

# WHAT WORKS



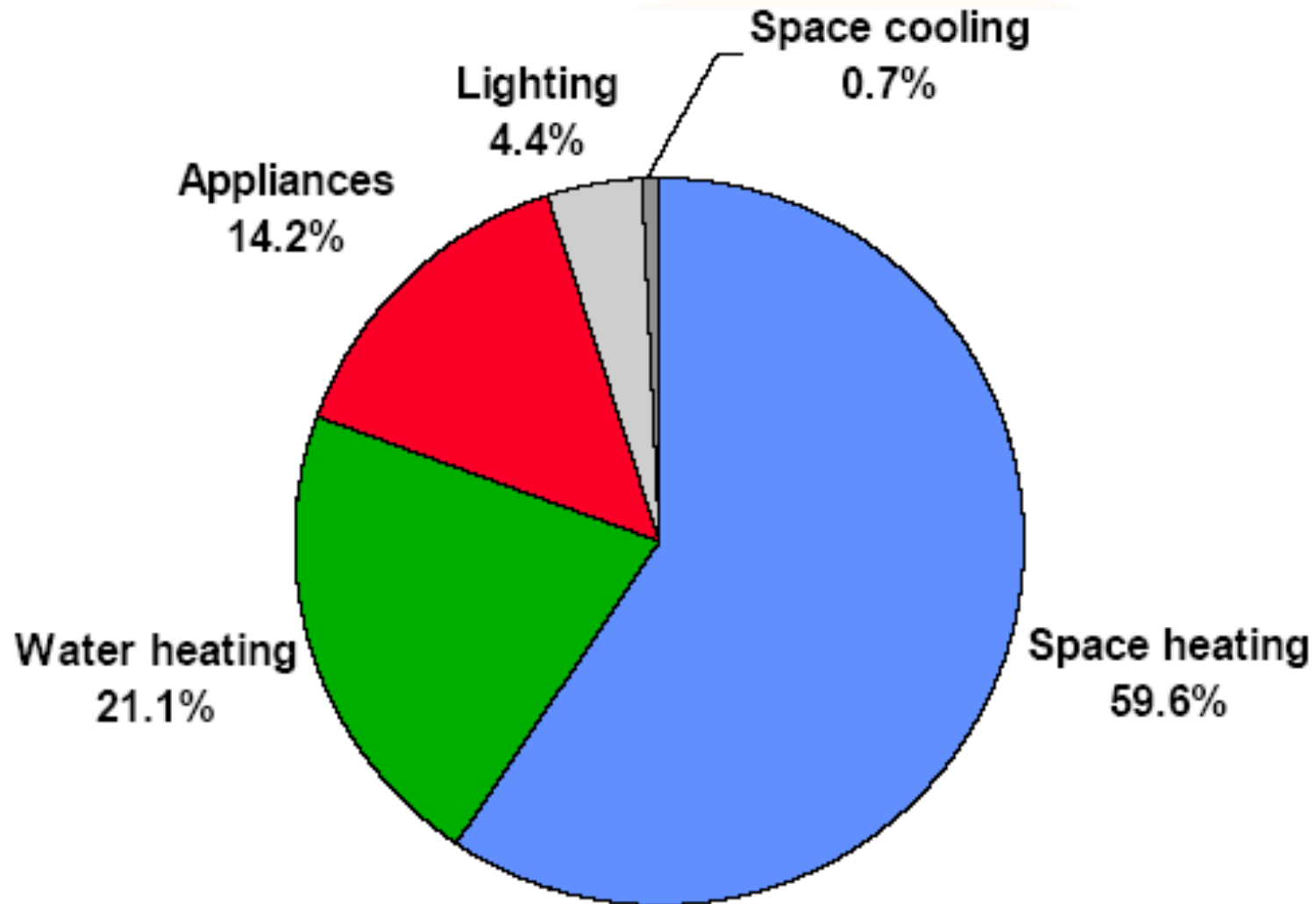
# Medium Temperature ST Technologies - Collectors



