

Building skins as open border between building and territory

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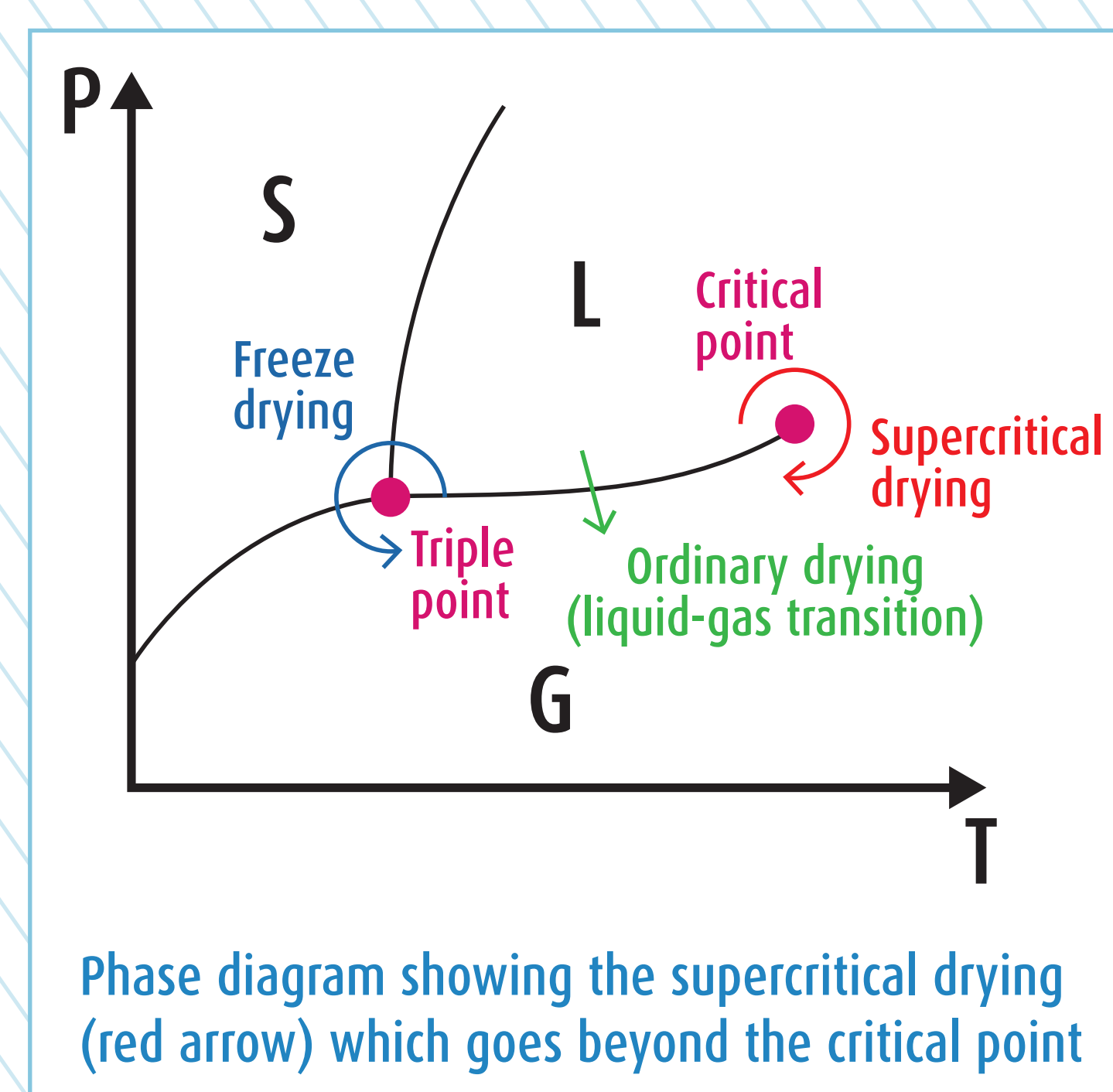
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THE BUILDING SKINS AS OPEN BORDER BETWEEN BUILDING AND TERRITORY

The concept

HIPIN (High Performance Insulation Based on Nanostructured Encapsulation of Air) project aims to develop a **sustainable and affordable technology to produce a nanostructured thermal insulating layer** to improve thermal efficiency in new buildings and retrofitting of existing buildings.

HIPIN aerogel



Starting from **TEOS** ($R=CH_3-CH_2-$), **IMS**, **DI water** and **HCl**:

- 1) Sol gel route: hydrolysis and condensation reactions;
- 2) Heating to promote **first level of hydrolysis/ condensation**;
- 3) Second hydrolysis/condensation step to **give an alcogel**;
- 4) Supercritical drying to **give an Aerogel**.



