Rammed earth keeps your house cool in summer and warm in winter because of the ability of its high thermal mass to slow the transfer of heat and cold through the building, therefore maintaining a more stable internal room temperature.

Thermal mass in buildings

Thermal mass is effective in improving building comfort in any place that experiences these types of daily temperature fluctuations—both in winter as well as in summer. When used well and combined with passive solar design, thermal mass can play an important role in major reductions to energy use in active heating and cooling systems and hence the reduction of greenhouse gas emissions due to fossil fuel burning in power stations.

Properties required for good thermal mass

Ideal materials for thermal mass are those materials that have:

* high specific heat capacity,
* high density

Any solid, liquid, or gas that has mass will have some thermal mass. A common misconception is that only concrete or earth soil has thermal mass; even air has thermal mass (although very little.)

Materials commonly used for thermal mass

* Water. Water has the highest volumetric heat capacity of all commonly used material. Typically, it's placed in large container(s), acrylic tubes for example, in an area with direct sunlight. It may also be used to saturate other types material such as soil to increase heat capacity.

* Adobe brick or mudbrick. See Adobe.

* Earth, mud, and sod. Dirt's heat capacity depends on its density, moisture content, particle shape, temperature, and composition. Early settlers to Nebraska built houses with thick walls made of dirt and sod because wood, stone, and other building materials were scarce. The extreme thickness of the walls provided some insulation, but mainly served as thermal mass, absorbing heat during the day and releasing it during the night. Nowadays, people sometimes use earth sheltering around their homes for the same effect. In earth sheltering, the thermal mass comes not only from the walls of the building, but from the surrounding earth that is in

physical contact with the building. This provides a fairly constant, moderating temperature that reduces heat flow through the adjacent wall.

* Rammed earth. Rammed earth provides excellent thermal mass because of its high density, and the high specific heat capacity of the soil used in its construction.

* Natural rocks and stones. See Stonemasonry.

* Concrete, clay bricks and other forms of masonry. The thermal conductivity of concrete depends on its composition and curing technique. Concretes with stones are more thermally conductive than concretes with ash, perlite, fibers, and other insulating aggregates.

Seasonal energy storage

If enough mass is used it can create a seasonal advantage. That is it can heat in the winter and cool in the summer. This is sometimes called "Passive annual heat storage or PAHS". The PAHS system has been successfully used at 7000 ft. in Colorado and in a number of homes in Montana.

Reference: Wikipedia http://en.wikipedia.org/wiki/Thermal_mass