

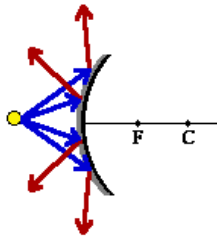
SilverScreen and Light pollution at exterior side of buildings

By Ing. Evert Bos

Why does SilverScreen not become a mirror, at the exterior side of a building, since it has very high reflections of at about 75% of visual light.

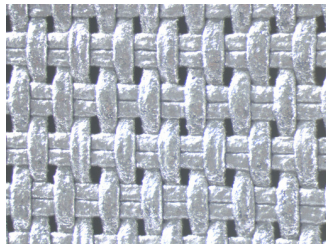
Theoretical back ground:

Convex mirrors



A convex mirror is sometimes referred to as a diverging mirror due to its ability to take light from a point and diverge it. The diagram at the left shows four incident rays emanating from a point and incident towards a convex mirror. These four rays will each reflect according to the law of reflection. After reflection, the light rays diverge; subsequently they will never intersect on the object side of the mirror.

Magnifying SilverScreen



SilverScreen is build up with thin round shaped yarns. These round yarns are acting like an extended range of convex mirrors. This causes that the reflection can be considered as totally diffused reflection.

In fact, with clear glass the colour of SilverScreen from the exterior side is looking white-grey.

At the next page, a part of a complete calculation result of WIS is put. The yellow marked figures are showing the total reflection of SilverScreen and how big the part is of diffused reflection. Measurements are done in compliance with EN 410 and WIS calculations are compliant with EN 13363-2

Conclusion:

SilverScreen will never cause reflective facades at buildings, since visual light reflection is 100% diffused.

Part of the WIS reporting

--- Registered WIS user ---

Registered organisation : Verosol

Registered user name : Evert Bos

--- Report transparent system : name ---

--- Basics (key thermal and solar properties) ---

name transparent system : name

U-value : 5.55 [W/(m2.K)]

solar factor (g) : 0.113 [-] (total solar energy transmittance)

solar direct transmittance outdoor tot : 0.0526 [-]

solar direct transmittance indoor tot : 0.0526 [-]

solar direct reflectance outdoor tot : 0.747 [-]

solar direct reflectance indoor tot : 0.531 [-]

solar direct transmittance outdoor diff : 0.0175 [-]

solar direct transmittance indoor diff : 0.0175 [-]

solar direct reflectance outdoor diff : 0.747 [-]

solar direct reflectance indoor diff : 0.531 [-]

light transmittance outdoor tot : 0.0520 [-]

light transmittance indoor tot : 0.0520 [-]

light reflectance outdoor tot : 0.737 [-]

light reflectance indoor tot : 0.592 [-]

light transmittance outdoor diff : 0.0160 [-]

light transmittance indoor diff : 0.0160 [-]

light reflectance outdoor diff : 0.737 [-]

light reflectance indoor diff : 0.592 [-]

UV transmittance outdoor tot : 0.0454 [-]

UV transmittance indoor tot : 0.0454 [-]

UV reflectance outdoor tot : 0.709 [-]

UV reflectance indoor tot : 0.127 [-]

UV transmittance outdoor diff : 0.00890 [-]

UV transmittance indoor diff : 0.00890 [-]

UV reflectance outdoor diff : 0.709 [-]

UV reflectance indoor diff : 0.127 [-]

general colour rendering index (Ra) : 100. [-]