

DuPont Building Innovations announces the launch to the UK market of DuPont™ Energain® Thermal Mass Systems

November 2006 - Pioneering science company DuPont has developed a radical new patented technology that is now available to the construction market for timber, steel and aluminium framed buildings. In today's climate - both political and meteorological - the drive towards sustainability and energy saving in all areas of life has never been of greater importance. Cost-effectiveness and comfort are also key factors in successful building design, for which DuPont™ Energain® offers significant benefits.

Understanding these challenges and responding to the call for meaningful solutions for architecture, design and construction, DuPont Building Innovations has invented a thermal mass panel with valuable energy saving and temperature control properties. Furthermore DuPont™ Energain® has been designed as a practical answer not only to reducing the CO₂ footprint of a building but also in terms of ease of installation and long-term, stable performance.

Tested in the laboratory at INSA, University of Lyon and currently by the EDF Group (Electricité de France) in a fully equipped test house in France, DuPont™ Energain® is launched initially in the UK, with a planned global roll-out to follow.

What is DuPont™ Energain®?

A lightweight panel of 5mm thickness, DuPont™ Energain® is composed of a Phase Change Material made from paraffin encapsulated in a DuPont copolymer at a 60% – 40% ratio and laminated on either side in a high quality aluminium sheet. The panels are supplied in 1.2m x 1.2m dimensions. The paraffin content is stable and will not leak, however, DuPont™ Energain® is also supplied with a special aluminium tape which is required to seal joints between panels and repair any abrasions. The aluminium sheet and tape act in a safety capacity as a barrier against fire

How does it work?

DuPont™ Energain® is designed to add thermal mass to structures and to stabilize room temperature. It works by employing the capability of the phase change material to absorb and release heat. Simplified, the compound has a melt point of 22 °C, at which stage it begins to absorb heat from the room and to store it. When the interior temperature drops back to 18 °C, it re-solidifies and releases warmth back into the room. DuPont™ Energain® can store about 20 times more energy than concrete, but with a fraction of its mass.

In "low inertia" structures, often open plan and subject to both external solar gains and internal gains from human and electronic activity, energy consuming cooling systems are often the only compensation. DuPont™ Energain® can not only minimise uncomfortable temperature peaks by up to 7 °C, it can save up to 35% of air conditioning costs (and 15% of heating costs – particularly at night time and mid-season). The resulting reduction in CO₂ emissions has wider implications for responsibility in construction and building management.

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What are the applications?

The panels have been designed to be installed behind the plasterboard lining on the interior walls and ceilings of lightweight structures such as timber, steel or aluminium framed buildings. DuPont™ Energain® is suitable for a wide range of commercial, public and residential buildings. Designed to be fitted alongside standard materials such as insulation, plasterboard and partition walls, DuPont™ Energain® works together with mechanical ventilation systems and in co-ordination with heating and air conditioning systems. Currently, while the installation of the thermal mass panels does not replace the need for air conditioning it may allow for a reduction in the size – and definitely in the use – of AC units. Ultimately, with further development, it may be possible, in some cases, to eliminate the need for air conditioning all together.

How is it specified?

A DuPont proprietary version of the numerical software programme, CoDyBa (version CDB dDDN V2), has been specially created to help specifiers calculate precisely how much of the material is needed and where. The software illustrates the thermal behaviour of a specific building with and without DuPont™ Energain®, including energy savings and the CO₂ emission reductions. These simulations will be made available through the DuPont™ Energain® sales and technical teams who will be on hand to advise. The panels are then delivered on site, ready to install.

How is it installed?

DuPont™ Energain® is simple and straightforward to fit. The pre-cut and pre-taped panels of 1.2m x 1.2m x 5mm thickness are lightweight and can be easily cut and then screwed, nailed or stapled in place. DuPont™ Energain® aluminium tape must be applied to any new cuts or areas where the paraffin and polymer compound is exposed. The panels are positioned between the insulation and the interior wall-covering, or between inner partition walls. They can also be installed between the attic finishing and roofing insulation or behind the ceiling finishing.

Summary of benefits

- Improves comfort by stabilising the effects on room temperature at both ends of the scale - reducing peaks by up to 7°C
- Significantly decreases both air conditioning and heating costs, and thereby the CO₂ footprint of a building
- Lightweight, flexible, versatile and easy to install
- Special software enables specifiers to calculate precisely how much material is required for optimum performance, avoiding excess costs and waste
- Adds significant cost-efficiency and long-term value
- Allows architects and consulting specifiers to build sustainable, responsible and innovative structures

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Notes to Editors

DuPont™ Energain® Thermal Mass System is a patented technology made only by DuPont

DuPont is a science-based company. Founded in 1802, DuPont puts science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Operating in more than 70 countries, DuPont offers a wide range of innovative products and services for markets including agriculture and food; building and construction; communications; and transportation.

An introduction to the overall DuPont offer for architecture, interior design, building and construction markets is available at www.buildingonscience.dupont.com. The range of DuPont™ Energain® products is shown at www.energain.co.uk.

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