saif
Work. Life. Oregon.

Ergonomic lighting considerations

Lighting

Many modern offices are **overlit**, causing tremendous **energy waste**, as well as **glare** and **human discomfort**.

68% of employees complain about lighting,

79% want to control their light, and

75% say they would be more productive.

People with controllable lighting **rated tasks less difficult**, **felt more comfortable**, and experienced a

35% to **42%** **decrease in energy use**.

Contrast

- An aging workforce needs more lighting (contrast), especially task lighting.
- To correct contrast problems: Use ink instead of pencil for hard copy work; use white paper instead of colored; adjust photocopier exposure, monitor brightness and contrast; and decrease reflected glare.
- Data entry speed increases with an increase in illumination and/or contrast.

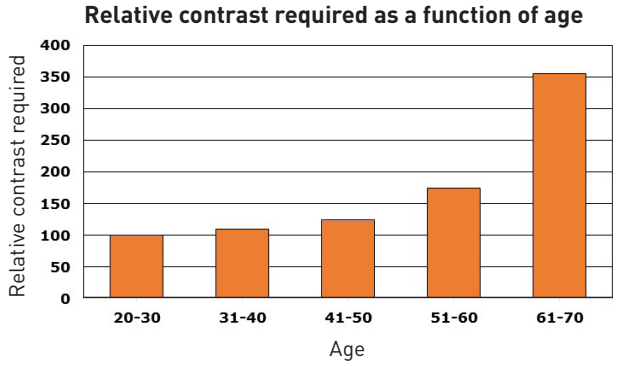
Contrast is the relationship between the brightness of an object and its background.

Contrast

Reading text on the screen becomes more difficult as contrast is reduced.

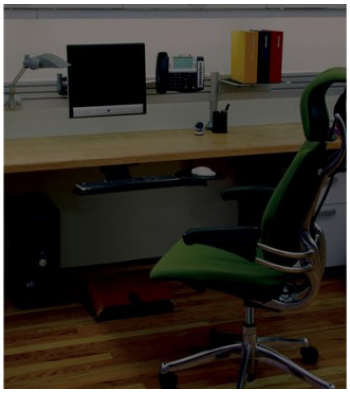
Contrast in text is important too

Contrast requirements increase exponentially after age 40.

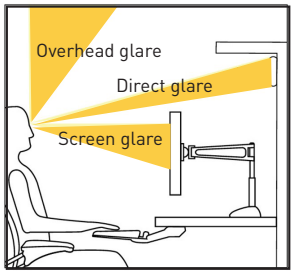


20 years

60 years



75 years



80%
of workers experience glare.

Correct glare

- Use several low-intensity fixtures vs. one high-intensity.
- Use diffusers.
- Cover bare bulbs with louvers/lens.
- Use adjustable local lighting.
- Reposition light fixtures or work areas.

Monitors generate light; paper and surroundings reflect light.

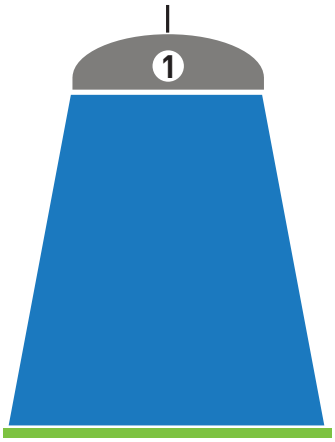
Direct glare: natural light, overhead, and under cabinet lighting

Indirect glare: work surface, monitor, shiny surfaces, paper, and walls

Dual-lighting components

- Dual-component lighting schemes can positively impact comfort and performance while lowering energy consumption 30% to 40%.
- Conflict exists between lighting requirements for computer work and paper-based tasks.
- Proper light levels vary significantly with worker age and tasks.
- Cool color temperature lighting for paper-based documents. Warm color temperature for computer work.
- Ideal compromise: warm ambient lighting combined with cool task lighting.
- Position task light opposite the worker's writing hand.

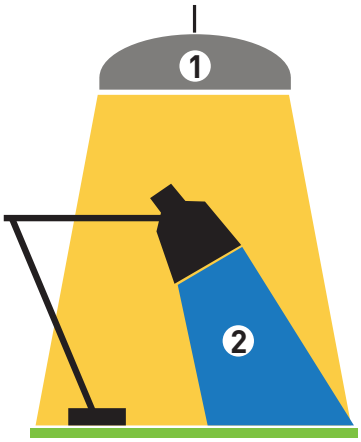
Common
Blue, cool overhead lighting



Single component:

- Too much light above eyes
- High energy waste

Preferred
Yellow, warm overhead lighting
Blue, cool task lighting



Dual component:

- Light level determined by user
- 30% to 40% less energy required

Multiple shadows create vision issues

Single shadow creates visual comfort