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SCOPE OF WORK:

INSTALLATION OF A SOLAR WATER HEATING SYSTEM WITH A ROOF TOP COLLECTOR

DESIGNED PER:

ASCE 7-05

WIND LOAD:

DESIGNED FOR 160 MPH

WIND EXPOSURE:

EXPOSURE CATEGORY C

SOLAR SYSTEM COLLECTOR:

MODEL: AE-21/AE-24/AE-26/AE-28/AE-32/AE-40/
MSC21 / MSC-32 / MSC-40/SHC-21/SHC-32/SHC-40

APPLICABLE CODE:

FLORIDA 2007 CODE W/09 SUPP

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I CERTIFY THAT THIS DESIGN & SPECIFICATIONS MEET THE REQUIREMENTS OF THE CURRENT FLORIDA BUILDING CODE.

ALLEN GEZELMAN
16502 HANNA RD.
LUTZ, FLORIDA 33549

PH. 813 650 7246
FX. 866 397 9050
Allen@GezelmanPE.com
www.GezelmanPE.com

RAISED SEAL

VOID WITHOUT

PE. #59180

VOID WITHOUT

cAdvice.us

Contact:

cAdvice Inc.
3603 E Ronellie Cir.
Tampa FL 33629
PH. 813 919 9154
FX. 866 694 7251
mail@cAdvice.us // www.cAdvice.us

INSTALLATION OF A ROOF TOP
SOLAR WATER HEATER

SYSTEM:

SHC Solar Hydronics Corp.

1423 GUNN HIGHWAY
ODESSA, FL 33556

REV.083109-TM

PUBLISHED: 1/1/2012 6:11:10 PM

THIS IS A SINGLE SHEET PLAN

SHEET NAME:

PERMIT SET

DRAWN: SB CHECKED: AG

SHEET NO:
A.1.3-MD

AS.1.3.WP_MD.dwg

SOLAR INSTALLATION NOTES FOR MIAMI DADE

THE DETAILS SPECIFIED ON THIS "PAPER" PLAN ARE CONSIDERED TO BE THE MINIMUM NEEDED BY AHJ (AUTHORITY HAVING JURISDICTION, MIAMI DADE, MD) AND INSTALLERS. USERS ARE ENCOURAGED TO ACCESS EV (ELECTRONIC VERSION) OF THIS PLAN. ACTIVE HYPERLINKS ON EV PROVIDE EASY ACCESS TO SUPPLEMENTAL INFORMATION. EV ALSO ALLOWS VIEWER TO STUDY THE PLAN AND DEM DETAILS AT MAGNIFICATIONS OF VIEWER CHOICE UP TO 400%. IF A CONFLICT SHOULD OCCUR BETWEEN A DRAWING AND/OR SPECIFICATION HEREON AND AN OEM DETAIL, OEM SHALL PREVAIL.

CONTRACTOR'S ATTENTION IS DIRECTED TO MIAMI DADE SOLAR FORMS & GUIDELINES. THREE ITEMS: CONTRACTOR MUST PRINT & CAREFULLY COMPLETE/COPY EACH

1. SOLAR SYSTEM DISCLOSURE FORM

HTTP://WWW.MIAMIDADE.GOV/BUILDING/LIBRARY/PERMITS/SOLAR-DISCLOSURE-OWNER.PDF

COMPLETELY SELF-EXPLANATORY. MASTER PERMIT NUMBER (N/A) AND PROCESS # ENTERED BY MD. OWNER & CONTRACTOR MUST BOTH SIGN.

2. SOLAR ROOF FORM

HTTP://WWW.MIAMIDADE.GOV/BUILDING/LIBRARY/PERMITS/SOLAR-ROOF.PDF

PAGE 1 OF 3 MD ENTERS FIRST TWO NUMBERS - MASTER PERMIT (N/A), PROCESS NUMBER

FSEC APPROVAL FORM - N/A. ENTER SYSTEM APPROVAL NUMBER S_ _ _ _ INSTEAD:

SDHW - HTTP://WWW.FSEC.UCF.EDU/EN/CERTIFICATION-TESTING/STSYSTEMS/RATINGS/DHW_APPROVS.HTM

01151	Solar Hydronics Corp.	0.040-01	142-48	48	18	21	21	21
01151	Solar Hydronics Corp.	0.040-01	142-48	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17
01151	Solar Hydronics Corp.	0.040-01	142-32	12	18	17	17	17

SPH - HTTP://WWW.FSEC.UCF.EDU/EN/CERTIFICATION-TESTING/STSYSTEMS/RATINGS/POOL_RATINGS.HTM

01151	Solar Cto. Inc.	0.040-01	142-48	48	18	21	21	21
01151	Solar Cto. Inc.	0.040-01	142-48	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17
01151	Solar Cto. Inc.	0.040-01	142-32	12	18	17	17	17

ENTER ESTIMATED ROOF SLOPE & HEIGHT OF MIDDLE OF THE SOLAR ARRAY ABOVE THE GROUND.

