Installation Instructions for Roof Mount Tie-Down Kit

Trane and American Standard Outdoor Units

Kit Numbers: TASSB30K & TASSB36K

1) Refer to drawing on the reverse side for unit mounting and orientation details.
2) Center unit on roof mounted I-beams. I-beams must be at least 20" apart on center.
3) Place the (2) 3" x 3" aluminum angles included in the kit across the I-beams and against the unit base on opposite sides of the unit as shown in the provided drawing. Note that one of the legs of the angles must be positioned underneath the unit.
4) Push the 3" x 3" angles against the side of the unit base pan and orient them perpendicular or square to the I-beams.
   Note: clamps are recommended for holding the angle frame in place while drilling through the angles and I-beams.
5) Remove any excess length on the 3" x 3" angles to maximize access and safety for service personnel.
6) Drill a 3/8" diameter hole through each of the 3" x 3" aluminum angles where they intersect the I-beams and then through the top flange of the I-beam, as shown in detail 2 (for a total of 4 holes).
7) Insert the (4) 3/8" bolts included with the kit through the holes (drilled in the previous step) in the angle and I-beam.
8) Install the (4) 1" x 3" reinforcement plates, washers, and nuts included with the kit underneath the I-beam flange as shown in detail 2. Tighten the nuts using a backup wrench on the bolt heads.
9) Attach the (4) steel "L" brackets included with the kit to the sides of the louver panels using (9) #10 x ¾" self-drilling screws – also included with the kit – as shown in detail 1. Ensure that the bottom of the "L" bracket is resting on the aluminum angle before attaching to the louver panels.
10) Using the hole in the bottom of each "L bracket as a guide, drill a ¼" hole through the aluminum angle, for a total of 4 holes.
11) Install the ¼ bolts, washers, and nuts included with the kit at each of the (4) holes drilled in the previous step, as shown in Detail 1. Tighten the nuts using a backup wrench on the bolt heads.

TRANE TECHNOLOGIES

AMERICAN STANDARD CONDENSER (ROOF MOUNTED)
VALID FOR USE INSIDE AND OUTSIDE THE HVHZ (SEE LIMITATIONS HEREIN)

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

NOTE: THIS EVALUATION CERTIFIES BOTH UNIT INTEGRITY AND ANCHORAGE TO HOST STRUCTURE FOR WIND RESISTANCE (FOR ROOFTOP USE ONLY). SEE LIMITATIONS HEREIN.

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

FRANK L. BENNARDO LICENSE No 0046549 STATE OF Florida PROFESSIONAL ENGINEER
SIGNED: &[Date]

OCTOBER 19, 2023

Digitally signed by Frank Bennardo
Date: 2023.10.20 13:49:17 -04'00'

