

PASSIVE DESIGN

NATURAL LIGHT

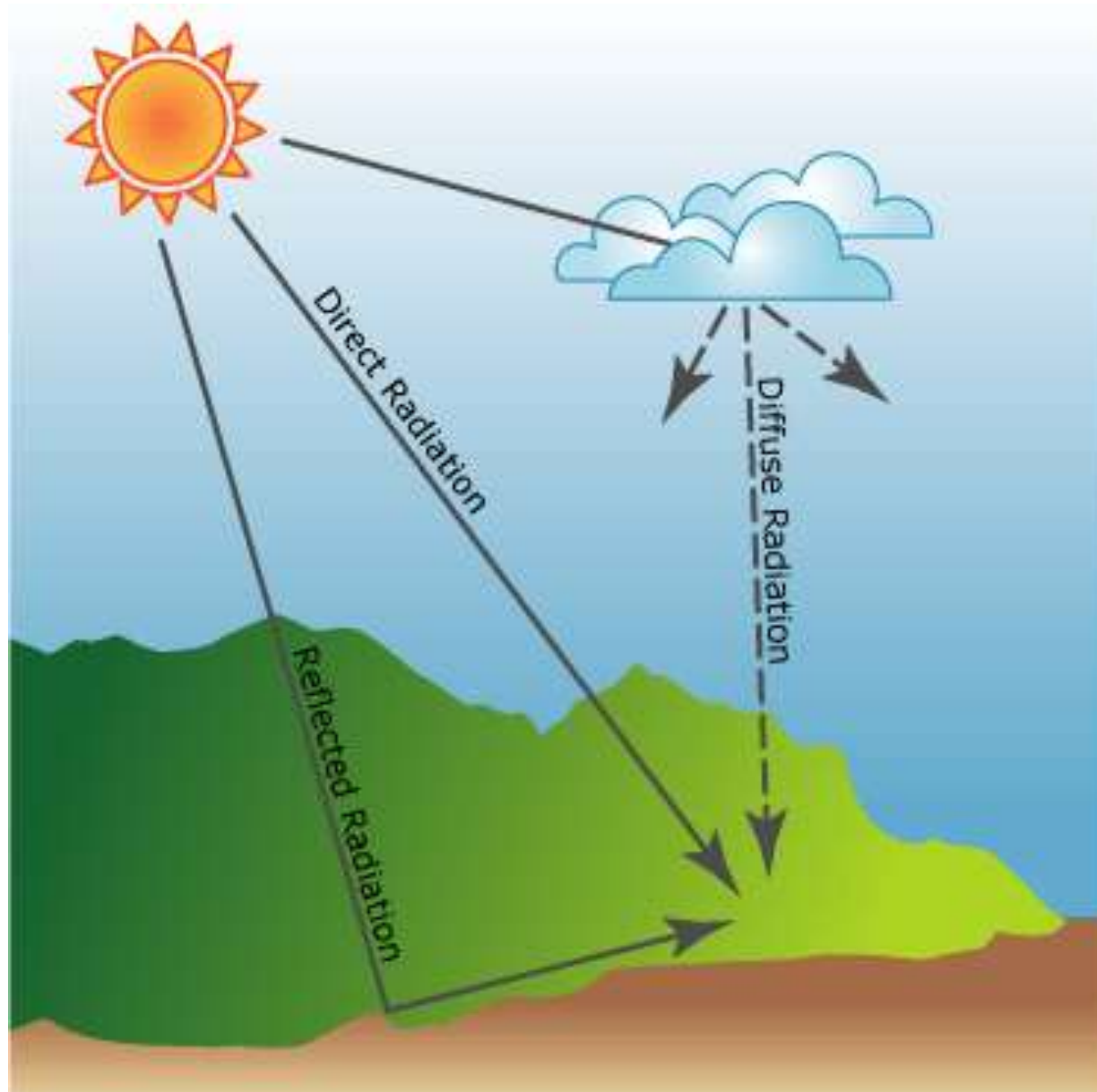
Juan A Ferriz-Papi



PRIFYSGOL CYMRU
Y Drindod Dewi Sant
UNIVERSITY OF WALES
Trinity Saint David



NATURAL LIGHT





Luminous flux

