 01970387A and #TEL 01970387B by Testing Evaluation Laboratories, Inc.

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:

- 1. Maximum Allowable Unit Wind Pressures
- 2. Minimum Allowable Unit Width
- 3. Maximum Allowable Unit Height
- 4. Minimum Unit Weight
- 5. Maximum Allowable Unit Surface Area
- 6. Clip Configuration and Anchor Spacing
- 7. Anchor Capacity for Various Substrates



BMP INTERNATIONAL – SLOTTED STEEL TIEDOWN CLIPS 1"/2"

Page 2 of 2

8. Maximum Allowable Additional Uplift per Clip in Combination with Lateral Forces (For Use with Rooftop Applications)

No 33% increase in allowable stress has been used in the design of this product.

Impact Resistance:

Not applicable to this product.

Wind Load Resistance

This product has been designed to resist wind loads as indicated in the design schedule(s) on the Product Evaluation Document (i.e. engineering drawing).

Installation

The product listed above shall be installed in strict compliance with the Product Evaluation Document (i.e. engineering drawing), along with all components noted therein.

The product components shall be of the material specified in the Product Evaluation Document (i.e. engineering drawing).

Limitations & Conditions of Use:

Use of this product shall be in strict accordance with the Product Evaluation Document (i.e. engineering drawing) as noted herein.

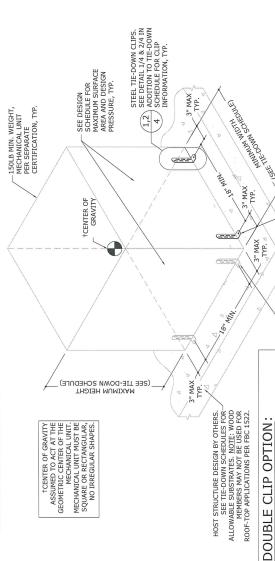
All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in this product's respective anchor schedule. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer.

All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times.

This product has been designed for use within the High Velocity Hurricane Zone (HVHZ).

BMP INTERNAT

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



GENERAL NOTES

William A Think *

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- THIS PRODUCT HAS BEEN DESIGNED AND SHALL BE FABRICACTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 FLORIDA BUILDING CODE FOR USE WITH ASCE 7-10. THIS PRODUCT MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURBICANE

TOO SWITCH AVENUE, #1065

EXPRESS & ENGINEERING

- 5
- 9
 - 8

FLORIDA STATEWIDE APPROVAL

MECHANICAL UNIT STEEL TIE-DOWN CLIPS PH: (727) 577-1613

4710 28TH STREET NORTH ST. PETERSBURG, FL 33471

BMP INTERNATIONAL

- 10.
- 11.

UTILIZE (1) CLIP* AT EACH CORNER

AS SHOWN WITH 3" MAX OFFSET FROM END OF MECHANICAL UNIT

14.

2. NO 33-4,799. INCREAGE IN ALLOWABLE STRESS HAS BERN USED IN THE DESIGN OF THIS SYSTEM.

3. DESIGN IS BASED ON CLIENT PROVIDED PRODUCT AND DIE SHEETS FROM TEST FREDRY STEEL 0.1370/3870, #THE DESIGN OF THIS SYSTEM.

4. ALLOWABLE DESIGN PRESSURES TO QUALITY CAPACITY OF CLIPS AS LISTED HEREIN ARE DETENTINGEN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE PERFORMED.

5. REQUIRED LAND HE DESIGN PRESSURES OF THIS THIS ENGINER SHALL BE PERMITTED.

6. ALLOWABLE DESIGN WITHOUT WRITTEN A PRODUCT AND DIE SHEETS FROM TEST FROM TEST FROM THE SYSTEM SHALL BE DETERMINED THE OLD ALL STEEL BENEAM AND FOW UPILITY DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED OF OTHERS ON A SITE-SPECIFIC BASIS IN ANXION WE MINIMUM DIMENSIONS AND MINIMUM WEIGHT OF MECHANICAL UNIT SHALL BE TOWN THE CONFORM TO SPECIFIC TOWN STATED HERBIN. ALL MICHARD STATED HERBIN. ALL MICHARD STATED HERBIN.

