solar control glass

Who hasn't dreamed of enjoying spacious, glassed-in areas all year round - provided they did not become overheated during the summer? Since ordinary double glazing allows 76% of solar radiation into a building, the best solution is to opt for solar control glass.

Glass and the sun

AGC Flat Glass Europe offers the construction sector a very wide range of solar control glasses in a broad selection of colours (Stopray, Sunergy, Energy N, Stopsol). Special coatings applied on-line or in a vacuum (see the leaflet entitled Thermal insulation glass) mean that these glasses reflect or absorb more solar radiation than ordinary glasses. Their solar factor can even drop below 20 (compared to 76 for ordinary double glazing).

Selectivity

Glasses such as Energy N, Sunergy and certain types of Stopray combine solar control with high light transmission. They are described as 'selective' because they mainly reflect invisible rays (UV and infrared) but allow a maximum amount of visible solar rays (light) through. Stopray Vision-50, used in roofing, allows 49% of light rays through and 29% of solar heat making it ideal for use in northern European countries that do not have long hours of sunshine all year round.

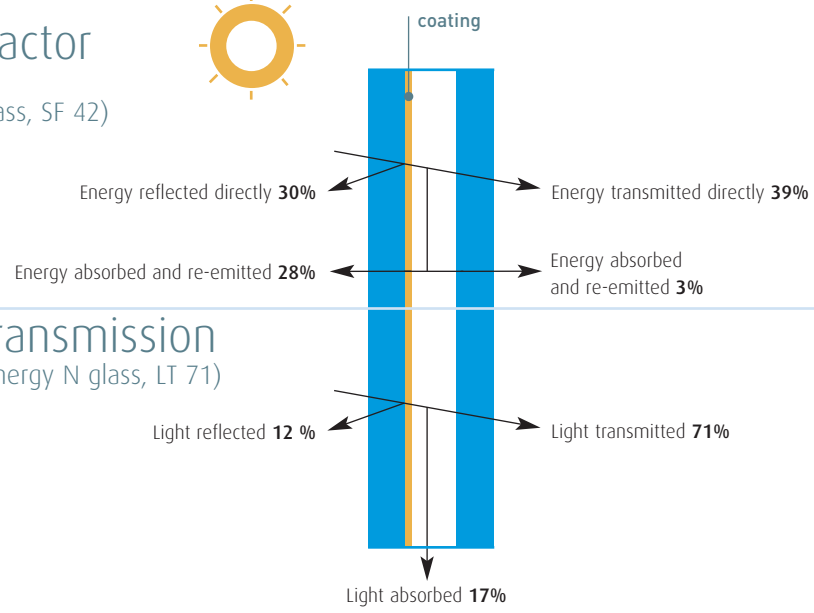
Examples of selectivity

	LT	SF	Selectivity
Ordinary glass (Planibel) 4 mm	90	86	1,04
Energy N (4-15 argon-4)*	71	42	1,69
Stopray Vision-50**	49	29	1,69
Stopsol classic bronze 6 mm	22	45	0,49

* Assembly in double glazing with two 4-mm panes separated by a 15-mm space filled with argon (gas).
** Assembly in double glazing with two 6-mm panes separated by a 12-mm space filled with argon

Solar Factor

(Example: Energy N glass, SF 42)



Light transmission

(Example: Energy N glass, LT 71)

Solar radiation
There are three types of radiation in the solar spectrum: rays that can be seen by the naked eye (50%), ultraviolet rays (5%) and infrared rays (45%). Ultraviolet and infrared rays are invisible, but all three types of ray emit energy and, therefore, act as heat sources.

Selectivity
The selectivity of a glass is the ratio between its light transmission and solar factor. The closer this is to 2, the more selective the glass is.

Solar factor (SF)
The solar factor is the total percentage of energy, i.e. heat, that passes through the glass. Energy N glass with SF 42 only allows 42% of solar radiation heat through (39% is directly transmitted and 3% is absorbed and re-emitted towards the inside of the building by the glass). The remaining 58% is reflected, either directly (30%) or through absorption and then re-emission outwards (28%).

Light transmission (LT) and light reflection (LR)
The light transmission factor is the percentage of light, i.e. visible rays, transmitted by the glass. So, Energy N, which has a rating of TL 71, allows 71% of light through; the rest is reflected or absorbed. Light reflection is the percentage of light reflected by the glass - Energy N (LR 12) reflects 12% of solar light, the rest is transmitted or absorbed by the glass.

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