ENTER ROOF PERIMETER WIDTH (NORMALLY 4-FT) BUT SEE FIGURE 03. CALCULATE PZ2 ZONE WIDTH (40% OF EAVE HEIGHT, TYPICALLY 10-FT * 0.40 = 4-FT). PZ2 IS PERIMETER BAND AROUND EACH ROOF SECTION. SOLAR INSTALLATIONS ARE FORBIDDEN IN PZ3 (ROOF CORNERS, DIMENSIONS - PZ2 BY PZ2). PZ1 IS THE MIDDLE FIELD OF ROOF WITH LOWEST WIND PRESSURE (PZ1 HAS A 1.0 MULTIPLIER, WHEREAS PZ2 MULTIPLIER IS ABOUT 1.6, AND PZ3 IS ABOUT 2.6).

SOLAR ROOF FORM (CONTINUED) USE TABLE BELOW FOR PZ1 & PZ2 TO ENTER AT TOP OF PAGE 2 OF 3

COMPUTATIONAL NOTES. THESE VALUES WERE INTERPOLATED FOR 146-MPH USING ASCE 7-05 COMPONENTS & CLADDING - METHOD 1. NET DESIGN WIND PRESSURES, LESS THAN 60-FT, EFFECTIVE WIND AREA 10-SF. VALUE DETERMINED MULTIPLIED BY HEIGHT & EXPOSURE ADJUSTMENT FACTOR FROM PAGE 44. ALL SOLAR PANELS MOUNTED PARALLEL TO ROOF WITH PRESSURE EQUALIZATION GAP BETWEEN 1/8" TO 4" SEPARATING REAR OF SOLAR PANELS FROM ROOF.

DESIGN PROFESSIONAL CALCULATED ROOF PRESSURES

ROOF SLOPE (PSINEG)	<= 2/12	>= 2/12 <= 7/12	>= 7/12
MEAN SOLAR HEIGHT - FT	PZ1	PZ2	PZ3
15	38	63.9	34.8
20	40.6	68.3	37.2
25	42.4	71.3	38.9
30	44	73.9	40.9
35	45.1	76.4	42.7

GO TO PAGE 3 OF 3 MD SOLAR ROOF FORM AND CHECK APPROPRIATE BOXES. WRITE DECK DETAILS AT BOTTOM OF PAGE - FOR EXAMPLE 5/8-INCH PLYWOOD ON WOOD TRUSSES.

GUIDELINES

HTTP://WWW.MIAMIDADE.GOV/BUILDING/LIBRARY/GUIDELINES/SOLAR-SYSTEMS-PERMIT.PDF

CONTRACTOR MUST PRINT & FOLLOW INSTRUCTIONS CAREFULLY:

1. CONTRACTOR TO PROVIDE ROOF DIAGRAM SHOW ALL DIMENSIONS & THE TOTAL OF EACH ROOF AREA USED.

2. SHOW MAJOR DETAILS: HIPS, RIDGE, EAVE, VALLEYS, VENTS, ETC. FOR EACH ROOF AREA USED.

3. SHOW SOLAR LOCATION & SQUARE FEET INSTALLED ON EACH ROOF AREA.

THERE IS REDUNDANCY BETWEEN THIS GUIDELINE AND SOLAR ROOF PERMIT FORM.

ENGINEER OF RECORD WILL REVISE SOLAR PLAN DOCUMENT PERIODICALLY AS NEEDED TO INCORPORATE INFORMATION DEMANDED BY MIAMI DADE SOLAR IN GUIDELINE AND FORMS.

