GSHP Worksheet - for Homebuilder Projects

Builder: _____ Site Address: _____

DESCRIPTION

1. System type (check one) □ closed Loop □ open loop
2. Ground exchange (check one) □ trench □ slinky □ pond □ vertical bore □ other: _____
3. System manufacturer: _____
4. Model: _____
5. Rated COP: _____at inlet temp of 50 °F
6. Capacity: _____Tons

PERFORMANCE ESTIMATION

System performance can be determined by either annual simulation or by using the default savings table below. If default savings are used skip to line 9 and enter data from table below. If the annual simulation method is used, Input information on lines 7-9 and attach simulation inputs assumptions and output report. Annual modeling must follow input modeling instructions provided at bottom of the page.

7. Energy Modeling Tool Used: _____
8. Estimated Savings (from either default table below or annual simulation results) ..... _____ kWh/yr

TAX CREDIT & VERIFICATION

Ground source heat pumps (also called geoexchange or geothermal) must be verified by currently approved Oregon Department of Energy tax credit certified technician. This person verifies that the system is installed according to ODOE and industry standards for performance and durability.

9. Tax Credit amount (from table below, or line 8 x $0.60): $ _____
10. Installation Company Name: _____ Verification Date: _____
11. Tax Credit Certified Technician (print): _____ Signature: _____

Default Savings Table (from residential energy tax credit)

System Tons	BTU per Hour Output	Estimated Savings	Tax Credit Amount
3 ton and under	Less than 40,000	1,000 kWh	$600
4 ton	40,000 - 49,999	1,165 kWh	$700
5 ton	50,000 - 64,999	1,335 kWh	$800
6 ton and over	65,000 and over	1,500 kWh	$900

Annual Simulation Method

High performance homes with a ground source heat pump must have a minimum COP of 3.0 at 50°F. As a consequence, the renewable energy savings that can be applied toward the 1.0 kWh/yr-ft2 requirement is base on the incremental savings when compared to a GSHP with COP of 3.0. Modeling to determine the savings must present summary data for two simulations based on the physical design of the proposed home. One simulation is done with a GSHP with a COP of 3.0 and the other for a home with a GSHP with a COP equal to the unit actually chosen for the home being built.

Annual energy use for home with GSHP w/COP of 3.0 _____ kWh (all fuels)
Annual energy use for home with GSHP w/COP proposed - _____ kWh (all fuels)
Net renewable energy savings (difference between above 2 lines) =_____ kWh (all fuels)

Be sure to attach input and output reports from the simulation tool for review by ODOE staff.