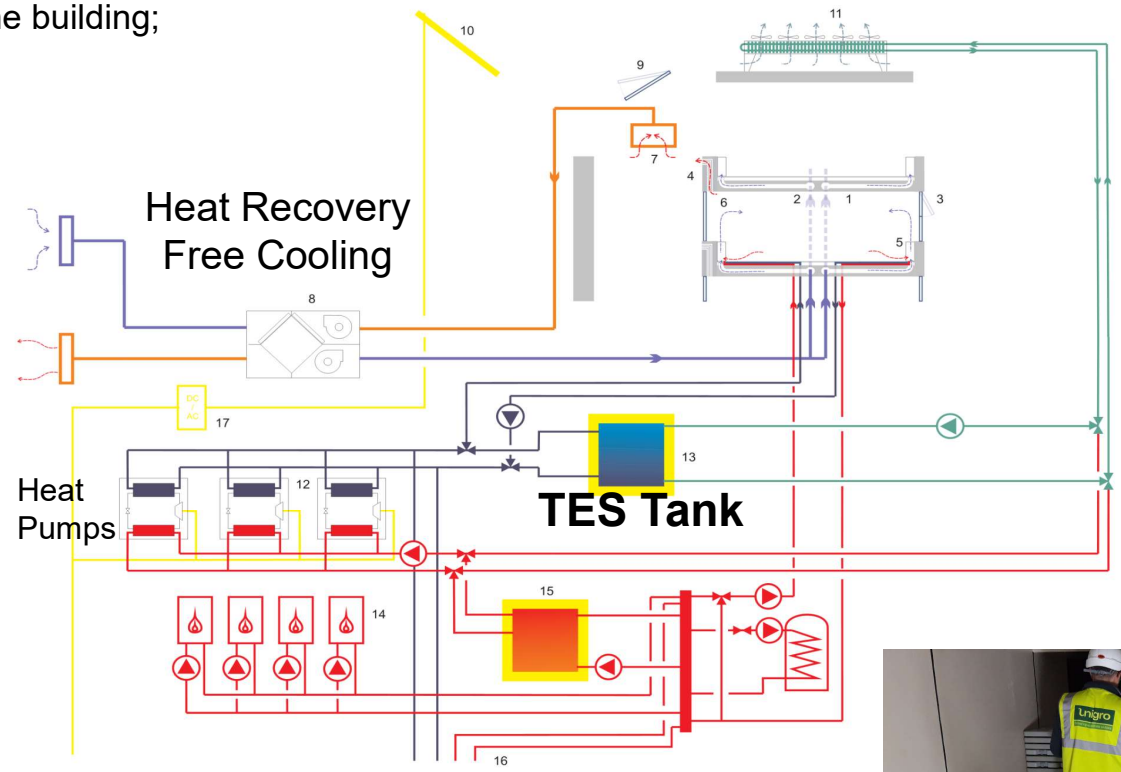
PCM

Phase Change Materials
Thermal Energy Storage

FARMILOE BUILDING , LONDON

The Farmiloe Building dates back to Victorian periods with typical architectural characteristic completed by Browne & Robinson in 1868. The Farmiloe Building became a Grade II listed building on 1991 and used by George Farmiloe & Sons as its base until 1999. In 2014, plans were announced to transform the building to a state of then art offices as a development programme. Being right in the center of London and Grade II status did not deter project team to explore environmentally friendly technologies to reduce its impact as much as they can.

To this end, a Thermal Energy Storage (TES) is considered to be useful tool to shift the peak load and effectively reduce the machinery size and handle daily load variations. The following energy strategy is applied to achieve the minimum impact of the building;



PCM tank stores the waste energy from the heat pumps while the heat pump is utilised for the heating services. Building is provided with approx. **1,500 kWh(426 ton-h) +13C (55F)** PCM thermal energy store that is cooled at night using lower cost of energy or when the ambient temperature is cooler, increasing the coefficient of performance of the heat pump. The thermal store is then used during day peak periods to drive the cooing systems instead of using the heat pump for cooling or top up the cooling loads while the heat is running. This waste heat recover / free cooling concept drastically reduced the amount of energy used by the HVAC system.