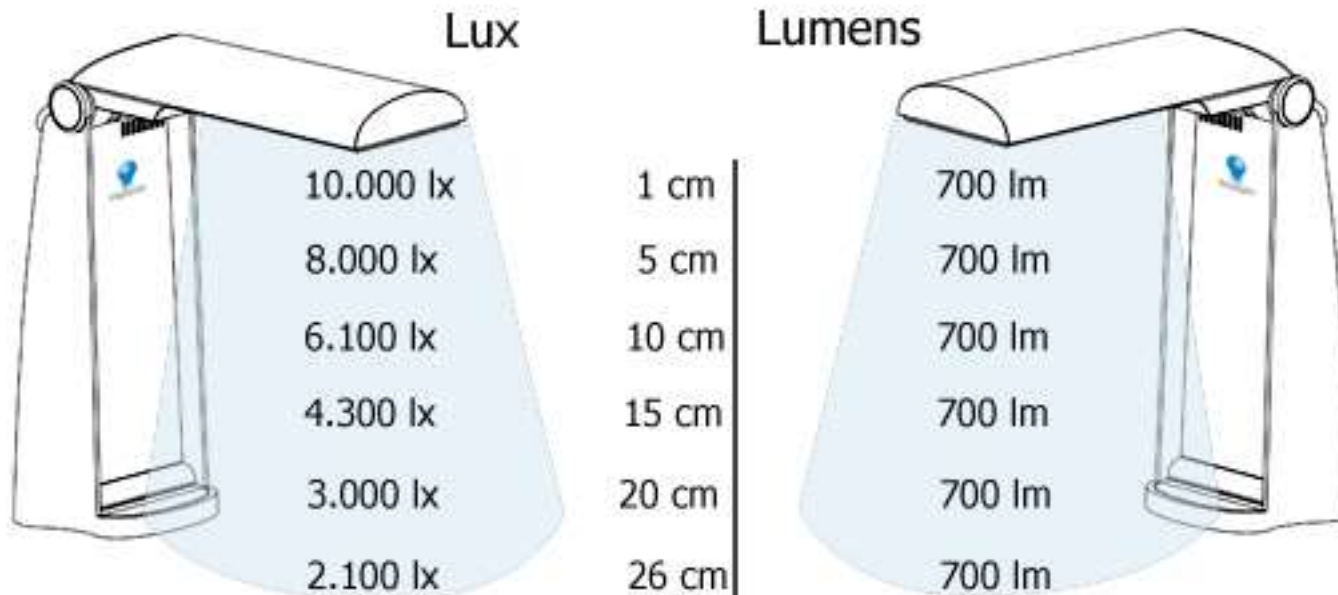
Quantity of light emitted in a time unit. The SI unit is the lumen (lm).

Illuminance

Total luminous flux incident on a Surface. The SI units is the lux (lx).

