



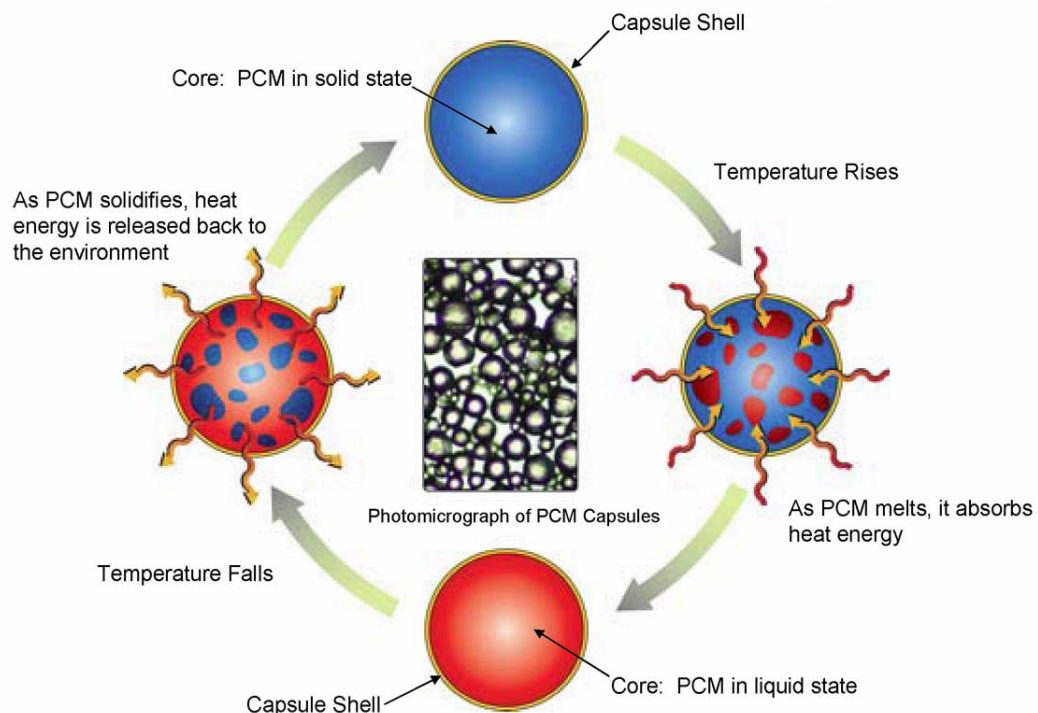
AFT is proud to be a first insulation company offering a new generation of dynamic insulations. This material was developed during a joint project with DOE's Oak Ridge National Laboratory (ORNL). It is a 20% blend of microencapsulated Phase Change Material (PCM) and cellulose insulation. As shown below, it doesn't require any additional equipment to install.



PCM-enhanced insulation during installation in 2x6 wood frame wall.

What is Phase Change Material? How does it work in building envelopes?

An answer is very simple. It works in a similar way like ice in your glass of Coke:



Micro-encapsulated phase change materials (PCM's) consist of an encapsulated organic substance with a high heat of phase change process (for example paraffin or fatty acids), which absorbs and releases thermal energy in order to maintain a regulated temperature within a product (such as clothing, upholstery, packaging and building materials).

Three years long lab and small-scale field testing, performed by the ORNL's Buildings Technology Center and AFT on PCM-enhanced cellulose, demonstrated superior energy performance comparing with traditional insulations.

Check out the following link: <http://www.ornl.gov/sci/roofs+walls/AWT/ComputerSimulations/index.htm>



Test wall with PCM-enhanced cellulose.

Full scale field testing of PCM-enhanced cellulose performed during 2006/07 in Oak Ridge, TN and Charleston, SC on 2x6 wood framed walls showed potential for about 30 to 40% reduction of the cooling peak-hour loads generated by the walls. Comparisons were made against conventional R-19 2x6 walls. Tests performed on PCM-enhanced cellulose attic insulation showed similar levels of peak hour load reductions. Similar field tests performed on the attic containing concentrated PCM showed about 90% reduction of the peak hour cooling loads. Find out more at <http://www.ornl.net/sci/roofs+walls/AWT/ComputerSimulations/PCM%20roof%20II>.

Northern wall



Charleston, SC Installation

Southern wall



ORNL Installation

Thanks to collaboration with Microtek Laboratories Inc., this new insulation product is using ignition-resilient PCM. To ensure that new insulation is in full concurrence with existing code requirements, the PCM-enhanced cellulose went through series of flammability tests passing smolder combustion testing and critical radiant heat flux test. When the PCM microcapsules are added at a 20% by weight level to blown cellulose insulation intended for installation to attic floors or walls, the product conforms to ASTM C1485-00.



Blown cellulose insulation blended with ignition-resilient PCM microcapsules doesn't promote flame.

This photograph shows the test panel right after passing one of the flammability tests.