Daylight and view / insolation

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The façade – more specifically the windows in it – forms the main link in the contact with the outside world. In the rules and regulations of industrial law it is set out that there must be “a view to a space outside of the building”. It is obvious that the view should also have some minimal quality. Of course, this also holds for homes, hospitals and so on.
Furthermore, through the windows sunlight and daylight enter the room. There is a distinction between sunlight – the direct rays of sunshine – and daylight. Daylight is the light that is emitted by the entire dome of the sky, in a diffuse way. Access of direct sunlight is highly appreciated, especially in winter and in the middle seasons.

figure 1. direct sunlight in a room usually is highly appreciated and it is an important element in architecture

In the middle seasons and in summer, however, insolation in rooms may cause severe heating of these rooms. Sunlight control is required against that phenomenon.

For appropriate daylight lighting of rooms high windows and a bright finishing of the interior are not the only essential elements: also the distribution of the intensity of light over the (total depth of the) room is of importance. Generally there is much more light than necessary close to the façade, whereas in the back of the room there is much less light. If and when there is too much difference, sometimes artificial lighting is needed in the back of the room in spite of the fact that the level of the lighting as such may be sufficient. In such circumstances the differences in luminance proportions are so big that the human eye does no longer know on which to focus.

There are numerous developments in “daylight systems”. One of them is the renewed development of the “daylight shelf” (Du.: “lichtplank”), the first application of which occurred a long time ago (see the example in figure 2).

figure 2. the “daylight shelf” (Du.: “lichtplank”) reflects the light against the ceiling, so that it can reach the back of the room; the lower part of the window has sunblinds. In this way the distribution of light in the room is more steady

In addition, there are developments in slats of Venetian blinds with one shiny side reflecting the sunlight or daylight upwards to the ceiling, away from the workplace. Other special solutions are available along similar lines of development.

Sufficient light shading is also needed for the prevention of glare by brightly lit window openings (see figure 3).

figure 3. the eye is blinded by the intense brightness of the window and – as a result – other objects and persons in the room cannot be perceived well. In this example, even the extra lighting