

SCOPE OF WORK:
INSTALLATION OF A SOLAR WATER HEATING SYSTEM WITH A GROUND MOUNT COLLECTOR

DESIGNED PER:
ASCE 7-05

WIND LOAD: -57.6 PSF
DESIGNED FOR 150 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

THIS PLAN IS VOID WITHOUT MY SIGNATURE & RAISED SEAL. THIS PLAN MAY NOT BE PLACED ON FILE FOR PULLING MULTIPLE PERMITS. EACH PERMIT PULLED REQUIRES ITS OWN RAISED SEAL COPY OF THIS PLAN.

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

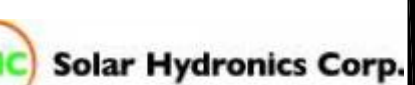


cAdvice.us

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

INSTALLATION OF A GROUND MOUNT
SOLAR WATER HEATER

SYSTEM:



1423 GUNN HIGHWAY
ODESSA, FL 33556

REV.083109-TM

PUBLISHED: 8/27/2010 6:42:17 AM

THIS IS A SINGLE SHEET PLAN

SHEET NAME:
PERMIT SET

DRAWN: SB CHECKED: AG

SHEET NO:
A.14

AS-1.4.WH.dwg

INSTALLATION NOTES:

SOLAR HYDRONICS, DHW (DOMESTIC HOT WATER), GROUND MOUNT

THE DETAILS SPECIFIED ON THIS "PAPER" PLAN ARE CONSIDERED TO BE THE MINIMUM NEEDED BY AHJ AND INSTALLERS. HYPERLINKS ARE PROVIDED HEREON TO SUPPLEMENTAL OEM, GOVERNMENTAL AND OTHER INFORMATION SOURCES IN ORDER TO PROVIDE COMPLETE, EASY INFORMATION AVAILABILITY. USERS ARE ENCOURAGED TO ACCESS AN EV (ELECTRONIC VERSION) OF THIS PLAN AT [HTTP://WWW.SW.CADVICE.US/AS.1.4.WH.PDF](http://www.sw.cadvice.us/as.1.4.wh.pdf). EV HYPERLINKS ARE ACTIVE AND WILL PROVIDE EASY ACCESS TO INFORMATION. EV ALSO ALLOWS VIEWER TO STUDY THE PLAN AT A MAGNIFICATION OF HIS CHOICE UP TO 6400%. IF A CONFLICT SHOULD OCCUR BETWEEN THE SPECIFICATIONS HEREON AND AN OEM DETAIL, OEM SHALL PREVAIL.

1. LONG AXIS HORIZONTAL - FIG. 2 TOP DRAWING
2. LONG AXIS VERTICAL - FIG. 2 BOTTOM DRAWING

THE SOLAR HYDRONICS CORPORATION DHW SOLAR COLLECTORS HAVE PASSED MIAMI TESTING LABS WIND LOAD TESTING OF -102 PSF PER ASTM E-330 (MTL FILE NUMBER 95-1249). THIS ENGINEER HAS EVALUATED THE INSTALLATION COMPONENTS AND HARDWARE CURRENTLY PROVIDED BY SOLAR HYDRONICS CORPORATION AS OEM INSTALLATION KITS AND FOUND THEM TO MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE CURRENT AS OF THE DATE OF THIS PLAN. THERE SHALL BE NO SUBSTITUTION OF OTHER VENDOR MATERIALS.

PLUMBING SHALL BE PER FIGURE 1. FLORIDA PLUMBING CODE SHALL BE ADHERED TO. PARTICULAR ATTENTION SHALL BE GIVEN TO PROTECTION AGAINST OVER-PRESSURE AND FREEZING - PER FLORIDA MECHANICAL CODE, CHAPTER 14, AND PER SOLAR HYDRONICS CORPORATION INSTALLATION INSTRUCTIONS. THIS DRAWING SHOWS THE "D" VERSION PLUMBING. HOWEVER, THERE ARE OTHER VARIANTS (PHOTO-VOLTAIC PUMP, INDIRECT, AND/OR DRAIN-BACK) WHICH, ALTHOUGH NOT SPECIFICALLY SHOWN HEREON, ARE COVERED BY THIS SEALED DRAWING - SO LONG AS INSTALLED PER SOLAR HYDRONICS CORPORATION INSTALLATION INSTRUCTIONS