GENERAL NOTES

1. THIS SYSTEM HAS BEEN DESIGNED AND SHALL BE FABRICATED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023) & ASCE 7-22. THIS SYSTEM MAY BE USED WITHIN AND OUTSIDE THE HIGH VELOCITY HURRICANE ZONE (HVHZ). REQUIRED DESIGN PRESSURES SHALL BE FOUND ON A SITE SPECIFIC BASIS FOR USE WITH THE ALLOWABLE LOADS LISTED HEREIN. THIS DESIGN IS NOT INTENDED TO CERTIFY IMPACT RESISTANCE OF THE MECHANICAL UNIT CABINETRY.
2. DESIGN & CERTIFICATION OF THE UNIT CABINETRY IS APPROVED THROUGH TEST REPORT#0708.01-15 BY AMERICAN TEST LAB OF SOUTH FLORIDA. DESIGN PRESSURES NOTED HEREIN ARE BASED ON MAXIMUM TESTED PRESSURES DIVIDED BY 1.5 SAFETY FACTOR. PRESSURE VALUES IN THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES UNLESS NOTED OTHERWISE.
3. BASEPAN MATERIAL CHOPPED FIBER LAMINATE W/ Fy=15 KSI. PLASTIC COMPONENTS USED WITHIN THE HVHZ MUST MEET ALL APPLICABLE FIRE/SMOKE/UV PERFORMANCE REQUIREMENTS AS SET FORTH IN THE ABOVE-NOTED BUILDING CODE.
4. ALL SUPPORTING FRAMES SHOWN HEREIN SHALL BE BY OTHERS AND IS NOT PART OF THIS CERTIFICATION. A MINIMUM 0.087" THICK ALUMINUM (6063-T6 MIN.) OR STEEL (Fy=33 KSI MIN.) FLANGE IS REQUIRED. **ADDITIONALLY A 1"x3"x1/8" REINFORCEMENT PLATE SHALL BE USED AT THE UNDERSIDE OF THE FLANGE FOR AN OVERALL FLANGE THICKNESS OF 0.337"MIN**.
5. ALL DIMENSIONS AND THE MINIMUM WEIGHT OF MECHANICAL UNIT SHALL CONFORM TO LIMITATIONS STATED HEREIN. ALL MECHANICAL SPECIFICATIONS (CLEAR SPACE, TONNAGE, ETC.) SHALL BE AS PER MANUFACTURER RECOMMENDATIONS AND ARE THE EXPRESS RESPONSIBILITY OF THE CONTRACTOR.
6. ALL SHEET METAL SCREWS USED TO FASTEN BRACKETS TO MECHANICAL UNITS SHALL BE #10 (16 MIN THREADS PER INCH) ASTM F593 410 STAINLESS STEEL OR EQUIVALENT ONLY. BOLTS USED TO FASTEN ALUMINUM ANGLES TO SUPPORTING FRAME (BY OTHERS) SHALL BE ASTM F593 410 STAINLESS STEEL OR EQUIVALENT AND SHALL UTILIZE SAE GRADE WASHERS & NUTS. PROVIDE (5) PITCHES MINIMUM PAST THE THREAD PLANE FOR SHEET METAL SCREWS. ALL FASTENERS SHALL HAVE APPROPRIATE CORROSION PROTECTION TO PREVENT ELECTROLYSIS. ALL FASTENER CONNECTIONS TO ALUMINUM SHALL PROVIDE 2xDIAMETER EDGE DISTANCE.
7. FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION J.3.7.2 BY THE ALUMINUM ASSOCIATION INC., AND ANY APPLICABLE FEDERAL, STATE AND OR LOCAL CODES.REFER TO FASTENER MANUFACTURER'S PUBLISHED DATA SHEETS AND RECOMMENDATIONS FOR FASTENER INSTALLATION INSTRUCTIONS.
8. 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.
9. THE CONTRACTOR IS RESPONSIBLE TO INSULATE ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.
10. ELECTRICAL GROUND, WHEN REQUIRED, TO BE DESIGNED & INSTALLED BY OTHERS.
11. 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.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.
12. 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.
13. ENGINEER SEAL AFFIXED HERETO VALIDATE STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
14. EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.
15. ALTERATIONS, ADDITIONS, AND OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.

NOTE REGARDING USE OF THIS DOCUMENT & USE OUTSIDE FLORIDA:

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

NOTE: SEE NEXT PAGE FOR PRODUCT INSTALLATION DETAILS AND ANCHOR SCHEDULE TABLE.

VISIT ECALC.IO/TRANE

FOR SITE-SPECIFIC DEVIATIONS & MORE INFORMATION ABOUT THIS DOCUMENT OR SCAN THIS QR CODE

VISIT ENGINEERINGEXPRESS.COM/STORE FOR ADDITIONAL PLANS, REPORTS & RESOURCES

TERMINOLOGY:

THE FOLLOWING ABBREVIATIONS MAY APPEAR IN THIS APPROVAL:

"ADDTL." FOR "ADDITIONAL", "AHJ" FOR "AUTHORITY HAVING JURISDICTION", "ALUM" FOR "ALUMINUM, "ASD" FOR "ALLOWABLE STRESS DESIGN", "BO" FOR "BUILD-OUT", "CS" FOR "CARBON STEEL", "EA." FOR "EACH", "E.D."/"EDGE"/"EDGE DIST." FOR "EDGE DISTANCE", "ELEV" FOR "ELEVATION", "EMBED" FOR "EMBEDMENT", "EQ"/"EQUIV." FOR "EQUIVALENT", "EXT" FOR "EXTERIOR", "FBC" FOR "FLORIDA BUILDING CODE", "ft" OR " ' " FOR "FEET", "G" FOR "SPECIFIC GRAVITY", "GA" FOR "GAUGE", "GALV" FOR "GALVANIZED", "GFB" FOR "GROUT-FILLED BLOCK", "GR" FOR "GRADE", "HOLLOW" FOR "HOLLOW BLOCK", "HORIZ" FOR "HORIZONTAL", "HVHZ" FOR "HIGH-VELOCITY HURRICANE ZONE", "in" OR " " " FOR "INCHES", "INT" FOR "INTERIOR", "KSI" FOR "1,000 lb / in^2", "L" FOR "LENGTH", "LB" FOR "POUND", "MAX" FOR "MAXIMUM, "MIN" FOR "MINIMUM", "N.T.S." FOR "NOT TO SCALE", "O.C." FOR "ON-CENTER", "P.E." FOR "PROFESSIONAL ENGINEER", "PERP" FOR "PERPENDICULAR", "PSF" FOR "POUNDS PER SQUARE FOOT (lb/ft^2)", "PSI" FOR "POUNDS PER SQUARE INCH (lb/in^2)", "QTY" FOR "QUANTITY", "REF." FOR "REFERENCE", "SCHED." FOR "SCHEDULE", "SDS" FOR "SELF-DRILLING SCREWS", "SMS" FOR "SHEET METAL SCREWS", "SPECS" FOR "SPECIFICATIONS", "SS" FOR "STAINLESS STEEL", "SUB" FOR "SUBMITTAL", "TAS" FOR "TESTING APPLICATION STANDARD", "TYP." FOR "TYPICAL", "ULT" FOR "ULTIMATE LOADS", "U.N.O." FOR "UNLESS NOTED OTHERWISE", "UTS" OR "Fu" FOR "ULTIMATE TENSILE STRENGTH/STRESS", "VERT" FOR "VERTICAL", "WLL" FOR "WORKING LOAD LIMIT", "W/" FOR "WITH", "W/O" FOR "WITHOUT", "YS" FOR "YIELD STRENGTH", "#" FOR "NUMBER", "&" FOR "AND", AND "Ø" FOR "DIAMETER".

VISIT ECALC.IO/GLOSSARY OR CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

PAGE INDEX:

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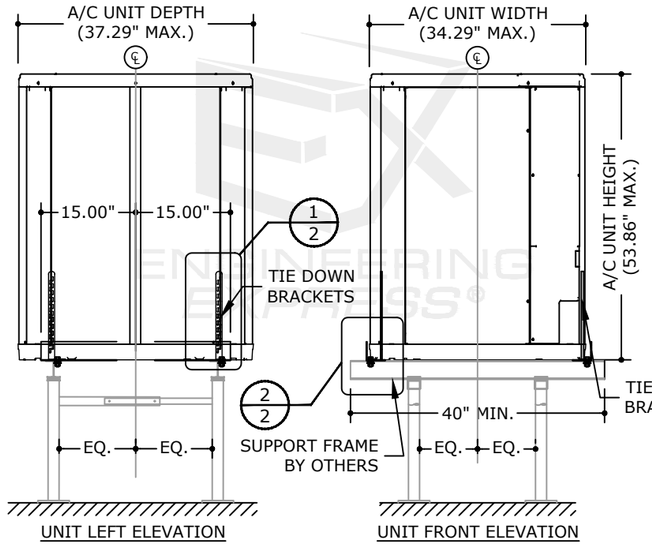
AMERICAN STANDARD CONDENSER (ROOF MOUNTED)
FLORIDA BUILDING CODE EIGHTH EDITION (2023)
FLORIDA STATEWIDE APPROVAL (FSA)

