City of Belle Isle

Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

PERMIT CARD – PLEASE POST AT JOB SITE

THIS DOCUMENT BECOMES YOUR PERMIT WHEN PROPERLY VALIDATED

Per FBC 105.3.3: An enforcing authority may not issue a building permit for any building construction, erection, alteration, modification, repair or addition unless the permit either includes on its face or there is attached to the permit the following statement: "**NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies**." The issuance of this permit does not grant permission to violate any applicable City, Orange County, State of Florida and/or Federal codes and/or ordinances. Separate permits are required for Signs, Roofing, Electrical, Gas, Plumbing and Mechanical services. This permit becomes VOID if the work authorized is not commenced within 6 months, or is suspended or abandoned for a period of 6 months after commencement. WORK SHALL BE CONSIDERED SUSPENDED IF AN APPROVED INSPECTION HAS NOT BEEN MADE WITHIN A 6 MONTH PERIOD. PERMISSION IS GRANTED TO DO THE FOLLOWING WORK ACCORDING TO THE CONDITIONS HEREON AND THE APPROVED PLANS AND SPECIFICATIONS, SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF BELLE ISLE, FLORIDA.

Scope of Work: MECHANICAL: 2 A/C units 5 ton and 1.50 ton

Comments: None

Project Information
Address: 1508 Conway Isle Circle, Belle Isle, FL 32809
Parcel ID: 24-23-29-3490-00-500
Property Owner: Kayali, Fares and Lamis
Phone Number: None

****

Company Name: Del Air Heating and A/C
Contractor Name: DelloRusso, Robert
License Number: CAC032448
Address: 531 Codisco Way Sanford, FL 32771
Phone Number: 407-935-9904

Permit Number: 2014-07-046

Date of Application: 07/22/2014
Date Permit Issued: 08/01/2014

WARNING TO OWNER: "YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT." ON THE JOB INSPECTION(S) MUST BE MADE BEFORE PROCEEDING WITH SUBSEQUENT WORK. THIS CARD MUST BE DISPLAYED OUTSIDE AND BE PROTECTED FROM THE WEATHER WHILE BEING VISIBLE FROM THE STREET UNTIL THE FINAL INSPECTIONS HAVE BEEN APPROVED.

BUILDING FEATURES

IMPACT FEES
Traffic $
School $

ZONING FEES
Zoning Fee $

UNIVERSAL ENG - BUILDING FEES

Boat Dock	$
Boat House	$
Building	$
Demo	$
Door(s)	$
Driveway	$
Electrical	$
Fence	$
Gas	$
Irrigation	$
Low Voltage	$
Mechanical	$543.00
Plumbing	$
Pool	$
Roofing	$
Screen Encl	$
Shed	$
Temp Pole	$
Window(s)	$

SURCHARGE FEES

Surcharge Fee	$8.15
Surcharge Fee	$8.15

TOTAL FEES $559.30

Date Paid 8-14-14
CC or Check # AMEX 2003
Amount Paid $559.30

The person accepting this permit shall conform to the terms of the application on file and construction shall conform to the requirements of the Florida Building Code (FS 553).

BUILDING INSPECTOR USE ONLY

IF APPLICABLE:
Have Zoning Approval Conditions Been Met? YES NO **Have Stormwater Approval Conditions Been Met?** YES NO **Silt fencing in place?** YES NO **Turbidity Barrier in place?** YES NO

BUILDING
1st _____ (Footing/Foundation)
Survey specific foundation plan must be onsite before slab pour. Approved Plan on Site? ____
2nd _____ (Slab)
3rd _____ (Lintel)(Wall Reinforcing on Masonry Building)
4th _____ (Exterior Framing)(Roof/Wall Sheathing)
5th _____ (Framing) (To be made after Plumbing/ Mechanical/ Electrical Rough-Ins & Windows/Doors Installed)
6th _____ (Insulation to be Made After Roof Installed)
7th _____ (Drywall)
8th _____ (Sidewalk/Driveway)
9th _____ (Other)
10th _____ (Final – After MEP and Other Applicable Finals)

ROOFING **OSHA APPROVED ACCESS MUST BE MADE AVAILABLE TO INSPECTOR**
1ST ROOFING Deck Nailing/Dry-in/Flashing _____
2nd ROOFING Covering In-Progress _____
3rd ROOFING Covering Final _____

PLUMBING (Pool-Piping, Solar, Irrigation, Water Treatment Equip, Etc...)
1ST _____ (Underground) 2nd _____ (Sewer)
3rd _____ (Rough-In/Tub Set) 4th _____ (Final)

CHECK APPROPRIATE BOX
GAS __**Natural** ___**LP** ☐ **MECHANICAL** ☐**ELECTRICAL** ☐ **LOW VOLTAGE**
1st _____ (Rough-In) 2nd _____ (Final)

Inspection requests are to be emailed to BIDscheduling@UniversalEngineering.com; a confirmation email will be sent back to you upon scheduling. Next-Day Inspection requests must be made by 1pm. Please include the following in your request: Permit #, project address, type of inspection, date of the requested inspection, a contact name & a contact phone number. AM or PM may be requested but cannot be guaranteed.

For a copy of your permit, or to check inspection results, please visit https://universalengineering.sharefile.com/f/fo94edc4-832d-44bd-9809-ecf32f9e2e63
login ID = cobi@universalengineering.com password = universal13

PROJECT NUMBER 0115.1400218.0000

TASK NUMBER 05

CITY OF BELLE ISLE

Permit Application Review Sheet

Permit Number	2014-07-046
Property Owner	Design Tec
Address	1508 Conway Isle Cir
Nature of Improvement	Mechanical
Received Application	7-22-14
Sent for Stormwater Review	
Stormwater Approved	1
Sent for Zoning Review	
Zoning Approved	1
Applied for Variance	
Variance Approved	1
Sent to BO for Review	7-23-14 wo39569
Building Official Approved	8-01-2014

Comments	
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

COBI Permit Fee Calculation Form

Reviewer Signature: AP. Date: 8-01-2014

Permit Type: _____ Job Cost: $ 12,135.64

Permit Fee: $ 362.00

Plans Review Fee: $ 181.00 (50% of permit fee – excluding ReRoofs)

1.5% State Fee: $ 8.15

1.5% State Fee: $ 8.15

TOTAL BUILDING FEE: $ 559.30 (does not include Zoning fees or Deposits)

