

SCOPE OF WORK: INSTALLATION OF A SOLAR POOL HEATING SYSTEM WITH A ROOF TOP COLLECTOR	SOLAR HYDRONICS CORP COLLECTOR: DIMENSIONS: 4'-0" X P.L. (8', 10' OR 12') OPTIONAL SIZE(S) 2'-0" X P.L. (8', 10' OR 12')	ROOF ANGLE: COLLECTOR INSTALLATION STANDARD FLUSH W/ ROOF
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SHC (SOLAR HYDRONICS CORP) CALIFORNIA SPH (SOLAR POOL HEATER) SYSTEM INSTALLATION NOTES:

THE DETAILS SPECIFIED ON THIS "PAPER" PLAN ARE CONSIDERED TO BE THE MINIMUM NEEDED BY A/H (AUTHORITY HAVING JURISDICTION) AND INSTALLERS. USERS ARE ENCOURAGED TO ACCESS EV (ELECTRONIC VERSION) OF THIS PLAN [HTTP://CADVICE.US/AS.2.2.PH_CA.PDF](http://CADVICE.US/AS.2.2.PH_CA.PDF)

ACTIVE HYPERLINKS ON EV PROVIDE EASY ACCESS TO INFORMATION. EV ALSO ALLOWS VIEWER TO STUDY THE PLAN AND OEM DETAILS AT A MAGNIFICATION OF HIS CHOICE UP TO 6400%. IF A CONFLICT SHOULD OCCUR BETWEEN A DRAWING AND/OR SPECIFICATION HEREON AND AN OEM DETAIL, OEM SHALL PREVAIL. FULL OF WATER SHC SPH COLLECTORS IMPOSE A GRAVITY LOAD OF LESS THAN 1-PSF. SNOW LOADS ARE UNAFFECTED BY AND DO NOT ADVERSELY AFFECT THE SOLAR EQUIPMENT. SHC MOUNTING SYSTEM IS EXEMPT FROM SEISMIC CONSIDERATIONS PER ASCE 7-10, PARAGRAPH 13.1.4, BECAUSE DESIGN ALLOWS THE SOLAR EQUIPMENT TO ADJUST TO MOVEMENT IMPARTED BY SEISMIC EVENT WITHOUT DAMAGE. WIND FORCES ARE THE ONLY FORCES WHICH MUST BE CONSIDERED. REFER TO EOR (ENGINEER OF RECORD) SEALED, WIND PRESSURE CALCULATION RESULTS [HTTP://WWW.GEZELMANPE.COM/GENERIC/WINDPRESSURE.HTM](http://WWW.GEZELMANPE.COM/GENERIC/WINDPRESSURE.HTM)

1. SHC REQUIRES THAT THE UPPER HEADER BE CLAMPED TO THE ROOF AT NOT GREATER THAN 4-FT CENTER TO CENTER SPACING WITH SHC CLAMPS WHICH ALLOW MOVEMENT WITH THERMAL EXPANSION AND CONTRACTION.

2. THESE DRAWINGS AND ENGINEERING ESTABLISH THE INSTALLATION REQUIREMENTS FOR SOLAR HYDRONICS CORP. (AKA OEM) SOLAR POOL HEATING EQUIPMENT, FLUSH-MOUNT (RESTING DIRECTLY ON ROOF), ON BUILDINGS IN CALIFORNIA 60 FEET OR LESS IN HEIGHT AND AT ROOF ANGLES FROM FLAT UP TO 45 DEGREES. EOR HAS EVALUATED THE INSTALLATION COMPONENTS AND HARDWARE CURRENTLY PROVIDED BY SHC AS ITS' OEM INSTALLATION KITS AND FOUND THEM TO MEET THE REQUIREMENTS OF CURRENT IBC & CBC (INTERNATIONAL & CALIFORNIA BUILDING CODES). THERE SHALL BE NO SUBSTITUTION OF OTHER VENDOR MATERIALS WITHOUT PRIOR APPROVAL OF EOR THRU SOLAR HYDRONICS CORP.