5. ACSTENCES TO BE #12 X ¾* OR GREATES SAE GRADE 5 UNLESS NOTED OTHERWISE.

6. ALL STEEL CLIPS SHALL BE ASTED HERBIN. ALL MINIMUM ASTED OF MECHANICAL SPECIFICATIONS STATED HERBIN. ALL MOTHER ASTED WITH THE TOWN THE ASTED WITH TH

REN FOR UNITS

11-BMP-0001 SCALE: N.T.S. 704



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SEE SHEET 4 FOR A SITE-SPECIFIC DESIGN PRESSURE EXAMPLE & ACCOMPANYING UNIT CONFIGURATIONS WITH TIE-DOWN CLIP REQUIREMENTS.

DESIGN PRESSURE EXAMPLE SCENARIO

AT GRADE AS VERIFIED BY OTHERS

(THE FOLLOWING EXAMPLE ILLUSTRATES THE PROCEDURE USED TO DETERMINE THE MAXIMUM ALLOWABLE WIND PRESSURE FOR ANY GIVEN MECHANICAL UNIT THAT CONFORMS TO THE DIMENSION RESTRICTIONS LISTED HEREIN. SEE SHEETS 28.3 FOR TIE-DOWN SCHEDULES.)

E-DOWN CLIP DIRECTIVE EXAMPLE

MECHANICAL UNIT CRITERIA:
CONSIDER THE INSTALTATION OF (1) WECHANICAL UNIT WITH THE FOLLOWING CRITERIA
36" TALE, 36" DEEP X-24 "WIDE IS 10 LB WEIGHANICAL UNIT WITH THE FOLLOWING CRITERIA
36" TALE, 36" DEEP X-24 "WIDE IS 10 LB WEIGHANICAL ON ON CHETES, INSTALLED TO 3132 KSI MIN. CONCRETE
36" TALE, 36" DEEP X-24" WIDE IS 10 LB WEIGHANICAL ON ON CHETES, INSTALLED TO 3132 KSI MIN. CONCRETE

PROCEDURE STEP

PROCEDURE

*FOR CLARITY, THIS ISOMETRIC ONLY SHOWS 1" CLIPS. THE ISOMETRIC LAYOUT IS TYPICAL FOR BOTH 1" AND 2" CLIP APPLICATIONS.

TIE-DOWN ISOMETRIC

 \vdash

MECHANICAL UNIT

(2) TOTAL CLIPS MAY BE USED AT EACH CORNER (ONE EACH ON OPPOSING CORNER FACES, 3" FROM CORNER FABEY, 10TAL OF (8) CLIPS FER UNIT FOR THIS OPTION). EACH CLIP SHALL NOT EXCEED 3" MAX OFFEST FROM FILO OF MECHANICAL UNIT AS DETAILED HEREIN. DO NOT SPACE CONCRETE ANCHORS CLOSER THAN THE ALLOWED SPACING LISTED IN THE TIE-DOWN ANCHOR SCHEDULES. SEE SHEETS 28.3 FOR MORE

	LOCATE THE AT GRADE TIE-DOWN SCHEDULE ON SHEET 2 AND SELECT CLIP TYPE	CONSIDER 1" STEEL CLIP
2	DETERMINE LARGEST FACE AREA OF MECHANICAL UNIT TO BE INSTALLED	36"x36"=9FT²
m	CHECK MAXIMUM UNIT HEIGHT RESTRICTION	UNIT HEIGHT IS 36" WHICH IS LESS THAN THE MAXIMUM ALLOWABLE HEIGHT OF 48"
4	CHECK MINIMUM UNIT WIDTH RESTRICTION	UNIT WIDTH IS 24" WHICH IS EQUIVALENT TO THE MINIMUM ALLOWABLE WIDTH OF 24"
2	DETERMINE THE NUMBER OF CLIPS TO BE USED AT EACH CORNER OF THE MECHANICAL UNIT	CONSIDER (1) CLIP AT EACH CORNER, INSTALLED TO CONCRETE SUBSTRATE

40PSF

FRANK L. BENNARDO, P.E., INC. JANGA/ATION DEERTELD BEACH, EL 254 Ph. (954) 354-0660 Fw. (954) 1034-025 DEERT OF ALL 1035 TO ALL 103 TATEOF EXPRESES:

FLORIDA STATEWIDE APPROVAL

MECHANICAL UNIT STEEL TIE-DOWN CLIPS

ST. PETERSBURG, FL 33471 PH: (727) 577-1613

4710 28TH STREET NORTH BMP INTERNATIONAL, INC.

