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National Gypsum

ThermalCore Panel with Micronal PCM

Charlotte-based gypsum supplier National Gypsum introduced its ThermalCore Panel with Micronal PCM product at this year's Greenbuild event in Phoenix. The first domestically produced wall panel incorporates phase change material from BASF to moderate indoor temperature fluctuations and help maintain a comfortable interior environment.

The panel's core contains microencapsulated beads of Micronal PCM, a wax material that alternates between solid and liquid states to absorb and release thermal energy. The wax melts to absorb heat when it reaches 73 degrees F, then releases that heat again as it cools and becomes solid. This alternating process of melting and solidifying allows the panel to absorb daytime temperature peaks, ideally providing a more consistent room temperature.

The Micronal PCM melts at a much higher temperature and is contained within durable microscopic acrylic capsules that prevent the wax from leaking as it changes phase. When temperatures fall, the wax solidifies and releases heat. This alternating process of melting and solidifying allows ThermalCore to absorb daytime temperature peaks, ideally providing a more consistent room temperature.

"As the standards and measures associated with sustainable design continue to evolve, so too will the building enclosure," says Jennifer Willson, manager of innovation and product development at National Gypsum. "We want to be involved in that process by developing products that play a role in improving buildings' energy efficiency."

"Technologies such as phase change materials provide new opportunities. We expect ThermalCore will stimulate interest in phase change technologies for building materials and that its field trials will help architects and engineers evaluate how different building materials and techniques are best combined to improve energy efficiency."

The panel is currently being field-tested on the West Coast, where temperatures can vary greatly from day to night, and will target high-efficiency homes, Willson says.

Preliminary tests indicate ThermalCore can store approximately 22 BTUs of thermal energy per square foot. The panel's performance, value and cost will be further evaluated in field trials in the coming year. The company expects the field tests will show that the product can decrease the heating and cooling energy required to keep a home comfortable during peak demand when combined with other advanced energy-efficiency technologies. National Gypsum will rely on California's Emerging Technologies Coordinating Council, as well as the Department of Energy's National Renewable Energy Laboratory, to select and coordinate trial sites and to evaluate test data.

"[From] the interest we've already seen from the ETCC and NREL, we expect sustainability experts and the larger building community will be eager to learn more about ThermalCore and its performance in the West Coast field trials," says Willson.

ThermalCore will not be commercially available until field trials are complete, but for more information or to register for periodic product updates, visit www.thermalcore.info. National Gypsum says there will not be worldwide distribution.

The company currently plans to feature the panel at the INTEX Expo in Denver in April; CONSTRUCT2010 in Philadelphia in May; and the Pacific Coast Builders Conference in San Francisco in June.

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