

# BEDDELEEM



— Phaseo PCM  
Climate ceiling



# B

A good company  
delivers excellent  
products and services,  
and a great company  
does all that and strives  
to make the world a  
better place.

Bill Ford

— Phaseo PCM climate ceiling



At a time when **sustainability, energy efficiency and user comfort** are essential, it is vital to adopt **innovative solutions** that transcend the norms of traditional building practices.

Buildings are more than just structures. They are environments in which people live, work and develop. Optimising these spaces for **comfort and well-being**, while **minimising our environmental footprint**, is a challenge.

A Phaseo PCM climate control ceiling offers a versatile and effective way to **meet the demands of the modern world**.

**BEDDELEEM**



# — PHASEO PCM climate ceiling



## Climate ceiling

The Phaseo PCM climate ceiling is a **suspended, decorative, metal or open ceiling** equipped with PCM elements.

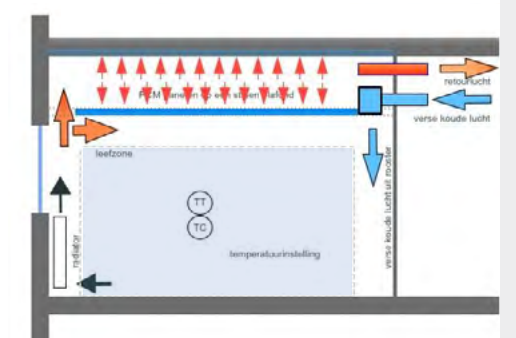
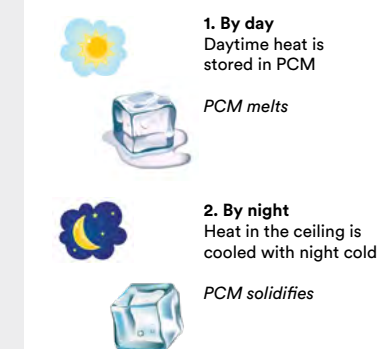
Phase change materials (PCMs) are substances capable of changing phase (from solid to liquid or vice versa) at a set temperature. These materials benefit from the phenomenon of latent heat storage, whereby heat is absorbed or released during the phase change process without the temperature changing.

By absorbing heat, the material melts (and retains heat) at this set temperature. During melting, the

material absorbs large amounts of heat from the environment which makes the environment cooler.

As soon as the temperature of the outside air drops below the set temperature, the material solidifies again, releasing heat into the environment. The surroundings warm up again (or ventilation is applied to remove the heat).

The result is a very comfortable, **stable indoor climate and optimum climate control**. With a climate ceiling, rooms can be cooled energy-efficiently, pleasantly, quietly and draught-free.

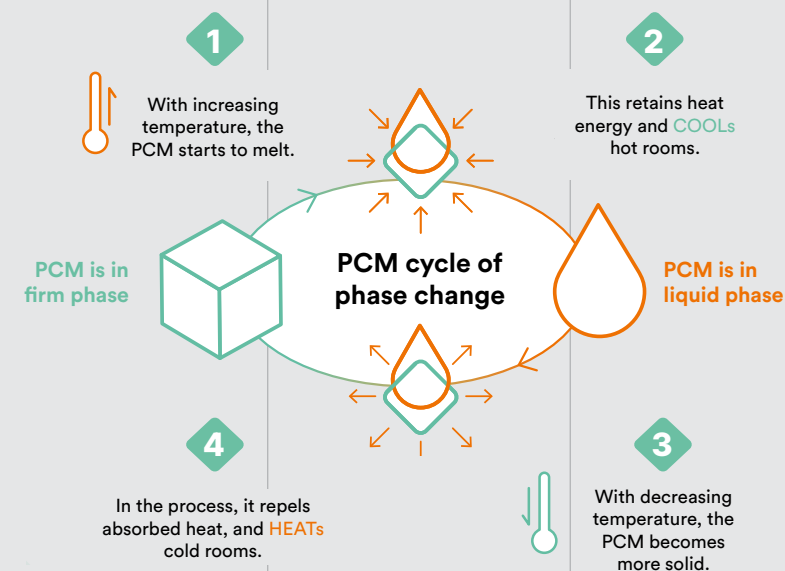




# Advantages PCM

## Lower energy consumption & higher comfort

- + More sustainable buildings
- + Energy efficiency
- + Higher comfort thanks to constant temperature
- + Reduction of CO2 emissions
- + Use of circular materials
- + Taking advantage of higher mandatory ventilation rates (post-Covid)
- + Easy mounting
- + Lower installation costs
- + Space-saving
- + HVAC installation reduction up to 50%, both in installation and maintenance
- + Emission-free, no emissions of volatile organic compounds
- + Design looks using metal ceilings
- + Sustainable: favourable for BREAAAM & Cradle to Cradle certified



# Choose your ceiling—

Climate ceilings with PCM are used in **various building types, such as offices, hospitals, nursing homes and schools.** Due to their **discrete design**, they fit harmoniously into different interior styles and architectural designs.