$$1 \text{ lx} = 1 \text{ lm/m}^2$$

The difference between lux and lumens





Illuminance types: cenital and lateral

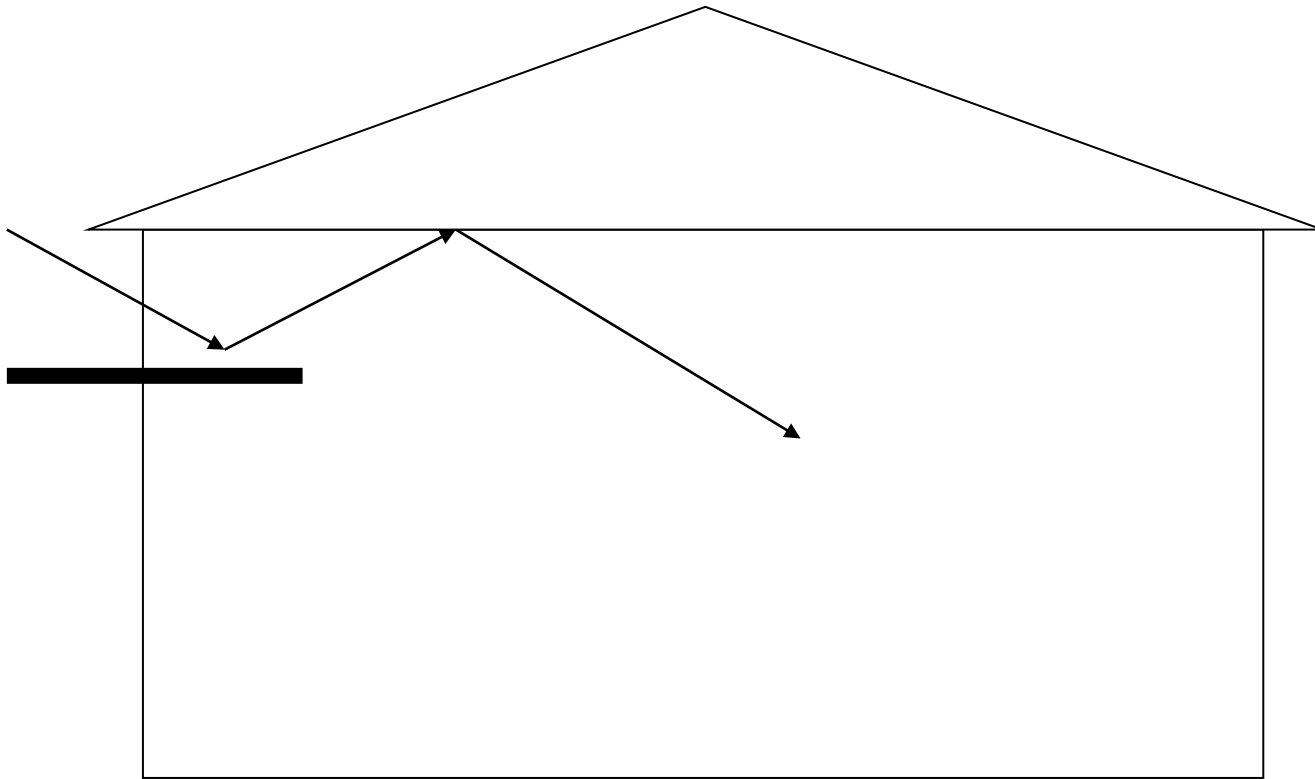