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	UNIT)++	WOOD SCREW TO WOOD			123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	48 PSF	38 PSF	32 PSF	26 PSF
	OTAL OF 8 CLIPS PER	SHEET METAL SCREW TO STEEL			123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	49 PSF	39 PSF	33 PSF	27 PSF
	IPS AT EACH SIDE (T	SHEET METAL SCREW TO ALUMINUM			123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	49 PSF	39 PSF	33 PSF	27 PSF
	(4) CI	TAPCON TO CONCRETE			123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	49 PSF	39 PSF	33 PSF	27 PSF
RUCTURE)	П)	WOOD SCREW TO WOOD	81 PSF	60 PSF	170 PSF	113 PSF	75 PSF	56 PSF	42 PSF	52 PSF	42 PSF	35 PSF	29 PSF
E (ANCHOR TO HOST ST	TOTAL OF 8 CLIPS PER UN	SHEET METAL SCREW TO STEEL	81 PSF	60 PSF	170 PSF	113 PSF	75 PSF	56 PSF	42 PSF	55 PSF	44 PSF	37 PSF	30 PSF
TERAL WIND PRESSUR	CLIPS AT EACH CORNER (SHEET METAL SCREW TO ALUMINUM	81 PSF	60 PSF	170 PSF	113 PSF	75 PSF	56 PSF	42 PSF	55 PSF	44 PSF	37 PSF	30 PSF
CIMUM ALLOWABLE LA	(2) (TAPCON TO CONCRETE	81 PSF	60 PSF	170 PSF	113 PSF	75 PSF	56 PSF	42 PSF	55 PSF	44 PSF	37 PSF	30 PSF
MAX		WOOD SCREW TO WOOD	43 PSF	32 PSF	90 PSF	60 PSF	40 PSF	30 PSF		27 PSF			
			43 PSF	32 PSF	90 PSF	60 PSF	40 PSF	30 PSF		29 PSF			
	LIP AT EACH CORNER (TC	SHEET METAL SCREW TO ALUMINUM	43 PSF	32 PSF	90 PSF	60 PSF	40 PSF	30 PSF		29 PSF			
	0(1)	TAPCON TO CONCRETE	43 PSF	32 PSF	90 PSF	950 DSF	(40 PSF)	30 PSF		29 PSF			
		NIT WIDTH	12 " MIN	15 " MIN			24 " MIN		12		22	48 " MIN	M)
		UNIT HEIGHT U		Т								60 " MAX	
	MAYTMIIM SIIDEACE	AREA OF UNITS LARGEST FACE	6 FT2	9 FT2	4 FT2	6 617	0 112	17 17	16 FT2	20 FT2	25 673	30 FT2	36 FT2
	MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)	(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER LINIT)	FOR THE CONTROL TO CONCRETE ONITY TACKON TO	UNIT WITH TACON TO CONCRET SHEET METAL SCREW WOOD SCREW TO TACON TO CONCRET SHEET METAL SCREW WOOD SCREW TO TACON TO CONCRET SHEET METAL SCREW WOOD SCREW TO TACON TO CONCRET SHEET METAL SCREW WOOD SCREW TO TACON TO CONCRET SHEET METAL SHEET METAL SCREW TO TACON TO CONCRET SCREW TO TACON TO CONCRET	UNIT WITH WIDTH CHOCKER CHOC	UNIT WITH THE GRAFT (1) CLIP AT EACH CORNER (TOTAL OF A CLIPS FER UNIT) TACON TO CONCRET CHORD TESTINGTHURB) (4) CLIPS AT EACH STDE (TOTAL OF A CLIPS FER UNIT) TACON TO CONCRET CHORD TESTINGTHURB) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) TACON TO CONCRET TACON T	MINITAL MINI	UNIT WITH THE GRAMM (1) CILP AT EACH CORNER (TOTAL OF A CLIPS FER UNIT) MAXTMUN ALLOWABLE LATERAL (ANGHORT) (AND PRESSURE (ANGHORT) (AND PRESSURE (ANGHORT) (ANGHORT)) (4) CLIPS AT EACH STORT (OR CLIPS FER UNIT) 24" MAX 12" MIN WITH THE GRAMM SHEET NETALL SCREW (ANGHORT) NOOD SCREW 10 (ANGHORT) TACON TO CONCRET SHEET NETALL SCREW (ANGHORT) SHEET NETALL SHEET (ANGHORT) SHEET NETALL SHEET NETALL SHEET NETALL SHEET NETALL SCREW (ANGHORT) SHEET NETALL SHEET SHEET SHEET NETALL SHEET NETALL SHEET SHEET SHEET SHEE	MATINIUM ALLOWABLE MATERIAL STORM CONCRETE TAPCON TO CONCRETE TA	UNIT UNIT UNIT (1) CLIP AT EACH CONNER (TOTAL OF A CLIPS FRE UNIT) TAXADUM ALLOWABLE LATERAL (ANCHAR) (ANCHAR) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FRE UNIT) ANXINIMA SHEET NETALL SCREW TO ALLOWABLE (TOTAL OF B CLIPS FRE UNIT) ANDITIONAL OF B CLIPS FRE UNIT) ANDIT OF B CLIPS FRE UNIT)	UNIT WIDTH TAPCON TO CONCRETE TAPCON TO CONCR	UNIT UNIT UNIT (1) CLIP AT EACH CORNER (TOTAL OF A CLIPS FER UNIT) TAXATIVINA ALLOWABLE MATERIAL (ANORHRO PRESSIONER) (4) CLIPS AT EACH STDE (TOTAL OF A CLIPS FER UNIT) MAXTIVINA ALLOWABLE MATERIAL (ANORHRO TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (4) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (5) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (5) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (5) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (6) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (7) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (8) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (8) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (8) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (8) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (8) CLIPS AT EACH STDE (TOTAL OF B CLIPS FER UNIT) (9) CLIPS AT EACH STDE (TOTAL OF B CL	UNIT WIDTH CHOCKERE CHOCKER

