

# LocCool

## Passive Temperature Management For Equipment Enclosures

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The management of internal ambient temperatures within enclosures is usually quite expensive and maintenance intensive, the Creative Design solution is neither of these.

The system is made up of two components:



1. External enclosure panel fitment. Reducing the effects of the sun or Solar Gain, This can be as much as  $1.5\text{kw p/m}^2$  and has an immediate impact on the internal ambient temperature.



2. The introduction of temperature management blocks (TMB) into the interior of the enclosure to absorb the heat energy and store it.



The Blocks contain a Phase Change Material – PCM27 PCM 34 & PCM46

Sodium Thiosulphate  
with Water Crystal Habit Modifiers

This combination has proven to be the most effective way of managing temperatures without the need for HVAC or other forced air method's in areas where power availability is limited or non existent.

The flow of air around the exterior of the enclosure and it's subsequent dispersal is crucial in removing heat from the enclosure, the blocks both capture the heat energy from within and also insulate the enclosure from further influence of high temperatures outside.

The configuration is scalable, allowing enclosures of different physical size to be quickly and easily assessed as to the level of heat management required, computations are made using state of the art tools to determine the most cost effective way of maintaining an ambient working temperature for the equipment in need of protection.

Generally there is a drop in temperature through the evening and night time allowing the system to cycle, as the temperature lowers the TMB's dissipate the collected heat both to the exterior and also to the now cooler interior of the enclosure preparing themselves for the start of the next temperature rise

The outcome of this cycle is that heat is drawn out of the inside of the enclosures during the peak time when temperatures are at their highest and re introduced during cooler night time periods. Thus giving a much flatter temperature curve.

Correlated data in other regions shows that by using the system the reduction in internal ambient temperature can be as much as 83% depending on location and other attributes. (average 30%).

Other regions do include the United Kingdom.

Metro Trains Melbourne evaluated the performance of this concept by way of a trial in the Melbourne area.

10 location Cases were chosen that had previous temperature related “issues”. The LocCool was fitted at these sites.

This trial results can be provided upon request, with MTM working with Creative Design to prove the concept in the first instance.

Initial data compiled since 2015 has been promising

Date	Time	Max External	Max Internal
02/01/2015	18.22 HRS	40.500 ° C	43.275 ° C
03/01/2015	16:02 HRS	39.400 ° C	42.277 ° C
07/01/2015	15.22 HRS	40.300 ° C	43.558 ° C

Temperature data provided by Metro Trains Melbourne

We would be pleased to discuss any aspect of LocCool, should you wish to see further documented evidence of the systems success to date then please do not hesitate to contact us.

## Questions & Answers

Thank you for your attention.

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