4. ENTER VALUES FROM ABOVE TABLE.

5. PZ2 WIDTH (40% EAVE HEIGHT).

6. DESCRIBE ROOF DECK - EXAMPLE: WOOD TRUSSES WITH 5/8" PLYWOOD SHEETING.

7. CHECK BOX.

8. ENTER TYPE OF ROOF COVERING: EXAMPLES, SHINGLE? TILE? METAL? ETC? (INCLUDE DETAILS).

9. ROOF CLEARANCE - FLUSH MOUNT VARIES FROM 1/8" TO 4".

10. PROVIDE DRAWING WITH ROOF PENETRATION FLASHING DETAILS - IF DIFFERENT FROM SHOWN ON THIS PLAN.

11. N/A.

12. PROVIDE COMPLETED & SIGNED SOLAR DISCLOSURE FORM.

TOP OF GUIDELINES PAGE 2 OF 4

a. N/A - TOP CHECK BOX DOES NOT APPLY UNLESS SOLAR IS BUILDING INTEGRATED, E.G. MOUNTED AS PART OF BUILDING ENVELOPE COVERING - JUST LIKE A SKYLIGHT, WINDOW, OR DOOR.

b. UP-LIFT FORCES FROM TABLE ABOVE.

c. STRUCTURAL VERIFICATION - SOLAR GRAVITY LOAD UPON ROOF FRAMING LESS THAN 4, PSF.

d. CONNECTIONS: UPLIFT FORCES RESISTED BY 5/16" CRS LAG AT 307 LBS/INCH WITH 3-INCH EMBEDMENT INTO ROOF FRAMING. LATERAL FORCES NEGLIGIBLE.

WATER PROOF BY LAGGING THRU A GENEROUS PUDDLE OF APPROVED POLYURETHANE ROOF SEALANT.

