SWH Worksheet - for Homebuilder Projects

Builder: _____ Site Address: _____

DESCRIPTION

1. System Type (check one) □ Drainback □ Glycol □ Thermosyphon □ Other
2. System manufacturer: _____
3. Model: _____
4. OG-300 Certification: _____

PERFORMANCE ESTIMATION

5. Tilt and Orientation Factor (from TOF graph below)..... _____ %
6. Percent not shaded (From Sun Chart) ..... _____ %
7. Total Solar Resource Fraction (TSRF = line 5 x line 6) ..... _____ %
   (example if TOF = 84% and percent not shaded = 95% then TSRF= 0.84 x 0.95 = 0.798 = 79.8%)
8. Ideal yield for appropriate climate zone (from Solar Water Heating Yield Table) ... _____ kWh/yr
9. Estimated Yield (line 7 x line 8) ..... _____ kWh/yr

TAX CREDIT & VERIFICATION

10. Tax Credit Amount (Line 8 x $0.60/kWh, not to exceed 50% of system cost, line 7 must be ≥ 75%) $ _____
11. Installation Company Name: _____ Verification Date: _____
12. Tax Credit Certified Technician (print): _____ Signature: _____

Site Assessment

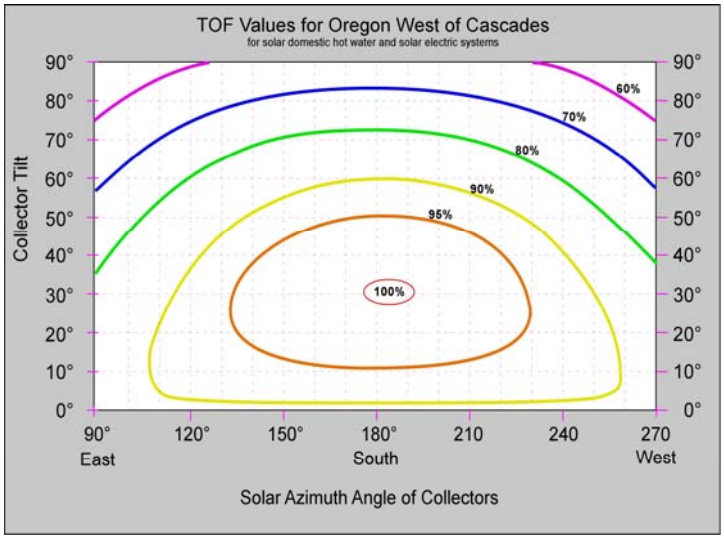
The following worksheet is used to estimate the impact of tilt, orientation and external shading on how much solar energy your solar collectors can collect. The Total Solar Resource Fraction (TSRF) represents the fraction of energy a particular collector would receive when compared to one in the same city, but that has optimal tilt, orientation and no external shading. For example, a collector with a TSRF of 80 percent indicates that 80 percent of the solar energy at your location over a year will be available to the solar collector.

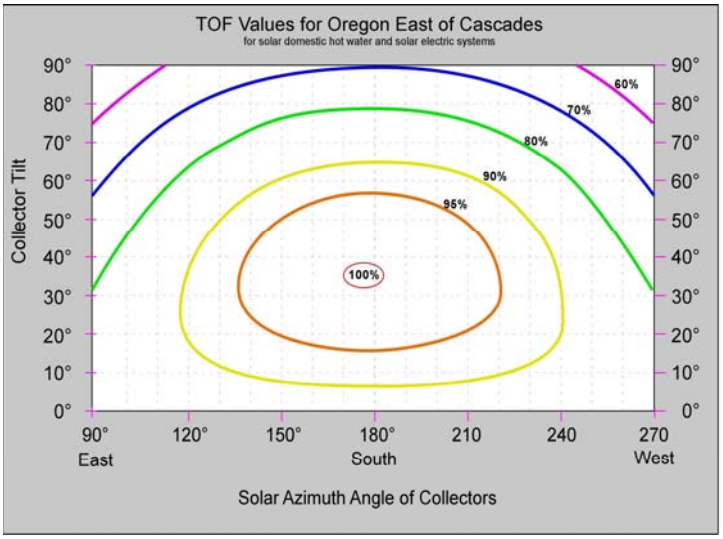
Calculating the TSRF is broken down into two parts. The first part is to determine the impact of collector tilt and orientation. The second part is to uses a sun chart to estimate how much energy is lost on an annual basis from external shading from plants, buildings or other obstructions. The product of these two effects will provide your collector's TSRF.

Tilt and Orientation Factor (TOF)

Draw a dark X mark the graph for your collector's tilt and azimuth angle. The left graph is used for sites west of the Cascade mountain range. Interpolate between the nearest two lines to estimate the TOF value to the nearest 1%.

Tilt: _____ Orientation: _____ TOF Value: _____%





Sun Chart – Estimating Shading Impact

The Sun Chart below provides a simplified method for estimating annual shading impact from external features like trees or other buildings. A system with no loss from external shading has a "Shading" value of 100%. Solar site assessment tools such as the Pathfinder™, or Solmetric Suneye are recommended for increased accuracy. Energy Trust of Oregon sun charts can be used in lieu of the sun chart below.

Step 1 – From the midpoint of where the solar collectors are placed, draw the skyline on the graph below. Use the elevation angles and solar azimuth angles to determine the location of the obstructions. The bottom curved line represents the path the sun takes through the sky on the winter solstice (Dec 21st). Draw deciduous trees with a dotted outline and fill with light shading. Year-round obstructions like buildings, or evergreen trees should be drawn with solid outlines and filled with heavy shading.

Step 2 – Add up the solar fraction numbers in the sections that have shading. These numbers represent the fraction of the annual solar energy that comes from that part of the sky. For solar electric systems, partial shading in one section must be counted fully (no fractional amounts). Any deciduous tree shading below the Sept 22/March 20 line may be counted at half value to account for the fact that some light will get through these obstructions when the trees lose their leaves. The sum of the obstructed areas represents the percent of energy lost to external shading.

Sum of obstructed areas = _____%

Percent not shaded = 100 - Sum of obstructed areas = _____%