



PSEM

Public Sector Estates Management



ThermaCool

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Definitely the coolest ceiling tile in the world!




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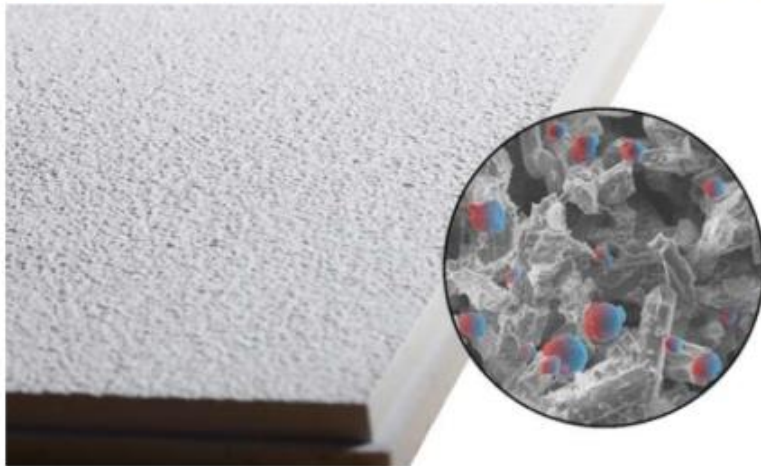
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DEFINITELY THE COOLEST CEILING TILE IN THE WORLD!



ThermaCool® ceiling tiles incorporate a phase change material that absorbs, stores and releases excess internal heat gains, providing a lightweight thermal mass solution as well as thermal comfort through passive cooling.

Designed to improve indoor thermal comfort by providing lightweight thermal mass, ThermaCool® products, including a suspended ceiling tile and a wall and ceiling panel, incorporate a microencapsulated phase material to provide a completely passive solution for managing the indoor temperature of a building by adding lightweight thermal mass that stores 6 times more energy than concrete but 7 times lighter, making them ideal for all building types including public sector buildings, commercial offices, schools & universities, and healthcare facilities such as hospitals.

years has become standard practice in the interior design of commercial buildings to provide an accessible ceiling above which conceals the network of services and ducting. Throughout this time the ceiling tile used has remained unchanged with slight variations to the composition of mineral fibres, paper, perlite and glues which in production are compressed to make a lightweight but brittle tile that is mass produced for commercial buildings.

What he didn't realize was that 56 years later that with the depletion in fossil fuels to meet energy demands for heating and cooling buildings has totally changed the way that architects incorporate suspended

The ThermaCool® Preformed tile is manufactured from abundant natural minerals and incorporates a microencapsulated phase change material from the world's largest chemical company BASF, to reduce the energy demand on existing HVAC systems.

Phase Change Materials or PCMs undergo a phase transition from solid to liquid and back to solid within a defined temperature range. In doing so they absorb, store and release excess latent heat gains from within the building to maintain a comfortable working environment through a process that occurs day after day, week after week, year after year and has been tested to over 10,000 thermal cycles which is the equivalent life time cycle of over 30 years without loss of performance. This is thermal mass or fabric energy storage in a ceiling tile or panel.

In modern construction, architects are now exposing the concrete structure of the building to benefit from the thermal mass characteristics of concrete to manage the

"MITIE has now trialled the ThermaCool® PCM products on a number of its client's buildings and the results have been very positive. We are always looking for innovative new technologies and solutions, and are pleased to add this product to our tool kit as part of the MITIE CarbonCare approach which supports our clients to make financial savings and reduce carbon emissions." - MITIE

ThermaCool® products have the ability to absorb, store and release large amounts of latent heat that is generated by the buildings occupants, IT and lighting which mean that they can buffer the peak internal temperatures throughout the day, particularly during warmer summertime temperatures, and delay the requirement for any further mechanical cooling.

In 1958 Donald A. Brown of Westlake Ohio patented the first accessible suspended ceiling construction which for the past 56

ceiling systems into their design.

The demand for air conditioning in buildings worldwide is growing rapidly in response to increase building use and energy demands for comfort cooling by occupants. Consequently the energy consumed by air conditioning systems is expected to double from current levels by 2020 which already accounts for over 30% of a buildings total energy use. Architects now have a choice of mineral tile that reduces this problem.



ThermaCool® Preformed Caprice Tile

“We have an excellent overview of the PCM market and its applications worldwide. ThermaCool® is one of the most promising solutions with great potential for refurbishment and new construction. It is a brilliant tool for planners to optimise or even avoid the need for air conditioning and it has the ability to significantly reduce CO2 emissions in commercial offices and retail buildings as well as in residential and domestic markets. We fully support this clever solution.” - BASF SE as supplier of Micronal® PCM



Flintshire County Council

internal heat gains. The disadvantage of this is that the rate of heat absorption and release is very slow whereas microencapsulated phase change materials is more controlled and works over a defined temperature range of 19°C – 23°C.

The ThermaCool® Preformed Mineral Tile can be used in new or retrofit projects where thermal mass needs to be incorporated into lightweight constructions with the added benefit of reducing the energy demands for mechanical cooling and to create improved air quality through the hygroscopic properties of the tile.

So after 56 years, architects now have a choice of mineral tile for their projects. That of a traditional mineral fibre tile or the most advanced mineral tile incorporating microencapsulated phase change material. Both aesthetically look and cost the same, both can be installed into the same standard grid systems but only one that reduces the indoor temperature, reduces the energy demand on HVAC systems and only one that will pay for itself.

“Datum Phase Change Limited’s integration of Phase Change Material into a standard ceiling tile system provides the perfect retrofit solution to the commercial market for reducing reliance on mechanical cooling systems. We are confident that the solution can provide real tangible benefits to customers.” - RICS

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- Willmott Dixon Group

SUMMERTIME OVERHEATING

The effectiveness of thermal mass for reducing summertime overheating has been well established for both commercial and domestic buildings and has also been found to be an important part of low energy

adaption responses to a warming climate under climate change.

The benefit of thermal mass in buildings is well understood in warmer parts of Europe, but is also becoming increasingly relevant to other regions where the impact of climate change along with more rigorous building regulations for improved thermal efficiency and air tightness of buildings, is leading to more frequent occurrences of overheating.

During warm weather, much of the heat gain in heavyweight buildings is absorbed by the thermal mass in the floors and walls, helping prevent an excessive temperature rise and reducing the risk of overheating. This makes naturally ventilated buildings more comfortable and in air-conditioned buildings with thermal mass the peak cooling load can be reduced and delayed. However as buildings become more thermally efficient and air tight through the installation of internal wall insulation, the thermal mass element of the buildings fabric no longer becomes of benefit.

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ThermaCool® Preformed Acoustic Tile

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