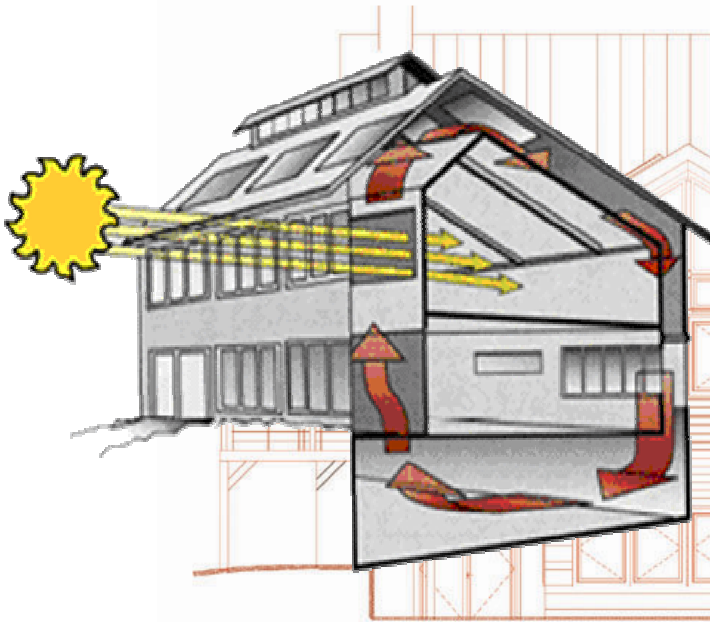


How?

How it works

The thermal performance of solid timber homes is well known to their owners. Once heated, they stay warm- far longer than a conventional stick frame house. Once cooled, they remain cool. These thermal storage properties, along with proper southerly orientation, allow an Enertia® home to heat and cool itself through its design, rather than by mechanical system.



Instead of being a tight box to contain heated air- like a conventional home- an Enertia® house stores energy in its massive walls. Air that has been warmed through passive solar gain is confined to the outer envelope, and is used for moving energy into the massive internal walls. The heat experienced by occupants is radiant: warm walls and floor.

The thermal current that distributes the warmth is created by both convection and geothermal cooling. Three feet below the surface of the earth, the temperature is a steady 50 to 55° Fahrenheit, so the basement is always cooler than the heated air above it. Warm air rises in the south of the house. As the warm air reaches the attic, it travels toward the cooler air on the north side of the house (since this side of the house receives no direct sunlight). This completes the loop and distributes heat to the north side of the home.

In the summer, the air that is heated in the outer envelope rises, and is allowed to escape out the attic vents in the east and west gables. The same convection loop is used to cool the outer envelope to a comfortable, usable temperature. During the day, the outer shell also provides shade. A majority of the radiation from the sun- which is now higher in the sky- is also reflected by the R50 rated roof panels before having a chance to affect temperatures in the envelope.

With proper orientation, a home that is built on a bermed basement needs only regular solar input to maintain a comfortable environment. The house requires no jump-start, it works the first time the sun comes up.

