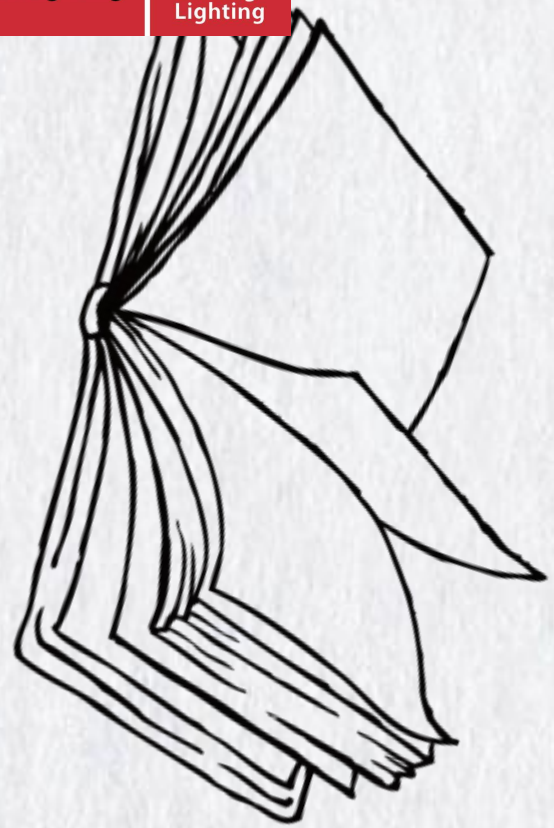
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UGR & LUMEN EFFICIENCY

LED LINEAR LIGHT

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PART 01

① What is UGR,Lumen Efficiency?

The measurement object of urg is glare:

Glare: refers to the visual discomfort caused by inappropriate brightness distribution, wide brightness difference, or extreme brightness contrast in time and space. It will not only affect the visual conditions of space, but also lead to decreased vision and mental health.This is why we need a standard to judge the glare index of lamps.

The Definition of lumen efficiency: the ratio of the total light flux emitted by the light source to the electric power (watt) consumed by the light source is called the light effect of the light source.easurement object of urg is glare:

The higher the luminous efficiency value, the stronger the ability of the lighting equipment to convert electric energy into light energy, that is, the stronger the energy saving of the lighting equipment under the condition of providing the same brightness; Under the same power, the stronger the illumination of the lighting fixture, that is, the greater the brightness.

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Classification of glare:

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According to the degree of impact on vision:

1. Uncomfortable Glare. (often occurs indoors)

   Such glare can only make the vision uncomfortable or distract. However, it will not have a great impact on vision or vision in a short time.

2. Disabling Glare. (often occurs outdoors)

   This kind of glare is mostly caused by the position of the light source too close to the line of sight. The edge of the retinal image is blurred, which hinders the observation of nearby objects and reduces the visibility of visual objects. If it is suppressed laterally, the visibility of these objects will become worse. In the long run, it will have an adverse impact on people's vision.

According to the formation mechanism:

1. Direct Glare.

   Direct glare is the glare generated by the luminous body existing in the direction of observing the object or in the direction close to the line of sight.

2. Indirect Glare.

   There is a high brightness light source in the field of vision, but the glare is not in the same direction of observing the object. We say that such glare is called indirect glare.

3. Reflected Glare.

   Especially the glare produced by seeing reflected light near the line of sight. This kind of glare can be divided into primary reflection glare, secondary reflection glare and veiling reflection.



The ways of glare generation:

1. High brightness bare light source is seen in the normal field of vision.

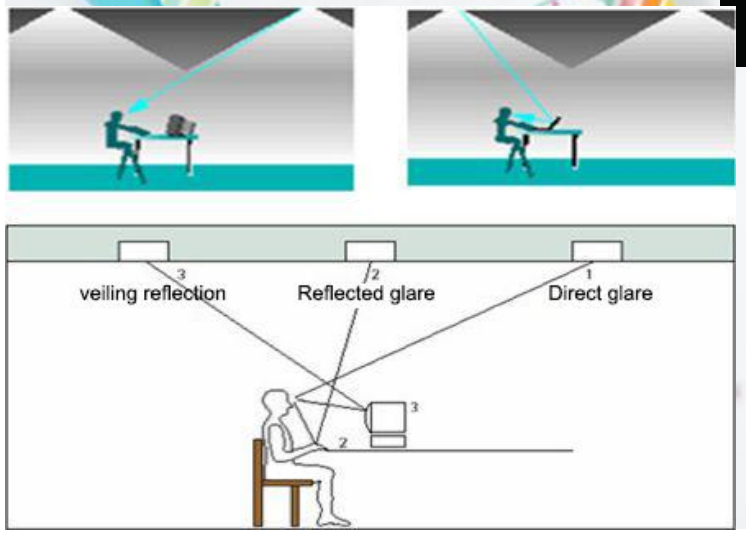
2. Reflection of smooth surface to high brightness light source.