They can be integrated into **new build or renovation projects.** In a **new installation**, the ceiling is perfectly compatible with modern energy technologies such as heat pumps, ... In **renovation projects**, existing systems can be retained and past investments are not lost. Existing technical installation and ceiling grids can usually remain in use.

01 —



## T24 - ceiling

This ceiling is a grid ceiling composed of slim support profiles with a visible painted side of 24mm.

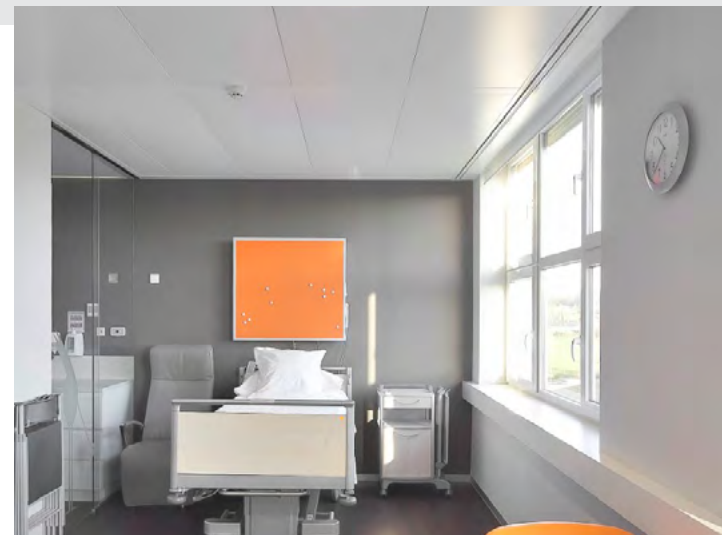
The grid ceiling is filled with metal ceiling panels that are easy to (dis)assemble.

All basic techniques are easily accessible.

## 02 — C - grid ceiling

The metal ceiling consists of a supporting profile of 100mm (C-band grid) in which metal, preformed ceiling panels are laid. These panels are at the same level of the supporting structure. The panels are easily demountable allowing easy access to the plenum.

A range of lighting fixtures, type JB LIGHT, can be easily incorporated into these panels.



# Unite & combine—

With JB LIGHT, we add the perfect lighting to your working environment.

Lighting is just as important as architecture: it contributes to the overall atmosphere. Light plays a crucial role in the way we perceive our environment. With **LED lighting** we aim to create a comfortable working environment. As part of our services, we also offer project-based lighting planning. We play an active role in the design of your office, to ensure that the lighting perfectly meets your needs.

Our range includes a wide choice of **basic and decorative lighting**, fully compatible with our **ceiling systems**.



— JB LIGHT







Phaseo PCM Climate Ceilings double the output of your current chiller. They require a 50% smaller chiller and/or boiler or even no chiller at all. No cooling pipework is needed in your premises and the maintenance required is very limited. We express savings in cooling energy (kWh), gas consumption (m3h.gas) and CO2 emission savings. We can precisely simulate and calculate the relevant values for your building.

### ENERGY SAVING IN PRACTICE

Each building and technical installation is different and so each Phaseo PCM climate ceiling requires some customisation. The degree of ceiling coverage with phase transition material often differs slightly from the theory in practice, for example due to different occupancy or more or less ventilation flow. Important influencing factors are: orientation of the building, solar thermal load and, of course, your own requirements.

The average experience numbers from realised projects :

- A realised saving of 50% on installed cooling capacity.
- An average reduction in the use of refrigerants of 50%. This is a saving of more than 0.001 (kg.HFC/m² office area).
- A realised saving of 50% on cooling energy. Expressed in kWh this is 15 - 50 (kWh/m² office area).
- Fewer installations also require less maintenance and a longer lifespan requires less replacement. We have proven practical data in the form of experience figures.

### DIMENSIONS PHASEO PCM PANELS

- CSP 146** H 146 X B 570 X D 13 mm (approx. 0,9 kg PCM)
- CSP 198** H 198 X B 570 X D 13 mm (approx. 1,7 kg PCM)
- CSP 275** H 275 X B 570 X D 13 mm (approx. 1,8 kg PCM)

### FIRE REACTION

The Phaseo PCM Climate Ceiling achieves the following classification: B (fire class) - s1 (smoke class), d0 (drip class), tested in accordance with EN 13501-1 (SBI test and Small Flame test).