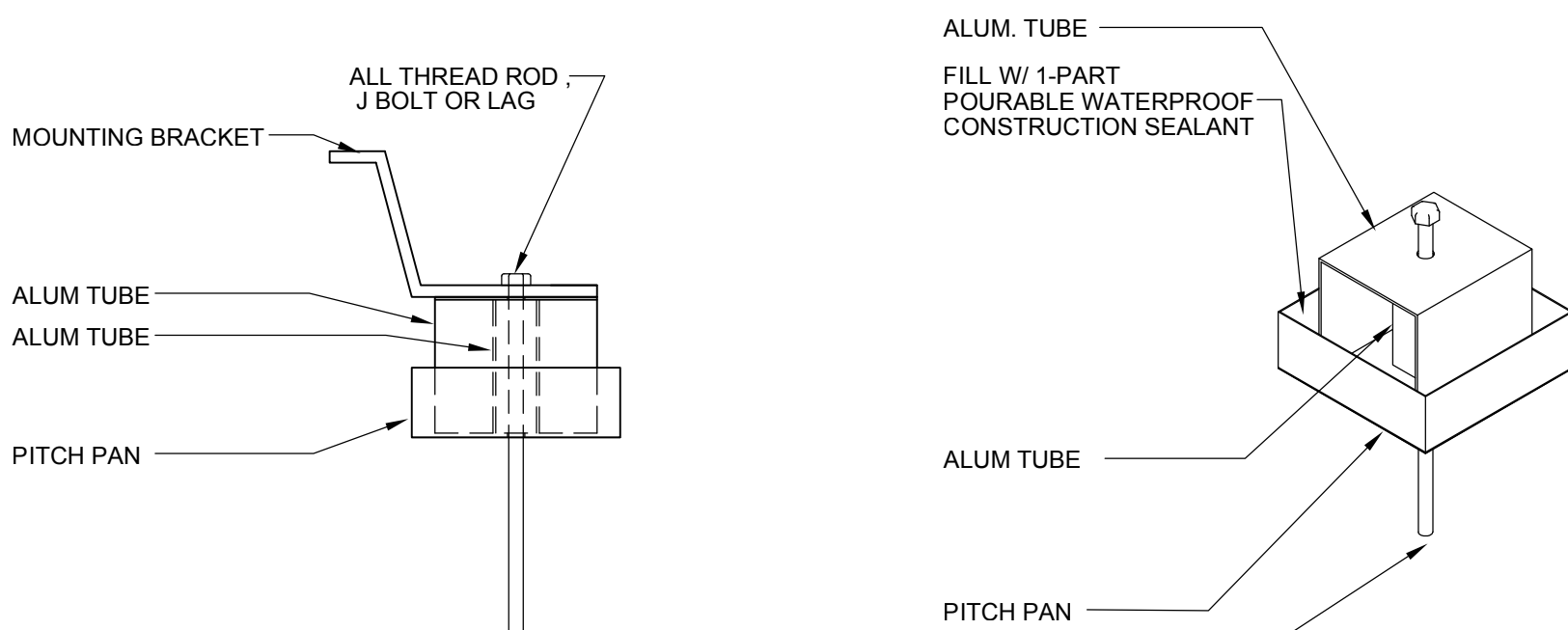
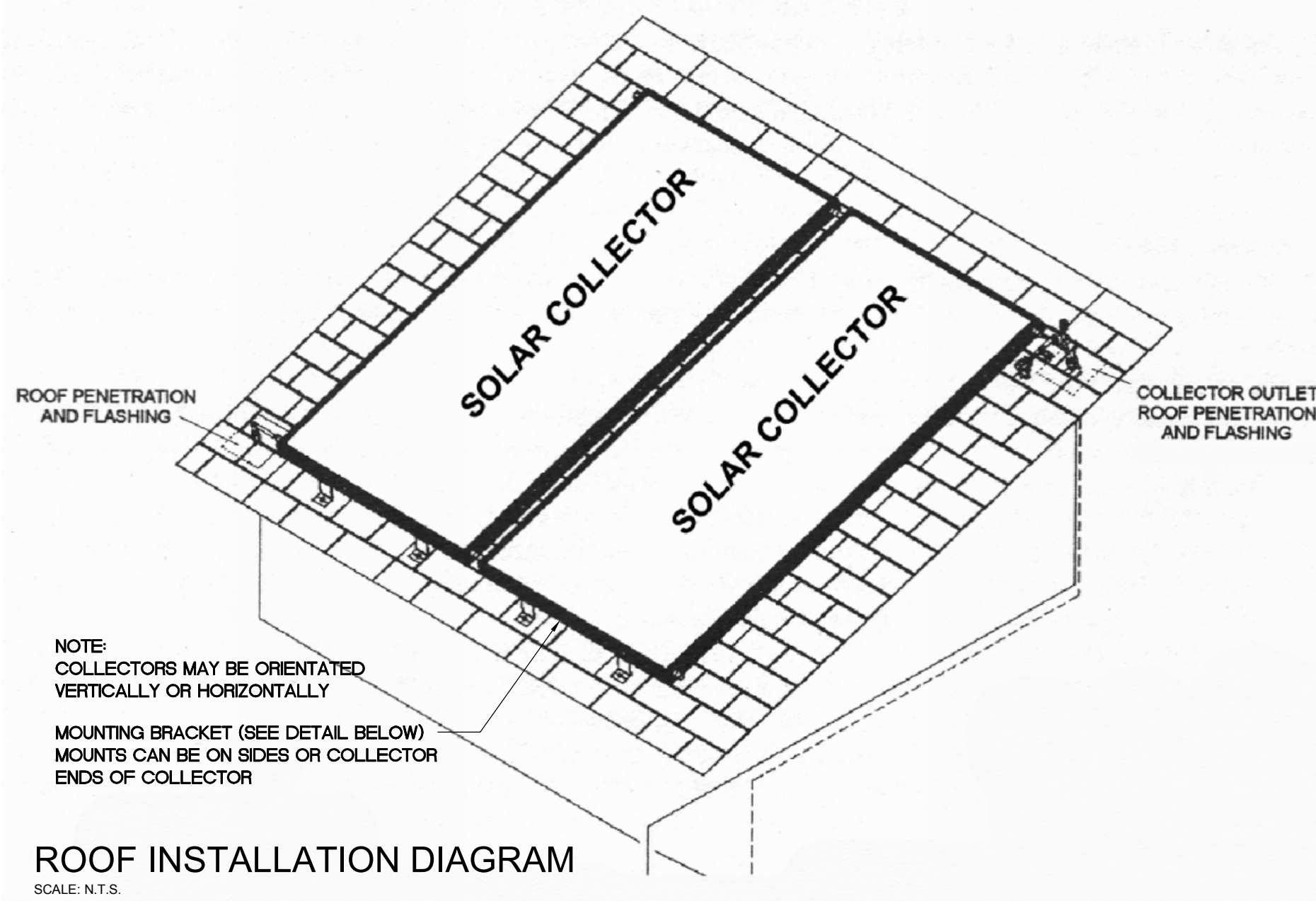
GUIDELINES PAGE 2 OF 4 - BOTTOM AND TOP OF PAGE 3 OF 4