3. PLUMBING SHALL BE PER FIGURE 1 (WITH OR WITHOUT THE DESIGNATED OPTIONAL ITEMS). CALIFORNIA PLUMBING CODE SHALL BE ADHERED TO WITH PARTICULAR ATTENTION TO PIPE SUPPORT, 4 FT SHALL BE TAKEN AS THE MAXIMUM FOR HORIZONTAL AND 10 FT FOR VERTICAL SOLAR PIPING. CONTRACTOR SHALL INSTALL MANUAL DRAIN DOWN VALVES AND INSTRUCT OWNER IN DRAINING AND THEN RE-STARTING SOLAR POOL HEATING SYSTEM. OWNER SHALL BE INFORMED THAT FREEZE PROTECTION IS UP TO HIM. IF SOLAR POOL HEATER FREEZES, IT IS OWNER'S SOLE RESPONSIBILITY - FREEZE DAMAGE RESULTS FROM AN ERROR IN OPERATION - NOT DESIGN ERROR. COLLECTORS SHOULD ALWAYS BE DRAINED BY OWNER OR OWNER REPRESENTATIVE IN ADVANCE OF NEAR FREEZING WEATHER. FREEZE DAMAGE WILL NOT BE COVERED AS A WARRANTY ITEM.

4. EOR HAS DETERMINED THAT THE HOLD-DOWN STRAPPING AND FASTENERS SUPPLIED BY SOLAR HYDRONICS CORP. WILL NOT BREAK UNDER WINDS UP TO AND INCLUDING 200 MPH 3-SECOND GUSTS. ATTACH THE COLLECTOR ARRAY TO THE ROOF WITH OEM STRAPPING AND OEM "ANCHOR BUTTONS". THE ANCHOR BUTTONS MAY BE LAGGED TO THE ROOF SHEETING IN ASCE ROOF PRESSURE ZONE 1 (PZ1) USING (MINIMUM) #14, CORROSION RESISTANT STEEL(CRS) LAGS, SELECT LENGTH ADEQUATE TO FULLY PENETRATE ROOF SHEETING AND EXTEND 1-INCH BEYOND. IN PZ2 AND PZ3, BUTTONS SHALL BE LAGGED MINIMUM OF TWO INCHES INTO TRUSSES, BLOCKING, OR OTHER STRONG POINT. EOR HEREBY DESIGNATES 54 INCHES AS THE MAXIMUM STRAP SPACING (S") EVERYWHERE IN CALIFORNIA IN ASCE ROOF PRESSURE ZONE 1 (PZ1) (SEE FIGURE 3). CONTRACTOR IS ENCOURAGED TO INSTALL IN PRESSURE ZONE 1 (PZ1) ONLY, WHERE THE COLLECTOR ARRAY MUST STRAY INTO PZ2, CONTRACTOR SHALL REDUCE MAXIMUM STRAP SPACING TO 30-INCHES FOR THAT PORTION OF THE ARRAY. CONTRACTOR IS ENCOURAGED TO AVOID INSTALLATIONS IN PZ3. IF SOLAR ARRAY MUST INCLUDE PZ3, DECREASE STRAP SPACING TO 24-INCHES FOR COLLECTORS WHICH ARE IN PZ3 WHOLELY OR IN PART AND LAGS MUST PENETRATE MINIMUM OF TWO INCHES INTO ROOF STRUCTURAL FRAMING MEMBERS, BLOCKING, OR OTHER STRONG POINT UNDER ROOF SHEETING.

5. SOLAR HYDRONICS CORP. HOLD DOWN STRAPPING APPROVED FOR THE INSTALLATION:

- PLASTIC (POLYPROPYLENE) .0530 WIDE X .100 THICK
- COATED STAINLESS STEEL (PLASTIC COATED/ SS METAL) .540 WIDE X .068 THICK
- WOVEN (POLYESTER) .745 WIDE X .060 THICK

6. WATERPROOFING. CONTRACTOR SHALL ADHERE TO REQUIREMENTS OF IBC/CBC CHAPTER 15 (ROOFING) AND BEST PRACTICES OF THE NRCA R/W/M (NATIONAL ROOFING CONTRACTORS ASSOCIATION ROOFING & WATERPROOFING MANUAL) TO ENSURE THAT THE SOLAR INSTALLATION DOES NOT CAUSE ROOF LEAKS AT INITIAL INSTALLATION OR AS THE SYSTEM "AGES".