EJCDC C-700

ALL AFFIDAVITS, DESIGNS, OPINIONS, CALCULATIONS & OTHER ENGINEERING SERVICES PROVIDED BY ALLEN GEZELMAN PE AND HIS ASSOCIATES ON ANY AND ALL PROJECTS ARE SUBJECT TO THE PROVISIONS OF EJCDC C-700 (ENGINEERS JOINT CONSTRUCTION DOCUMENT COMMITTEE - STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT) CURRENT AT THE TIME THOSE OBJECTING TO SAID EJCDC C-700 OR PROVISIONS THEREOF ARE DIRECTED NOT TO USE THE AFFIDAVIT, DESIGN, OPINION, CALCULATION OR OTHER ENGINEERING SERVICE OFFERED BY ALLEN GEZELMAN PE AND HIS ASSOCIATES ON THE PROJECT. EJCDC C-700 MAY BE VIEWED AT: [HTTP://GEZELMANPE.COM/REFERENCE/AGC-700.PDF](http://gezelmanpe.com/reference/agc-700.pdf)

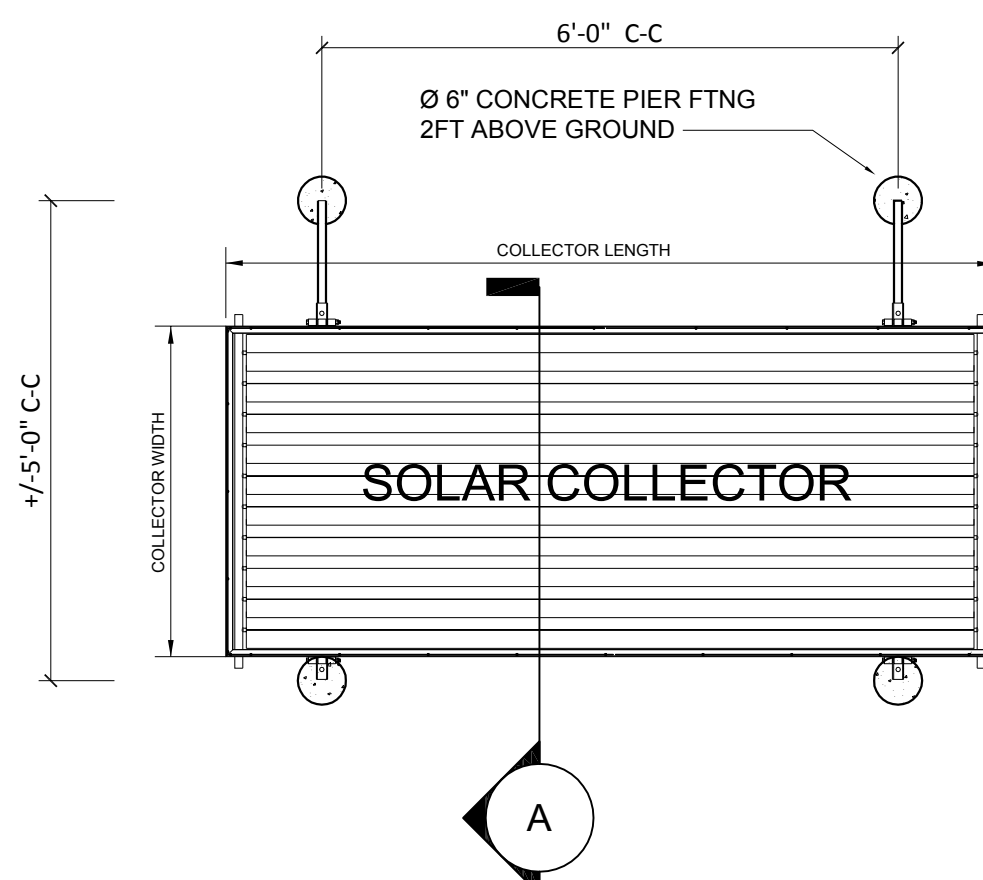
NOTE: SUITABLE FOR HVHZ SEE CALCULATIONS: [HTTP://WWW.GEZELMANPE.COM/INSTALLATIONDWGS.HTML](http://www.gezelmanpe.com/installationdwgs.html)