1" STEEL CLIP TIE-DOWN SCHEDULE: AT GRADE INSTALLATIONS:

TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS OR (2)- %"0'8 SAE GRADE 5 SHEET METAL SCREWS. [NOTE: FOR LONGER CLIPS UTILIZE (5)-#12 SAS OR (4)-%"0'8 SMS].

INCHANIACLA HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH FY=30 KSI, 0.125" MIN. THICKNESS.

2. STEEL HOUSING UNITS SHALL BE 352 MIN. STEEL, GARDE 3.2 SAG MIN. (40-0.0299").

MAXINUM ALLOWABLE WIND PRESSURES OR EACH INDIVIDUAL SUBSTRATE MAY BE CQUIVALENT DUE TO THE LIMITING CAPACITY OF THE 1" CLIP.

A MAXINUM ALLOWABLE WIND PRESSURES OR EACH INDIVIDUAL SUBSTRATE MAY BE FOUNTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING. 2. ME 2.1. 2.2.

ANCHOR SCHEDULE

_				
ANCHOR	(1)- $\%$ orrdon steel itw buildex tapcon, 1 $\%$ full embed to concrete, 2 $\%$ min. Edge distance, 3" min. Spacing to any adjacent anchor.	ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM) PAST THREAD PLANE FOR SHEET METAL SCREW.	(1)-#14 SAE GRADE S SHEET METAL SCREW TO STEEL, PROVIDE (5) PINCHES MIN. PAST THREAD PLANE FOR SHEET METAL SCREW.	SEALED WOOD: (1)-#14 SAE GRADE 5 WOOD SCREW TO WOOD MEMBER, PROVIDE 1 ½" MIN. THREAD (SOUTHERN YELLOW PINE, G=0.55 OR BETTER) PENETRATION, 1" MIN. EDGE DISTANCE, 1" MIN. END DISTANCE.
SUBSTRATE	CONCRETE: (4" THICK MIN, 3192KSI MIN.)	(0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	SEALED WOOD: (SOUTHERN YELLOW PINE, G=0.55 OR BETTER)

EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE. ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE. ANCHOR SCHEDULE NOTES

