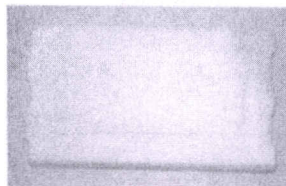
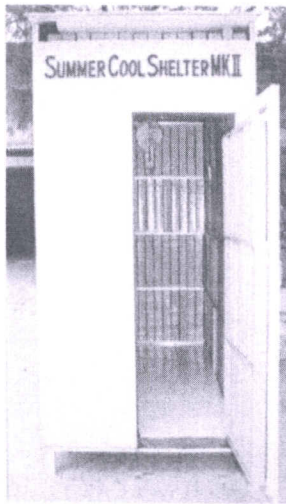
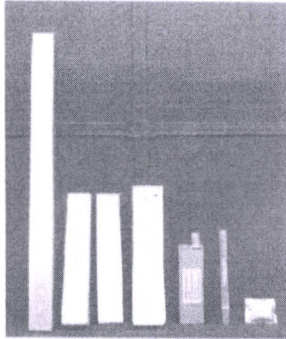


## Phase Change Material (PCM) based Panels & Cool Vest



The technology is a phase change material based cool panel. PCM is a substance with a high heat of fusion, which melting and solidifying at a certain temperature, is capable of storing and releasing large amounts of energy. Heat is absorbed or released when the material changes from solid to liquid and vice versa. Thus, PCMs are classified as latent heat storage (LHS) units.

PCMs can smooth daily fluctuations in room temperature by lowering the peak temperatures resulting from extreme external daily temperature changes. PCMs are solid at room temperature. When the temperature becomes warmer, PCMs liquefy and absorb and store heat, thus cooling the house (or inside of vehicles). Conversely, when the temperature drops, the material will solidify and give off heat, warming the house. By incorporating PCMs in the building envelope, they absorb the higher exterior temperature during the day, and dissipate the heat to the interior at night when it is cooler, thereby, moderating the outdoor temperatures.

This technology has been tested in extreme weather conditions (for a prototype shelter of the size 240 Cm L x 120 Cm W x 180 Cm H) and it has been concluded that even during acute hot days of summer, the temperature never goes beyond 40 degree C. This is an extremely useful technology having all desired properties of a PCM such as being non-toxic, non-corrosive and non-hygroscopic and can find applications in residential use, telecom shelters and vehicles, particularly railway coaches and for military use in extreme weather conditions.

This technology offers several advantages such as energy saving and increase in productivity levels by making the working conditions more favorable for those employed or residing in locations with harsh, extreme weather conditions.

### **Areas of Application**

These panels can be used to reduce heat load passively on temporary and permanent buildings, telecom shelters, railway coaches and vehicles.