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

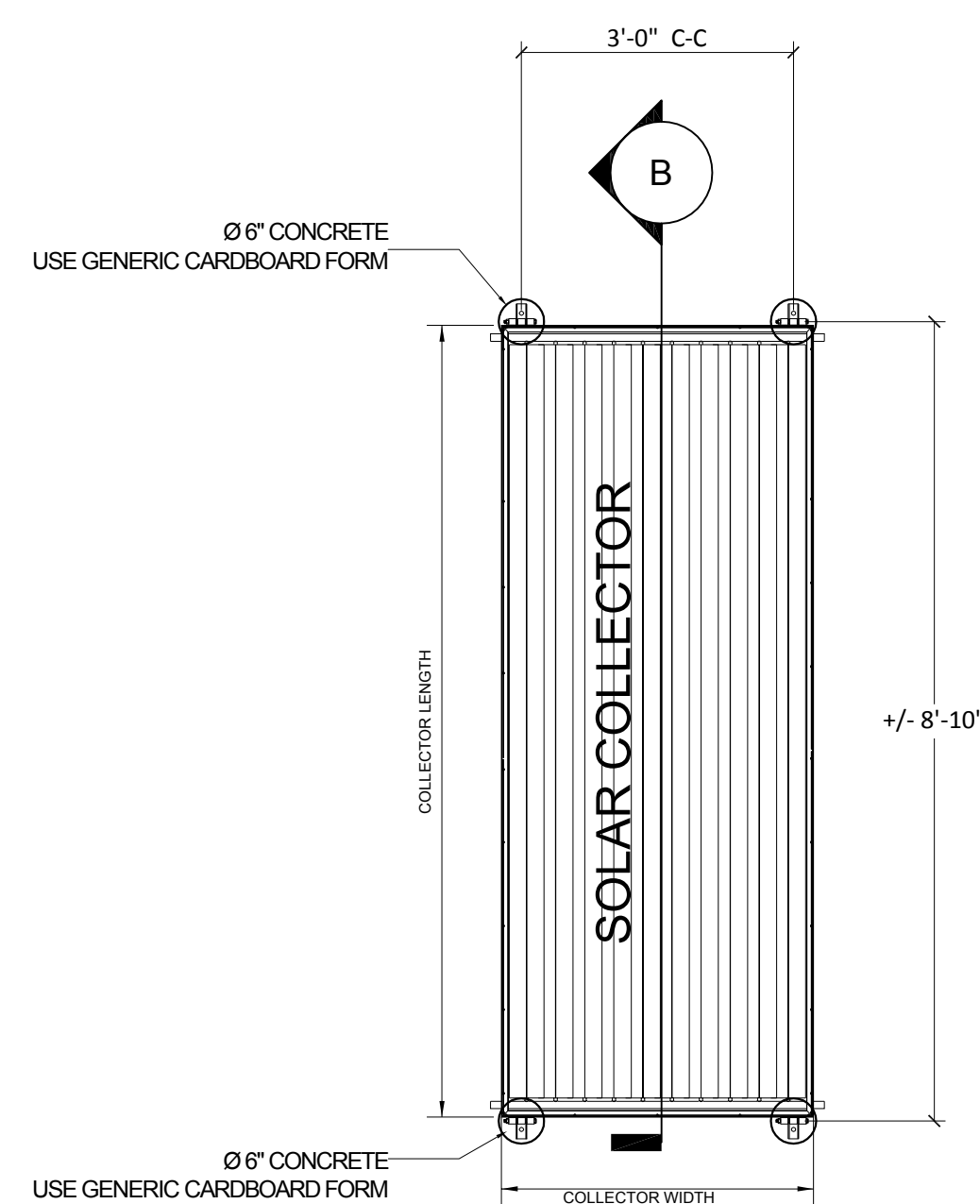
REGARDING GRAVITY LOAD - OUR HEAVIEST COLLECTOR WEIGHS 165 POUNDS WHICH IS DISTRIBUTED OVER A 40 S.F. AREA. WATER IN THE COLLECTOR IS NEGLIGIBLE. EACH COLLECTOR HOLDS ABOUT A GALLON OF WATER. POOL COLLECTORS A BIT MORE, HOT WATER COLLECTORS A LITTLE LESS. REGARDLESS, SOLAR PANELS ARE AN INSIGNIFICANT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

