

Ergonomics is the science of designing and arranging things that people use so that people will interact with the environment most effectively and safely. Ergonomics means arranging the environment to fit the person. Factors that contribute to ergonomic design include:

- The amount of repetition involved with the job
  - The duration of applied force from pushing, pulling, lifting or gripping
  - The amount of force exerted or the weight of the load
  - A person's posture, reach and grip positions
  - Heights and distances to working surfaces, materials and supplies
  - Age, physical stature, weight, physical ability
- Injuries resulting from poor ergonomic design are sometimes acute, such as sprains, but are often cumulative such as carpal tunnel syndrome.

### **Ergonomic Safety Tips**

Stretch the muscles every day before starting work. Know your physical limitations. Do not attempt to perform activities when the work environment is not suited to you.

### **Back and Legs**

Have materials and supplies raised to waist level so bending is minimized. This will help avoid lower back sprains and pulled hamstrings. If bending is required, bend at the knees and use the leg muscles to raise and lower the body. Avoid work conditions where the shoulder blades are compressed. This is common in office environments and tight working areas. Move keyboards away and down to a location where the arms are relaxed and outstretched. Always ask for help if loads are too heavy or awkward.

### **Arms, Wrists and Hands**

When working with power tools or other hand-held objects, avoid situations where the wrist is bent. The force of the arm should be pointing downward or outward. Carry loads close to the body with a clear line of sight to the travel path. Avoid carrying loads away from the waist or reaching for extended periods. Avoid using tools that vibrate continuously or aggressively or require prolonged pinching or gripping. Use only the force necessary to perform the job. Rotate tasks and take break from tasks during the workday to avoid vibration for too long a duration.

### **Eyes and Neck**

Work so that your neck is not tilted or strained. Ensure there is proper lighting in the work areas. If machines, tools, and the workflow are poorly designed, they can place undue stress on tendons, muscles, and nerves. In addition, temperature extremes may aggravate or increase ergonomic stress. Your ability to recognize ergonomic problems on the construction site is the essential first step in correcting these problems and improving construction worker safety and health.

### **Questions for Discussion**

- In what areas can you improve your ergonomic safety?
- What can be done to improve the ergonomics of your current tasks?

### **Presenter tips**

- Pre-read the Toolbox Talk. Your comfort level and confidence will be higher if you know your topic.
- Discuss related tasks, work areas or events that make the Toolbox Talk relevant to your job site.
- Involve the workers by asking questions and input that drives discussion.