CHECK APPLICABLE BOXES). PROVIDE INFORMATION DEMANDED

NOTE: SUITABLE FOR HVHZ SEE CALCULATIONS: HTTP://GEZELMANPE.COM/ST_INSTALLATION.HTML

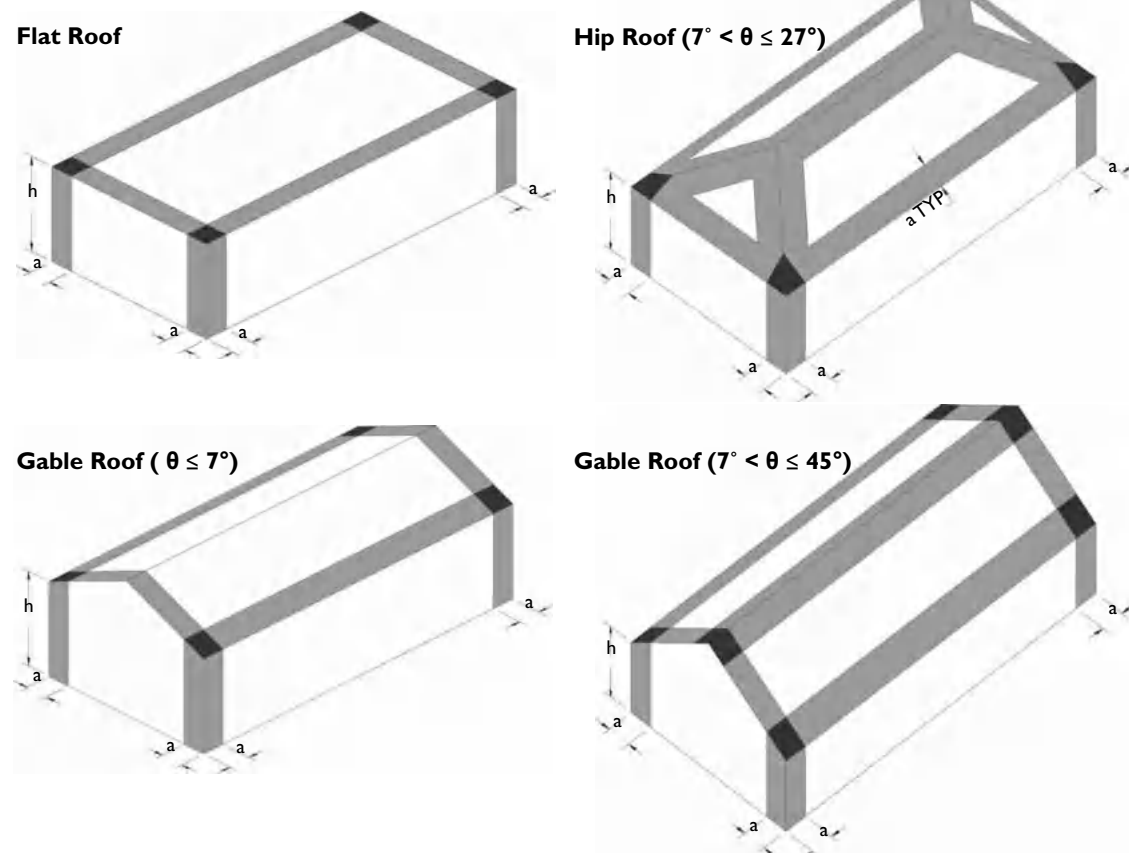
REGARDING WIND LOAD - MY DESIGNS CLEARLY SHOW COMPLIANCE PER ASCE 7 WITH THE FLORIDA BUILDING CODE.

REGARDING GRAVITY LOAD - OUR HEAVIEST COLLECTOR WEIGHS 165 POUNDS WHICH IS DISTRIBUTED OVER A 40 S.F AREA. WATER IN THE COLLECTOR IS NEGLIGIBLE. EACH COLLECTOR HOLDS ABOUT A GALLON OF WATER. POOL COLLECTORS A BIT MORE, HOT WATER COLLECTORS A LITTLE LESS. REGARDLESS, SOLAR PANELS ARE AN INSIGNIFICANT LOAD ON THE ROOF UNDERNEATH!