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](http://www.fsec.ucf.edu/en/industry/testing/stcollectors/hot_water_ratings/index.htm)

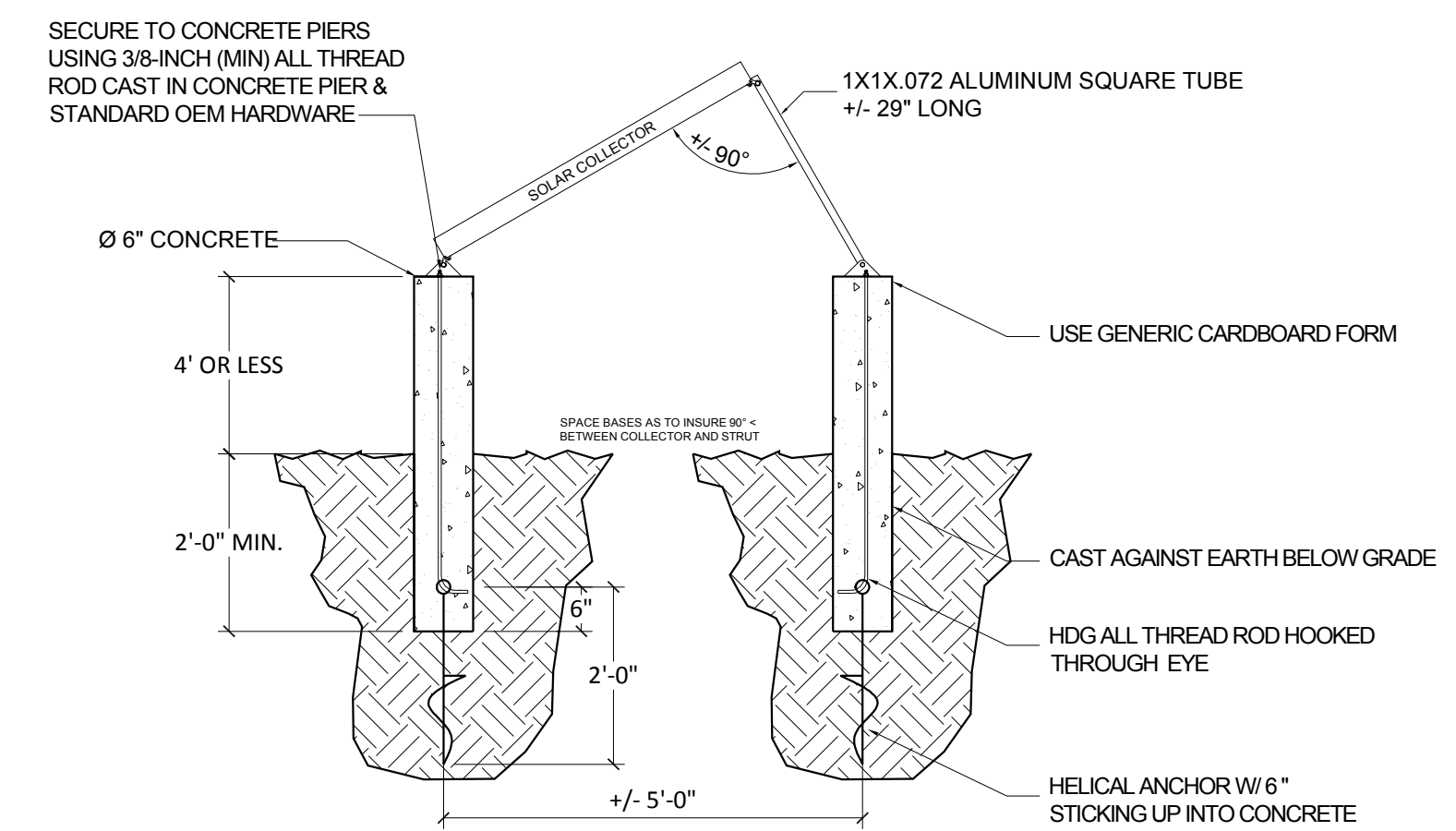


01- COLLECTOR INSTALLATION TOP VIEW
