Phase Change Materials (PCMs)

PCMs can significantly improve the energy performance of building envelopes by storing and releasing thermal energy, helping to reduce indoor temperature fluctuations. When used in lime mortars for cultural heritage, they add thermal functionality without compromising compatibility with original materials.

Up to
5° C
reduction in absolute internal temperature fluctuations

Suitabilty for cultural heritage:

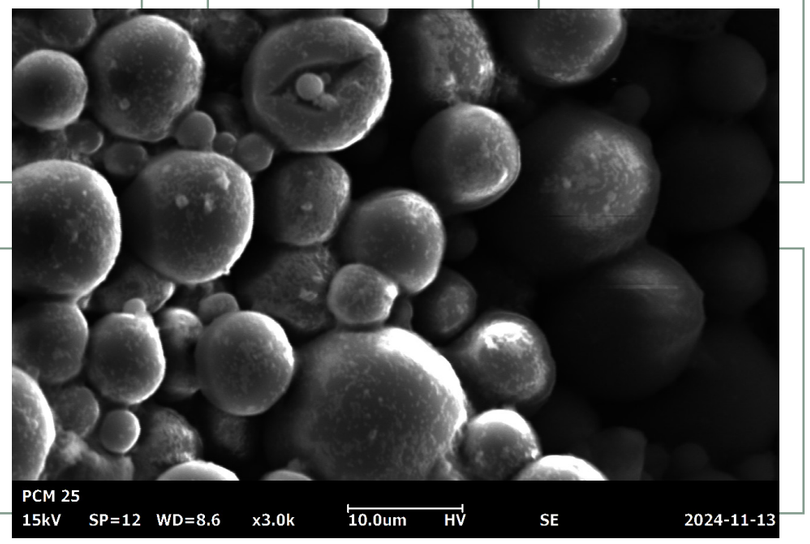
Ideal for heritage buildings with poor thermal inertia and with limited or no active HVAC systems. Suitable for retrofits where breathable, energy-saving, and reversible materials are needed (e.g., stone or adobe masonry, historic lime plasters).

More information

Phase Change Materials (PCMs)

sincere

Energy savings potential



Passive temperature regulation

High thermal storage capacity

Hemp mortars

Hemp mortars (based on hempcrete concept) offer a sustain-able and breathable alternative to conventional building renders, making it especially suitable for the renovation of heritage buildings. It combines excellent thermal and moisture-regulating properties with low embodied energy and a net-negative carbon footprint. By using locally sourced, renewable resources like hemp and lime, hemp mortars support conservation goals while reducing environmental impact.

Over
35 %
reduction of heat transfer for plasters

Suitabilty for cultural heritage:

Cultural heritage buildings that require breathable, non-invasive, and reversible interventions are especially well-suited to hemp mortars. Structures with timber frames, stone or brick masonry, and moisture-sensitive interiors benefit from hemp mortars' ability to regulate humidity and insulate without trapping moisture.