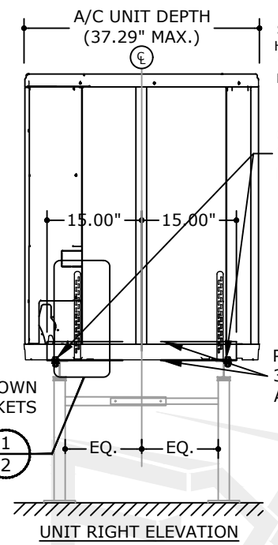
REMARKS	DRWN	CHK'D	DATE
PREV. SUBMITTAL (20-28639)	CCB	FLB	11/19/21
2023 FBC UPDATE	EPR	RWN	10/23/23

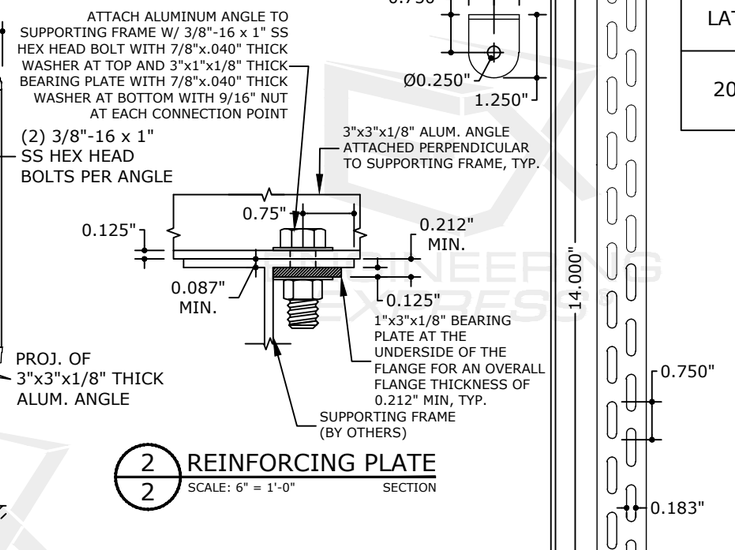
23-68286

SCALE: NTS UNLESS NOTED

1 OF 2

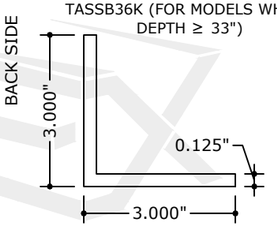






TIE-DOWN BRACKET

MIAMI TECH CLIP CUTD14: 12Ga (0.090") ASTM A653, MIAMI TECH KIT # TASSB30K (FOR MODELS WHERE DEPTH < 33") AND TASSB36K (FOR MODELS WHERE DEPTH ≥ 33")



APPROVED DESIGN PRESSURES (ASD):

LATERAL	UPLIFT
200 PSF	100 PSF

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

FRANK L. BENNARDO LICENSE No 0046549 STATE OF FLORIDA PROFESSIONAL ENGINEER SIGNED: &[Date]

