



## Solar Collectors

### How They Work

#### Solar Photovoltaic Panels:

#### Convert the energy of sunlight directly into electricity.

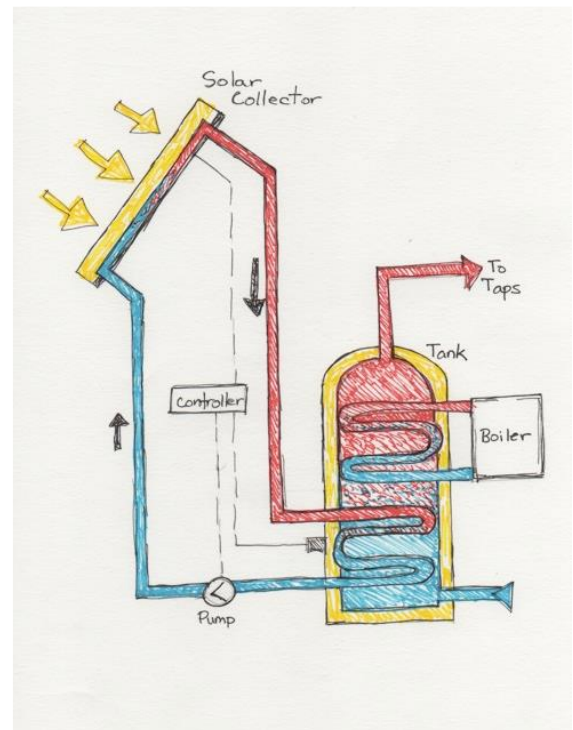
1. The silicon cells in the panel absorb the sun's energy.
2. The energy causes electrons to become excited and move around more.
3. The cell is designed so the electrons move in one direction, and a current starts flowing, creating a usable amount of electricity.



#### Solar Evacuated Tubes:

#### Convert the energy of sunlight into heat for water or home heating.

1. Evacuated tubes have no air between the two layers of glass.
2. The vacuum reduces convection and conduction heat loss to the outside.
3. The tubes are filled with a water/anti-freeze mix.
4. The sun's heat is trapped and absorbed by the water/anti-freeze mix.
5. As the water heats it moves up the tube where the hot water is pumped through the system into a tank.
6. A heat exchanger in that tank captures the heat through conduction and convection, and takes it to a "domestic" water heater (water for washing and cooking), or to an in-floor radiant heating system.



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