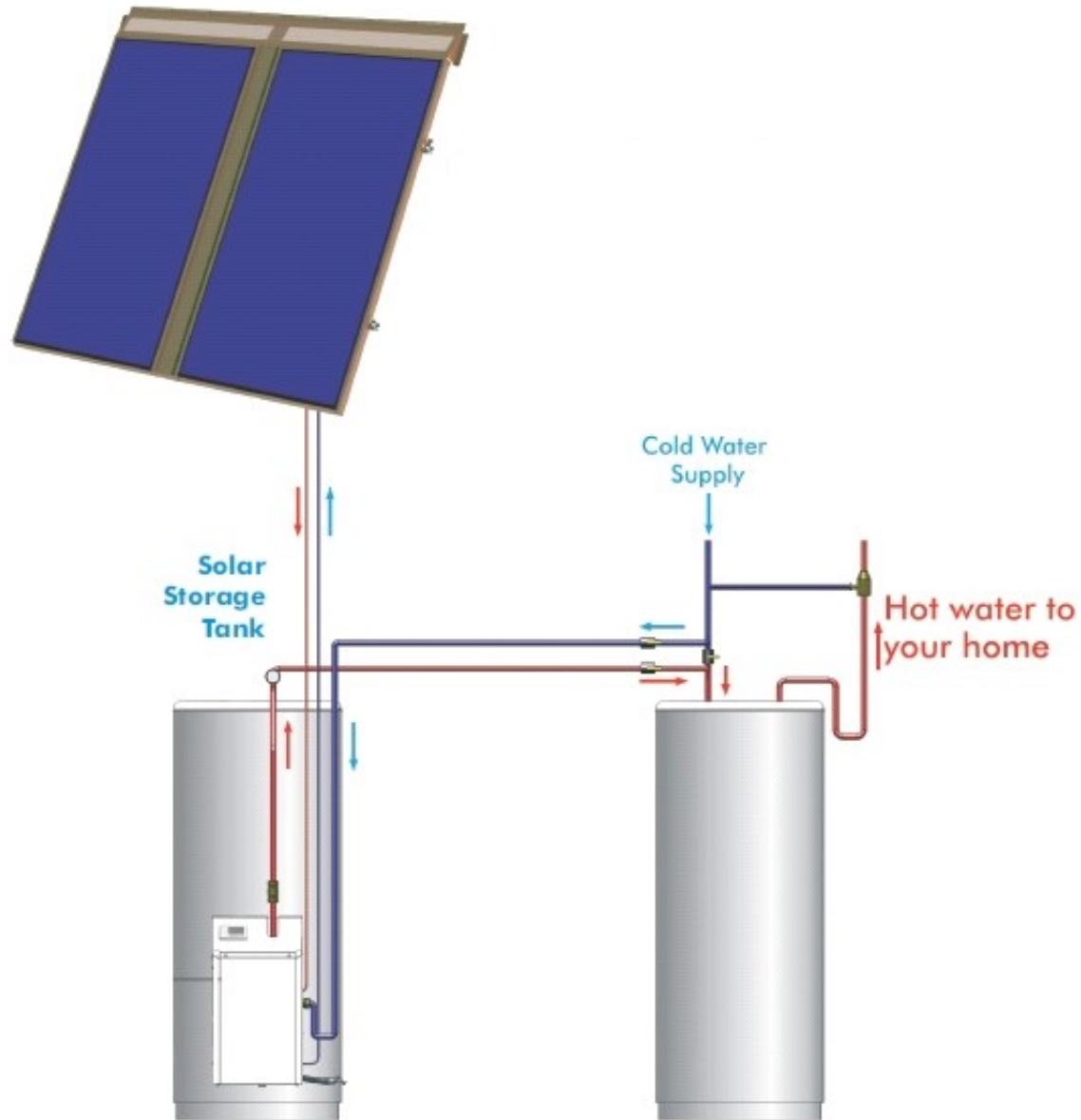
# UNIVERSAL APPROACH TO ENERGY EFFICIENCY

- Sort out the variables for the specific situation
- Measure the Resources available
- Make the decision

