

# More light for elderly eyes at work and living

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The eyes of elderly people need more light, but at the same time are dazzled more easily than younger eyes.

Lamps designed for adjustment to personal needs of light improve the capacity of vision of the elderly. Furthermore electronic ballasts provide flickerfree light and controls for changing colours of light enjoy pleasant comfort for the eyes.

Vision and acuity diminish with increasing age. First of all – as from about 45 years – the capability of the eye lens to focus near objects decreases. Also the adaption to different brightnesses becomes more difficult.

About ten years later the opacity of lens due to accretion of metabolism increases. The light dispersion at the opaque parts of the lens, especially with whitish-blue light, leads to an increased responsiveness of glare and is felt as awkward. This is also manifested in the different excitation of glare of automobile headlights with normal white light and those with blueish Xenon-Light. In comparison the last mentioned is recognized as more glaring, therefore comes across as more awkward and often irritating.

Problems in vision also appear in daily work at the office. The light in our northern hemisphere is hardly every sufficient for the illumination of workplaces. It is not sufficient only to install light which illuminates the offices brightly in twilight or darkness. The artificial light shall also contribute to wellness, support the efficiency and assure it.

This is especially important in open-plan offices, where work is solely done in the light of standard lighting installation. Elderly eyes, as from about 50 years, need approximately 50% more light to perform the same vision as 25 years old eyes, a noticeable handicap in the kind of working environment.



This means that an illuminance of more than 800 Lux (74 ftc.) instead of the minimum of 500 Lux (47 ftc.) is necessary. This figure can often only be reached by an additional illumination directly on the table top.

More light often means more glare. This is the most frequent reason for problems and irritations of the eyes at the workplace due to the illumination.

Hard and glary halogenlight appears as irritating as the well-meant ceiling light with it's reflexes on the

workplace. For offices with computer workplaces the same applies as for other work situations: no directly visible, but faded lamps with louvers, preferably indirect, which means emitting light to the top. High-quality, powerful desktop lights, as fig., are even open at the top side for a partial, supporting, indirect illumination and heat abstraction.

At the end of a long working day, flickering light is noted much more than in the morning due to stress. A clear evidence for the additional strain of the eyes and therefore of the perception.

This strain can easily be stopped by electronic high frequency operation of the fluorescent tubes. This much higher operation frequency of 40.000 Hz in comparison to 50 Hz with conventional magnetic ballasts leads to flickerfree light from the fluorescent tubes comparable to that of a bulb.

A change in the colour of light can also be refreshing for tired eyes, for example by the use of a lighting fixture with two fluorescent tubes. One of them – with the colour daylight – is serving well as an inconspicuous additional illumination on cloudy days with few natural daylight. The second tube has a much more yellow colour and is suitable for times of work without natural daylight of course each tube has to be powered by an individual electronic ballast with dimming controls.

If both tubes are used at the same time not only the output is double as high, but also the mix of both colours is quite comfortable. The balance of colours can even be modified by individual dimming.

Consequently light and comfort of vision for the mature, experienced eyes are created by a combination of lighttechnical attributes. The human being is the most important feature. He will do his work much more productively and even-tempered in a holistic, comfortable environment of light. Therefore light is a factor for a higher quality of life, work and wellness in the office.

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