-DENOTES EXAMPLE VALUE FOR USE WITH COVER PAGE DIRECTIVE -SEE ALTERNATE CLIP DETAIL 5/4 ON SHEET -DENOTES VALUES NOT APPROVED FOR USE TABLE LEGEND: +

2" STEEL CLIP TIE-DOWN SCHEDULE: AT GRADE INSTALLATIONS:

						MA	KTMIIM ALLOWABLE LA	TERAL WIND PRESSUR	MAXIMIM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)	RUCTURE)				
MANTMIM CHDEACE			2(1)	(1) CLIP AT EACH CORNER (T	(TOTAL OF 4 CLIPS PER UNIT		(2)	CLIPS AT EACH CORNER ((2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)	ш)	(4) CLIP	S AT EACH SIDE (TO	(4) CLIPS AT EACH SIDE (TOTAL OF 8 CLIPS PER UNIT) ##	III)††
AREA OF UNITS LARGEST FACE	UNIT	UNIT WIDTH	TAPCON TO CONCRETE		SHEET METAL SCREW TO STEEL	WOOD SCREW TO WOOD	TAPCON TO CONCRETE	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	WOOD SCREW TO WOOD	TAPCON TO CONCRETE	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	WOOD SCREW TO WOOD
6 FT2	24 " MAX	12 " MIN	43 PSF	73 PSF	73 PSF	73 PSF	81 PSF	141 PSF	141 PSF	141 PSF	VIIIIIIIIIIIIII			
9 FT2	32 " MAX	15 " MIN	32 PSF	53 PSF	53 PSF	53 PSF	60 PSF	103 PSF	103 PSF	103 PSF		43 PSF	43 PSF	43 PSF
4 672			90 PSF	147 PSF	147 PSF	147 PSF	170 PSF	200 PSF	200 PSF	200 PSF	123 PSF	200 PSF	200 PSF	200 PSF
6 6 6 7 2			60 PSF	98 PSF	98 PSF	98 PSF	113 PSF	191 PSF	191 PSF	191 PSF	82 PSF	142 PSF	142 PSF	142 PSF
0 617	48 " MAX	24 " MIN	40 PSF	65 PSF	65 PSF	65 PSF	75 PSF	127 PSF	127 PSF	127 PSF	54 PSF	94 PSF	94 PSF	94 PSF
12 FT2	2		30 PSF	49 PSF	49 PSF	49 PSF	56 PSF	95 PSF	95 PSF	95 PSF	41 PSF	71 PSF	71 PSF	71 PSF
16 FT2				36 PSF	36 PSF	36 PSF	42 PSF	71 PSF	71 PSF	71 PSF	30 PSF	53 PSF	53 PSF	53 PSF
20 ET2			29 PSF	44 PSF	44 PSF	44 PSF	55 PSF	86 PSF	86 PSF	86 PSF	49 PSF	79 PSF	79 PSF	79 PSF
25 872	,			35 PSF	35 PSF	35 PSF	44 PSF	69 PSF	69 PSF	4SH 69	39 PSF	63 PSF	63 PSF	63 PSF
30 FT2	- 60 " MAX	48 " MIN		29 PSF	29 PSF	29 PSF	37 PSF	57 PSF	57 PSF	57 PSF	33 PSF	52 PSF	52 PSF	52 PSF
36 FT2							30 PSF	48 PSF	48 PSF	48 PSF	27 PSF	43 PSF	43 PSF	43 PSF

36"Ø SAE GRADE 5 SHEET METAL SCREWS. [NOTE: FOR LONGER CLIPS UTILIZE TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS OR (2)- 3% SAE GRADE 5 SHEET ME (5)-#12 SAE (4)-8% OS 95SI.

MECHALISML BOX (4)-8% OS 95SI.

ALMINIUM HOUSING UNIT SHALL BE 663-76 MIN, ALUMIUMS SHEET WITH FY=30 KSI, 0.125" MIN, THICKNESS.

AMAZIMUM HOUSING UNITS SHALL BE 38KS MIN, STEEL, GRADE 33, 2.26A MIN, (1-0.0.299").

AMAZIMUM ALLOWABLE VALUE OF 200 PSF HAS BEEN UTILIZED; FOR HIGHER EDMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

ANCHOR SCHEDULE

EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE.
 ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE.