### ACOUSTICS

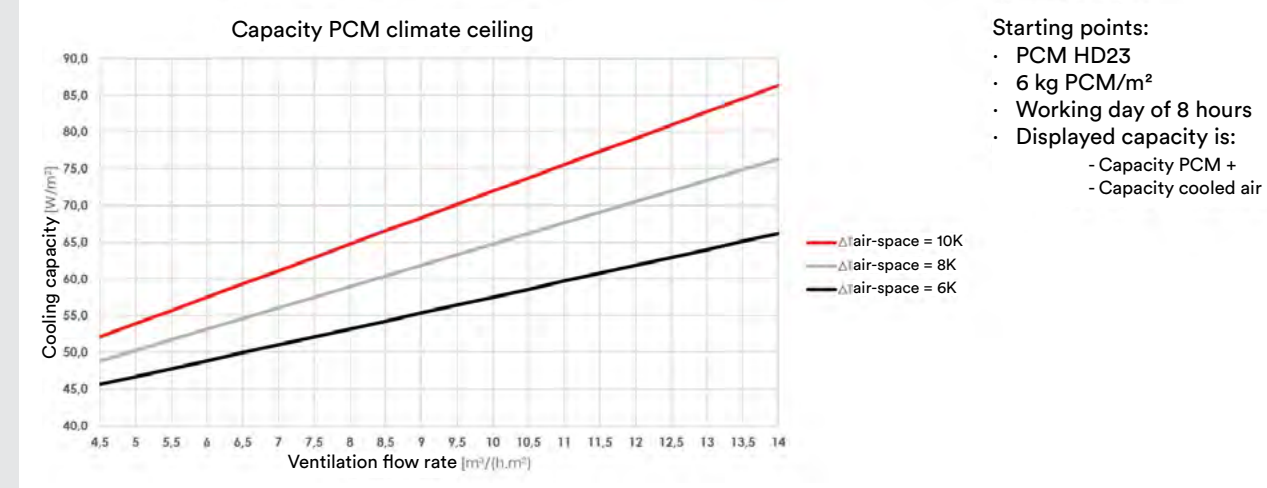
A number of our commonly used PMC standard solutions have been tested by consultancy firm Peutz under report number A 3086-1-RA-001. The solutions meet new-build acoustic requirements. We can supply the results of the tests, such as the NRC and  $\alpha_w$  values.

### CLASS IN CLIMATE

Phaseo PCM Climate ceilings in combination with (invisible) air diffusers comply with NEN 7730. For the summer and winter room temperature limit values, we are in climate class A for offices. The limit values for air velocity to limit the risk of draught are in climate class B.

### CRADLE TO CRADLE

Cradle to Cradle Certification® Silver for PCM packaged in an HDPE panel.





# Phaseo PCM climate ceiling a circular product



## — efficient design

### SUSTAINABLE COOLING AND HEATING

With PCM panels, you are assured of a state-of-the-art solution with guaranteed sustainable performance. Not only upon delivery, but throughout the entire life cycle.

When designing the products and during the corresponding choice of materials, we take into account the afterlife, or circular economy. We maximise the value retention of all components by working on technical innovations such as using natural materials or improving the recyclability of the product.

Applying PCM makes a building more sustainable, reduces the energy costs and increases the users' sense of comfort.



Beddeleem is the first Belgian CO2-Neutral building company.

We have been taking our responsibility for years in the area of **sustainable business**. In 2016 we obtained our first Cradle to Cradle Certified® Certificate, in 2021 we obtained the CO2-NEUTRAL COMPANY label, certified by Vinçotte, a guarantee of real efforts in this area.

Alongside our **Beddeleem Circular** project, in which we already offer recycled products from our former projects, we have taken the next logical step in our sustainability journey: the partnership with a **materials database**, whose objective is to accelerate the exchange of building materials and thus extend the life cycle of our products.

As a contractor and manufacturer, we want to be the partner and point of contact of architects and property owners with whom we are committed to a **sustainable office environment**.



Cradle to Cradle certified® Silver achieved for the PCM packaged in an HDPE panel. "With the Cradle to Cradle certification at Silver level, we demonstrate what we have known for years: PCM Technology's phase transition materials are sustainable and responsible. We are at the forefront of circularity and renovation of the building industry, demonstrating to our customers that PCM solutions for floors and ceilings are completely sustainable and environmentally consciously designed."

## BREEAM®

The application of PCM in Breeam has become clear. Together with a PCM knowledge partner, we have drawn up guidelines for implementing PCM in Breeam.

# BEDDELEEM CIRCULAR



B





# BEDDELEEM

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