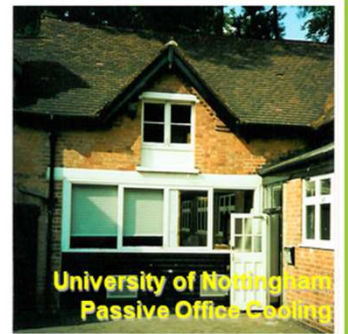


PCM-TES BASED AIR COOLING APPLICATIONS

PCM based TES can be a useful tool to shift the load whether as a free cooling and/or utilise the excess cooling from the system so the overall daily loads can be levelled. Main challenge finding enough time to freeze the PCM so the peak periods can be topped up using that stored energy.

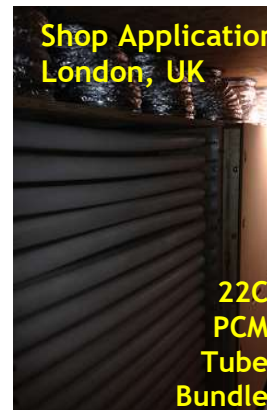
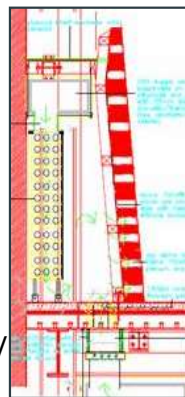
Moderate climates it is possible to achieve the whole sensible cooling capacity via free cooling like the Nottingham University building but even hot climates like Oman fresh air intake application bulk of the incoming air can also be cooled using free cooling.



If free cooling is not possible the only option would be load levelling using the existing cooling system like Mulberry shop in central London Bond Street is located in one of the Grade I listed building in which any alteration opportunities restricted dramatically.

As much as 50% of the load a PCM based Thermal Energy Storage (TES) is considered to be a useful tool by simply running the air conditioning machine over-night to charge the PCM modules filled with +22C (72F) TubelCE in a heat exchanger format.

Many high rise building tends to turn off the air conditioning but many of these buildings might have banks / offices whereby having small / medium IT rooms with lots of computers which



would be still running over weekend / night time and without cooling they over-heat. In order to overcome this over-heating individual clients can use an IT back-up PCM cooling module which is charged during normal office hours utilising the central cooling system and provides 48 hours cooling over weekend without the need for central air conditioning system.

