Discomfort glare
This occurs when people complain about visual discomfort in the presence of bright light sources, luminaires or windows. Discomfort glare is quantified by the Unified Glare Rating (UGR), derived from the equation:

$$UGR = 8 \log_{10} \frac{0.25}{L_b} \sum \frac{L_s^2 \omega}{p^2}$$

where: UGR = Unified Glare Rating
L_b = background luminance (cd/m^2), excluding the contribution of the glare sources. This is numerically equal to the indirect illuminance on the plane of the observer's eye, divided by π
L_s = luminance of the luminaire (cd/m^2)
ω = solid angle subtended at the observer's eye by the luminaire (steradians)
p = Guth position index

UGR values typically range from 13 to 30, the lower the value, the less the discomfort. Luminaire manufacturers publish UGR values for regular arrays of their luminaires in a number of standardised rooms. This enables comparisons to be made between different luminaire types. When making such a comparison the smallest meaningful difference is one whole unit in UGR.

Where a luminous ceiling or uniform indirect lighting is used, discomfort glare is limited by setting a maximum average illuminance. Specifically, if a UGR value of 13 is desired then the average illuminance provided should not exceed 300 lx, for UGR = 16, the maximum average illuminance should not exceed 600 lx and for UGR = 19, the maximum average illuminance should not exceed 1,000 lx.

Overhead glare
A high luminance immediately overhead can also cause discomfort, even though it cannot be seen when looking directly ahead. The cause of the discomfort is distraction, caused by high luminance reflections from eyebrows, glasses and facial features. The UGR system can be applied to overhead glare to predict the magnitude of the discomfort.

2.6.4. Veiling reflections

Veiling reflections are luminous reflections from specular surfaces that physically change the contrast of the visual task and therefore change the stimulus presented to the visual system (Figure 2.19). The two factors that determine the nature and magnitude of veiling reflections are the specularity of the surface being viewed and the geometry between the observer, the surface, and any sources of high luminance. If the surface is a perfectly diffuse reflector, no veiling reflections can occur. If the surface has a specular reflection component, veiling reflections can occur. Veiling reflections occur at positions where the geometry between the observer, the surface and any sources of high luminance is such that the angle of incidence between the surface and the source of high luminance equals the angle of reflection between the surface and the observer.

The effect of veiling reflections on the luminance contrast of a specific target may be quantified by adding the luminance of the veiling reflection to the appropriate components of the luminance contrast formulae. What the appropriate components are depends on the reflection properties of the material being viewed. For glossy ink writing on matte paper, the luminance of the veiling reflections should only be added to the luminance of the ink.