SCALE: 1/2" = 1'-0" - LONG AXIS HORIZONTAL

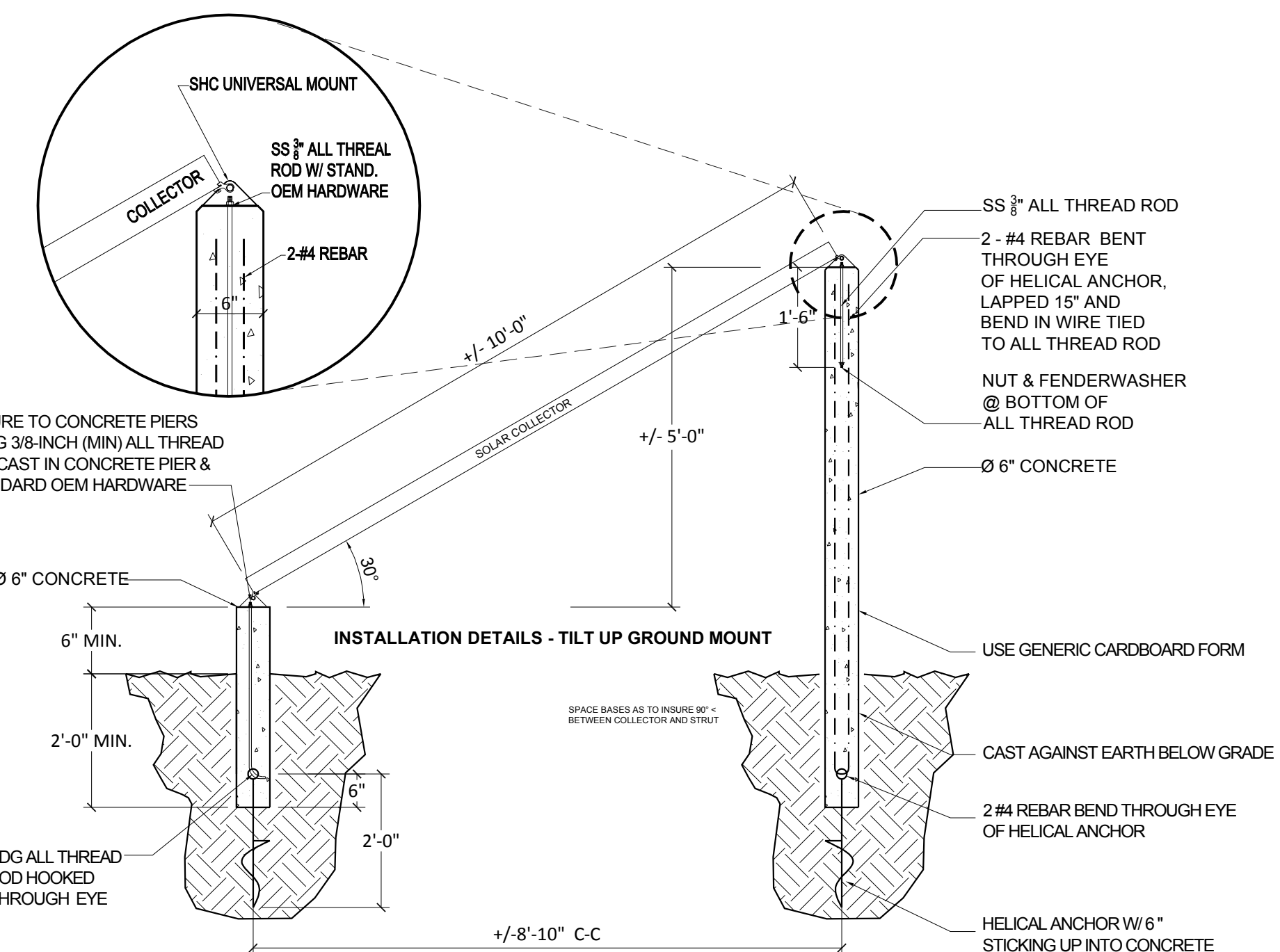


02- COLLECTOR INSTALLATION TOP VIEW
SCALE: 1/2" = 1'-0" - LONG AXIS VERTICAL

INSTALLATION DETAILS - TILT UP GROUND MOUNT

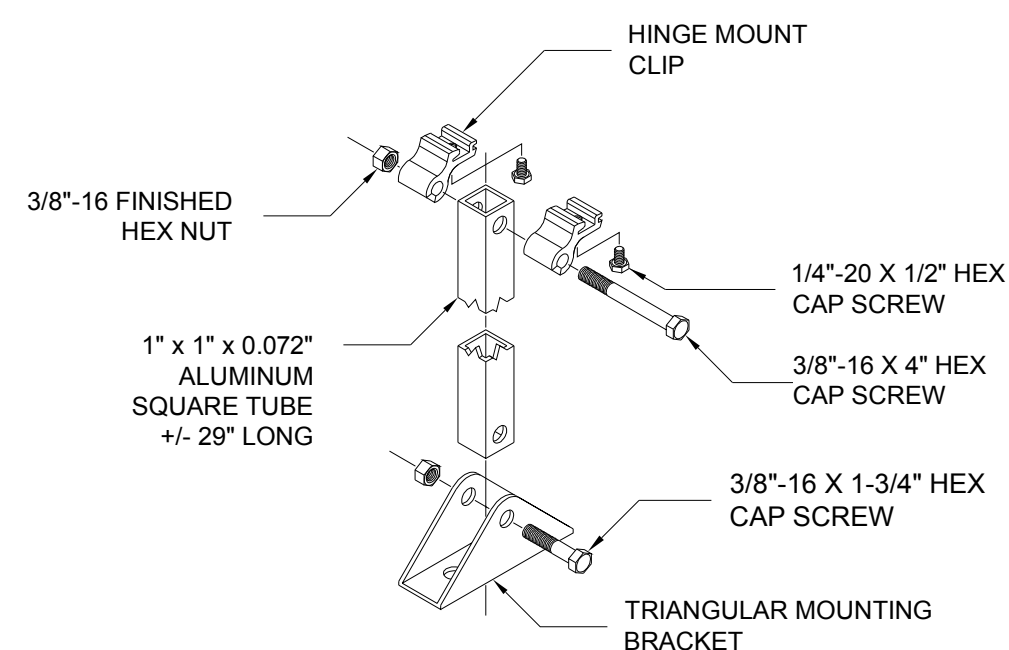


01- CROSS SECTION A-A
SCALE: 1/2" = 1'-0" - LONG AXIS HORIZONTAL



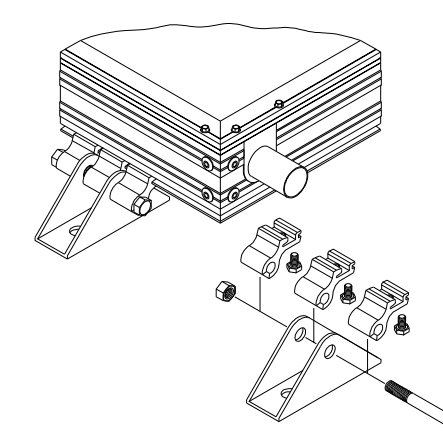
02- CROSS SECTION B-B
SCALE: 1/2" = 1'-0" - LONG AXIS VERTICAL

MOUNTING CLIP - ISOMETRIC



TILT KIT - ISOMETRIC
SCALE: N.T.S.

