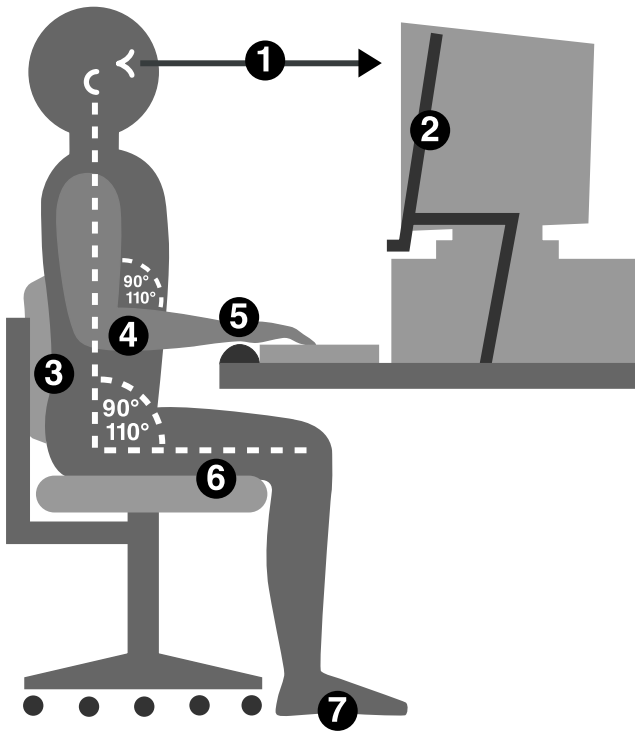


# Computer Workstation Design Guidelines



- 1 Top of screen at eye level; lower for bifocal wearers  
Screen distance at arm's length (15"-32")
- 2 Document holder next to screen or centered between monitor and keyboard
- 3 Chair backrest provides firm lower back support  
Chair back and seat easily adjustable for height and tilt by user
- 4 Keyboard height promotes relaxed arms with forearms parallel to floor, elbows close to body
- 5 Wrists straight (neutral)  
Padded, movable wrist rest, same height as front of keyboard (Do not use wrist rest while keying.)
- 6 Knees at or below hip level  
Ample legroom under work surface
- 7 Feet rest firmly on floor or foot rest

The following outlines the key features of a user-friendly workstation, and some suggested solutions for modifying unsafe conditions. Following the recommendations below, users should fine-tune all of the adjustments to make the workstations as comfortable for them as possible.

**Keyboard/Mouse Height:** The height of the keyboard and mouse should allow the user to sit with shoulders relaxed, elbows bent, and forearms, wrists, and hands approximately parallel to the floor. The keyboard angle should be adjusted to promote a neutral/flat position of the wrists. This may be achieved in a number or combination of ways, such as:

- Height adjustable table
- A lower or higher table that promotes a straight wrist while keying
- A height adjustable keyboard tray that can be attached to existing desk or table and provides both the appropriate keyboard/mouse height and adequate leg room for the user
- A chair that is height adjustable; may need to provide footrest

**Screen height:** The top of the display screen should be approximately at, or slightly below, eye level; lower and possibly closer for bi-focal wearers. The user should not have to assume awkward neck postures to view the screen or hard copy documents. Retrofitting options include the following:

- Bi-level table adjustable for screen and keyboard height
- Raise monitor by putting it on top of hard disk drive, boxes, books, or monitor risers
- Lower monitor by removing it from the hard disk drive or other platform
- Adjustable monitor arm

**Firm posture support:** Chairs should firmly support a comfortable posture, providing support to the lower back region and avoiding pressure on the back of the thighs. Retrofitting may include a number or combination of options such as:

- Chair adjustable for height and tilt of seatpan and backrest. Computer users should be able to adjust chairs from a seated position without use of tools.
- Armrests, if provided, should be height adjustable or removable to avoid interfering with natural movement of the arms
- Footrest if user's feet do not rest firmly and comfortably on the floor

**Wrist support:** Wrist rests may be helpful in promoting a neutral/flat position of the wrists. They should be used only when resting, not while typing. Retrofitting options include:

- Padded, movable wrist rest, same height as front lip of keyboard

**Accessories:** Workstation accessories can prevent awkward neck postures. Accessories that should be provided, if needed, include:

- Document holders adjustable to screen height or that fit between the monitor and keyboard for users who type from hard copy documents
- Lightweight telephone headsets for users assigned to continuous telephone work in conjunction with computer use

**Lighting:** Overhead lights, windows, or other light sources may contribute to visual discomfort. It is generally recommended that room lighting for use of computers with dark background screens be lowered to about half of normal office lighting.

External sources of light (windows, overhead lights, etc.) should not be in the visual field of the user, nor should their reflections be visible on the screen.

Temporarily shield peripheral light sources from view with a file folder. If this provides relief, try to eliminate the bright source in one of the following ways:

- Use blinds or curtains over windows when necessary
- Position monitor screen at right angle to window
- Turn off some overhead lights; use task lighting, if needed
- Remove every other fluorescent bulb, if necessary
- Position monitors to avoid direct light in user's eyes

**Screen reflections:** Reflections on the screen reduce text visibility by decreasing screen contrast. Turn off the computer and look for bright reflections on the screen. Eliminate these reflections in one of the following ways:

- Position monitor to avoid direct light on user's screen
- Use blinds or curtains over windows when necessary
- Position screen between banks of overhead lights
- Position monitor screen at right angle to window
- Use glare screen (glass preferred)