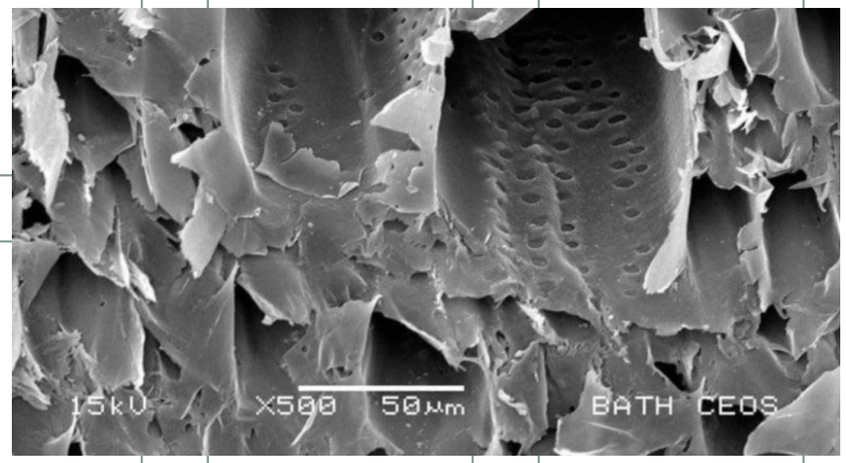
More information

Hemp mortars

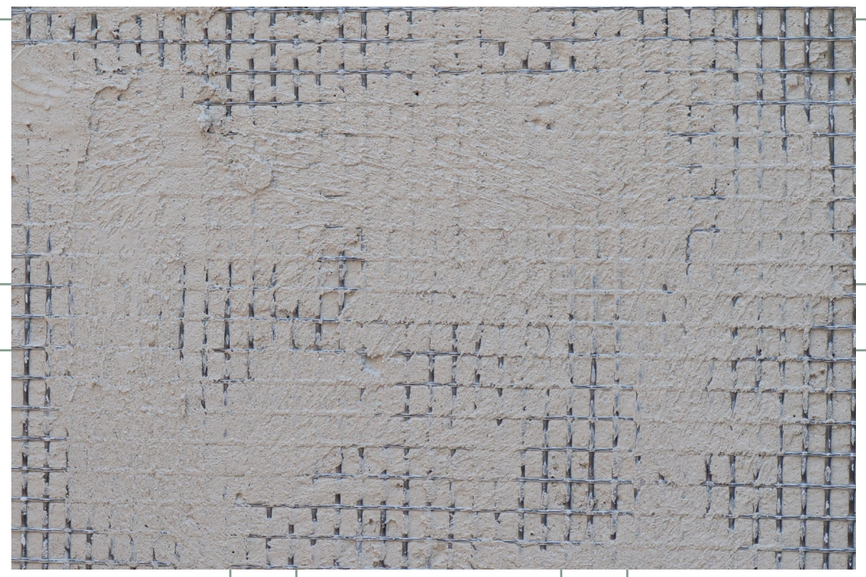
Easy application

sincere

Respect of original materials



Low cost



High thermal protection

Self-healing admixtures

Self-healing admixtures are designed to release a healing agent upon cracking of the surrounding cementitious matrix. When activated by mechanical damage, the capsule shell ruptures, releasing the core material, which reacts with environmental moisture to form solid compounds that fill and seal the crack. They enhance the durability and service life of structural interventions by enabling autonomous crack sealing, reducing maintenance requirements, and preserving the original design intent.

Extension of service life of the concrete structures by

30%

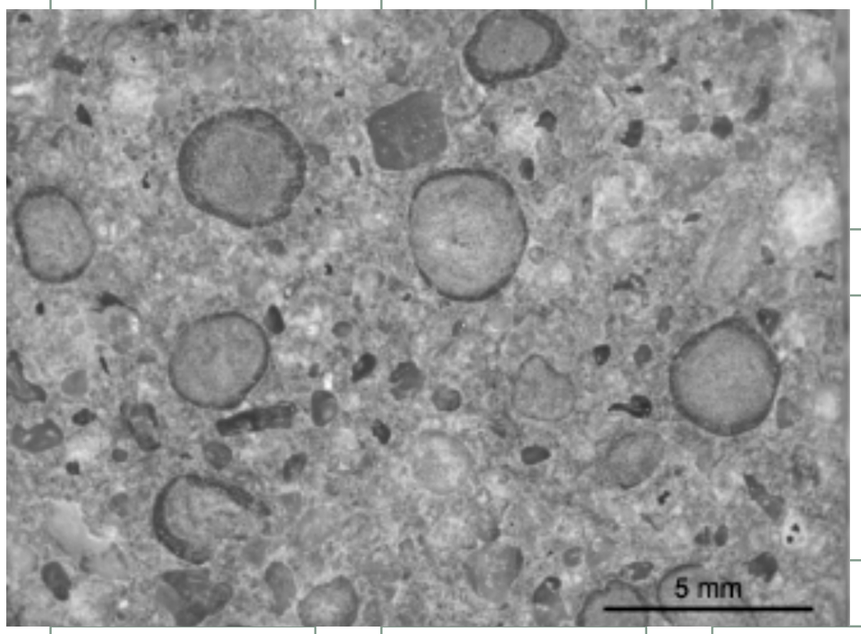
Suitabilty for cultural heritage:

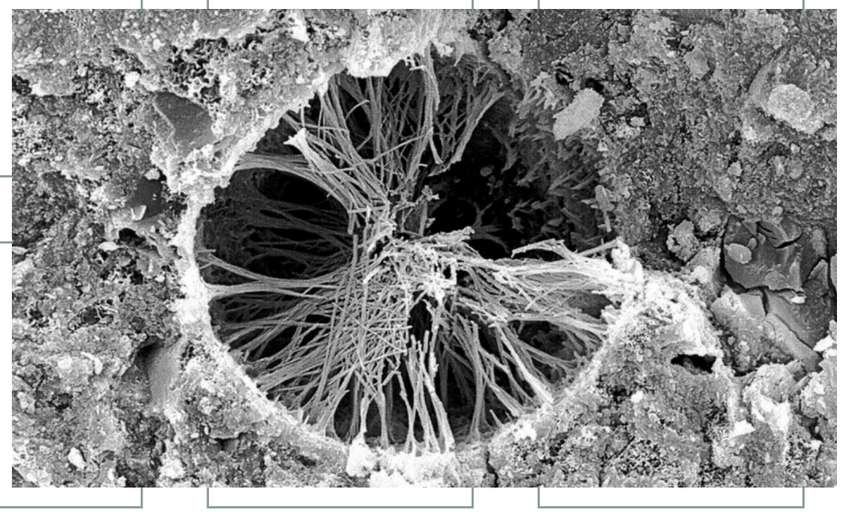
Suitable for reinforced concrete structures in the construction of structural new members (beams, columns, walls etc), the replacement of deteriorated ones, and patch repairs to protect and extend the service life of repaired elements. They are particularly valuable for structures exposed to harsh environments, such as marine conditions, or in locations that are difficult to access for regular inspection.

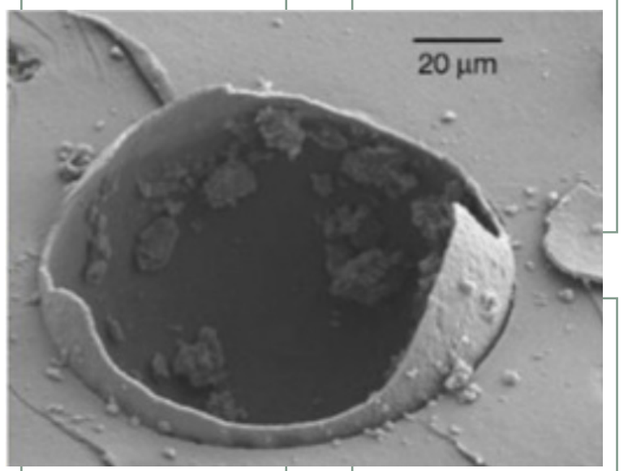
More information

Self-healing admixtures

sincere







Autono-mous crack sealing

Reduction of main-tenance cost

Extended durability & service life

UHPC mix designs

UHPC has signature tensile behaviour, featuring stable multiple cracking with reduced crack width and likely strain hardening response. This allows the same if not superior mechanical and durability performance to be obtained with reduced volume of material.
By using low clinker cements and amorphous alloy fibres embodied carbon of UHPC can be significantly reduced.

Up to
30%
reduction of embodied carbon footprint

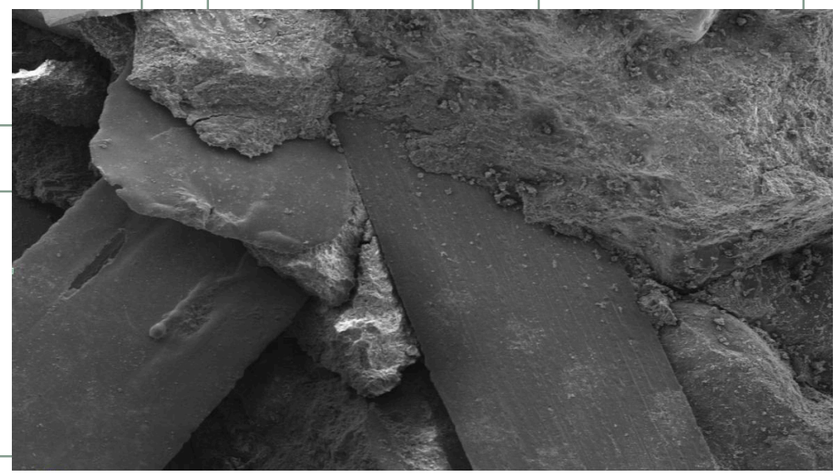
Suitabilty for cultural heritage:

Cultural heritage reinforced concrete buildings, e.g. brutalist and/or functionalist architecture, that require both structural and energy retrofitting, with minimum alteration of stiffness distribution among structural elements, compatibility with existing (reinforced concrete) subgrades, enhanced durability and energy dissipation capacity if earthquake performance is a requisite, and overall sustainability of the intervention.

More information

UHPC mix designs

sincere



Self-healing capacity

Low CO_2

Reduced material volumes