TEMPERATURE PROFILE WITH AND WITHOUT LATENT HEAT STORAGE

Temperature [°C] vs Time [s]

Legend:
- Heater
- PCM
- Room
- Control on/off
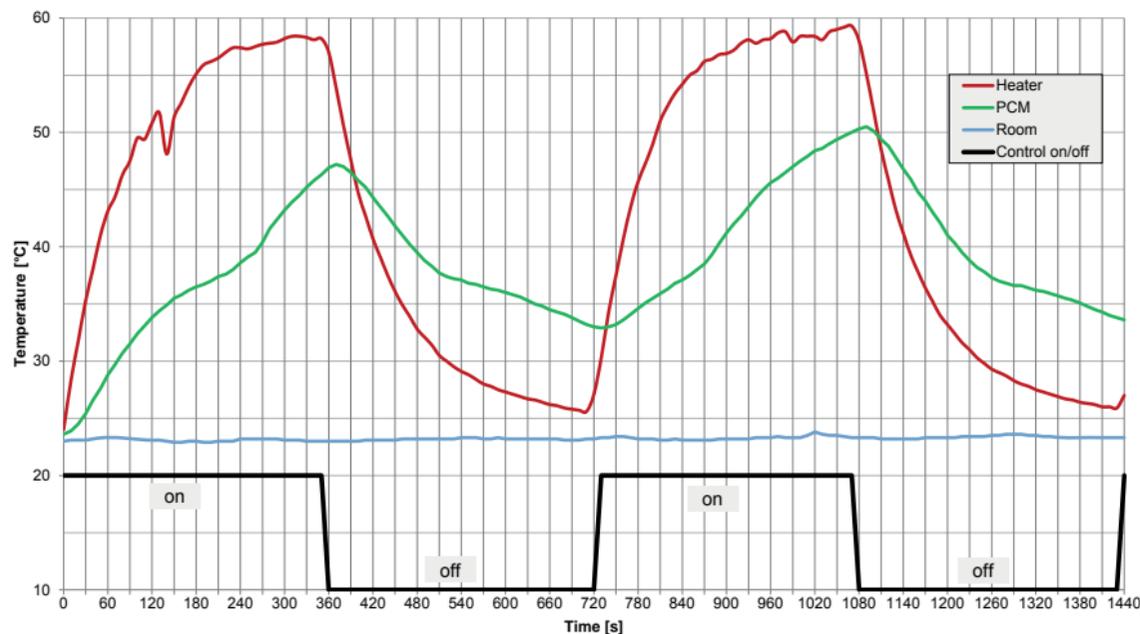
► Once the heater is turned off, the temperature in spaces without phase-change materials (PCM) for latent heat storage drops quickly (red graph). The use of PCM, in contrast, leads to a significantly more level temperature profile (green graph).

► When the heater is turned on again, the thermal energy is stored in the PCM for later release in the form of heat.

► The room is perceived to be more evenly warm (blue graph), even with reduced room temperature.

NEW ENERGY-SAVING HEATING CONCEPT
FOR BUSES AS WELL AS RAIL, UTILITY AND SPECIAL-PURPOSE VEHICLES

Why should you...

heat an entire bus with expensive hot air
► when only a few passengers are on board?
► when the hot air will quickly escape whenever the doors are opened?

The innovative solution

► Targeted heating of only those areas where passengers are sitting or standing.
► Heat radiation instead of hot-air blowers. Heat-radiating elements provide better heat retention than air, which will quickly escape whenever the doors are opened.

You benefit from

► Targeted heat distribution and improved heat retention
► Reduced energy consumption and costs

Advantages

► Selectively controllable via sensors that detect the presence of passengers
► Immediate heat release (Quick-PCM)
► When the doors are open, heat stored and radiated by PCM does not get lost as quickly as hot air
► Heating elements can be cleverly integrated in window-sills, interior liners, seats, arm rests, seat backs etc.
► Radiated heat is perceived as more constant and thus more comfortable than heat provided by hot air blowers
► IoT (Internet of Things): individually controllable systems can be interconnected
► Suitable for power systems with voltages between 24 v and > 700 v

Heating wire

Safety wire

Glass-fiber-reinforced metal foil

Mounting plate

Phase-change material (PCM)

Insulated heating wire

Metal foil

Decorative surface layer