Note: Total gets doubled for SWO/AFT permits

73 + ($12 X 4) = 73 + 48 = $121

$121 X 2 (Condenser + Air handler) = $242 } units

12 X $10 = $120 > DUCT WORK

242 + 120 = $362

362 + 181 = $543

362 X 50% = $181 (Review)

543 X 1.5% (2) = 8.15 (2) = $16.30

received 7-22-14

City of Belle Isle

Universal Engineering Sciences 3532 Maggie Blvd., Orlando, FL 32811
Tel 407-581-8161 * Fax 407-581-0313 * www.universalengineering.com

APPLICATION FOR MECHANICAL PERMIT

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

DATE OF APPLICATION: 7/22/14 **PERMIT NUMBER** 2014-07-046

PLEASE PRINT. The undersigned hereby applies for a permit to make installations as indicated below:

Project Address 1508 Conway Isle Circle Belle Isle FL 32809 32812
Property Owner DeSign Pro Phone 407-620-5194
Property Owner's Mailing Address 4590 Tigua Island Ct City Winter Park,
State FL Zip Code 32792 **Parcel Id Number:**
To obtain this information, please visit http://www.ocpafl.org/Searches/ParcelSearch.aspx

Class of Building: Old ☑ New ☑ **Type of Building:** Residential ☑ Commercial ☐ Other ☐
Type of Work: New ☑ Alteration ☐ Addition ☐ Repair ☐

- **REQUIRED certified Tie Down Engineering documentation (can be found at www.floridabuilding.org)**
- **REQUIRED: if adding A/C to new space, provide Energy Calculations & Equipment Sizing Calculations**
- **REQUIRED: if replacing unit with no duct work, Duct Certification as per FB 101.4.7.1, must be posted on unit**

Please indicate the nature of work by completing the information below:

Air Conditioning: # of Units 2 Tons Per Unit 1 - 5.00 1 - 1.50 Total Tons 6.50
Type of System: Water to Air ____ Chiller ✓ Split System ____ Package ✓ Heat Pump ____ Estimated Cost $ ____

Heating: # of Units KWS Per Unit 2 Total KWS 1 - 8.00 1 - 5.00 BTU's ____ Estimated Cost $ ____
Oil ____ Electric ____ Boiler ____ Gas ____

(A) Estimated Cost Fee $____

Fees for items below are based on valuation of all units, equipment, materials and labor supplied by owner or contractor.

Ventilation:
(Number of) Grease ____ Heat 2 Hoods, Air Intakes 6 Exhaust Fans 1 Dryer Vents ____ Estimated Cost $ ____

Refrigeration: Number of units ____ Estimated Cost $ 12,135.64

Piping: Air ____ Vacuum ____ Steam ____ Chill Water ____ Estimated Cost $ ____

Others: (Specify) ____ Estimated Cost $ ____

Was the space previously Air Conditioned? Yes ____ No ✓ (B) Estimated Cost Fee $____

I hereby certify that the above is true and correct to the best of my knowledge and make Application for Permit as outlined above, and if same is granted I agree to conform to all Florida Building Code Regulations and City Ordinances regulating same and in accordance with plans submitted. The issuance of this permit does not grant permission to violate any applicable Town and/or State of Florida codes and/or ordinances.

LICENSE HOLDER SIGNATURE ____ LICENSE # CAC032448
LICENSE HOLDER NAME Robert Co. DelloRusso COMPANY NAME Del Air Heating + AC
Street Address 531 Codisco Way
City Sanford State FL Zip Code 32771 Phone Number 407-935-9904
Email Address HvacCdelair.com

Building Official: Angel Perez **Date** 8-01-2014
Verified Contractor's Licenses & Insurance are on file cg **Date** 7-23-14

Permit Fee	$ 362.00
Review Fee	$ 181.00
3% Florida Surcharge	$ 16.30
Total Permit Fee	$ 559.30

NOTE: The Building Permit Number is required if the Mechanical Installation is associated with any construction or alteration where a Building Permit has been issued. Building Permit Number 2014-04-048

FLORIDA DEPARTMENT OF
Business & Professional Regulation

Florida Department of Business & Professional Regulation

Product Approval
USER: Public User

FL #	FL14239-R0
Application Type	New
Code Version	2007
Application Status	Approved
Comments	
Archived	
Product Manufacturer 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 Evaluation Report	Kristina S. Daugherty, P.E.
Florida License	PE-68455
Quality Assurance Entity	National Accreditation & Management Institute,
Quality Assurance Contract Expiration Date	12/31/2013
Validated By	Steven M. Urich, PE ☑ Validation Checklist - Hardcopy Received
Certificate of Independence	FL14239_R0_COI_COI BMP.pdf
Referenced Standard and Year (of Standard)	
Equivalence of Product Standards Certified By	
Sections from the Code	Chapter 22

Product Approval Method	Method 2 Option B
Date Submitted	11/05/2010
Date Validated	11/05/2010
Date Pending FBC Approval	11/15/2010
Date Approved	12/07/2010
Date Revised	09/29/2011

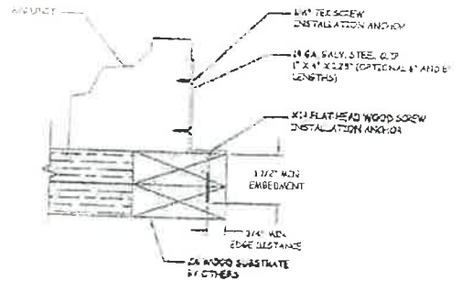
Summary of Products

FL #	Model, Number or Name	Description
14239.1	A/C Hold Down Clip	A/C Hold Down Clip
Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** N/A **Design Pressure:** N/A **Other:**		**Installation Instructions** FL14239_R0_II_BMP003.pdf Verified By: Kristina S. Daugherty, P.E. 68455 Created by Independent Third Party: Yes **Evaluation Reports** FL14239_R0_AE_PER 1196.pdf Created by Independent Third Party: Yes

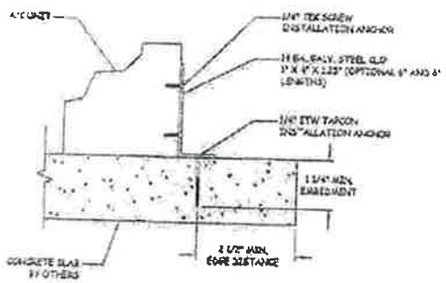
Back Next

BMP INTERNATIONAL, INC.