LAGGING THRU A GENEROUS PUDDLE OF NOA/PCA APPROVED ROOFING SEALANT IS ADEQUATE
[HTTP://WWW.MIAMIDADE.GOV/BUILDING/PC-SEARCH_APP.ASP](http://WWW.MIAMIDADE.GOV/BUILDING/PC-SEARCH_APP.ASP)
[HTTP://WWW.FLORIDABUILDING.ORG/PR/PR_APP_SRCH.ASPX](http://WWW.FLORIDABUILDING.ORG/PR/PR_APP_SRCH.ASPX)

HOWEVER, CONTRACTOR IS PERMITTED (WITH APPROVAL OF A/H - AUTHORITY HAVING JURISDICTION AKA BUILDING DEPARTMENT) TO USE INSTALLATION DETAILS FROM OTHER APPROVED SOURCES SUCH AS NRCA R/W/M AND ROOFING SYSTEM MANUFACTURER LITERATURE.

7. SO LONG AS THE ANCHORS TO THE ROOF STRUCTURE ARE AS HERIN SPECIFIED AND ARE NOT REDUCED IN NUMBER, CONTRACTOR IS FREE TO USE A SUBSTRATE, OR ALUMINUM MOUNTING FRAME, OF CONTRACTOR'S CHOICE, "SANDWICHED" BETWEEN THE SOLAR COLLECTOR AND ROOF ON A FLUSH MOUNT (NOT TILT UP) INSTALLATION.

8. CONTRACTORS, INSPECTORS, AHS AND OTHERS HAVING QUESTIONS MAY CONTACT EOR DIRECTLY - OFFICE: 813 909 1956, E-MAIL: ALLEN@GEZELMANPE.COM

VULT: 120 MPH EXPOSURE D & ALL RISK CATEGORIES WIND LOAD RESISTANCE DETERMINED BY STRAP SPACING "S" SEE FIG. 2	APPLICABLE CODE: CURRENT INTERNATIONAL & CALIFORNIA BUILDING CODES
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COMPLIANT WITH : CURRENT VERSION OF ASCE 7
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ENLARGED VIEWING: HTTP://WWW.SW.CADVICE.US/AS.2.2.PH_CA.PDF

EJCDC C-700

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VALIDITY:

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TESTING & CERTIFICATION NOTE:

SOLAR POOL HEATING COLLECTORS ARE REQUIRED TO BE TESTED AT AN APPROVED NRTL (NATIONALLY RECOGNIZED TESTING LAB) AND CERTIFIED BY SRCC (SOLAR RATING AND CERTIFICATION CORPORATION). SHC (SOLAR HYDRONICS CORPORATION) COLLECTORS WERE TESTED & CERTIFIED BY FSEC (FLORIDA SOLAR ENERGY CENTER). RESULTS ARE AVAILABLE ONLINE AT [HTTP://WWW.FSEC.UCF.EDU/EN/CERTIFICATION-TESTING/STCOLLECTORS/UNGLAZED_RATINGS/TPRPOOLQZ.HTM](http://WWW.FSEC.UCF.EDU/EN/CERTIFICATION-TESTING/STCOLLECTORS/UNGLAZED_RATINGS/TPRPOOLQZ.HTM)

