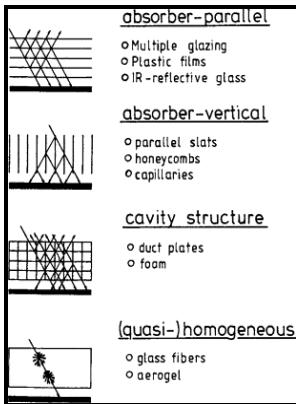


Thermal performance of walls equipped with transparent insulation

University of Birmingham - CONSTRUCTION DETAILS



Description: -

-Thermal performance of walls equipped with transparent insulation

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Transparent Insulation for Thermal Storage Walls

T-R25 + Aerogel T-R18 + Aerogel T-R9 + Aerogel S-R5 + Aerogel T-R5 L-R2. It is usually white and made of pre-expanded polystyrene beads.

Ecobead Bead Insulation

Figure 1: Heat tends to flow around the edges of curtain wall system if the frame and edge of glass EOG are not thermally broken, just like water flows around a dam. If not specified completely, including appropriate verification of design and installation performance, a significant gap between expected and as-built performance can occur.

Transparent Insulation for Thermal Storage Walls

Additionally, further performance simulations are being run in order to model the behaviour of the modular and adaptive system under different climate conditions and in various room environments.

Solera Glass

Furthermore, using the measured properties as input, simulations of the thermal behaviour of a standard room equipped with this Trombe wall system were run in DesignBuilder to study several variations including PCM layer thickness, insulation layer thickness, extra cavities and percentage of holes in the wall.

Ecobead Bead Insulation

A number of companies have been contacted during the process especially regarding existing PCM and their architectural applications. If moisture is a high risk ingress or over 95% RH, then a suitably resistant material should be specified. For this project, one design option was chosen to be developed and prototyped.

Modeling and Optimization of Transparent Thermal Insulation Material

These solar glass panels filter radiation, both ultraviolet up to 99% and infrared up to 95%, giving protection from potentially harmful radiation, in addition to generating electricity and providing thermal insulation.

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