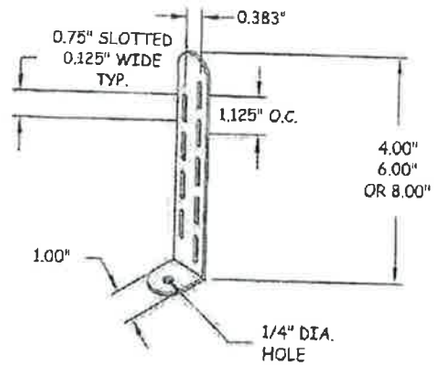
A/C HOLD DOWN CLIP



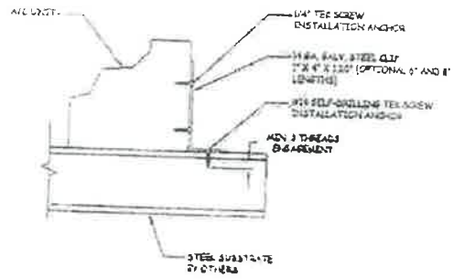
A/1 INSTALLATION DETAIL
2X WOOD BLOCK SUBSTRATE



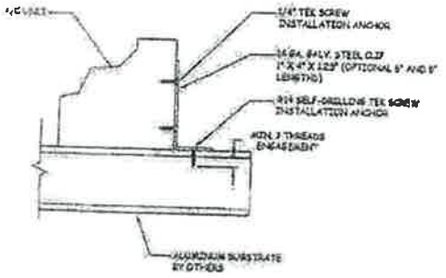
B/1 INSTALLATION DETAIL
CONCRETE SUBSTRATE



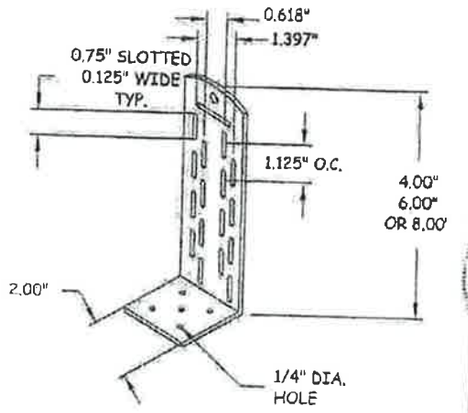
1" CLIP



C/1 INSTALLATION DETAIL
STEEL SUBSTRATE



D/1 INSTALLATION DETAIL
ALUMINUM SUBSTRATE



2" CLIP

BMP INTERNATIONAL, INC.

TITLE: A/C HOLD DOWN CLIP INSTALLATION & GENERAL NOTES

PREPARED BY:
CERTWORKS, LLC
127 W. FAIRBANKS AVE., STE. 438
WINTER PARK, FL 32789
PH: (407) 644-4993 FX: (407) 644-2388

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 06.30.10
DWN BY: JLA
CHK BY: KSD
SCALE: NTS

DWG #: BMP003

SHEET: 1 OF 2

1" CLIP:

TABLE OF CLIP ATTACHMENT TO SUPPORTING STRUCTURE OR A/C UNIT (146 MPH) - 4 CLIPS PER UNIT

HEIGHT ABOVE GROUND (FT.)	NUMBER OF SCREWS PER CLIP TO HOUSING OF A/C (GALV. 1/4" TEK)	NUMBER OF SCREWS PER CLIP INTO CONCRETE (1/4" x 2" TAPCON)	NUMBER OF SCREWS PER CLIP INTO ALUM. RACK SUPPORTS (1/4" X 1 1/4" TEK)
0-15	4	1	2*
20	4	1	2*
25	4	1	2*
30	4	1	2*
40	4	1	2*
50	4	1	2*
60	4	1	2*
70	4	1	2*
80	4	1	2*
90	4	1	2*

* Place additional clips at corners for a total of 8 clips, when using the 1" clip where applicable requires 2 screws per clip. (Alternatively, use the 2" clip to maintain total 4 clips per unit)

TABLE OF CLIP ATTACHMENT TO SUPPORTING STRUCTURE OR A/C UNIT (155 MPH) - 4 CLIPS PER UNIT

HEIGHT ABOVE GROUND (FT.)	NUMBER OF SCREWS PER CLIP TO HOUSING OF A/C (GALV. 1/4" TEK)	NUMBER OF SCREWS PER CLIP INTO CONCRETE (1/4" x 2" TAPCON)	NUMBER OF SCREWS PER CLIP INTO ALUM. RACK SUPPORT (1/4" X 1 1/4" TEK)
0-15	4	1	2*
20	4	1	2*
25	4	1	2*
30	4	1	2*
40	4	1	2*
50	4	1	2*
60	4	1	2*
70	4	1	2*
80	4	1	2*
90	4	1	2*

* Place additional clips at corners for a total of 8 clips, when using the 1" clip where applicable requires 2 screws per clip. (Alternatively, use the 2" clips to maintain total 4 clips per unit)

2" CLIP:

TABLE OF CLIP ATTACHMENT TO SUPPORTING STRUCTURE OR A/C UNIT (146 MPH) - 4 CLIPS PER UNIT

HEIGHT ABOVE GROUND (FT.)	NUMBER OF SCREWS PER CLIP TO HOUSING OF A/C (GALV. 1/4" TEK)	NUMBER OF SCREWS PER CLIP INTO CONCRETE (1/4" x 2" TAPCON)	NUMBER OF SCREWS PER CLIP INTO ALUM. RACK SUPPORT (1/4" X 1 1/4" TEK)
0-15	2	1	1
20	2	1	1
25	3	1	2
30	3	1	2
40	3	1	2
50	3	1	2
60	3	1	2
70	3	1	2
80	3	1	2
90	3	1	2

TABLE OF CLIP ATTACHMENT TO SUPPORTING STRUCTURE OR A/C UNIT (155 MPH) - 4 CLIPS PER UNIT

HEIGHT ABOVE GROUND (FT.)	NUMBER OF SCREWS PER CLIP TO HOUSING OF A/C (GALV. 1/4" TEK)	NUMBER OF SCREWS PER CLIP INTO CONCRETE (1/4" x 2" TAPCON)	NUMBER OF SCREWS PER CLIP INTO ALUM. RACK SUPPORT (1/4" X 1 1/4" TEK)
0-15	2	1	2
20	3	1	2
25	3	1	2
30	3	1	2
40	4	1	3
50	4	1	3
60	4	1	3
70	3	1	3
80	3	1	3
90	2	1	3

* Place additional clips at corners for a total of 8 clips, when using 2" clips the corners will need 2 screws per clip are required. (Alternatively, use 8 total 1" clips per unit)

NOTES:

1. ABOVE CHART DENOTES NUMBER OF SCREWS PER CLIP, ASSUMING 4 CLIPS PER UNIT, EXCEPT WHERE INDICATED ABOVE. WHERE MORE THEN 1 ANCHOR PER CLIP IS REQUIRED INTO THE SUBSTRATE, USE ADDITIONAL CLIPS OR USE THE 2" CLIP.
2. FOR STEEL SUPPORTING STRUCTURES, USE SELF DRILLING GALV. 1/4" x 3/4" SCREWS AND QUANTITIES REQUIRED ABOVE NOTED FOR ALUMINUM RACK SCREWS.
3. SPACING OF SCREWS IN A/C HOUSING SHALL BE A MINIMUM OF 1 IN.
4. STAINLESS STEEL SCREWS MAY BE USED WHERE REQUIRED BY GOVERNING AGENCY

GENERAL NOTES:

1. **DESIGN CALCULATIONS WERE BASED ON THE FLORIDA BUILDING CODE 2007 WITH 2009 AMENDMENTS AND ASCE 7-05 CH. 16 FOR WIND LOADS AND VELOCITIES OF 146 MPH AND 155 MPH. AN IMPORTANCE FACTOR OF I=1 AND EXPOSURE C AS CRITICAL WERE USED IN THE DESIGN.**
2. **A/C UNIT MAXIMUM SIZE: 4 FT x 4 FT x 4FT. MINIMUM WEIGHT OF 150 LBS.**
3. **ALL SCREWS USED TO ATTACH CLIP SHALL BE GALVANIZED A207, SELF DRILLING WITH A MINIMUM HEAD DIAMETER OF 0.3125 IN. SCREWS SHALL BE DRILLED TIGHT, NOT OVER TIGHTENED.**
4. **TAPCONS USED TO ATTACH CLIP TO CONCRETE SHALL BE APPROVED WITH A RATED TENSILE STRENGTH OF 660 LBS WITH A MINIMUM EMBEDMENT OF 1 3/4 IN, MINIMUM EDGE DISTANCE OF 2.5", AND MINIMUM CENTER TO CENTER DISTANCE OF 3".**
5. **WHEN UNIT IS SUPPORTED BY WOOD USE #10 WOOD SCREWS WITH A MINIMUM 1 1/2 IN EMBEDMENT**
6. **SCREWS AT THE BOTTOM OF CLIP ATTACHMENT TO SUPPORTING STRUCTURE REQUIRE WASHERS OF 14 GA. STEEL MINIMUM WITH A YIELD STRENGTH OF 33 KSI.**
7. **CLIPS SHALL BE MANUFACTURED OUT OF MINIMUM 39 KSI STEEL THAT IS G90 GALVANIZED OR STAINLESS STEEL.**
8. **UNIT SIZES MAY INCREASE TO 6 FT x 6 FT x 6 FT AND REQUIRE TWO (2) CLIPS AT CORNERS AND MAY NOT BE HIGHER THAN 15 FT FROM GRADE.**
9. **#12 GALV. SELF DRILLING SCREWS MAY BE USED ON UNITS WHICH ARE INSTALLED NO HIGHER THAN 40 FT FROM GRADE FOR WIND VELOCITY ZONES ARE 146 MPH OR LESS.**
10. **INSTALLATION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND ANCHORS SHALL NOT BE USED IN SUBSTRATES WITH STRENGTHS LESS THAN THE MINIMUM STRENGTH SPECIFIED BY THE ANCHOR MANUFACTURER.**
11. **INSTALLATION ANCHOR CAPACITIES FOR PRODUCTS HEREIN ARE BASED ON SUBSTRATE MATERIALS WITH THE FOLLOWING PROPERTIES:**
    a. **WOOD - MINIMUM SPECIFIC GRAVITY OF 0.55.**
    b. **CONCRETE -MINIMUM COMPRESSIVE STRENGTH OF 2700 PSI.**
    c. **ALUMINUM- MINIMUM 6063-T5 ALLOY (MINIMUM WALL THICKNESS OF 0.125")**
    d. **STEEL - MINIMUM YIELD STRENGTH OF 33 KSI. MINIMUM WALL THICKNESS OF 33 MILS.**
12. **CLIPS CAN ALSO BE SUPPLIED IN A POWDER-COATED FINISH**
13. **INSTALLATION ANCHORS AND ASSOCIATED HARDWARE MUST BE MADE OF CORROSION RESISTANT MATERIAL OR HAVE A CORROSION RESISTANT COATING. DISSIMILAR MATERIALS MUST BE SEPARATED OR COATED IN ACCORDANCE WITH FBC SECTION 2003.8.4.**

BMP INTERNATIONAL, INC.

BMP INTERNATIONAL, INC.
4170 28TH STREET N.
ST. PETERSBURG, FL 33714
PH: 727 438-0544

TITLE: A/C HOLD DOWN CLIP INSTALLATION & GENERAL NOTES

PREPARED BY:
CERTWORKS, LLC
127 W. FAIRBANKS AVE., STE 438
WINTER PARK, FL 32789
PH: (407) 644-9257 FX: (407) 644-2364

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE: 06.30.10
DWN BY: JLA
CHK BY: KSD
SCALE: NTS
DWG #: BMP003
SHEET: 2 OF 2

Business & Professional Regulation

Florida Department of Business & Professional Regulation

Product Approval
USER: Public User

FL #	FL14239-R1
Application Type	Revision
Code Version	2010
Application Status	Approved
Comments	
Archived	

Product Manufacturer	BMP International Inc.
Address/Phone/Email	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 Evaluation Report	Frank L. Bennardo, P.E.
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_R1_COI_EOI.pdf

Referenced Standard and Year (of Standard)	Standard	Year
	ASTM D1761-06	2006
	ASTM D1761-88	2000

Equivalence of Product Standards Certified By	Florida Licensed Professional Engineer or Architect FL14239_R1_Equiv_Equiv.pdf
Sections from the Code	
Product Approval Method	Method 1 Option D
Date Submitted	09/29/2011
Date Validated	12/13/2011
Date Pending FBC Approval	12/18/2011
Date Approved	01/31/2012

