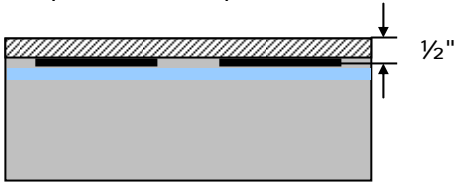


Why is STEP Warmfloor more efficient than other heating systems?

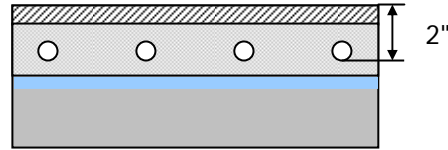
1. Reaction to temperature fluctuations – overall savings 15%

STEP Warmfloor is installed right under the floor covering and reacts fast to temperature changes.



Self-regulating elements act as a floor sensor, supplying more wattage when cold and less wattage as they warm up.

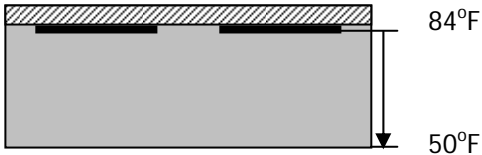
A hot water system needs to heat a thermal mass which takes a long time to heat up and to cool off.



Hot water systems require 4 times more energy or 4 times more time for the heat to reach the surface.

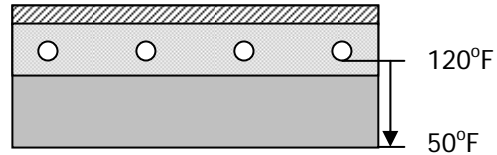
2. Temperature loss to the ground – overall saving 7%

The temperature difference between STEP Warmfloor and the ground is minimal, giving less heat loss.



Heat loss through the subfloor:
 $10\text{sqft} \times 1/20 (84-50)^\circ\text{F} = 5 \text{ W}$

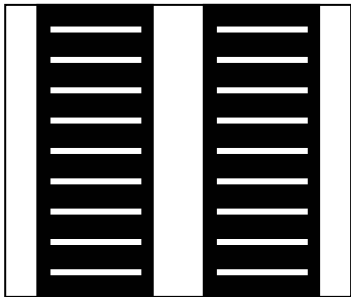
The temperature difference between the hot water tubing and the ground gives considerable heat loss.



Heat loss through the subfloor:
 $10\text{sqft} \times 1/20 (120-50)^\circ\text{F} = 10 \text{ W}$

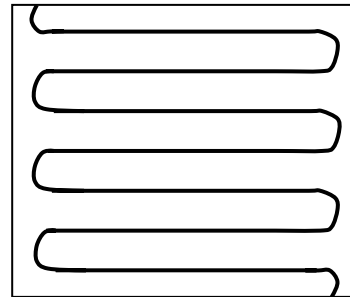
3. Heat distribution – overall savings 15%

STEP Warmfloor covers a much larger area, thereby warming evenly the floor with a lower temperature.



Floor area covered by elements:
 $2 \times 3\text{ft long} \times 1\text{ft wide} / 10\text{sqft} \times 100\% = 60\%$

Thin heating cables need more power to be able to warm a floor due to the small area they cover.



Floor area covered by cables:
 $20\text{ft long} \times 0.01\text{ft dia.} / 10\text{sqft} \times 100\% = 2\%$

4. Energy consumption – continuous regulation 25%

STEP Warmfloor is made of a self-regulating material and when used with a regulator, the consumption in St. Louis, Missouri is:
 $0.0025 \text{ kW/sqft} \times 24 \text{ h} \times 120 \text{ days} = 7.2 \text{ kWh/sqft}$ per heating season
 Cost to operate at \$0.07/kWh is: **\$0.50/sqft**

Electric cables are fixed wattage and controlled by thermostat and floor sensor, the consumption in St. Louis, Missouri is:
 $0.012 \text{ kW/sqft} \times 24\text{h} \times 120 \text{ days} \times 40\% \text{ draw} = 13.8 \text{ kWh/sqft}$ per heating season
 Cost to operate at \$0.07/kWh is: **\$0.96/sqft**