ANCHOR SCHEDULE NOTES:

-SEE ALTERNATE CLIP DETAIL 5/4 ON SHEET 4

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-DENOTES VALUES NOT APPROVED FOR USE

TABLE LEGEND:

FLORIDA STATEWIDE APPROVAL

MECHANICAL UNIT STEEL TIE-DOWN CLIPS

PH: (727) 577-1613 ST. PETERSBURG, FL 33471 4710 28TH STREET NORTH BMP INTERNATIONAL,

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SCALE: N.T.S. UT
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> TAPCON TO CONCRETE 33 PSF 37 PSF 20 PSF 33 PSF 20 PSF 33 PSF 36 PSF SHEET METAL SCREW TO STEEL SHEET METAL SCREW TO ALUMINUM 54 PSF 40 PSF 1113 PSF 75 PSF 50 PSF 37 PSF 28 PSF 36 PSF 28 PSF 29 PSF TAPCON TO CONCRETE 54 PSF 40 PSF 13 PSF 75 PSF 50 PSF 37 PSF 28 PSF 28 PSF 29 PSF SHEET METAL SCREW TO STEEL 61 PSF 41 PSF 27 PSF SHEET METAL SCREW TO ALUMINUM TAPCON TO CONCRETE 61 PSF 41 PSF 27 PSF 30 PSF WIDTH 24 " MAX MIN 48 " LINO MAX 48 " MAX 60 " MAX UNIT 24 " MAXIMUM SURFACE AREA OF UNITS LARGEST FACE

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83 PSF 55 PSF 37 PSF 27 PSF 33 PSF 26 PSF

83 PSF 55 PSF 37 PSF 20 PSF 33 PSF 26 PSF

SCREW TO STEEL

SHEET METAL SCREW TO ALUMINUM

(4) CLIPS AT EACH SIDE (TOTAL OF 8 CLIPS PER UNIT)++

MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)
(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)

CLIP TIE-DOWN SCHEDULE: ROOF-TOP MOUNTED INSTALLATIONS

STEEL (

(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)

ADDITIONAL ALLOWABLE UPLIFT: 90 LBS/CLIP

(DESIGN TABLE ACCOMMODATES MAX 90LB/CLIP AS ADDITIONAL UPLIFT IN COMBINATION WITH UNLIFT CAUSED BY OVERTURNING FROM LATERAL POECES: SEE ASCE 7-10 SECTION 29.5 FOR MODE INFORMATION.)

ALLOWABLE UPLIFT PER UNIT IS BASED ON THE NUMBER OF CLIPS UTILIZED x 90LB/CLIP

(REQUIRED UPLIFT DEMAND SHALL BE DETERMINED ON A SITE SPECIFIC BASIS BY LICENSED ENGINEER ON REGISTERED ARCHITECT; NOT INCLUDED IN THIS CERTIFICATION) =360LB EXAMPLE: 4 CLIPS x 90 LB/CLIP

(1)-4,00 CARBON STEEL ITW BUILDEX TAPCON, 1 %" FULL EMBED TO CONCRETE, 2 %" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.

(1)-#14 SAE GRADE S SHEET METAL SCREW TO STEEL, PROVIDE (5) PINCHES MIN. PAST THREAD PLANE FOR SHEET METAL SCREW. (1)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) PINCHES MIN. PAST THREAD PLANE FOR SHEET METAL SCREW.

TABLE LEGEND:

-SEE ALTERNATE CLIP DETAIL 5/4 ON SHEET 4 -DENOTES VALUES NOT APPROVED FOR USE ++

SHEET METAL SCREW TO ALUMINUM

TAPCON TO CONCRETE

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SHALL CONTROL RACIPOLATORS
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ARSIDE LEGITION TO REWAIT
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SHEET METAL SCREW TO STEEL (4) CLIPS AT EACH SIDE (TOTAL OF 8 CLIPS PER UNIT)++

