

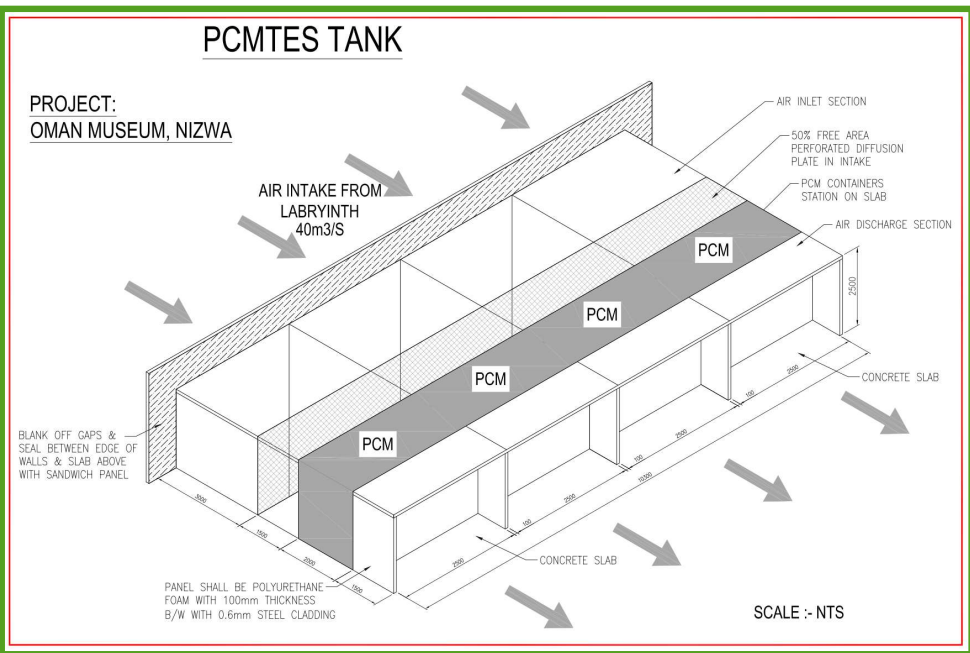
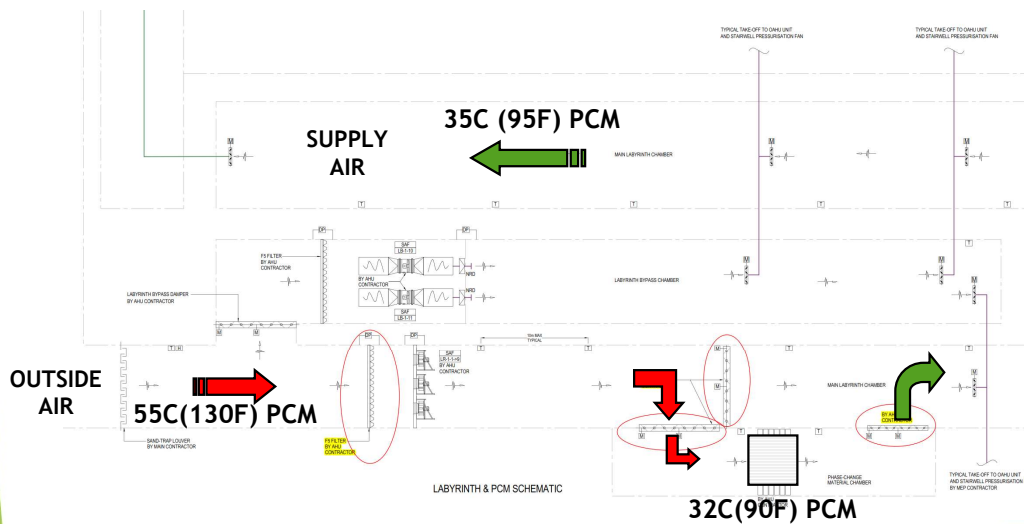
Oman Across Ages Museum, Muscat, Oman



Considering 55C (130F) peak day time ambient temperature vs. 28C (82F) night time ambient condition if one can store that cool night energy and utilising this FREE stored energy during day peak period one can reduce the outside air cooling demand during peak ambient conditions significantly.

For this purpose a special tunnel built to accommodate the PCM containers whereby when the surrounding air temperature is less than the PCM solution generally during night time, these containers freeze naturally by the surrounding cooler night ambient and later this stored energy in the form of latent heat can be released back to the air supply system during daytime to cool the incoming air for the outside air supply requirement for the museum. Almost the total daily sensible heat gains due to outside air supply can be absorbed by the passive cooling tunnel.

As the outside air intake is crucial for public spaces like museums by simply storing cool night energy the overall cooling demand can be reduced significantly especially locations whereby the day time ambient reaches as high as 55C (130F) anywhere in the Middle East.



Each chamber 2.5m(8') (W) x 2.0m (6 1/2') (L) x 2.5m (8') (H) filled with 10 wide x 58 high FlatICE stack.
Total 4 chambers accommodate 9,280 FlatICE filled with S32 (+32C/ F) PCM solution providing 2.0 MWh (595 RT-h) TES capacity.