Cenital illuminance is better distributed in the room





Illuminance types: central and lateral





The colour





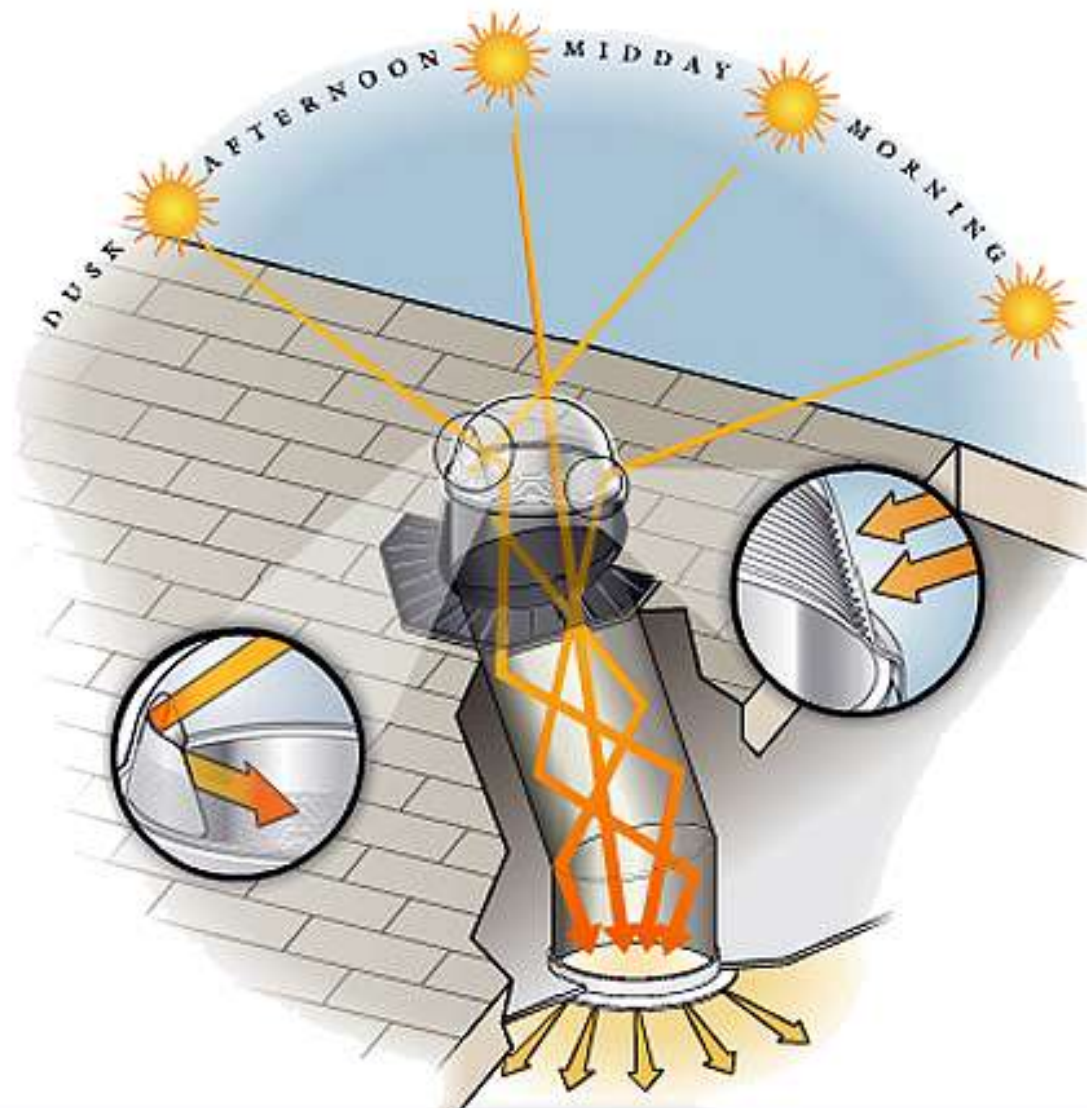
Casa Batlló – Barcelona (Gaudí)





