Light properties of the combination glazing and solar shading

This section (see Figure 5) covers on the one hand the light properties of the combination glazing and solar shading at normal incidence: *Light transmittance.* The **light transmittance** values of the different glazing and solar shading combinations were obtained using the Window 7.2 software tool.

On the other hand, this section covers the properties **characterising the glazing and solar shading combination in the context** (use and orientation) defined by the user: *Glare control, Daylight supply* (summer and winter) according to the selected orientation. Information regarding **glare control** was collected by collating the results from advanced computer simulations performed using LightTools 8.1 software (OSG, 2013), integrating precise data on the properties of the materials used to constitute the solar shading devices (BSDF data) and brightness measurements for solar shading devices under real external exposure conditions calculated by Photolux 3.2 (SE, 2012) software based on High Dynamic Range (HDR) images. The direction of observation of the solar shading is perpendicular and the distance of the observer from the solar shading is such that with an average solar altitude, direct view of the sun is impossible. Three categories have been created, distinguishing the mean amount of light perceived through glazing and solar shading combinations: *Low glare control (mean brightness greater than 3000 cd/m$^{2)}$; Medium glare control (between 1000 and 3000 cd/m$^{2)}$; High glare control (less than 1000 cd/m^{2}).* The information regarding "**daylight harvesting**" was also generated by computer simulations using LightTools 8.1 software and integrating BSDF data measured for the materials used to constitute solar shading devices. It represents the total light flow through the combination with the solar shading device extended where applicable and for a perfectly clear sky. It was calculated for each orientation on a vertical reference plane located behind the glazing complex and exposed to a cumulated clear summer (15 June) and winter (15 December) sky. This criterion is expressed in relative terms compared to the maximum value obtained for all considered configurations.

CONCLUSION

The PROSOLIS web tool proposes an original multi-criteria approach for comparing precisely performance levels of common types of glazing complexes (glazing and shading devices). It permits to easily obtain and compare their detailed and contextualized energy and light characteristics. In this way, this tool should help designers to choose glazing complexes corresponding to their needs.

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