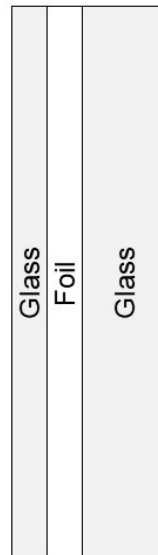
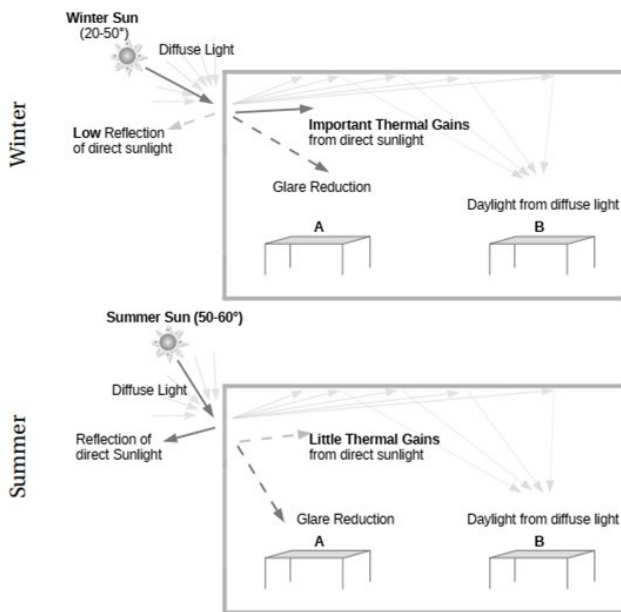


Two-component embedded system for strong angular-dependent transmittance and light redirection



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Keywords

Smart glass, thermal control, ray tracing, daylight, glare control, thin film, microstructure

Intellectual Property

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Illustration of the working principle of the innovation for daylighting, glare protection, and seasonal thermal control. On the left side, an example of the functioning during winter and summer. On the right side, a representation of the foil inside standard double glazing.

Description

The invention involves two different geometries of elements combined in a specific way to make a window that can transmit or reflect sunlight depending on the incident angle.

For angles close to the normal, for example, in wintertime in Europe for a 90° facade, most of the light is transmitted with no significant deviation, while in summer when the angles are higher the light is more reflected. This is useful for thermal gains during winter and cooling in summer, reducing energy consumption.

The production of the foil can be done inexpensively in a roll to roll or web

process. The foil can be easily placed inside standard double glazing.

Advantages

- Maintains the transparent and undistorted appearance of windows
- Can inexpensively be produced as a foil
- Reduces unwanted thermal gains in the cooling period
- Not sensible to strong winds like blinds
- Easy to integrate on windows
- Increases thermal gains in the heating period

Applications

- Smart glass
- Energy saving