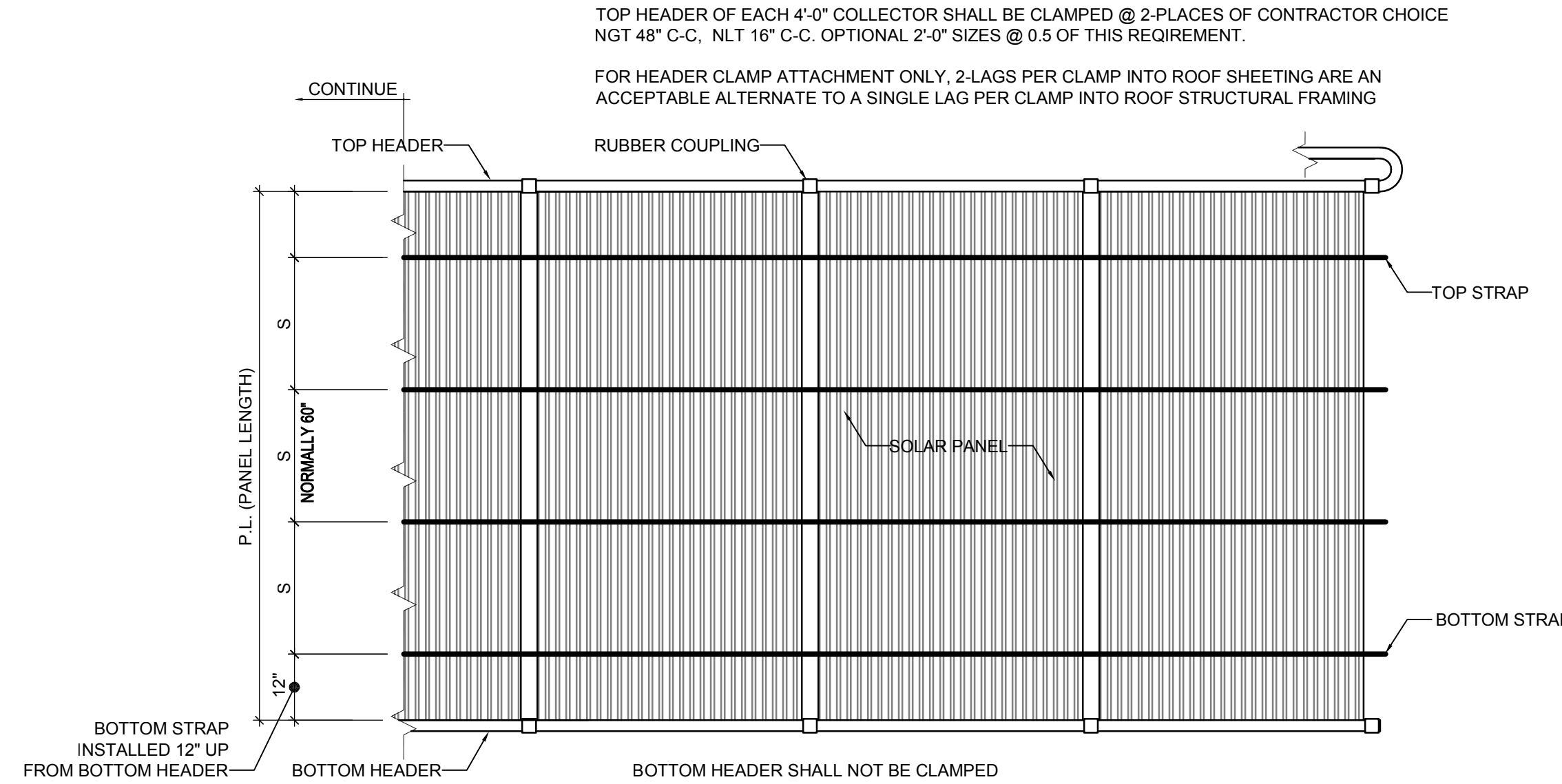