HIGH THERMAL INSULATING EFFECT



AFFORDABLE



HIGH ROBUSTNESS



EASY TO MIX



FIRE RETARDANT



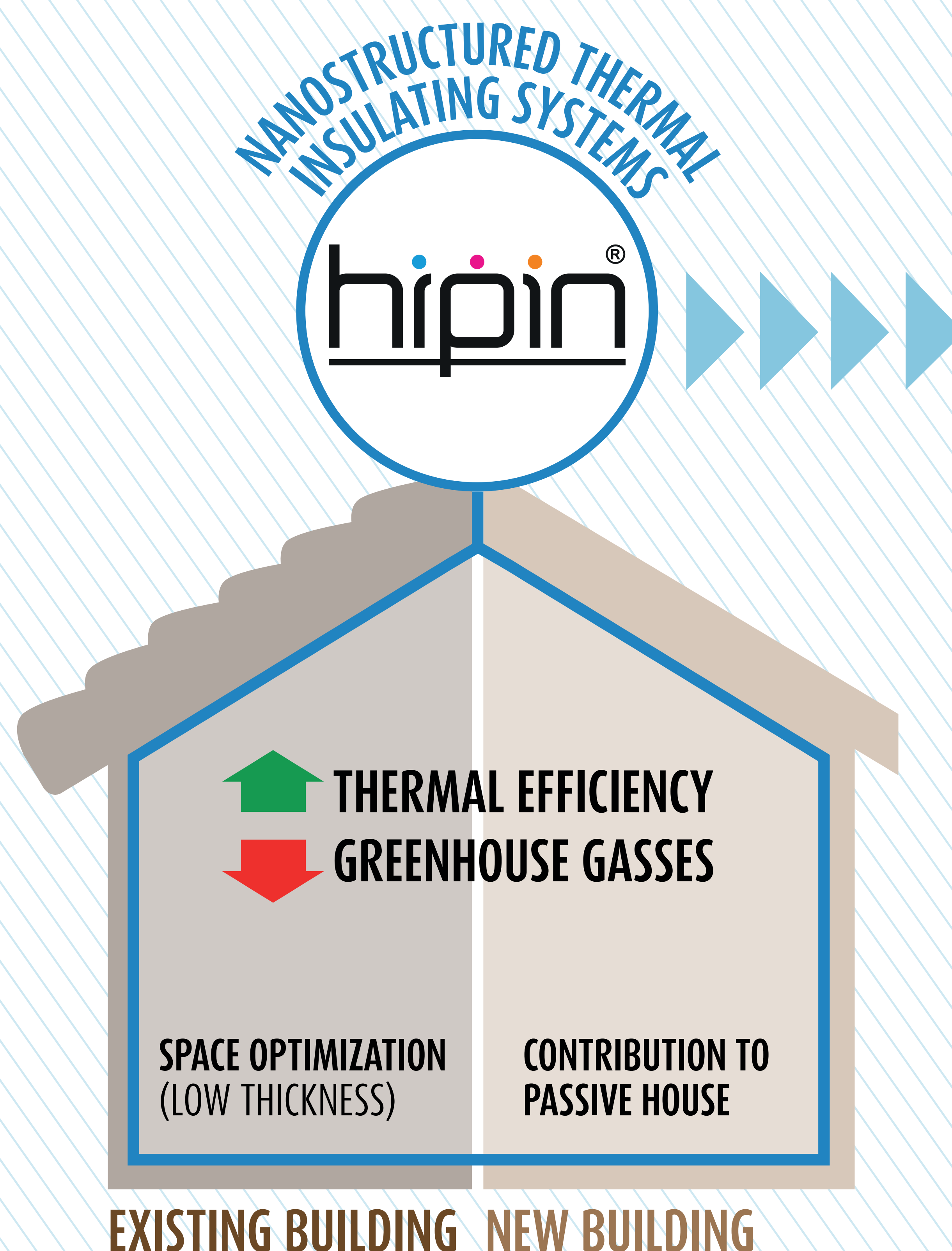
LONG TERM PERFORMANCE



PARTNERS



Incorporation into building materials

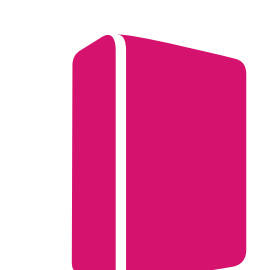


3 THERMAL INSULATING SYSTEMS



THERMAL PAINT

Solventless (VOC regulation)
Stable for **2 years/wet** and **5 years/dry**
Colour and gloss are stable over time
Thickness 20-50µm (dry-film)
Thermal Conductivity < **0.7 W/mK**



THERMAL PLASTER

Pre-mixed (fast application)
Finishing and paintable
Breathable
Thickness < **45 mm**
Dry bulk density < **250 kg/sqm**
Thermal Conductivity < **0.03 W/mK**



THERMAL PANELS

Fast application
Vapour **diffusion**
Thickness < **30 mm**
Thermal Conductivity < **0.013 W/mK**

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