

TriTek Engineering, Inc.

CIVIL & STRUCTURAL ENGINEERING DESIGN

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Professional Solar Products

Attn: Stan Ullman

1551 S. Rose Ave.

Oxnard, CA 93033

Date of observation test: March 2, 2006

Subject: 30 lb. #/sq. ft. Test of Roof Trac Solar Wedge Mounting System with SolarWorld modules with frame style measurements of 64" x 32".

TEST SETUP SOLAR WEDGE MOUNTING SYSTEM: Three SolarWorld modules measuring approx. 64" x 32" were bolted to 1.5" x 2.5" x 124" Roof Trac support rails using a combination of 8 Ea. 5/16" stainless steel bolts, lock washers and specially extruded clamps & inserts. The mounting channel was attached to a Foam Jack using a specially extruded 15 degree angle strut support and inner compression nut with a 1/2" x 4" stainless steel all-thread, nut and washer combination. The Spans tested consisted of a front to rear of 48" and a left-to-right of 72". Maximum rear extension of 20". The entire set up was attached to 2" x 6" joists using 3/8" x 6" lag bolts. The entire test set up rested on the concrete floor. The Solar Wedge mounting system will support SolarWorld photovoltaic modules.

TEST PROCEDURE: The test set up was loaded using 50 lb. sandbags that produced an equivalent 30 lb. #/sq. ft. loading. Upon completion of the placement of the sandbags in the upload condition, the maximum deflection that occurred was 1/2". The sandbags were left for 30 minutes with no change in the deflection or any other sign of distress. After the 30 minutes was completed the fixture was inverted to simulate the download condition. The results of the tests were duplicated from the uplift condition. The deflection was 1/2" maximum and the fixture suffered no signs of distress and was to the loading. This document certifies the Solar Wedge PV mounting system, used with SolarWorld modules with frame style measurements of 64" x 32" or less, withstands a 30 lb. per square foot static pressure load, this loading is equivalent to a wind speed of approximately 110 mph using wind load exposure and gust factor coefficient "exposure C" as defined in the 2001 Uniform Building Code. Overall the mounting unit performed as expected.

Sincerely,



Ali J. Basma, RCE

This engineering report verifies that TriTek Engineering has provided independent observation for load testing as described in this report. The results of this load test reflect actual deflection values and are generally accepted as the industry standard for testing module mounting systems. TriTek Engineering does not field check installations or verify that the mounting system is installed as described in this engineering report. To assist the building inspector in identification of this mounting system, it is required that a permanent adhesion label describing "Roof Trac" is to be placed on at least one of the main support rails.

Structural attachment: Lag bolt attachment should be installed using the proper pilot hole for optimum strength. All lag engagement should be properly torqued and driven perpendicular to into the center of a structural member of the roof. 3/8" lag bolt requires a 1/4" pilot hole.

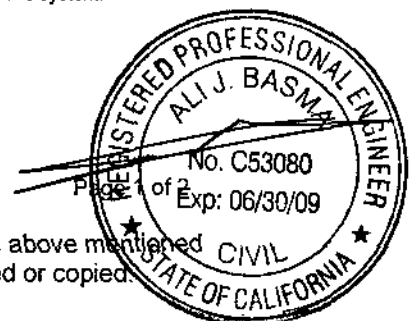
If the roof ply or shingle is in excess of 3/8" in thickness, it is recommended that the longer length lag screw be used to insure minimum engagement. It is the responsibility of the installer to insure that solid attachment is made to the structural member of the roof. Failure to securely attach to the roof structure may result in damage to equipment or personal injury.

