

GUIDELINES AND STANDARDS FOR EHAWs

ANSI/HFES* 100-2007

Developed by HFES using the rules and procedures of the ANSI, this standard contains hardware design specifications that are based on accepted human factors engineering research and experience for computer workstations.

5.2.1.3 Adjustable Surfaces

Adjustable workstation surfaces shall

- Use a fail-safe mechanism to prevent inadvertent movement
- Use a control locking mechanism to prevent inadvertent operation

5.2.1.4 Pinch Points

Pinch points, in which fingers, arms, and legs can be caught between movable surfaces or parts, shall

- Be avoided by means of design or guarding

The size of the clearance gap necessary to avoid pinch points will depend on which limb might be involved, but it can be determined with reference to the appropriate 95th percentile male dimension.

8.3.1.3 Workstation Adjustments

Furniture adjustment controls shall not

- Interfere with users' work activities or pose hazards during use

8.3.2.4.3 Sit/Stand Working Postures

If height adjustable only, the input-device support surface designed for both sitting and standing work postures shall

- Adjust in height between 56 cm and 118 cm (22 and 46.5 in.) as measured from the floor to the surface at the front edge of the support.
- Comply with the clearance requirements specified in Section 8.3.2.1 when used in the seated position

BIFMA*

BIFMA released "The Ultimate Test for Fit", as a useful aid in understanding ergonomics.

GUIDELINES FOR WORKSTATIONS:

8.1.1 Height Clearance for legs (Sitting)

When centered on their task, users should be able to fit their legs in the space provided under the work surface without contacting the support structure. The space should be adequate to permit users to get close to their work surface while allowing freedom of movement. The same should be true for knees, thighs, and feet (8.1.2 -8.1.5)

8.2.1 Height Clearance at foot level (Standing)

When centered on their task, users should be able to stand close to the work surface in an upright posture without obstruction at foot level.

ADA* STANDARDS FOR ACCESSIBLE DESIGN

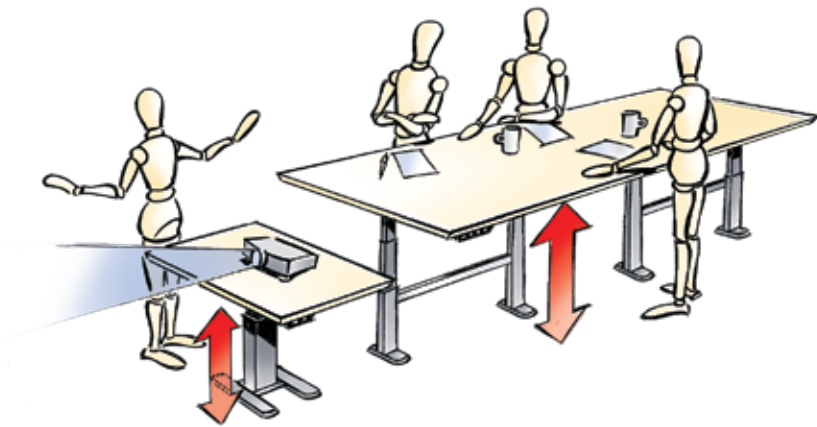
ADA is a major civil rights law prohibiting discrimination on the basis of disability.

A4.32.4 Height of Tables or Counters²⁷

Different types of work require different table or counter heights for comfort and optimal performance.

Light detailed work such as writing requires a table or counter close to elbow height for a standing person. Heavy manual work such as rolling dough requires a counter or table height about 10 inches below elbow height for a standing person.

This principle of high/low table or counter heights also applies for seated persons; however, the limiting condition for seated manual work is clearance under the table or counter.



The recommended ADA table height range for seated persons is 26" to 34" with different recommended heights for wheelchair types, tasks, tall men and short women.

The great variety of heights for comfort and optimal performance indicates a need for alternatives or a compromise in height if people who stand and people who sit will be using the same counter area.

GERMAN INSTITUTE FOR STANDARDIZATION DIN 26385

The ergonomic principles in the design of work systems prescribes that the working human being must be able to change between sitting and standing posture.²¹

EU STANDARDS EN 527-1*

Office Furniture: Work Tables and Desks
(Applies from July 2000)

Height adjustable work surfaces shall have a minimum range of adjustment from 26.77–29.92" (680–760mm) [When the range of adjustment exceeds the range above, the adjustment should extend below 26.77" (680mm)].

If the height adjustment is provided in fixed steps, steps of no more than 1.26" (32mm) are recommended.

HFES: Human Factors and Ergonomics Society
ANSI: American National Standards Institute
NIOSH: National institute for occupational safety and health

In some European countries they follow A-deviations instead of the provisions of the above written EU Standard. These include:

Desk Levels

Netherlands: 24.41–32.28" (620–820mm)

Denmark: 23.62–47.24" (600–1200mm)

Sweden: 23.62–31.50" (600–800mm)

Norway: 25.59–31.50" (650–800mm)

**The following countries are bound to implement this standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.*

BRITISH STANDARDS ISO 9241-5

Recommendations for Height
Adjustable Work Surfaces:

Sitting

25.98–30.32" (660–770mm)

Standing

35.43–47.24" (900–1200mm)

Sitting/Standing

25.98–47.24" (660–1200mm)

ADA: Americans with Disabilities Act)
BIFMA: Business & Institutional Furniture
Manufacturer's Association

GENERAL WORKSTATION DESIGN PRINCIPLES BY NIOSH*

- Make the workstation adjustable, enabling both large and small persons to fit comfortably and reach materials easily.
- Avoid static loads, fixed work postures and job requirements in which operators must frequently, or for long periods: lean to the front or side; hold a limb in a bent or extended position; tilt the head forward more than fifteen degrees; support the body's weight with one leg.
- Set the work surface above elbow height for tasks involving fine visual details and below elbow height for tasks requiring downward forces and heavy physical effort.
- Allow workers, at their discretion, to alternate between sitting and standing. Provide floor mats or padded surfaces for prolonged standing.
- Design the primary work area so that arm movements or extensions of more than 15" are minimized.
- Provide dials and displays that are simple, logical and easy to read, reach and operate.