Rammed Earth Houses

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Rammed earth houses have been built for centuries, although if you haven't heard of them, you're not the first one. The method is old and attractive because the materials are so readily available (they came with the lot you just bought for your new house). Rammed earth is an earth/cement mixture (about 8% water and 3% cement) that is compacted in a forming system. When the forms are removed after the rammed earth is dry they reveal the new wall.

The really attractive part of rammed earth is how cool the interior of the house feels on a hot summer day. The thick rammed earth (or adobe) walls absorb heat energy and gradually transfer it to the interior of the home-which stabilizes the interior temperature. This phenomenon of slow heat transfer is known as thermal mass, and it can enhance your building's R-value. The use of thermal mass is especially effective in climates where there are extreme temperature shifts between night and day. The stable interior temperature requires fewer heating and cooling cycles by the building's HVAC system and saves wear and tear on equipment.

Your local building inspector will want to know the R-value of your earth walls. R-value is an indication of a material's resistance to heat flow-the higher the R-value, the better the insulating properties. The KD2 and KD2 Pro are ideal for measuring thermal properties of materials. When Bob from Ephrata, Washington was building his rammed earth house, he contacted Decagon to help him determine its R-value. Since we are close by, he brought in a section of wall for us to test. We used a KD2 to make the measurement and then used the application note in the Decagon library to calculate the R-value. This satisfied the local code requirements and made his building inspector happy.

This all sounds nearly perfect. Before you go build your own adobe dream house there is a caveat-although made of dirt, they are not dirt cheap. On average, rammed earth homes are significantly more expensive than a standard home. Of course, the energy efficiency may make up for that additional cost.

If you would like to learn more about adobe houses and r-value calculations, please visit the following links:

www.rammedearthworks.com
www.adobe-home.com
www.rammedearth.com
www.roofhelp.com/Rvalue.htm

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