SOLARTUBE







NATURAL LIGHT



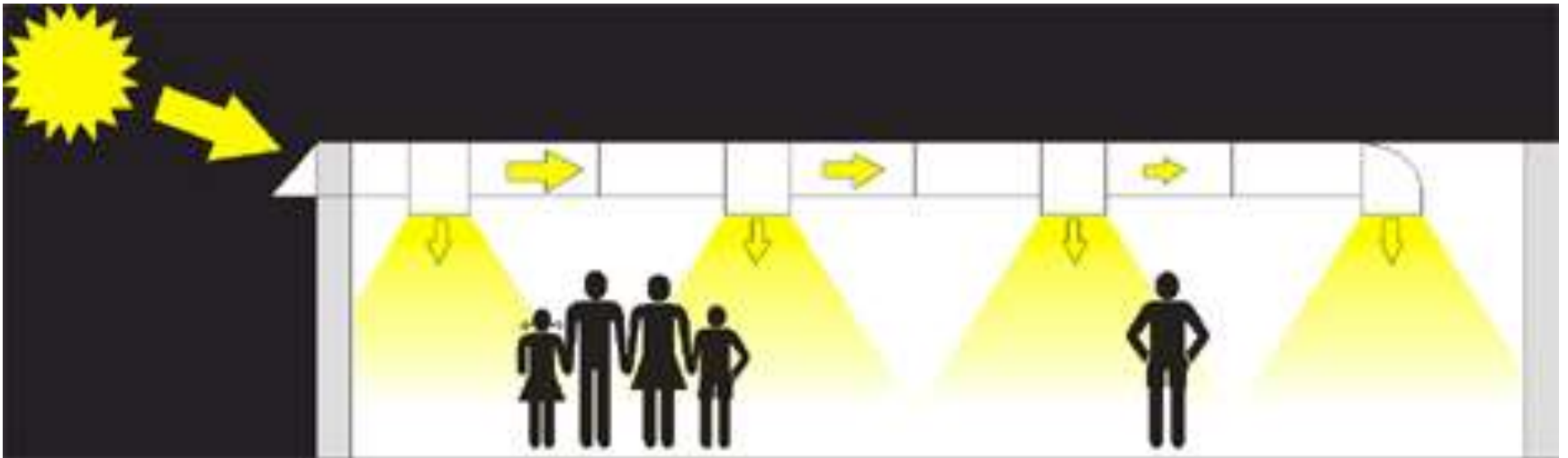


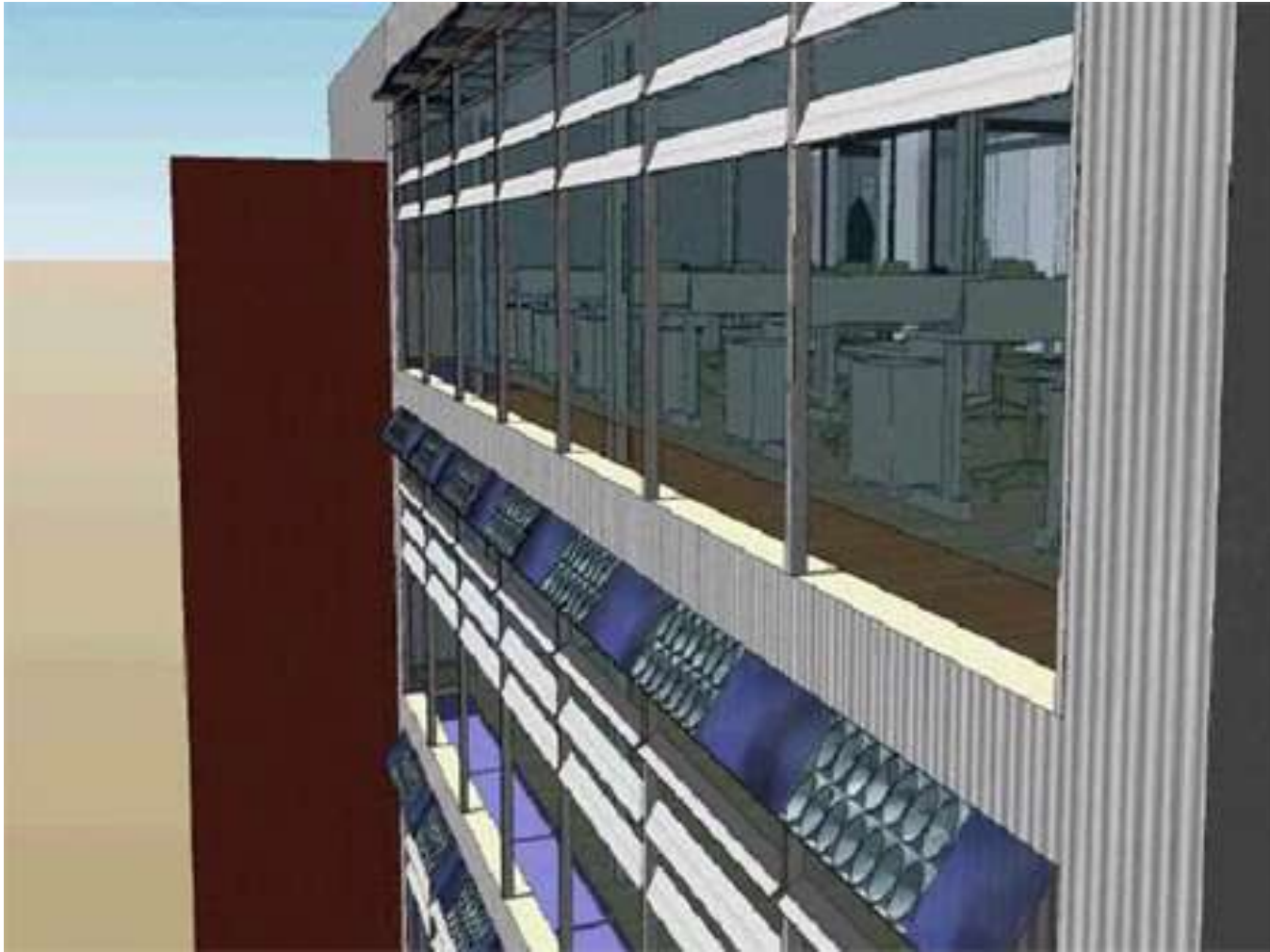
ADASY SYSTEM





NATURAL LIGHT







SOLAR WINDOWS





SMART GLASS