STANDARD MOUNT



MOUNTING CLIPS
SCALE: N.T.S.

INSTALLATION REQUIREMENTS

- 1) THE SOLAR COLLECTOR INSTALLATION AS DETAILED IN THIS DRAWINGS IS FOR THE INSTALLATION OF SOLAR HYDRONICS AE-SERIES SOLAR COLLECTORS SUBJECTED TO A MAXIMUM UPLIFT PRESSURE OF NEGATIVE 102 POUNDS PER SQUARE FOOT (PSF).
- 2) THE DESIGN OF THIS INSTALLATION IS BASED ON REQUIREMENTS OF THE CURRENT FLORIDA BUILDING CODE, ASCE 7 AND TESTING OF THE SOLAR COLLECTOR IN ACCORDANCE WITH PA 202 (TAS 202-94), ASTM E 330
- 3) THE INSTALLATION SHALL UTILIZE HARDWARE PROVIDED BY THE MANUFACTURER AS DETAILED IN THIS DRAWING.
- 4) ALL ALUMINUM STRUCTURAL MEMBERS TO BE 6061-T6. ALL BOLTS, NUTS, ETC.... TO BE STAINLESS STEEL.

| AE - SERIES COLLECTORS | | | |
|------------------------|-----------|----------|-----------|
| MODEL | ABSORBER | WIDTH | LENGTH |
| AE-21 | SELECTIVE | 35.1875" | 85.1875" |
| AE-24 | SELECTIVE | 35.1875" | 97.1875" |
| AE-26 | SELECTIVE | 47.1875" | 77.1875" |
| AE-28 | SELECTIVE | 47.1875" | 85.1875" |
| AE-32 | SELECTIVE | 47.1875" | 97.1875" |
| AE-40 | SELECTIVE | 47.1875" | 121.1875" |