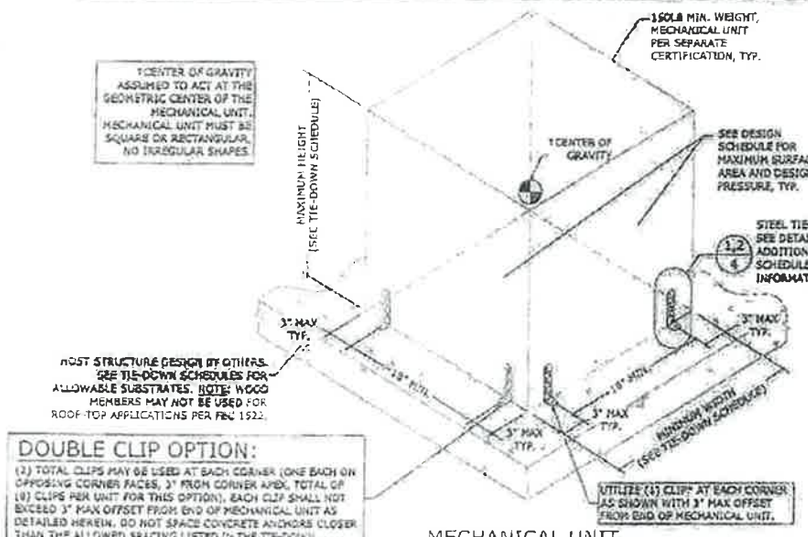
Summary of Products

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)

Limits of Use **Approved for use in HVHZ:** Yes **Approved for use outside HVHZ:** Yes **Impact Resistant:** N/A **Design Pressure:** N/A **Other:** This design provides allowable capacities for the system. The required site-specific design pressure (demand) shall be calculated by others for use with this design.	**Installation Instructions** FL14239_R1_II_Dwg.pdf Verified By: Frank L. Bennardo, P.E. (PE-0046549) Created by Independent Third Party: Yes **Evaluation Reports** FL14239_R1_AE_Eval.pdf Created by Independent Third Party: Yes

BMP INTERNATIONAL, INC.

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



DOUBLE CLIP OPTION:

(2) TOTAL CLIPS MAY BE USED AT EACH CORNER (ONE EACH ON OPPOSING CORNER FACES, 3" FROM CORNER APEX, TOTAL OF (8) CLIPS PER UNIT FOR THIS OPTION). EACH CLIP SHALL NOT EXCEED 3" MAX OFFSET FROM END 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 2&3 FOR MORE INFORMATION.

MECHANICAL UNIT TIE-DOWN ISOMETRIC

1 1 — 1" = 1'-0" — ISOMETRIC

*FOR CLARITY, THIS ISOMETRIC ONLY SHOWS 1" CLIPS. THE ISOMETRIC LAYOUT IS TYPICAL FOR BOTH 1" AND 2" CLIP APPLICATIONS. 2" CLIPS ARE NOT CERTIFIED FOR ANCHORAGE TO CONCRETE.

GENERAL NOTES:

1. THIS PRODUCT HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2010 FLORIDA BUILDING CODE, FOR USE WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE.
2. NO 33-1/3% INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE DESIGN OF THIS SYSTEM.
3. DESIGN IS BASED ON CLIENT PROVIDED PRODUCT AND DIE SHEETS FROM TEST REPORTS #TEL 019703877A, #TEL 019703877B BY TESTING EVALUATION LABORATORIES, INC.. NO SUBSTITUTIONS WITHOUT WRITTEN APPROVAL BY THIS ENGINEER SHALL BE PERMITTED.
4. ALLOWABLE DESIGN PRESSURES TO QUALIFY CAPACITY OF CLIPS AS LISTED HEREIN ARE DETERMINED THROUGH TESTING REPORT DATA AND RATIONALLY CHECKED FOR CONSISTENCY WITH EACH TEST PERFORMED.
5. REQUIRED LATERAL AND/OR UPLIFT DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A SITE-SPECIFIC BASIS IN ACCORDANCE WITH THE GOVERNING CODE.
6. 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.
7. FASTENERS TO BE #12 X ¾" OR GREATER SAE GRADE 5 UNLESS NOTED OTHERWISE. TAPCONS REFERRED TO HEREIN SHALL BE ITW BUILDEX BRAND, CARBON STEEL ONLY, INSTALLED TO 3192 KSI MIN CONCRETE. SEE ANCHOR SCHEDULE FOR ANCHOR REQUIREMENTS. ALL FASTENERS SHALL HAVE APPROPRIATE CORROSION PROTECTION TO PREVENT ELECTROLYSIS.
8. 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 IN ACCORDANCE WITH THE 2010 FBC SECTIONS 2203.2 AND 2220. G90-RATED COATING REQUIRED FOR ALL COASTAL INSTALLATIONS.
9. 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 3192 PSI, UNLESS NOTED OTHERWISE.
10. ALL WOOD MEMBERS SHALL BE PRESSURE TREATED SOUTHERN YELLOW PINE GRADE #2 WITH SPECIFIC GRAVITY G = 0.55 OR GREATER. DIRECT CONNECTION TO WOOD MEMBERS/SLEEPERS IS NOT PERMITTED FOR ROOF-TOP APPLICATIONS PER FBC SECTION 1522.
11. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS, I.E. ALUMINUM PER F.B.C. 2003.8.4.
12. ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
13. 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.
14. 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.
15. 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.

TIE-DOWN CLIP DIRECTIVE EXAMPLE

(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 2&3 FOR TIE-DOWN SCHEDULES.)

MECHANICAL UNIT CRITERIA:

CONSIDER THE INSTALLATION OF (1) MECHANICAL UNIT WITH THE FOLLOWING CRITERIA:
36" TALL x 30" DEEP x 24" WIDE, 150 LB WEIGHT AS VERIFIED BY OTHERS, INSTALLED TO 3192 KSI MIN. CONCRETE AT GRADE AS VERIFIED BY OTHERS.

PROCEDURE:

	PROCEDURE STEP	RESULT
1	LOCATE 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	30"x36"= 80ft²
3	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 ALLOWANCE WIDTH OF 24"
5	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

CONCLUSION: MAXIMUM ALLOWABLE LATERAL DESIGN PRESSURE= ±045PSF

(COMPARE THIS VALUE TO THE SEPARATE SITE SPECIFIC REQUIRED DESIGN WIND PRESSURE PROVIDED BY A LICENSED ENGINEER OR REGISTERED ARCHITECT; NOT INCLUDED IN THIS CERTIFICATION)