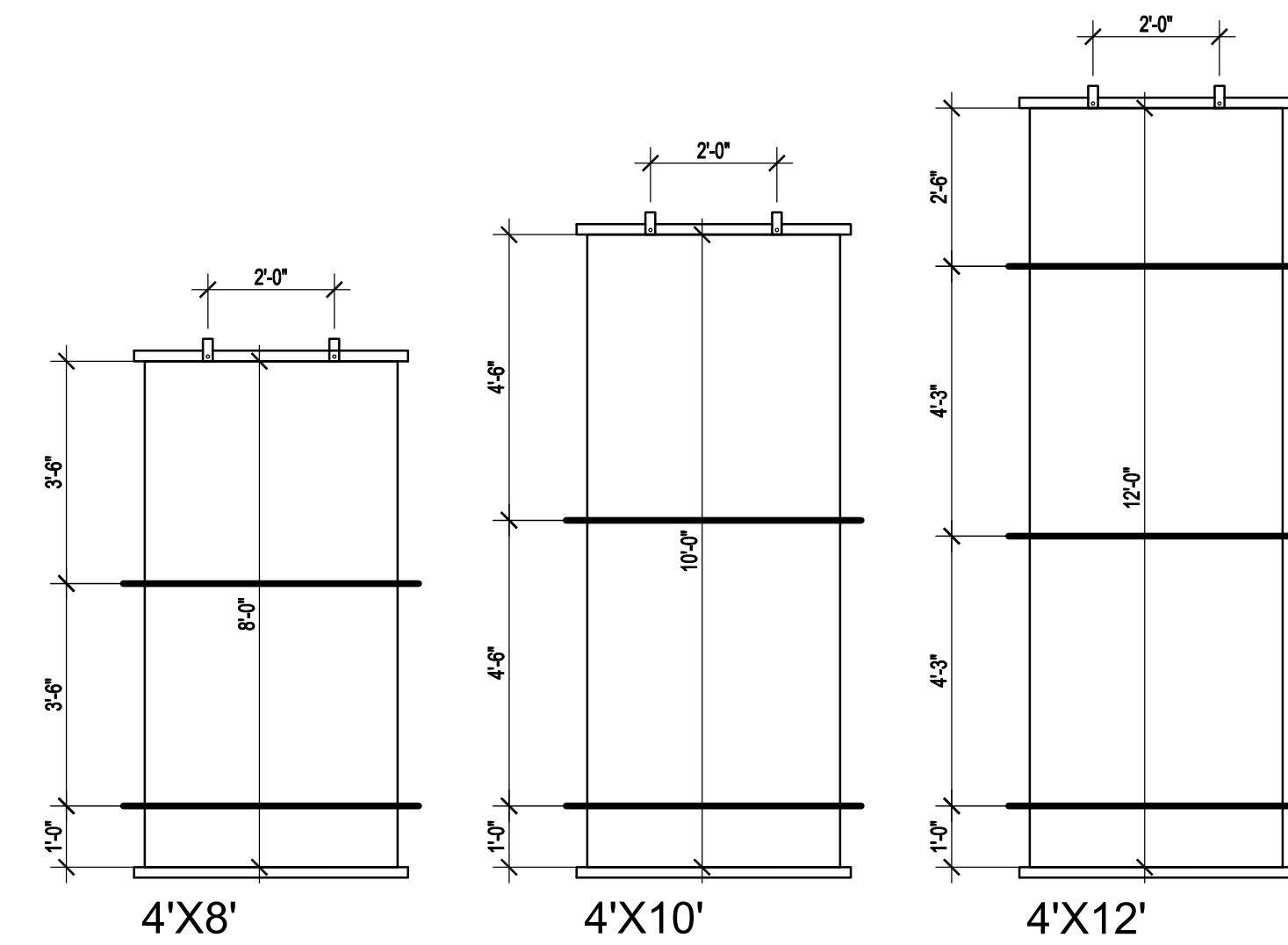