02 FIGURE 2
SCALE: VARIES

Figure 2. Enclosed buildings, wall and roofs

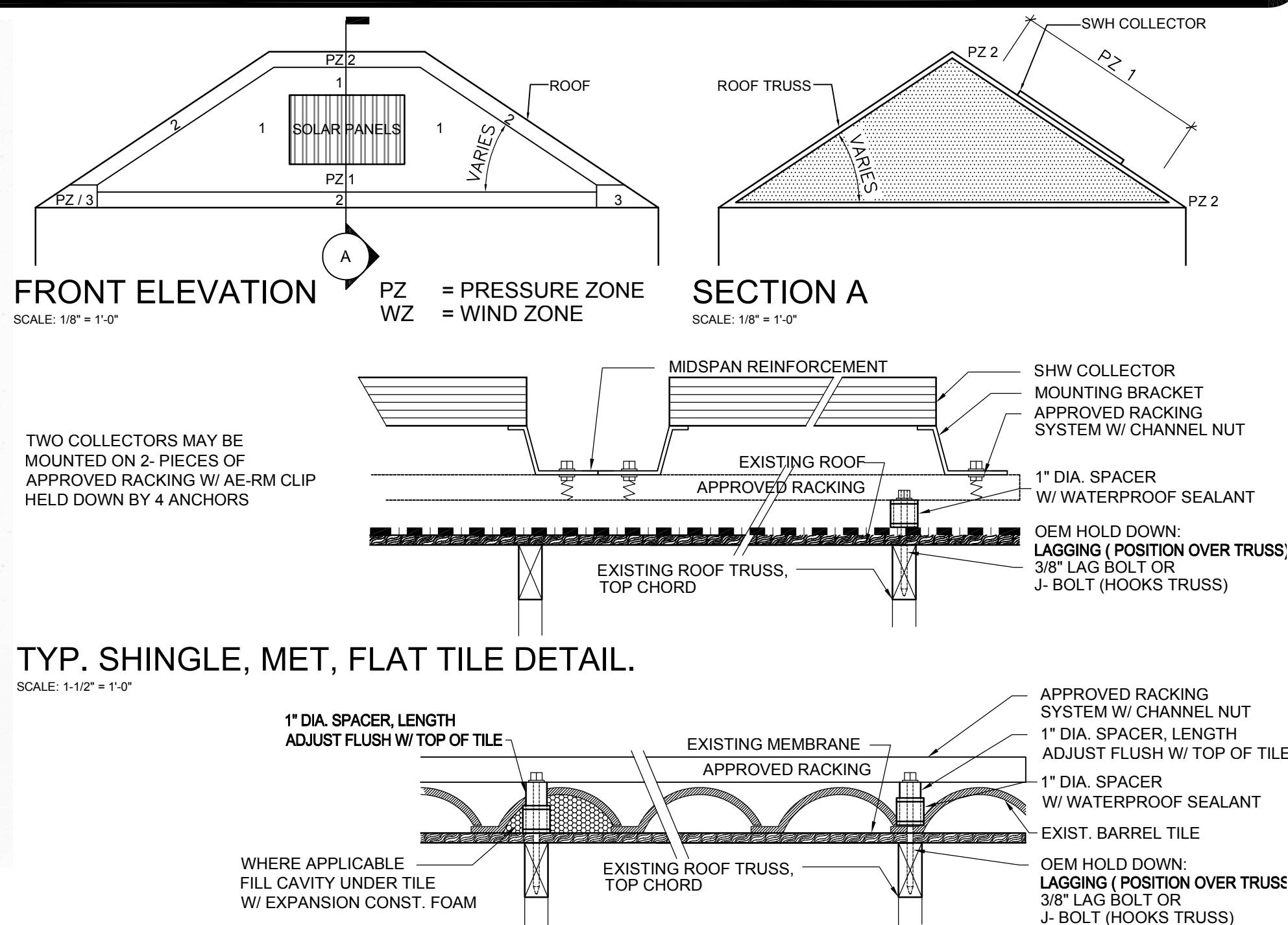


03 FIGURE 3
SCALE: N.T.S.

Source: ASCE/SEI 7-05, Minimum Design Loads for Buildings and Other Structures, Chapter 6, p. 41.