# Use for Medium Temperature ST Collector Technologies



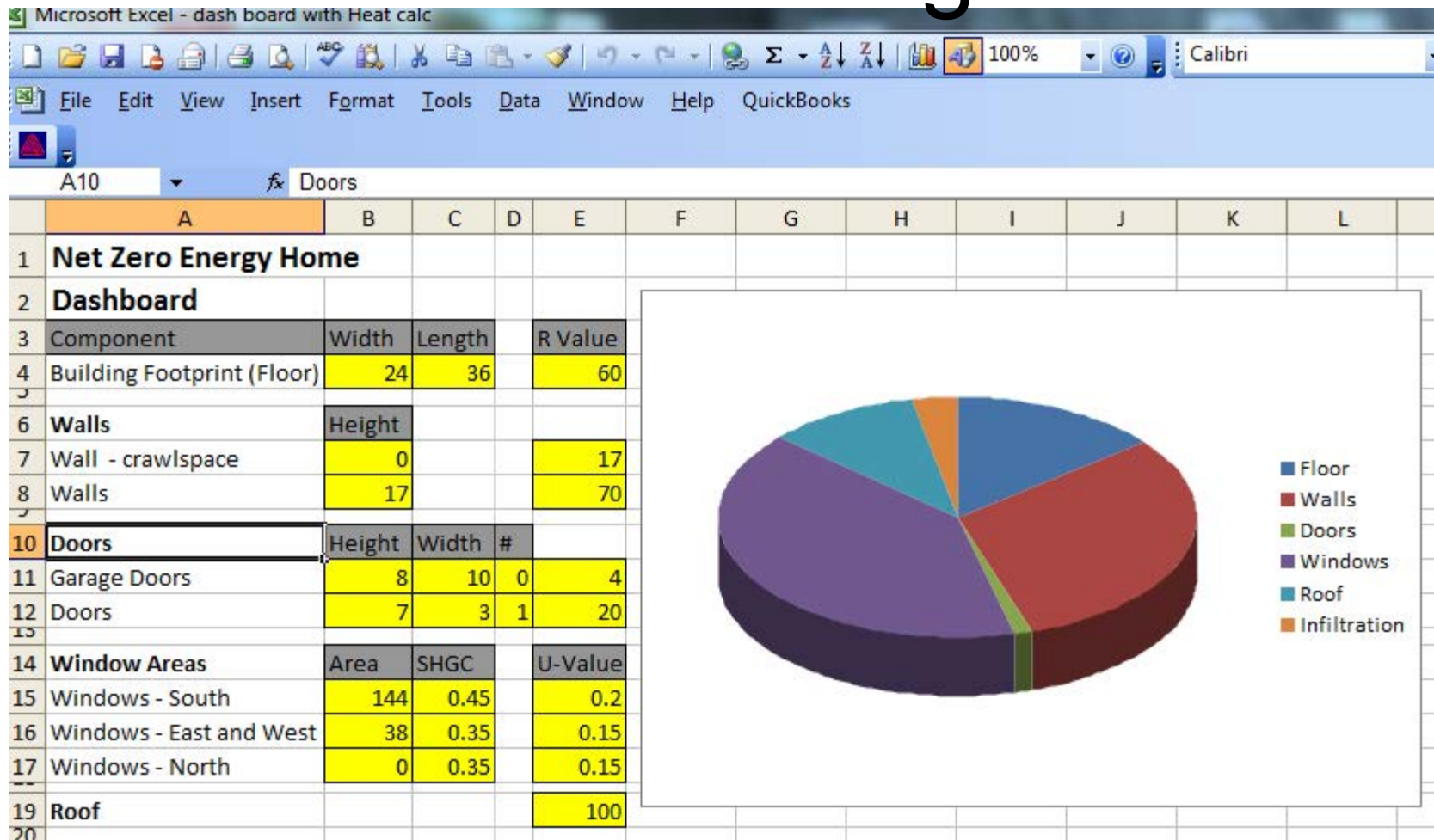
# How It Works - Water Side





# Tool Kit Essentials

# Residential Modeling Software



# Software for Solar Domestic HW

The screenshot shows the SolSim software interface, which is used for simulating solar domestic hot water systems. The interface is divided into several sections for inputting system parameters.

**File System Outputs Help**

Select a location:  
Fairbanks, AK

Weekly hot-water consumption (entire household):  
888.7 US gal. Water usage...