ADDITIONAL ALLOWABLE UPLIFT: 90 LBS/CLIP

(DESIGN TABLE ACCOMMODATES MAX 90LB/CLIP AS ADDITIONAL UPLIFT IN COMBINATION WITH UPLIFT CAUSED BY OVERTURNING FROM LATERAL FORCES. SEE 65CE 7-10 SECTION 29.5 FOR MORE INFORMATION.) =360LB ALLOWABLE UPLIFT PER UNIT IS BASED ON THE NUMBER OF CLIPS UTILIZED x 90LB/CLIP EXAMPLE: 4 CLIPS x 90 LB/CLIP

(REQUIRED UPLIFT DEWAND SHALL BE DETERMINED ON A SITE SPECIFIC BASIS BY LICENSED ENGINEER OR REGISTERED ARCHITECT; NOT INCLUDED IN THIS CERTIFICATION)

ES NOT APPROVED FOR USE CLIP DETAIL 5/4 ON SHEET 4

33 PSF 55 PSF 37 PSF 20 PSF 26 PSF 117 PSF 85 PSF 200 PSF 158 PSF 105 PSF 79 PSF 59 PSF 71 PSF 57 PSF 47 PSF 39 PSF

-SEE ALTERNATE C	++
-DENOTES VALUES	

TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS OR (2)- %"y SAE GRADE 5 SHEET METAL SCREWS (NOT SCREWS). MECHANICAL HOUSING UNIT SHALL GOOFGRAN TO THE FOLLOWING: A LAUMINUM HOUSING UNITS SHALL BE GROOF TO MILL ALUMINUM SHEET WHITH FRy-a? KSI, 0,125" MIN. THICKNESS. STEEL HOUSING UNITS SHALL BE 33KST MIN. STEEL, GRADE 33, 22. STEEL HOUSING UNITS SHALL BE 33KST MIN. STEEL, GRADE 33, 22. STEEL HOUSING UNITS SHALL BE 33KST MIN. STEEL, GRADE 33, 22. STEEL HOUSING UNITS SHALL BE 33KST MIN. STEEL, GRADE 33, 22. STEEL HOUSING UNITS SHALL BE 33KST MIN. STEEL, GRADE 33, 22. STEEL MIN. THICKNESS. MAXIMUM ALLOWABLE WIND PRESSURES FOR EACH INDIVIDIDAL SUBSTRATE MAY BE EQUIVALENT DIE TO THE LIMITING CAPACITY OF THE 1" CLIP. BANKING MALLOWABLE WIND PRESSURES FOR EACH INDIVIDIDAL SUBSTRATE MAY BE EQUIVALENT THIS ENGINEER FOR SITE-SPECIFIC ROGINEERING. EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE. ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE. ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM) ANCHOR SCHEDULE: (0.125" MIN. THICK, 33 KSI MIN. STEEL) CONCRETE: (4" THICK MIN, 3192KSI MIN.) MAXIMUM SURFACE AREA OF UNITS 2. ME 2.1. 2.2. 3. MA

MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)
(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT) STEEL CLIP TIE-DOWN SCHEDULE: ROOF-TOP MOUNTED INSTALLATIONS:

(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)

