PCM

Phase Change Materials
Thermal Energy Storage

Huailai Agricultural Greenhouse, CHINA

Greenhouse Design;



•The greenhouse features a length of 43 meters, width of 10 meters, and ridge height of 3.5 meters. Its back wall is constructed with composite insulation panels, and the exterior is covered with EVA film.

•Greenhouse usage: The crop types include tomatoes, leafy vegetables, etc., with a minimum daily temperature of ≥13°C.



•Greenhouse heat source: No mechanical auxiliary heat source, relying solely on natural solar radiation as the heat source.

•Insulation measures: Implement a cotton quilt insulation method, covering the greenhouse with quilts at 16:00 daily (before sunset) for nighttime warmth retention, and removing the quilts at 9:00 the next day (after sunrise) to utilize solar radiation for temperature elevation within the greenhouse.

Simple Retrofit Temperature stabilisation within the green house









HDPE tubes filled with PCM solution are fixed on to the south facing wall using 50mm (2”) pipe brackets as they absorb excess solar heat during the day by melting and release that stored heat at night as they solidify, helping maintain a more stable growing environment.