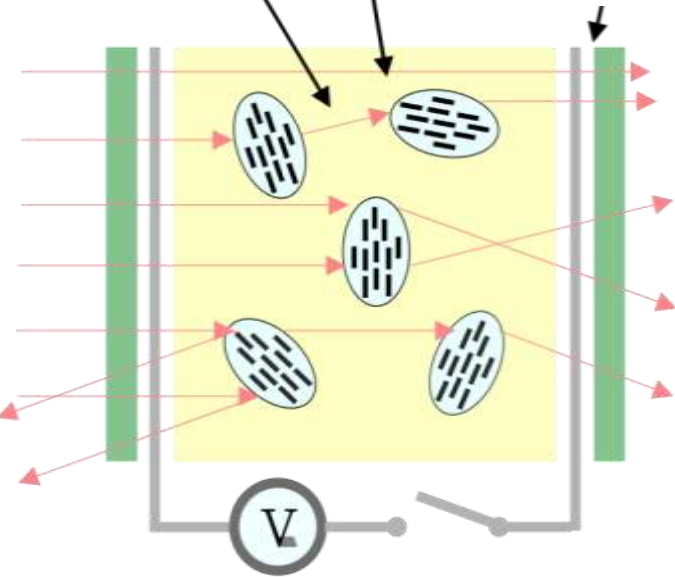
DreamGlass® es un cristal translúcido e "inteligente" que, de manera instantánea y con sólo pulsar un botón, cambia su aspecto a transparente.