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MECHANICAL UNIT STEEL TIE-DOWN CLIPS
FLORIDA STATEWIDE APPROVAL

11-BMP-0001

SCALE: N.T.S. 03

1 4

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

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)							
			(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)				(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)			
			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
4 FT²	48 " MAX	24 " MIN	91 PSF	91 PSF	91 PSF	91 PSF	100 PSF	100 PSF	100 PSF	100 PSF
6 FT²			91 PSF	91 PSF	91 PSF	91 PSF	100 PSF	100 PSF	100 PSF	100 PSF
9 FT²			40 PSF	40 PSF	40 PSF	40 PSF	77 PSF	77 PSF	77 PSF	77 PSF
12 FT²			30 PSF	30 PSF	30 PSF	30 PSF	58 PSF	58 PSF	58 PSF	58 PSF
16 FT²			22 PSF	22 PSF	22 PSF	22 PSF	43 PSF	43 PSF	43 PSF	43 PSF
20 FT²	60 " MAX	48 " MIN	28 PSF	28 PSF	28 PSF		49 PSF	49 PSF	48 PSF	47 PSF
25 FT²							39 PSF	39 PSF	36 PSF	37 PSF
30 FT²							33 PSF	33 PSF	32 PSF	31 PSF
36 FT²							27 PSF	27 PSF	27 PSF	26 PSF

1. TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS. ((5)-SHEET METAL SCREWS REQUIRED FOR LONG CLIPS, SEE DETAIL 1/4.)
2. MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
   2.1. ALUMINUM HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.125" MIN. THICKNESS.
   2.2. STEEL HOUSING UNITS SHALL BE 33KSI MIN. STEEL, GRADE 33, 22GA MIN. (t=0.0299").
3. MAXIMUM ALLOWABLE WIND PRESSURES FOR EACH INDIVIDUAL SUBSTRATE MAY BE EQUIVALENT DUE TO THE LIMITING CAPACITY OF THE 1" CLIP.
4. A MAXIMUM ALLOWABLE VALUE OF 100 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

ANCHOR SCHEDULE:

SUBSTRATE	ANCHOR
CONCRETE: (4" THICK MIN, 3197KSI MIN.)	(1)-5/16" Ø CARBON STEEL ITW BUILDEX TAPCON, 1¾" Full EMBED TO CONCRETE, 2½" MIN. EDGE DISTANCE, 3" MIN. SPACING TO ANY ADJACENT ANCHOR.
ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) FINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) FINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
SEALED WOOD: (SOUTHERN YELLOW PINE, G=0.55 OR BETTER)	(1)-#14 SAE GRADE 5 WOOD SCREW TO WOOD MEMBER, PROVIDE 1¾" MIN. THREAD PENETRATION, 1" MIN. EDGE DISTANCE, 1" MIN. END DISTANCE.

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

TABLE LEGEND:
- (oval) -DENOTES EXAMPLE VALUE FOR USE WITH COVER PAGE DIRECTIVE
- (hatched) -DENOTES VALUES NOT APPROVED FOR USE

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

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)					
			(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)			(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)		
			SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	WOOD SCREW TO WOOD	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	WOOD SCREW TO WOOD
4 FT²	48 " MAX	24 " MIN	100 PSF	100 PSF	100 PSF	100 PSF	100 PSF	100 PSF
6 FT²			100 PSF	100 PSF	100 PSF	100 PSF	100 PSF	100 PSF
9 FT²			67 PSF	67 PSF	67 PSF	100 PSF	100 PSF	100 PSF
12 FT²			50 PSF	50 PSF	50 PSF	99 PSF	99 PSF	98 PSF
16 FT²			38 PSF	38 PSF	38 PSF	74 PSF	74 PSF	74 PSF
20 FT²	60 " MAX	48 " MIN	41 PSF	41 PSF	41 PSF	80 PSF	80 PSF	80 PSF
25 FT²			33 PSF	33 PSF	33 PSF	64 PSF	64 PSF	64 PSF
30 FT²			27 PSF	27 PSF	27 PSF	53 PSF	53 PSF	53 PSF
36 FT²						44 PSF	44 PSF	44 PSF

1. TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS.
2. MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
   2.1. ALUMINUM HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.125" MIN. THICKNESS.
   2.2. STEEL HOUSING UNITS SHALL BE 33KSI MIN. STEEL, GRADE 33, 22GA MIN. (t=0.0299").
3. A MAXIMUM ALLOWABLE VALUE OF 100 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

ANCHOR SCHEDULE:

SUBSTRATE	ANCHOR
ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) FINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) FINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
SEALED WOOD, 1-1/2" MIN THICKNESS: (SOUTHERN YELLOW PINE, G=0.55 OR BETTER)	(2)-#14 SAE GRADE 5 WOOD SCREW TO WOOD MEMBER, PROVIDE 1¾" MIN. THREAD PENETRATION, 1" MIN. EDGE DISTANCE, 1" MIN. END DISTANCE.

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

TABLE LEGEND:
- (hatched) -DENOTES VALUES NOT APPROVED FOR USE

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MECHANICAL UNIT STEEL TIE-DOWN CLIPS

FLORIDA STATEWIDE APPROVAL

REVISIONS / NOTES	DRAWN BY	CHECKED BY	DATE
	JFB	JFB	10-11-11

11-BMP-0001

SCALE: N.T.S. 01

PAGE DESCRIPTION

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1" STEEL CLIP TIE-DOWN SCHEDULE: ROOF-TOP MOUNTED INSTALLATIONS :

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (JUNCTION TO HOST STRUCTURE)					
			(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)			(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)		
			TAPCON TO CONCRETE	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	TAPCON TO CONCRETE	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL
4 FT²	48" MAX	24" MIN	51 PSF	82 PSF	82 PSF	100 PSF	100 PSF	100 PSF
6 FT²			51 PSF	41 PSF	41 PSF	77 PSF	77 PSF	77 PSF
9 FT²			27 PSF	27 PSF	27 PSF	51 PSF	51 PSF	51 PSF
12 FT²						38 PSF	38 PSF	38 PSF
16 FT²						29 PSF	29 PSF	29 PSF
20 FT²	60" MAX	48" MIN				23 PSF	23 PSF	23 PSF
25 FT²						23 PSF	23 PSF	23 PSF
30 FT²								
36 FT²								

NOTE: ADOPTED INSTALLATIONS SHALL CONFORM TO FLORIDA BUILDING CODE SECTION 1509 (AND 1533 FOR HVHZ) WHICH REQUIRES THAT ROOF MOUNTED MECHANICAL UNITS BE MOUNTED ON CURBS RAISED A MINIMUM OF 8 INCHES ABOVE THE ROOF SURFACE, OR WHERE ROOFING MATERIALS EXTEND BENEATH THE UNIT, ON RAISED EQUIPMENT SUPPORTS PROVIDING A MINIMUM CLEARANCE HEIGHT IN ACCORDANCE WITH SECTION 1509 AND/OR 1522 OF THE BUILDING CODE TO PERMIT REMOVAL, REPLACEMENT, AND/OR MAINTENANCE OF THE ROOFING SYSTEM. ANY CURB OR SUPPORT UTILIZED WITH THIS DESIGN SHALL HAVE SEPARATE DOCUMENTATION VERIFYING INTEGRITY AND IS OUTSIDE THE SCOPE OF THIS CERTIFICATION.

1. TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS. ((5)-SHEET METAL SCREWS REQUIRED FOR LONG CLIPS. SEE DETAIL 1/4.)
2. MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
   2.1. ALUMINUM HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.125" MIN. THICKNESS.
   2.2. STEEL HOUSING UNITS SHALL BE 33KSI MIN. STEEL, GRADE 33, 22GA MIN. (t=0.0295").
3. MAXIMUM ALLOWABLE WIND PRESSURES FOR EACH INDIVIDUAL SUBSTRATE MAY BE EQUIVALENT DUE TO THE LIMITING CAPACITY OF THE 1" CLIP. A MAXIMUM ALLOWABLE VALUE OF 100 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

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 ASCE 7-10 SECTION 29.5 FOR MORE INFORMATION.)

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

EXAMPLE: 4 CLIPS x 90 LB/CLIP = 360LB

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

TABLE LEGEND:

-DENOTES VALUES NOT APPROVED FOR USE

ANCHOR SCHEDULE:

SUBSTRATE	ANCHOR
CONCRETE: (4" THICK MIN. 3192 PSI MIN.)	(1)-1/4"Ø CARBON STEEL ITW BUILDEX TAPCON, 1¾" FULL ENDED TO CONCRETE, 2¼" MIN. EDGE DISTANCE, 3" 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) PINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	(1)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) PINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.

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

2" STEEL CLIP TIE-DOWN SCHEDULE: ROOF-TOP MOUNTED INSTALLATIONS:

MAXIMUM SURFACE AREA OF UNITS LARGEST FACE	UNIT HEIGHT	UNIT WIDTH	MAXIMUM ALLOWABLE LATERAL WIND PRESSURE (ANCHOR TO HOST STRUCTURE)			
			(1) CLIP AT EACH CORNER (TOTAL OF 4 CLIPS PER UNIT)		(2) CLIPS AT EACH CORNER (TOTAL OF 8 CLIPS PER UNIT)	
			SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL	SHEET METAL SCREW TO ALUMINUM	SHEET METAL SCREW TO STEEL
4 FT²	48" MAX	24" MIN	100 PSF	100 PSF	100 PSF	100 PSF
6 FT²			84 PSF	84 PSF	100 PSF	100 PSF
9 FT²			56 PSF	56 PSF	100 PSF	100 PSF
12 FT²			42 PSF	42 PSF	82 PSF	82 PSF
16 FT²			31 PSF	31 PSF	61 PSF	61 PSF
20 FT²	60" MAX	48" MIN	34 PSF	34 PSF	67 PSF	67 PSF
25 FT²			27 PSF	27 PSF	53 PSF	53 PSF
30 FT²					44 PSF	44 PSF
36 FT²					37 PSF	37 PSF

NOTE: ADOPTED INSTALLATIONS SHALL CONFORM TO FLORIDA BUILDING CODE SECTION 1509 (AND 1533 FOR HVHZ) WHICH REQUIRES THAT ROOF MOUNTED MECHANICAL UNITS BE MOUNTED ON CURBS RAISED A MINIMUM OF 8 INCHES ABOVE THE ROOF SURFACE, OR WHERE ROOFING MATERIALS EXTEND BENEATH THE UNIT, ON RAISED EQUIPMENT SUPPORTS PROVIDING A MINIMUM CLEARANCE HEIGHT IN ACCORDANCE WITH SECTION 1509 AND/OR 1522 OF THE BUILDING CODE TO PERMIT REMOVAL, REPLACEMENT, AND/OR MAINTENANCE OF THE ROOFING SYSTEM. ANY CURB OR SUPPORT UTILIZED WITH THIS DESIGN SHALL HAVE SEPARATE DOCUMENTATION VERIFYING INTEGRITY AND IS OUTSIDE THE SCOPE OF THIS CERTIFICATION.

1. TIE-DOWN CLIPS SHALL BE FASTENED TO MECHANICAL HOUSING UNIT WITH (3)-#12 SAE GRADE 5 SHEET METAL SCREWS.
2. MECHANICAL HOUSING UNIT SHALL CONFORM TO THE FOLLOWING:
   2.1. ALUMINUM HOUSING UNITS SHALL BE 6063-T6 MIN. ALUMINUM SHEET WITH Fty=30 KSI, 0.125" MIN. THICKNESS.
   2.2. STEEL HOUSING UNITS SHALL BE 33KSI MIN. STEEL, GRADE 33, 22GA MIN. (t=0.0295").
3. A MAXIMUM ALLOWABLE VALUE OF 100 PSF HAS BEEN UTILIZED; FOR HIGHER DEMAND CAPACITIES CONTACT THIS ENGINEER FOR SITE-SPECIFIC ENGINEERING.

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 ASCE 7-10 SECTION 29.5 FOR MORE INFORMATION.)

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

EXAMPLE: 4 CLIPS x 90 LB/CLIP = 360LB

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

TABLE LEGEND:

-DENOTES VALUES NOT APPROVED FOR USE

ANCHOR SCHEDULE:

SUBSTRATE	ANCHOR
ALUMINUM: (0.125" MIN. THICK, 6061-T6 MIN. ALUMINUM)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO ALUMINUM, PROVIDE (5) PINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.
STEEL: (0.125" MIN. THICK, 33 KSI MIN. STEEL)	(2)-#14 SAE GRADE 5 SHEET METAL SCREW TO STEEL, PROVIDE (5) PINCHES MIN. FAST THREAD PLANE FOR SHEET METAL SCREW.

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

FRANK T. BENNARDO, P.E. — STATE OF FLORIDA — No. 46649 — 12/19/2011 — PROFESSIONAL ENGINEER

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MECHANICAL UNIT STEEL TIE-DOWN CLIPS

FLORIDA STATEWIDE APPROVAL

REVISIONS	DATE
ITEM NO.	

