

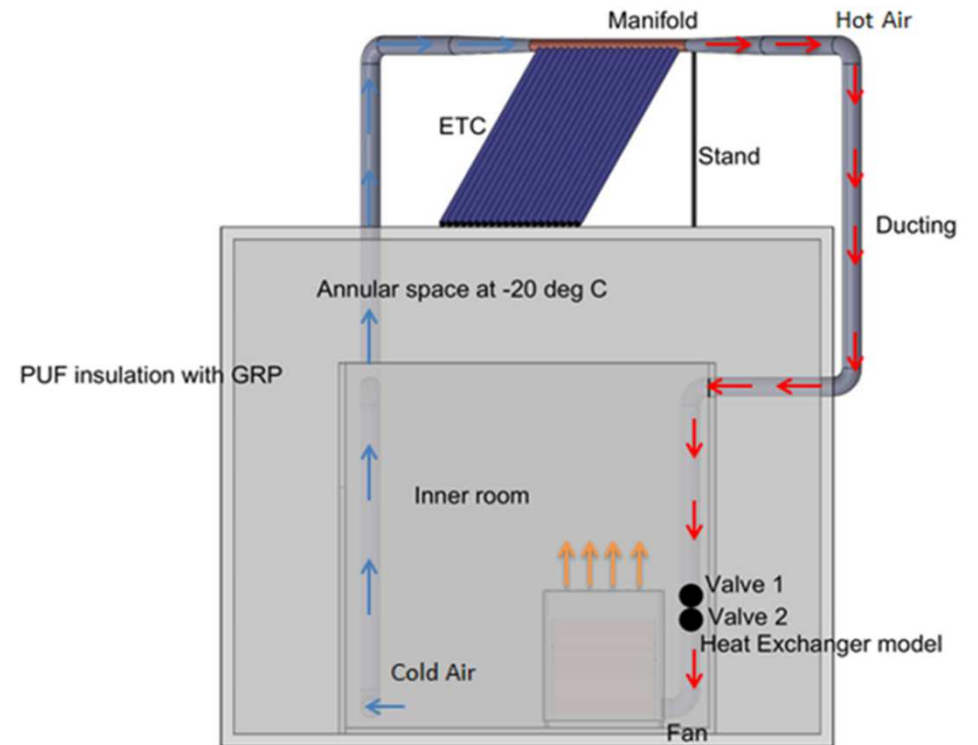
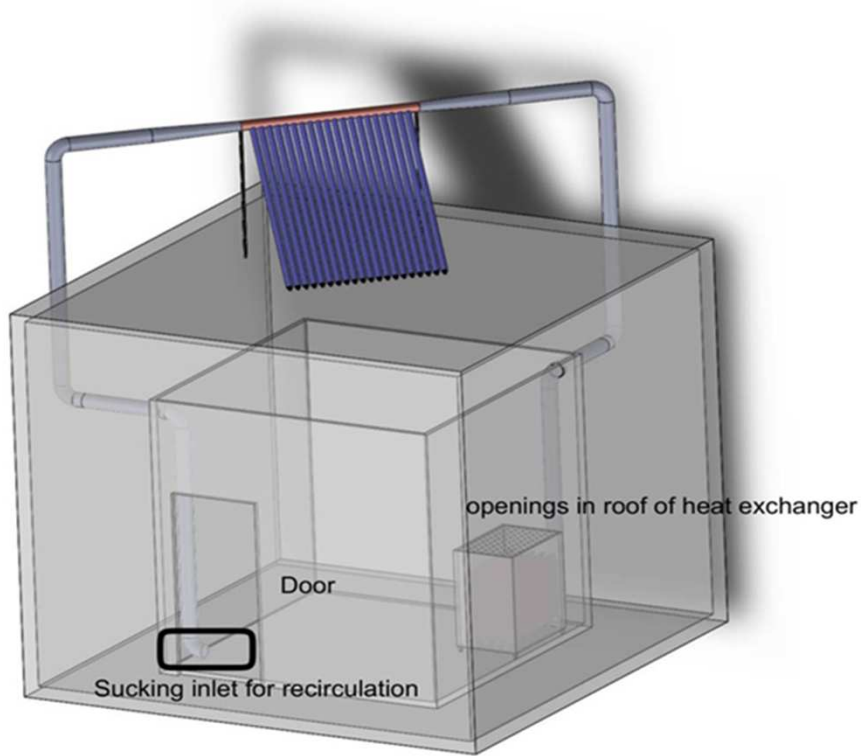
Space Heating – Design and Results