4		777	777	_	_	_	_	_	_		777	777.			١.	0 A M		⊔	₹ ŏ	ARF		
The same of the sa	SHEET METAL SCREW TO STEEL	117 PSF	85 PSF	200 PSF	158 PSF	105 PSF	79 PSF	59 PSF	71 PSF	57 PSF	47 PSF	39 PSF		ADD	j	(DESIG COMBIN FORCES	ALL	=	EXAI	ON A OR RU	TABLE	VIIIII.
SHEET METAL SCREW SHEET METAL SCREW	SHEET METAL SCREW TO ALUMINUM	117 PSF	85 PSF	200 PSF	158 PSF	105 PSF	79 PSF	59 PSF	71 PSF	57 PSF	47 PSF	39 PSF	.(2)- %"Ø SAE			 STEEL HOUSING UNITS SHALL BE 33KS1 MIN. STEEL, GRADE 33, 22GA MIN. (I=0.0239') A MAXIMIM ALLOWABLE VALUE OF 200 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING. 			1)-¼"Ø CARBON STEEL ITW BUILDEX TAPCON, 1 ¾" FULL EMBED TO CONCRETE, 2 ½" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) PINCHES MIN. PAST THREAD PLANE FOR SHEET METAL SCREW.	N. PAST	
	TAPCON TO CONCRETE	54 PSF	40 PSF	113 PSF	75 PSF	50 PSF	37 PSF	28 PSF	36 PSF	29 PSF			EET METAL SCREWS OR	IN. THICKNESS.							(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) PINCHES MIN. PAST THREAD PLANE FOR SHEET METAL SCREW.	
	SHEET METAL SCREW TO STEEL	61 PSF	44 PSF	123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	36 PSF	29 PSF		36 FT2 TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING WITT WITH (3)#12 SAG GRADE S SHEET METAL SCREWS OR (2)- STREED WING SHEET METAL SCREWS, [NOTE: FOR LONGING CLIPS JUTILIZE (5)#12 SAG GRADE S SHEET METAL SCREWS, [NOTE: FOR LONGING CLIPS JUTILIZE (5)#12 SNS OR (4)- %0 SNS].	-Fv-30 VCI 0 125" MI	-0.0200")	=0.0299°) :MAND CAPACITIES CON		ANCHOR	(1)-¼"Ø CARBON STEEL ITW BUILDEX TAPCON, 1 ¾" FULL EMBE EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.	SCREW TO ALUMINUM, TAL SCREW.	SCREW TO STEEL, PRO		
	SHEET METAL SCREW TO ALUMINUM	61 PSF	44 PSF	123 PSF	82 PSF	54 PSF	41 PSF	30 PSF	36 PSF	29 PSF			TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SI GRADE 5 SHEET METAL SCREWS. [NOTE: FOR LONGER CLIPS UTILIZE (5)-#12 SMS OR (4)- ¾"Ø SMS]	WING:	ALUMINUM HOUSING UNITS SHALL BE 6663-T6 MIN. ALUMINUM SHEET WITH FYE-33 SKSI, 0.125" MIN. THICKNESS.	TEEL HOUSING UNITS SHAIL BE 35KS1 MIN. SIEEL, GRADE 35, ZAGA MIN. (R=0.0299°) AXXIMUM ALLOWARLE VALUE OF 200 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CA E-SPECIFIC ENGINEERING.			STEEL ITW BUILDEX , 3" MIN. SPACING TC	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO PAST THREAD PLANE FOR SHEET METAL SCREW	(2)-#14 SAE GRADE 5 SHEET METAL SCRE THREAD PLANE FOR SHEET METAL SCREW	
	TAPCON TO CONCRETE	30 PSF		61 PSF	41 PSF	27 PSF							D MECHANICAL HOU: FOR LONGER CLIPS	MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:	COOS-10 MIN. ALO	NSI MIN. STEEL, GRA			(1)-1/4"Ø CARBON EDGE DISTANCE,		(2)-#14 SAE GR THREAD PLANE	
UNIT WIDTH TA		12 " MIN	15 " MIN ///			24 " MAX					48 " MAX		FASTENED TO REWS. [NOTE:	IT SHALL CON	MILE STALL D	S SHALL BE 33K /ALUE OF 200 P ING.	EDULE:	ш	(SI MIN.)	MIN. ALUMINUM	I MIN. STEEL)	
-	HEIGHT	12 " MAX	24 " MAX	48 " MAX							60 " MAX		IPS SHALL BE T METAL SCR	HOUSING UN	DAILE OUT	JSING UNITS LLOWABLE VA ENGINEERIN	SCHE	SUBSTRATE	CONCRETE: (4" THICK MIN, 3192KSI MIN.)	ALUMINUM: CK, 6061-T6 P	STEEL: HICK, 33 KSI	
MAXIM SURFACE	AREA OF UNITS LARGEST FACE	6 H2	9 FT2	4 FT2	6 FT2	9 FT2	12 FT2	16 FT2	20 FT2	25 FT2	30 FT2	36 FT2	1. TIE-DOWN CLI GRADE 5 SHEE	2. MECHANICAL H	Z.I. ALUMINUM	3. A MAXIMUM ALLOWABLE VALU SITE-SPECIFIC ENGINEERING	ANCHOR SCHEDULE:		(4" THICK	ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	
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EMBEDMENT AND EDGE DISTANCE EXCLUDES FINISHES, IF APPLICABLE. ENSURE MINIMUM EDGE DISTANCE AS NOTED IN ANCHOR SCHEDULE.