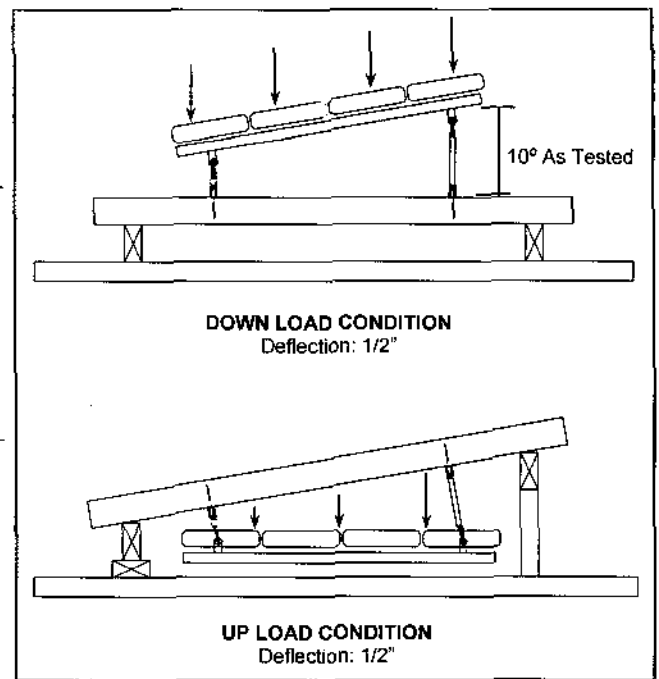
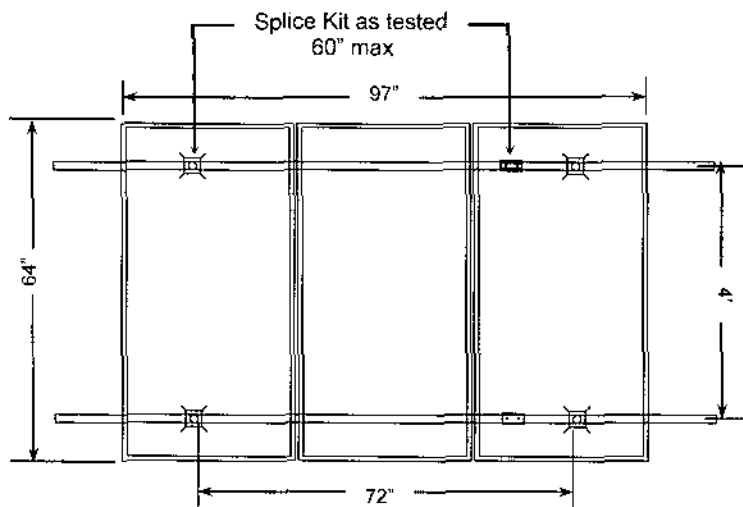
Photovoltaic solar panels are generally accepted as a light weight roof accessories and generally do not require roof load calculations when properly installed. However, this office does not express an opinion as to the load bearing characteristics of all roofs and under all conditions of load. Roofs in excess of 25 degrees in pitch, with snow load, should be reviewed on a regional basis.

Wind loading values are defined by the UBC are relative to defined load values per square foot performed in this static load test. Structural attachment devices that have been laboratory tested by accredited ICC testing laboratory and provide similar retention values can be interchanged with this system.