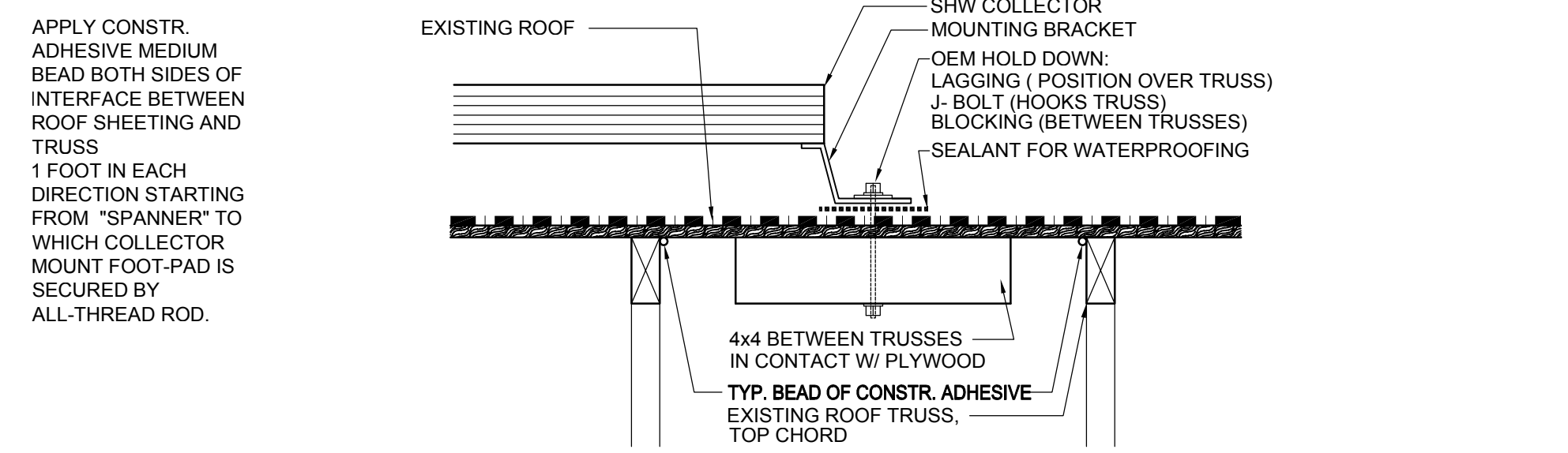
GENERAL NOTE:

ALL HOT WATER SOLAR COLLECTORS SOLD IN THIS STATE ARE REQUIRED TO HAVE BEEN TESTED BY THE FLORIDA SOLAR ENERGY CENTER AND BEAR ITS CERTIFICATION LABEL. THE COLLECTORS LISTED ON THIS PLAN COMPLY WITH THOSE REQUIREMENTS. FURTHER INFORMATION MAY BE ACCESSED ON LINE AT:
HTTP://WWW.FSEC.UCF.EDU/EN/INDUSTRY/TESTING/STCOLLECTORS/HOT_WATER_RATINGS/INDEX.HTM



TYP. SHINGLE, MET, FLAT TILE DETAIL.

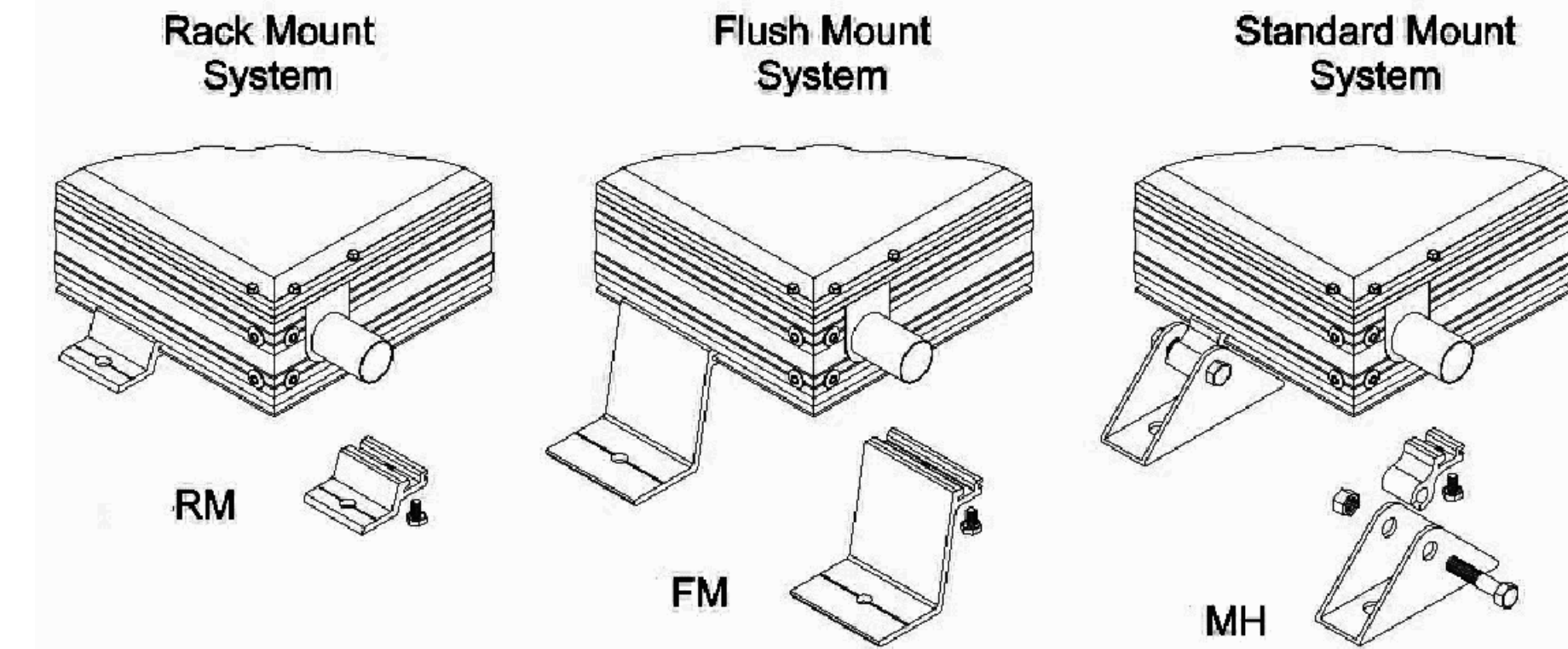
SCALE: 1-1/2" = 1'-0"