DRAWN BY: TSB CHECKED BY: FTB DATE: 12-19-11

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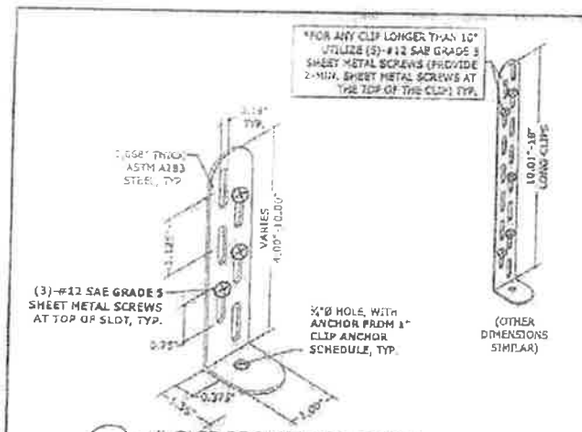
11-BMP-0001

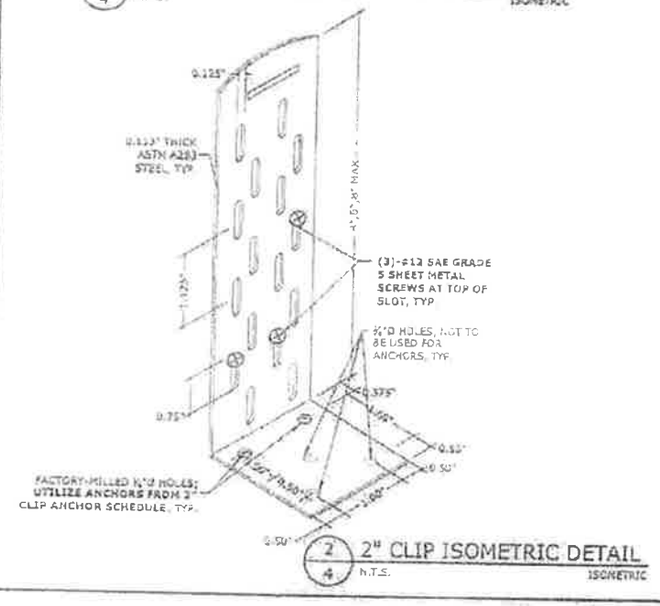
SCALE: NTS SHEET NO. 01

SHEET DESCRIPTION

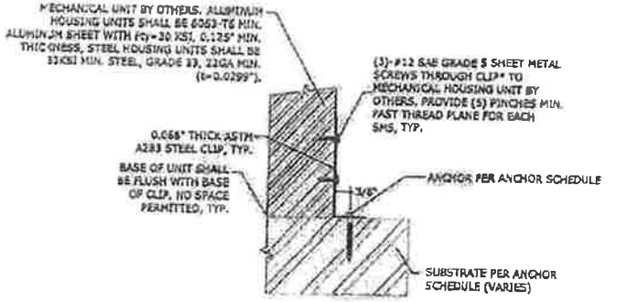
3 of 4



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

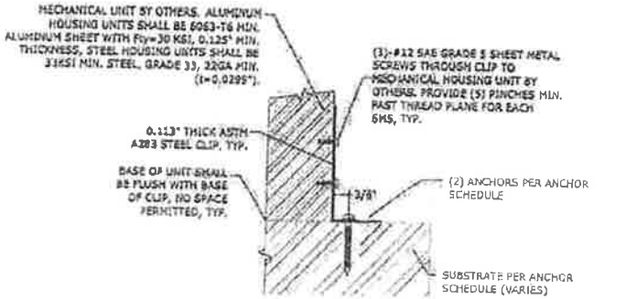


2/4 2" CLIP ISOMETRIC DETAIL
N.T.S. ISOMETRIC



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

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



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

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

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WWW.ENGINEERINGEXPRESS.COM
CERTIFICATE OF AUTHORIZATION #30000
A. FRANK L. BENVENGA, P.E., INC.

FRANK L. BENVENGA
LICENSE
12/16/2020
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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

MECHANICAL UNIT STEEL TIE-DOWN CLIPS

FLORIDA STATEWIDE APPROVAL

DRAWN/CHKD	DATE
TAB / FLB	10-15-20

REMARKS / REVISIONS

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11-BMP-0001

SCALE: AS NOTED 01

DRAWING NUMBER (CODE)

4

4

BMP INTERNATIONAL, INC

4710 28th St N, St Petersburg, FL 33714

Phone: 727-458- 0544

State Approved Equipment Tie Down - FL14239

On March 23rd 2012 the governor signed HB 704 amending SECTION 16 of the 2010 FBC to the 2007 FBC. See the copy below.

HB 704 – Relating to the Florida Building Commission and the Florida Building Code

Chapter Law Number: Chapter No. 2012-1
Approved by the Governor 3/23/2012

Section 16

4) Notwithstanding the provisions of this section, exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, or other means are deemed to comply with the wind resistance requirements of the 2007 Florida Building Code, as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the Florida Building Code. This subsection expires on the effective date of the 2013 ~~2010~~ Florida Building Code.

The following files from www.floridabuilding.org Code Version 2007, number FL 14239, contain the necessary compliance information for tie down clip approval. The specific information required by building departments may vary. Consult with the individual building department for what portion of the following information is needed for permit approval.

ENGINEERING EXPRESS®

Product Evaluation Report

November 4, 2011

Application Number: FL #14239
FLB Project Number: 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.

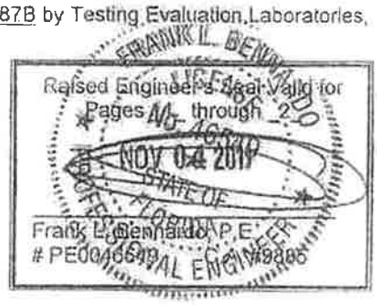
- **TEST REPORTS**

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



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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 International

2010 Florida Building Code
State Approved, FL 14239-R1
EQUIPMENT TIE DOWNS

TD04	1" x 4" Tie Down Clip, Galv/Powder Coat, 4/Bag
TD06	1" x 6" Tie Down Clip, Galv/Powder Coat, 4/Bag
TD08	1" x 8" Tie Down Clip, Galv/Powder Coat, 4/Bag
TD04SS	1" x 4" Tie Down Clip, Stainless Steel, 4/Bag
TD06SS	1" x 6" Tie Down Clip, Stainless Steel, 4/Bag
TD042L	2" x 4" Tie Down Clip, Galv/Powder Coat, 4/Bag
TD062L	2" x 6" Tie Down Clip, Galv/Powder Coat, 4/Bag
TD062	2" x 6" Fat Cat Clip, Galvanized, 4/Bag

BMP International, Inc., 4710 28th St N, St. Petersburg, FL 33714 - 727-458-0544

Note: This file contains approval information from www.floridabuilding.org for BMP tie down clips. Information required by building departments will vary, from listing the approval number, FL14239-R1, on your permit application to submitting copies of the drawings. Consult with the individual building departments for their requirements. This file can be downloaded in PDF format for use. Drawings 1-4 contain the installation instructions.