Average annual groundwater temperature:  
3.3 °C 37.9 °F

Set-point temperature of auxiliary tank:  
48.9 °C 120.0 °F

Volume of solar tank:  
80 US gal. (303 L) Single tank Double tank

**Solar collectors**  
Number of collectors: 2  
Collector tilt angle/Roof slope: 60.0 degrees 20.8 " : 12"  
Orientation: 0 degrees from South

**Economics**  
Units: Metric US customary  
Generation mix...  
Energy prices...  
Lifetime of system: 20 yrs

**Consumer costs**  
Consumer purchase price: \$ 9877.78  
Installation cost: \$ 1250.00 Pricing...  
Annual maintenance costs: \$ 0.00

CO2 emission value: 9.07 \$/US ton Seasonal (May-Sept)

Site: Client:

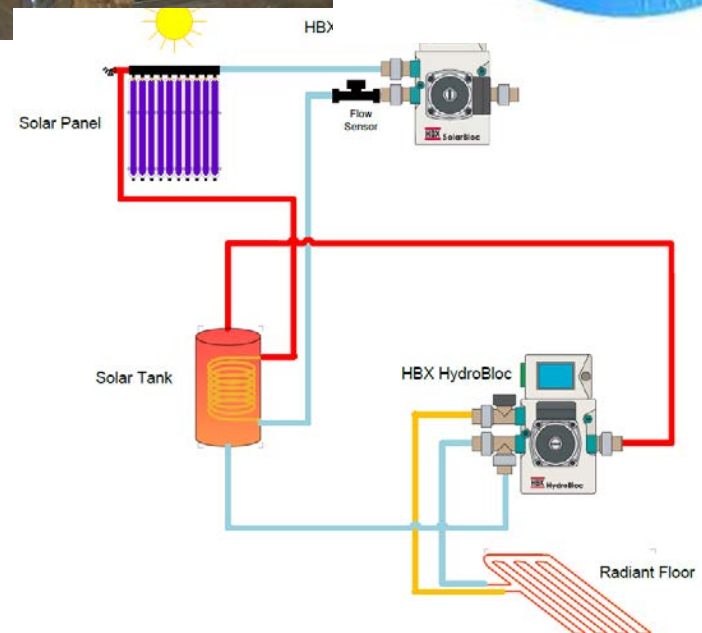
**Simulate** Press "Simulate" to calculate.

Load Defaults Save Settings Quit



# Useful files

- Rack Designs
- Return on Investment
- Plumbing Diagrams
- Site Survey form
- Pathfinder Printout
- Installers Presentation



# Vertical Wall Mounts





# South Facing Roofs



# Combi Systems





# Combi systems with mechanical controls

- Wood stove coil



- Masonry Heater Coil

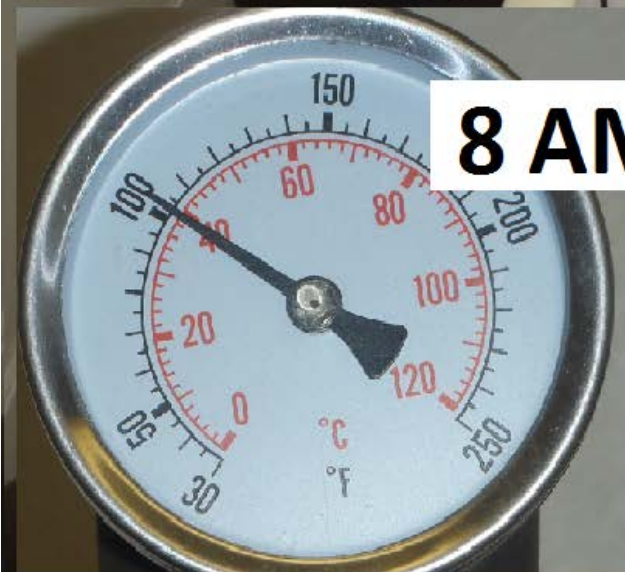


# What are the results?





**5 PM**



**8 AM**



**Solar Hot Water**

**Fairbanks, AK**

**3-13-2013**

**Outside Temp.**

**5 PM 14 Deg F**

**8 AM -12 Deg F**