DESIGN WIND PRESSURE
MAXIMUM SUCTION UPLIFT: 57.6 PSF

FIGURE 2
SCALE: VARIES

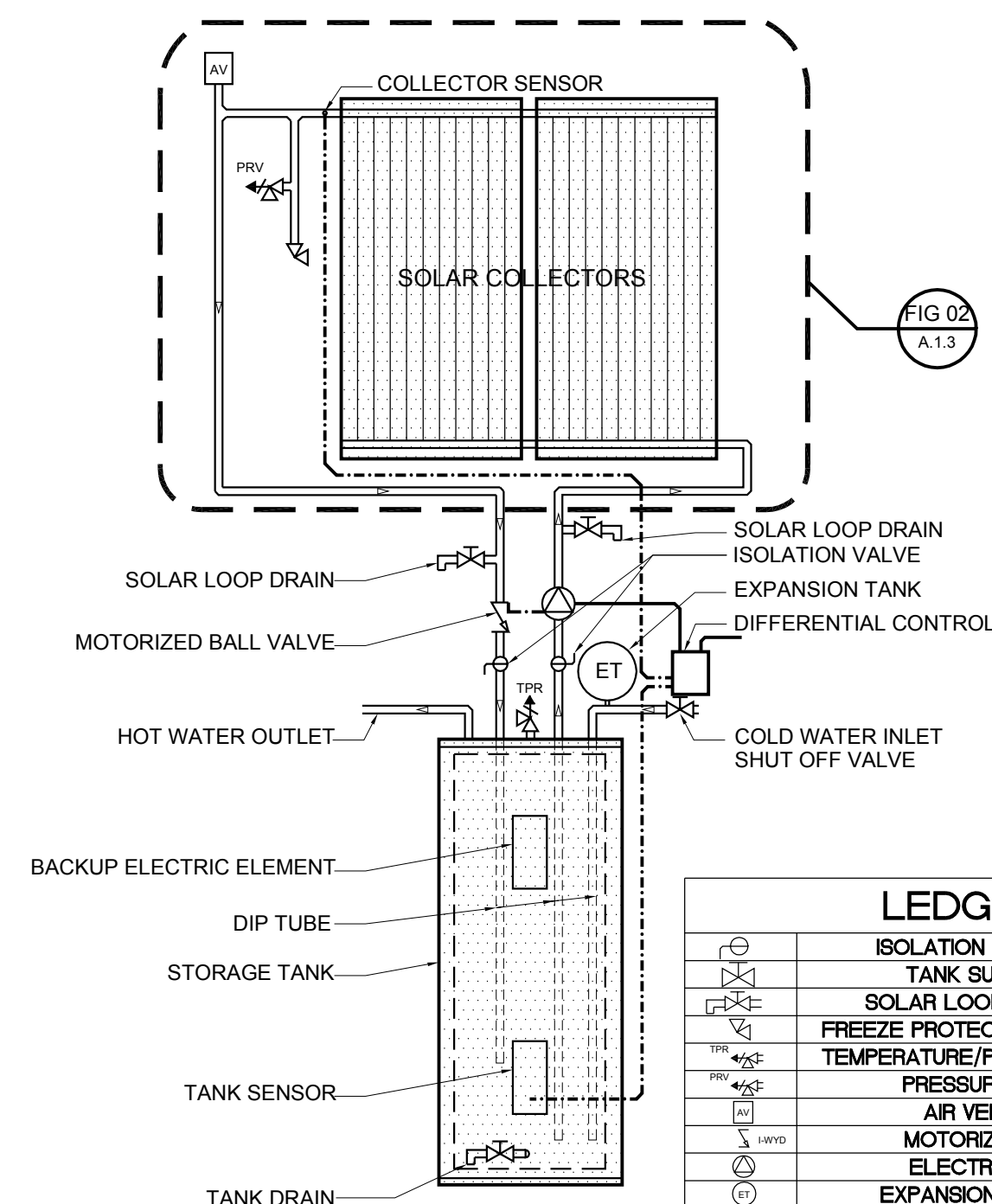
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DIRECT "D" SYSTEM

THIS DRAWING SHOWS THE SOLAR HYDRONICS CORPORATION DHW "D" (DIRECT) SYSTEM AND THIS PARTICULAR SYSTEM'S PLUMBING. THERE ARE OTHER, SLIGHTLY DIFFERENT, SOLAR HYDRONICS CORPORATION DHW SYSTEM VARIANTS WHICH ARE ALSO COVERED BY THIS SEALED DRAWING. THIS IS BECAUSE THE CRITICAL ELEMENT - THE COLLECTOR(S) AND ROOF MOUNTING DETAILS REMAIN THE SAME WHETHER THE SOLAR HYDRONICS CORP. DHW SYSTEM BEING INSTALLED IS A DIRECT, IN-DIRECT OR DRAIN-BACK MODELS WHICH CAN BE CONFIGURED WITH EITHER AN A/C OR D/C CONTROLLED ELECTRIC PUMP



| LEDGEND | |
|----------|------------------------------------|
| [Symbol] | ISOLATION VALVE (OPTIONAL) |
| [Symbol] | TANK SUPPLY SHUT OFF |
| [Symbol] | SOLAR LOOP DRAIN (OPTIONAL) |
| [Symbol] | FREEZE PROTECTION VALVE (OPTIONAL) |
| [Symbol] | TEMPERATURE/PRESSURE RELIEF VALVE |
| [Symbol] | PRESSURE RELIEF VALVE |
| [Symbol] | AIR VENT (OPTIONAL) |
| [Symbol] | MOTORIZED BALL VALVE |
| [Symbol] | ELECTRIC PUMP AC/DC |
| [Symbol] | EXPANSION TANK (OPTIONAL) |

FIGURE 1
SCALE: N.T.S.