OCTOBER 19, 2023

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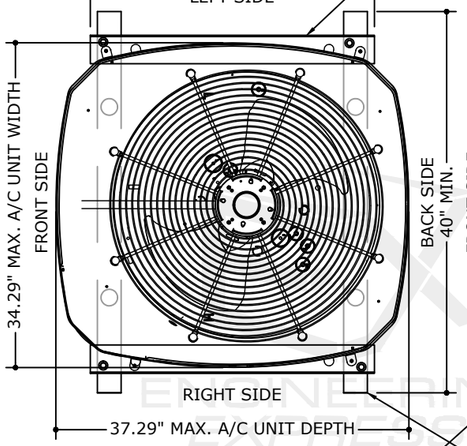
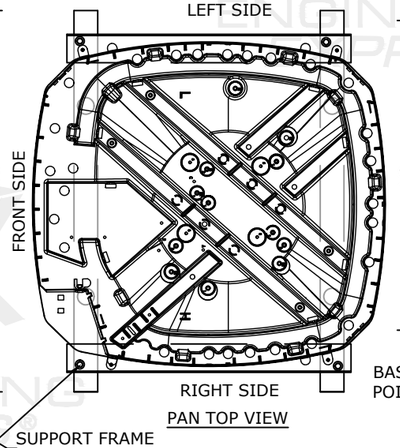
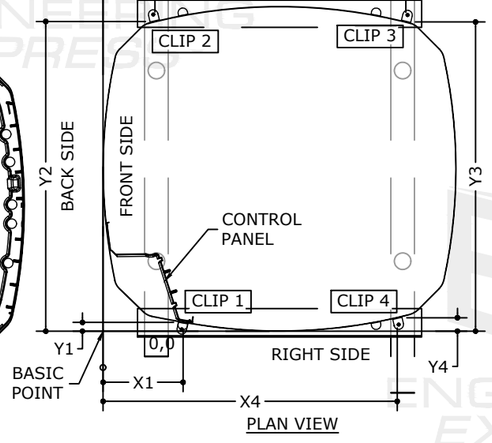
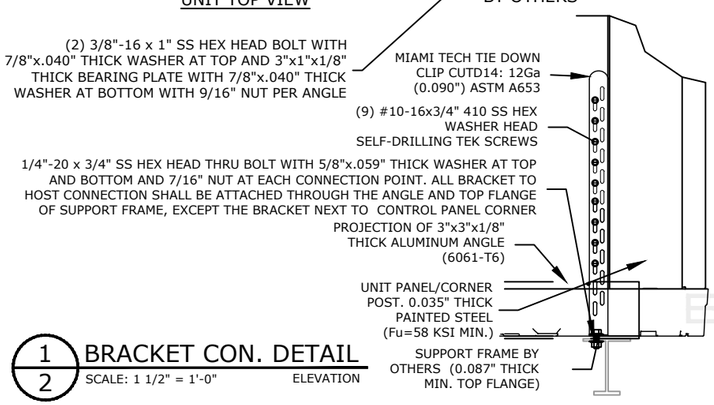






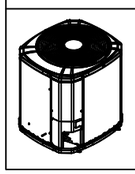


BRACKET CON. DETAIL

SCALE: 1 1/2" = 1'-0" ELEVATION

APPLICABLE MODELS:
2/4A6B, 4A6C, 4A6H, 4A6Z, 4A6V,
2/4A7B, 2/4A7C, 4A7A, 4A7Z, 4A7V, 2/4TTA, 2/4TTB, 2/4TWB

AMERICAN STANDARD UNITS

DESIGNATION		ITEM	UNIT WEIGHT (LB)	UNIT DIMENSIONS (IN)			ANCHOR LOCATION DIMENSIONS (IN)							
				WIDTH	DEPTH	HEIGHT	CLIP 1		CLIP 2		CLIP 3		CLIP 4	
							X1	Y1	X2	Y2	X3	Y3	X4	Y4
	TYPICAL UNIT	1	120	25.69	28.42	32.77	6 ½	⅝	4 ⅛	24 ⅞	24 ⅜	24 ⅞	23 ⅝	1
		2	120	25.69	28.42	25.60	6 ½	⅝	4 ⅛	24 ⅞	24 ⅜	24 ⅞	23 ⅝	1
		3	120	29.69	32.65	40.70	7 ⅜	¾	4 ¾	28 ¼	28	28 ¼	27 ¼	1 ¼
		4	120	29.69	32.65	28.77	7 ⅜	¾	4 ¾	28 ¼	28	28 ¼	27 ¼	1 ¼
		5	245	34.29	37.29	45.77	8 ½	⅞	5 ½	32 ¾	32	32 ⅝	31	1 ⅜
		6	120	34.29	37.29	29.18	8 ½	⅞	5 ½	32 ¾	32	32 ⅝	31	1 ⅜

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-	-	-	-

23-68286

SCALE: NTS UNLESS NOTED

2 OF 2