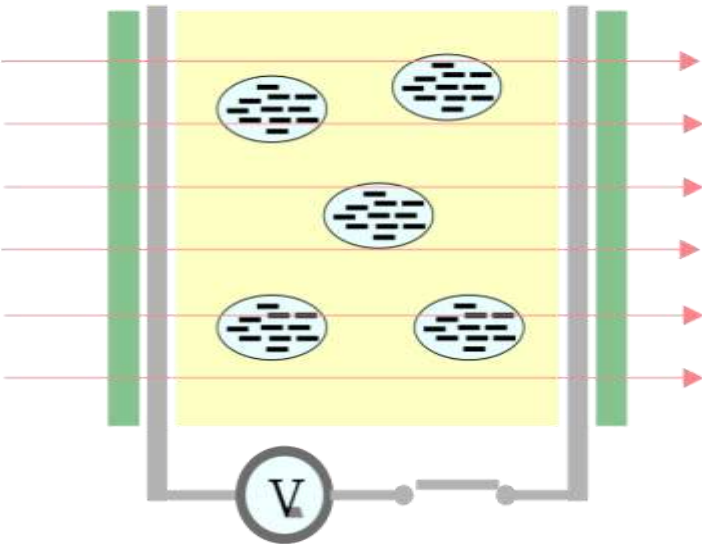
DreamGlass



Matrix polymer
L/C
Conductor cover / PET film



OFF

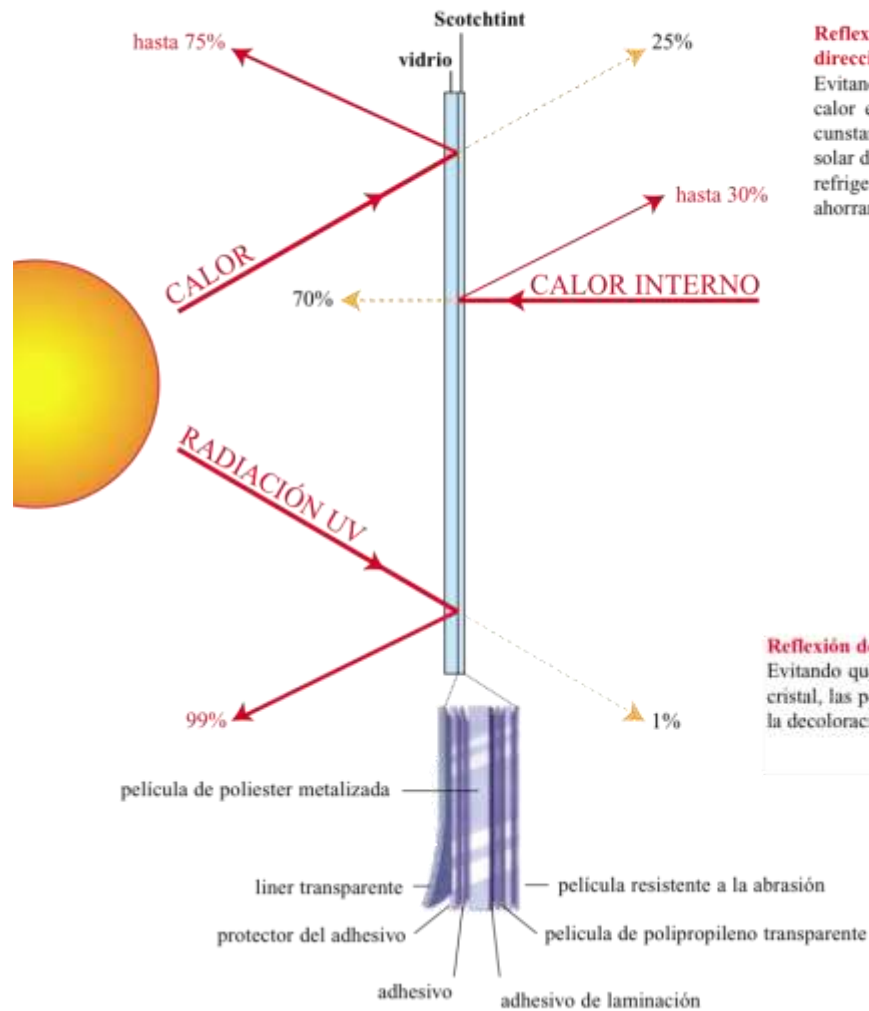


ON



SOLAR FILMS

Comportamiento de la película de control solar Scotchtint™ frente a las distintas fracciones de la radiación solar.



Reflexión selectiva del calor en ambas direcciones.