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Advanced Phase Change Materials

Working Principle



Test Bed



Front view



Back view

Heat Exchanger – set up



Damper to circulate air inside the room during off – sunshine Hours (discharging cycle)

Holes to let hot air escape from the heat exchanger

Room heating – set up



Heat exchanger set up in the room

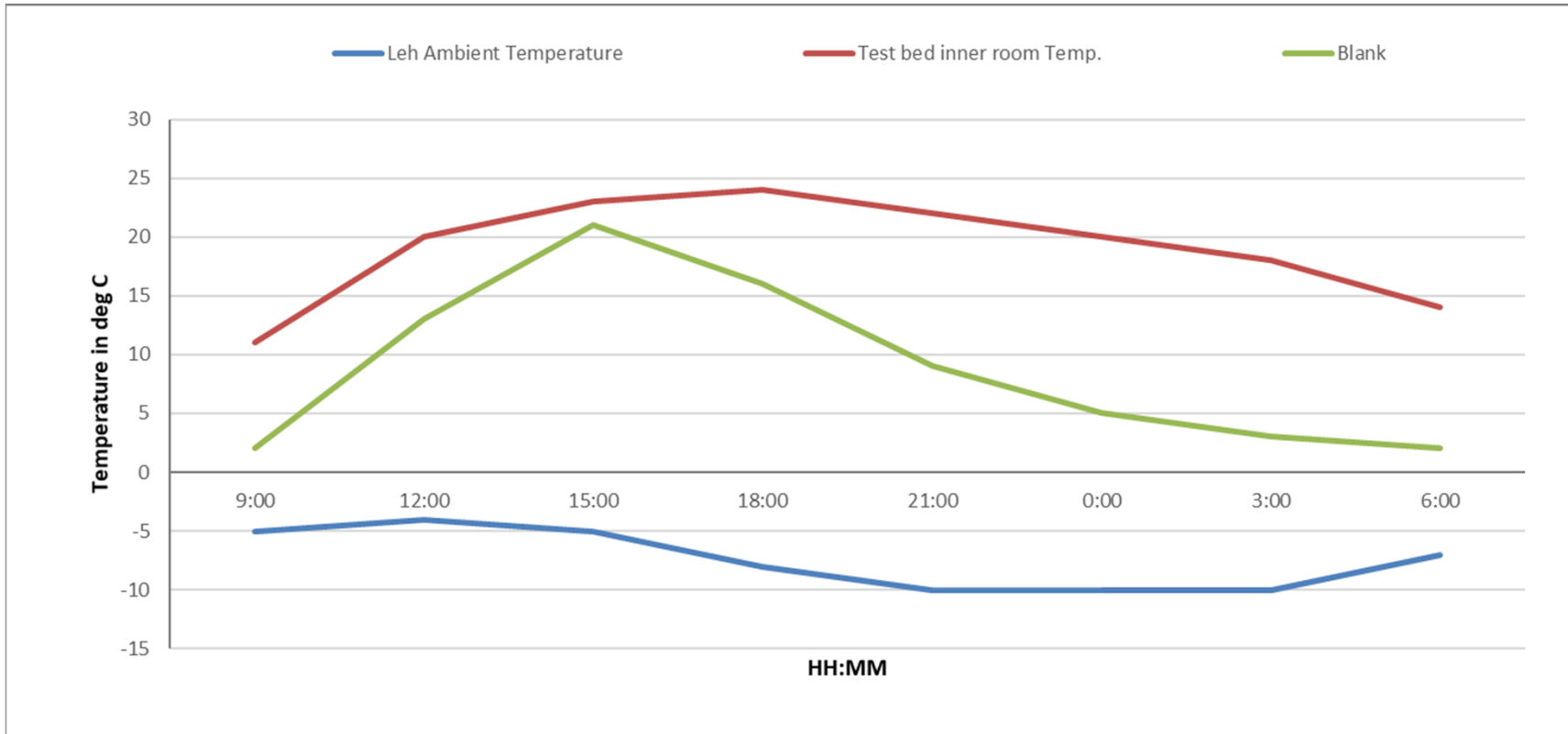


Exit pipe to solar collector for air recirculation

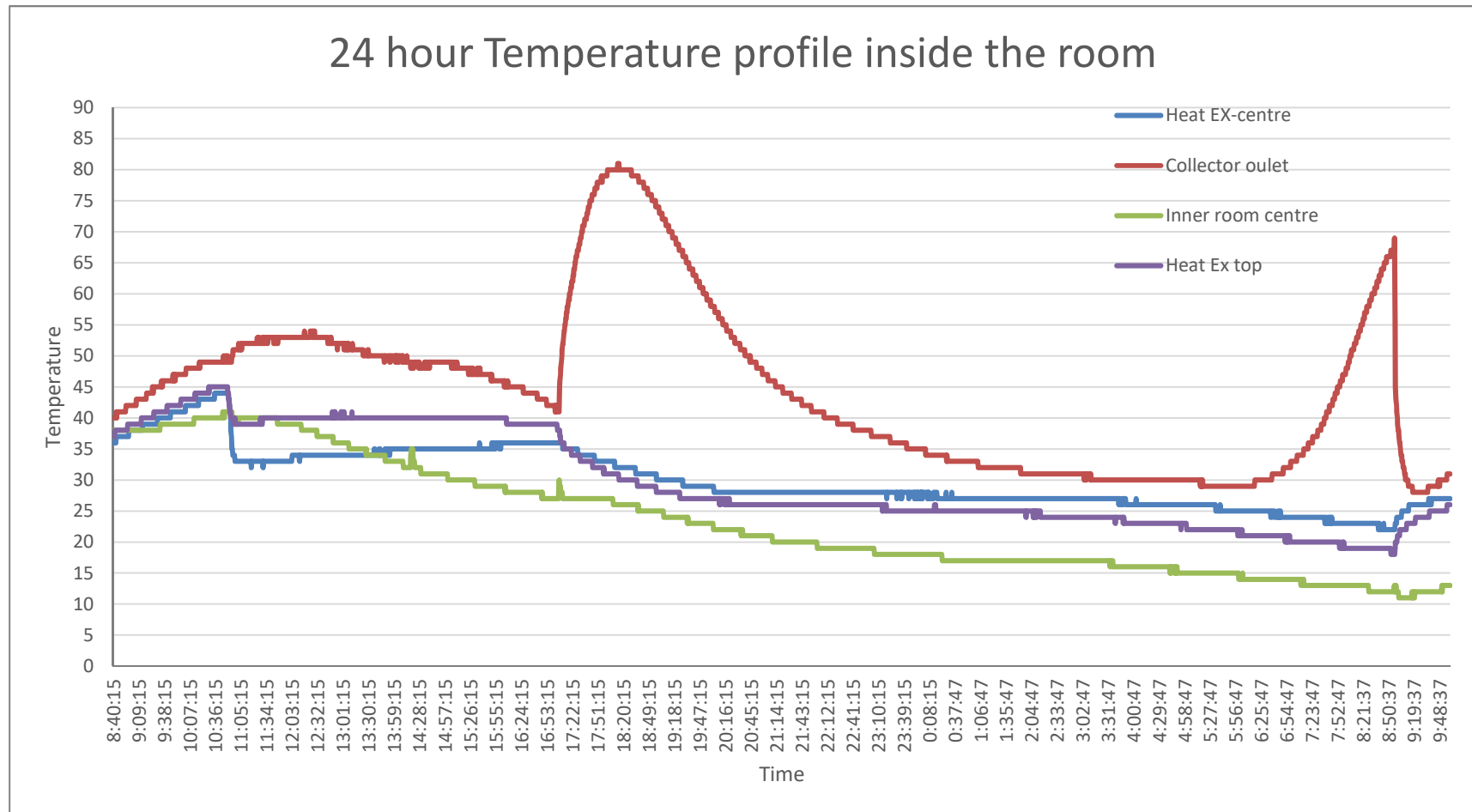
ETC Collector



Temperature profile with & without PCM



Temperature inside the room when ambient is -20°C



Parameters defining the system

S.No.	Parameters	Specifications
1.	Amount of PCM	95 kg
2.	Dimensions of PCM encapsulation	570 x 285 x 15mm
3.	Mass of PCM in each panel	2.3 kg
4.	Total Number of panels required for back up	41 nos
5.	Diameter of duct	6 inch
6.	Fan wattage	60 W
7.	Air flow velocity	3 m/s
8.	Room Size	3m x 3m x 3m
9.	Target Temperature inside the room	15-20oC