NOTE -THERE SHALL BE AT LEAST 4 HOLD-DOWN ATTACHMENTS FOR EACH SOLAR COLLECTOR ON A ROOF.

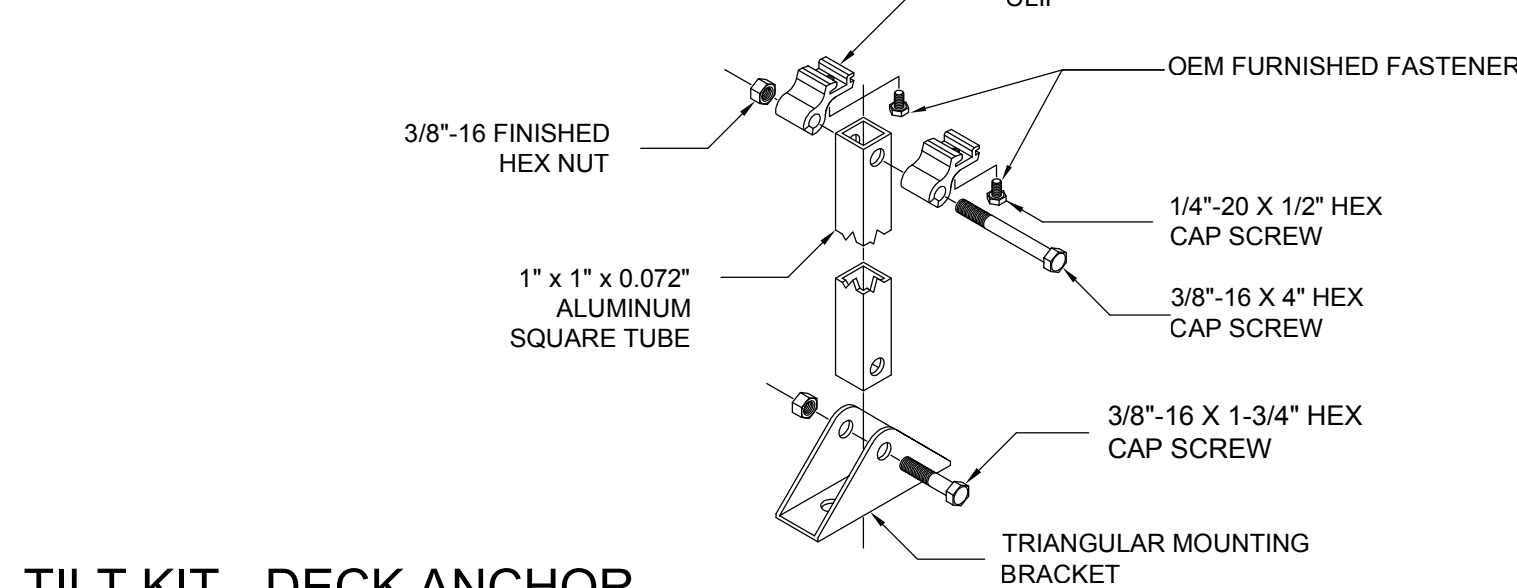
TYP. MOUNTING DETAIL

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



MOUNTING BRACKETS

SCALE: N.T.S.



TILT KIT - DECK ANCHOR

SCALE: N.T.S.

02 FIGURE 2
SCALE: VARIES