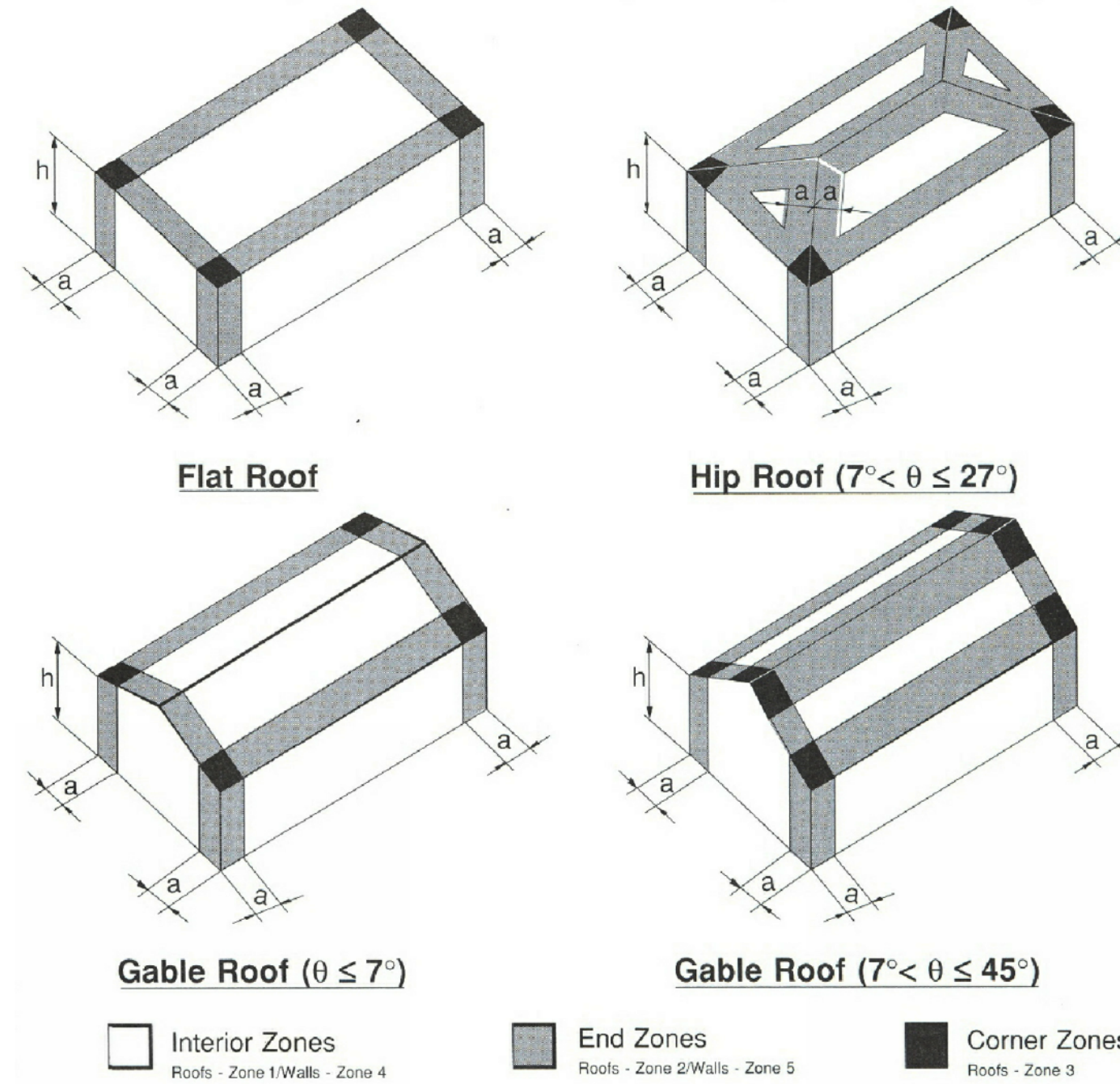