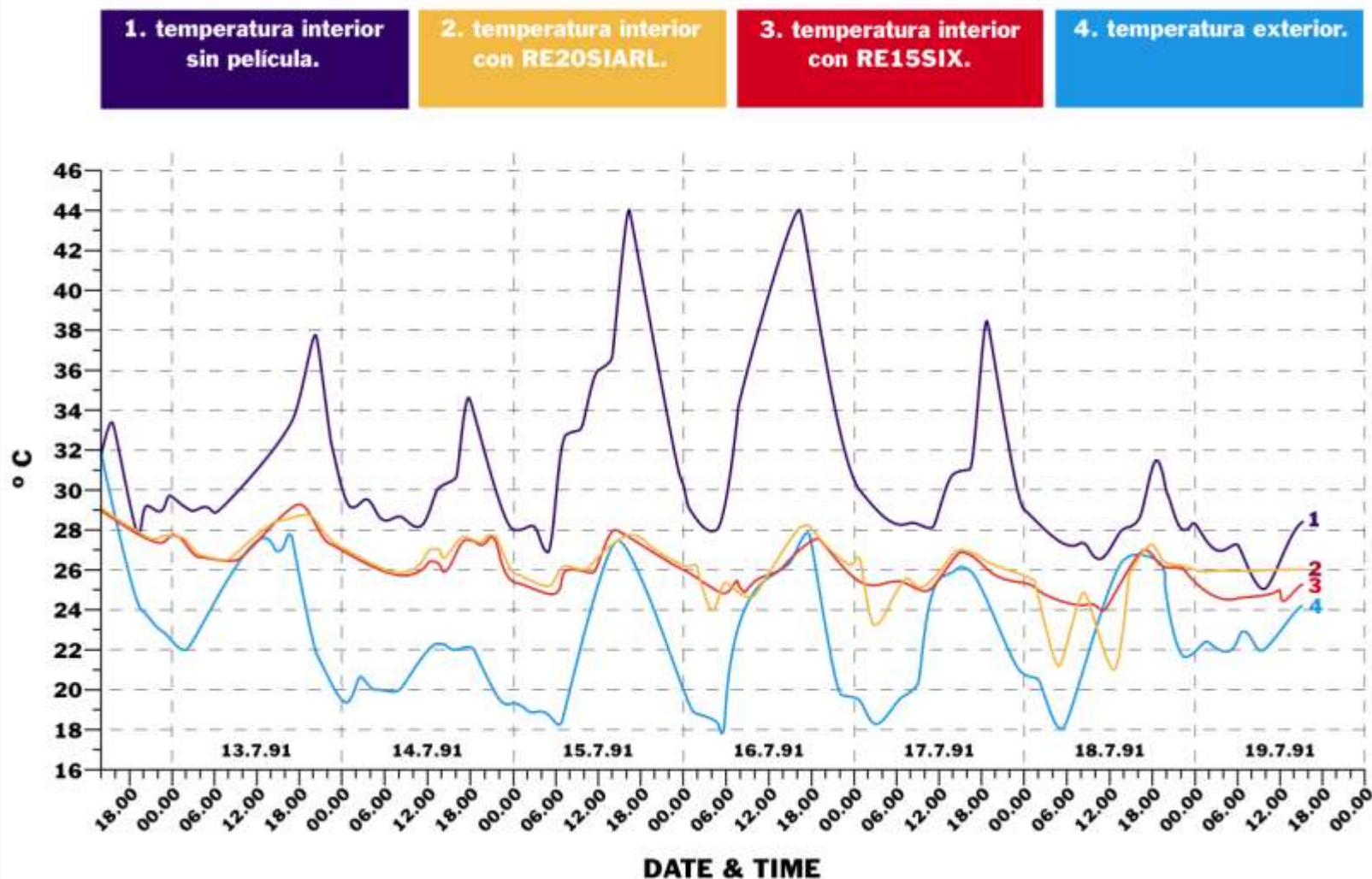
Evitando la penetración -o pérdida- del calor exterior, dependiendo de las circunstancias, las películas de control solar de 3M reducen las necesidades de refrigeración o calefacción de la oficina, ahorrando valiosos recursos.

Reflexión de los rayos UV

Evitando que los rayos UV penetren a través del cristal, las películas de control solar 3M reducen la decoloración de muebles y tapicerías.



Temperature change with and without the Scotchtint solar control film





EXAMPLES



HONG KONG & SHANGHAI BANK
NORMAN FOSTER









KIMBELL ART MUSEUM, Fort Worth, Texas, US

Renzo Piano











Exhibition Centre in Linz, Austria





GERMAN PARLIAMENT, BERLIN. NORMAN FOSTER



