Glare and UGR

Glare occurs in both natural (daylight) and in interior lighting situations. The **glare** annoyance depends on a number of factors.

Areas of high brightness right next to areas of low **brightness** cause **glare**, making people uncomfortable. For instance, having a bare light bulb for your desk lamp may provide more than enough light. However, it would cause more light to shine directly into your eyes than reflects off the desktop, making it difficult to read or do other tasks. Having a shade on the lamp keeps the light from **glaring** into your eyes while brightly illuminating your desktop.

For the measurements of glare the quantity called the **discomfort glare constant** is used.

Glare index:	Reaction:
0 - 10	Imperceptible
10 - 16	Noticeable
16 - 22	Acceptable
22 – 28	Uncomfortable
> 28	Intolerable

More visually demanding tasks with high luminance levels as drawing and fine visual inspections are less **tolerant of glare.** Very sensible to **glare** is work on computer. Since computer screens have shiny surfaces they are very susceptible to **glare**.

Limiting:	GI Occupations:
16	Drawing offices, very fine visual inspections
19	Offices, libraries, keyboard and VDT, work (reflections from screen).
22	Kitchen, reception area, fine assembly
25	Stock rooms, assembly line for easy tasks
28	Indoor car park, rough industrial work

We can reduce the impact of **glare** with some simple methods. The higher you put the lights the lower is glair. To lower the **glare** keeps light sources high, away from field of view.

If we cut down the **luminance** of the **light source** we can decrees its **glare**. This does not mean reducing the light level in the room. Rather than having one very bright lamp you should, have a number of dimmed luminaries. The higher is the illumination of the background, the smaller is the **glare constant**.

Unified Glare Rating or **UGR** method is an international index presented by **CIE** (International Commission on Illumination) and is used to evaluate and limit the psychological **direct glare** from luminaries. Contrary to **glare index** where the glare was rated using the luminance values of a single luminaries, this method calculates the glare of the entire lighting installation at a defined observer position. An exact calculation of the **UGR** value at a defined observer position in a room is possible with modern lighting design programs. The lower the **UGR** value, the lower the glare.

If we conclude the **glare** is very annoying side effect of lighting, but we can eliminate it with methods explained above. When we are choosing the lights it is very important that we know where we will put them and how much **illumination** we need in the room and working places.