FIGURE 2
SCALE: 1/2" = 1'-0"



MAXIMUM STRAP SPACING FOR PZ1

ASCE 7 COMPONENT AND CLADDING LOADING DIAGRAMS



- Notes:
- Pressures shown are applied normal to the surface, for exposure B, at $h = 30$ ft (9.1m), $I = 1.0$, and $K_{zt} = 1.0$. Adjust to other conditions using Equation 6-2.
 - Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
 - For hip roofs with $\theta \leq 25^\circ$, Zone 3 shall be treated as Zone 2.
 - For effective wind areas between those given, value may be interpolated, otherwise use the value associated with the lower effective wind area.
 - Notation:
 a : 10 percent of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).
 h : Mean roof height, in feet (meters), except that eave height shall be used for roof angles $< 10^\circ$.
 θ : Angle of plane of roof from horizontal, in degrees.

FIGURE 3
SCALE: N.T.S.

REQUIRE DIAGONALLY OPPOSITE FEED & RETURN - MIRROR IMAGE OK

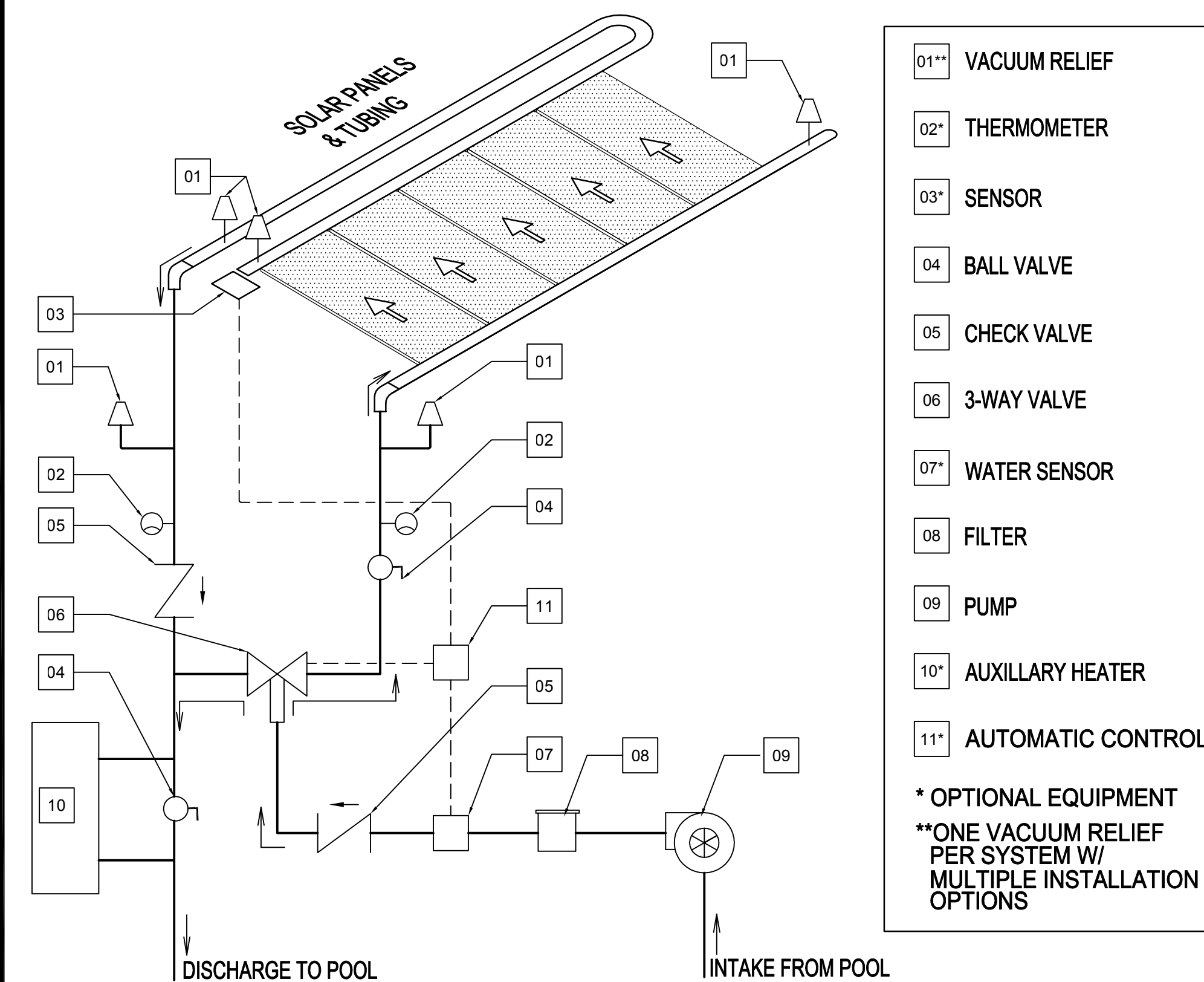
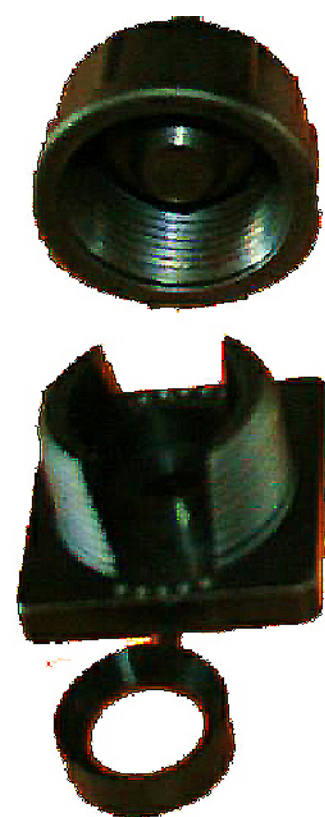
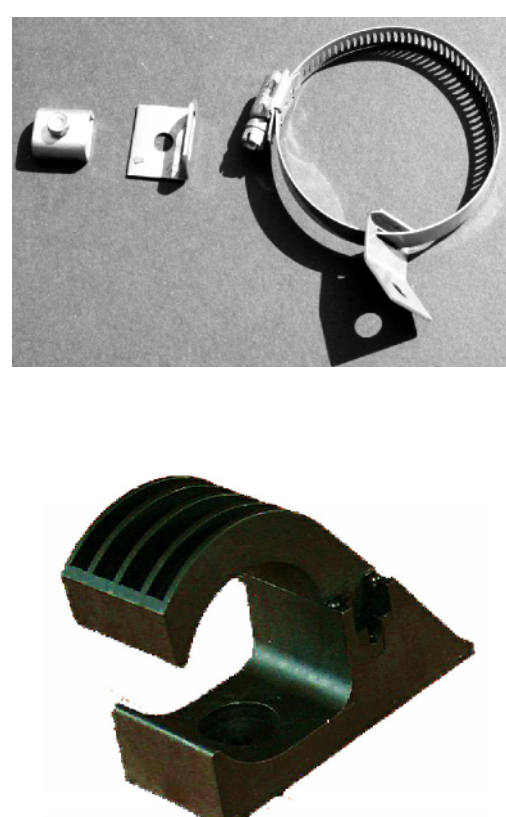


FIGURE 1
SCALE: N.T.S.

ANCHOR BUTTONS



HEADER CLAMP



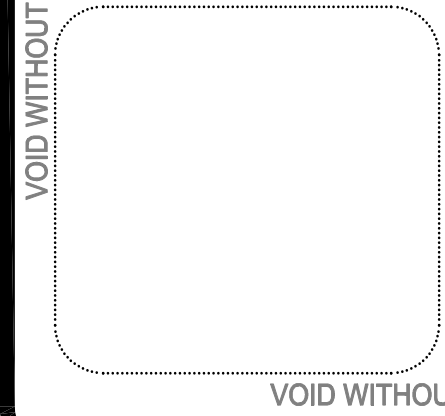
USE OEM ATTACHMENT PARTS ONLY
SCALE: N.T.S.

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RAISED SEAL



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INSTALLATION OF A ROOF TOP SOLAR POOL HEATER

SYSTEM:

SHC Solar Hydronics Corp.

1423 GUNN HIGHWAY
ODESSA, FL 33556

REV.083109-TM

DATE: 9/9/2012 1:31 PM
REVISION NO./DATE:

THIS IS A SINGLE
SHEET PLAN

SHEET NAME:

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CA.2.2