3. The contrast of ambient brightness in the field of view is large.









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Causes of glare



1.High brightness luminous surface

2.Unreasonable lamp selection

3.Wrong installation position

4.Reflection of material surface to high brightness light source

5.Excessive ambient brightness ratio (generally 2:1-3:1 is preferred)

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How to control glare?

The prevention and treatment of **Direct Glare** is essentially to reduce the brightness of light sources or lamps in the field of vision. There are many methods, which can be realized mainly in the following three ways.

1. On the premise of meeting the lighting requirements, reduce the power of lamps and avoid excessive brightness.

2 try to avoid high brightness lighting of bare light sources. Indirect lighting is often adopted indoors, and the diffuse reflection and transmission characteristics of indoor building materials are used for secondary distribution of light to produce soft and natural diffused light.

3 reduce the luminous area of light sources and lamps. The brightness of the same light source will increase with the luminous area, and the glare feeling will also increase. Therefore, if a high brightness bare light source is used in the lighting, the high brightness, large luminous surface light and luminous surface can be divided through the secondary light distribution design to disperse the beam, so as to ensure the lighting effect and avoid glare.

In order to avoid direct glare, the selection and location of lamps are also important. In the normal viewing range, different light source positions will cause different degrees of glare feeling.

The 45 ~ 85 ° luminous angle is the main area of direct glare. Therefore, to avoid direct glare, in the final analysis, it is to reduce the intensity of light in the luminous angle, that is, to limit the

45 ° < γ < Brightness within 85 °



How to control glare?

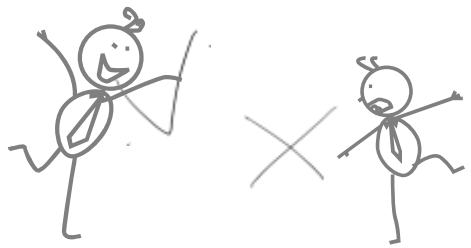
Prevention and treatment of reflected glare:

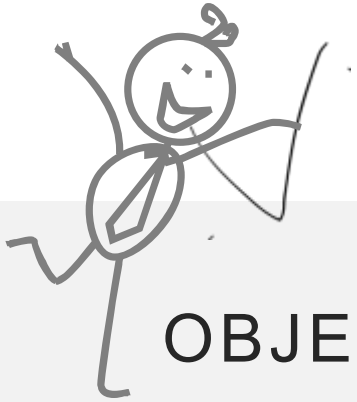
- For the prevention and treatment of this kind of glare, the angular relationship among human observation position, light source position and reflective material position should be considered. In addition, the choice of reflective material should also be considered. The reflected glare is not all harmful. The glare produces a crystal clear lighting effect, which can be used to express the texture of crystal.

Other glare prevention:

- Select lamps with reasonable light distribution and low outlet brightness to solve the problem; Or by designing a reasonable ambient brightness ratio, control the contrast relationship between the light distribution of the space and the environment, and try to avoid excessive ambient brightness ratio in the same space to avoid glare. At the same time, because glare is related to the brightness of glare source, beam angle, installation position and the brightness adaptation level of eyes, glare can be limited from all levels of light source, lamps and lighting mode.

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OBJECTIVES AND TRENDS

INTELLIGENT GREEN HEALTH LED LAMPS

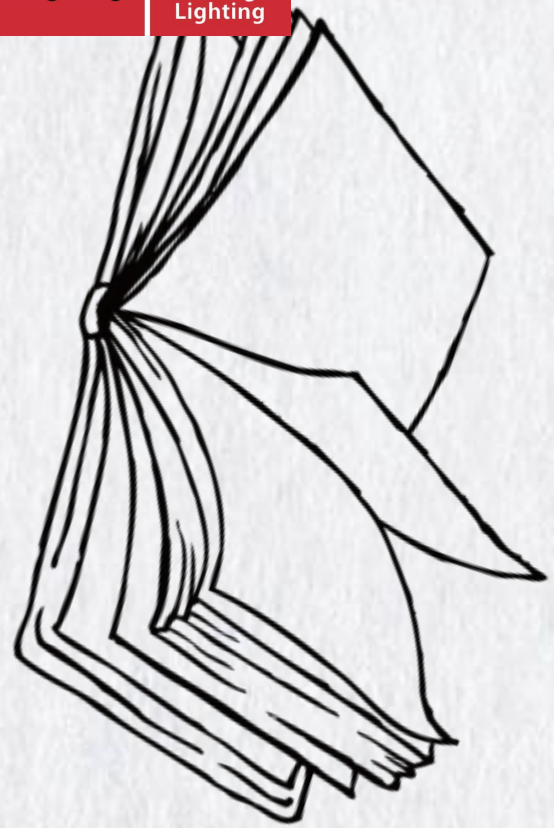
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2.室内照明设计中的眩光防治_夏冬
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4.LED灯具的眩光评价与防治概述 _魏婷, 顾芳波, 钱枫, 蔡怡, 陈华才
5.百度文库资料

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① Thanks for your watching.

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