Engineering Specification

Solar collectors shall be as manufactured by Alternate Energy Technologies, LLC., Model No. _____, and shall be of the glazed, flat plate liquid type. The number of collectors for this project is _____ at _____ ft² per panel, equaling a total collector area of _____ft².

Collectors shall be _____" in length, _____" in width, and _____" in height. The enclosure box frame shall be an aluminum extrusion (alloy: 6063-T5) with anodized or electrostatic paint finish, architectural bronze in color. The collector back plate shall be painted, textured aluminum and not less than .019" thick. The collector cover plate shall be a minimum 1/8" thick, low iron oxide, tempered glass with a minimum transmissivity of 91%. All screws and bolts shall be of 18-8 stainless steel. Gaskets and grommets shall be of silicone or EPDM high temperature rubber. Insulation in the bed of the box shall be non-absorbing, closed cell polyisocyanurate foam board, foil-faced on both sides, 1-1/4" thick in box bed, 5/8" thick in box sides.

Absorber plate shall be of (0.008" thick) corrugated copper fin / copper tube construction welded together using the high-frequency, forged welding process. Each plate must be factory pressure tested to 90 psig. Fluid passageways must not be less than ½" O.D. copper tube. All manifold connections shall be brazed.

Absorber surface shall be selective Crystal Clear™ coated with a minimum absorptivity of 0.96 (96%) and a maximum emissivity of 0.09 (9%).

Collector instantaneous efficiency curve shall not have less than a first order Y-Intercept of 0.706 and a Slope of not more than 0.865 Btu/hr·ft²·°F.

The complete collector assembly shall be structurally certified to withstand a wind load of 141 mph or 51 psf.

Collectors shall have a design life of 30 years and shall be warranted for not less than 10 years. Collectors shall be certified by FSEC and SRCC.