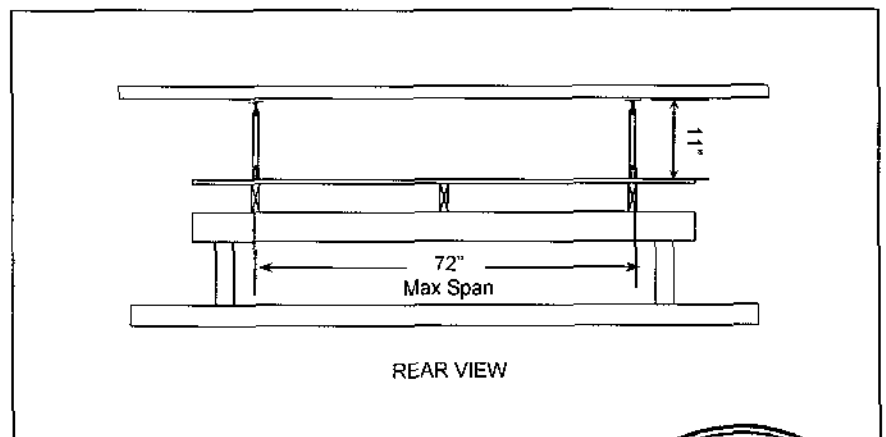
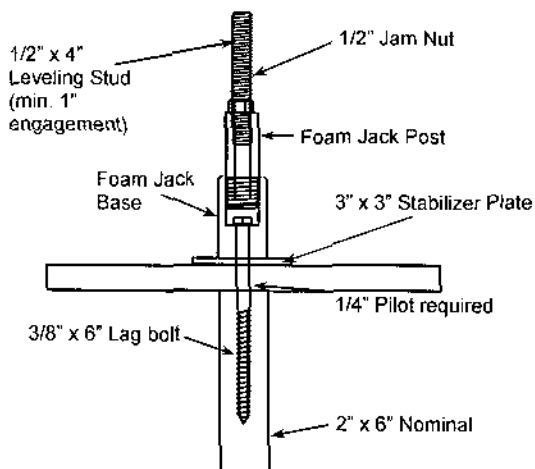
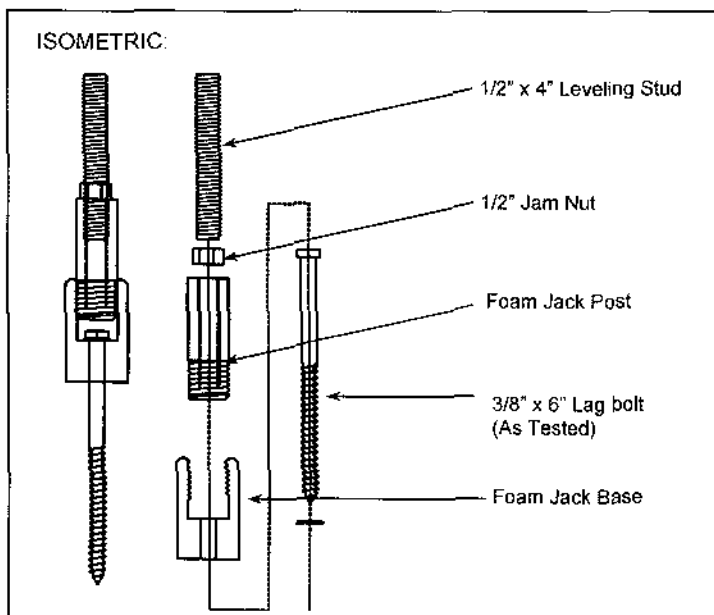
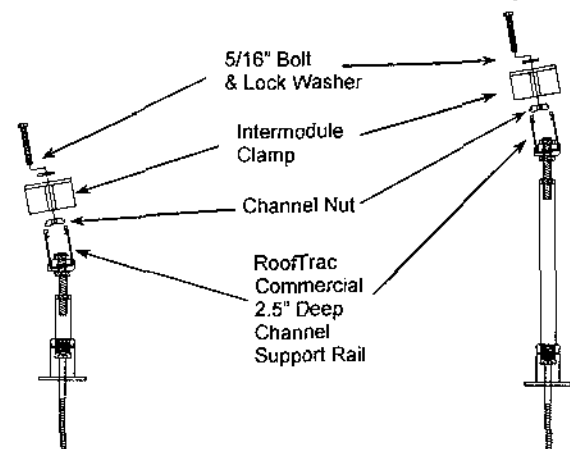
Control No. SW-SW.P

Note: This engineering is not intended for use in obtaining a permit for systems other than the above mentioned configuration. Unless otherwise directed in writing, this engineering shall not be publicly posted or copied.





Attachment Side View with Rail and Clamp Detail



SolarWedge mounting system using SolarWorld modules:
Revised: 10/16/06
SW_SW.P

Roof Trac Commercial
SolarWorld modules
Static load test illustration

