

Safety

Ergonomics: The Key to Reducing Injuries by SBC Staff (based on materials from OSHA)

From can openers to desk chairs, ergonomics has become more and more of a mainstream idea in today's society. Simply defined, ergonomics is the study of work. More specifically, it is the science of designing the job to fit the worker, rather than physically forcing the worker's body to fit the job. Therefore, a can opener with a handle that is made of slip-resistant rubber and conforms to the shape of a human hand requires less physical effort to operate than the old-fashioned metal variety. Now, apply that principle to your manufacturing operation. Adapting tasks, work stations, tools and equipment to fit the worker can help reduce physical stress on a worker's body and eliminate many potentially serious, disabling work-related musculoskeletal disorders (MSDs).

As industry continues to increase production rates and advances in technology to remain competitive, higher demands have the potential to adversely affect workers if ergonomics is not taken into consideration. If work tasks and equipment do not include ergonomic principles in their design, workers may have exposure to undue physical stress, strain and overexertion, including vibration, awkward postures, forceful exertions, repetitive motion and heavy lifting. Recognizing ergonomic risk factors in the workplace is an essential first step in correcting hazards and improving worker protection.

According to the Bureau of Labor Statistics, MSDs are recognized as a serious workplace health hazard that account for more than one-third of all lost-workday cases. Ergonomists, industrial engineers, occupational safety and health professionals, and other trained individuals believe that reducing physical stress in the workplace could eliminate up to half of the serious injuries each year. An employer can learn to anticipate what might go wrong and alter tools and the work environment to make tasks safer for their workers.

The High Cost of MSDs

- MSDs account for 34 percent of all lost-workday injuries and illnesses.
- Employers report nearly 600,000 MSDs requiring time away from work every year.
- MSDs account for \$1 of every \$3 spent for workers' compensation.
- MSDs each year account for more than \$15 billion to \$20 billion in workers' compensation costs. Total direct costs add up to as much as \$50 billion annually.
- On average, it takes workers 28 days to recover from carpal tunnel syndrome, longer than the time needed to recover from amputation or fractures.
- Workers with severe injuries can face permanent disability that prevents them from returning to their jobs or handling simple, everyday tasks.

MSD Risk Factors

- Force
- Repetition
- Awkward postures
- Static postures
- Quick motions
- Compression or contact stress
- Vibration
- Cold temperatures

NIOSH recommends these guidelines in jobs requiring manual handling:

SIMPLE WAYS TO PREVENT MSDS IN THE WORKPLACE

Many solutions to ergonomic problems in the workplace are simple and inexpensive. For example, awkward and uncomfortable positions can be eliminated by:

- Adjusting the height of working surfaces.
- Supplying anti-fatigue mats.
- Varying tasks.
- Providing short breaks.
- Taking exercise and stretch breaks.
- Reducing the weight and size of items that workers must lift.
- Putting supplies and equipment within easy reach of the worker.
- Supplying the right tool for the job and the right handle for the worker.

- Minimize the distance between the load and the body.
- Lift loads from knuckle height.
- Keep the travel distance for the lift to less than ten feet.
- Minimize twisting.
- Provide good handles for grasping loads.

At Gang-Nail Truss in Visalia, CA, Tim Rouch, President and Manufacturing Manager implemented some of these ideas in order to reduce the potential for back and other soft tissue injuries in his plant. "We make great use of forklifts in our plant in order to eliminate a lot of the lifting by individual workers," stated Rouch. "We use waist high jack stands adjacent to our tables wherever possible to eliminate unnecessary bending of workers picking raw material off the floor. We also practice personnel rotation within teams to help avoid repetitive injuries. The rotation allows workers to alternate between their right and left arms, depending on which side of the set-up they are working."

GOOD ERGONOMICS = GOOD ECONOMICS

What's the benefit of implementing good ergonomic practices in your facility? Providing a workplace free of ergonomic hazards can do the following:

- Lower injury rates as MSD incidences go down.
- Increase productivity by making jobs easier and more comfortable for workers.
- Improve product quality because fewer errors will be made when using automated processes that demand less physical effort.
- Reduce absences because workers will be less likely to take time off to recover from muscle soreness, fatigue and MSD-related problems.
- Reduce turnover as new hires are more likely to find an ergonomically designed job within their physical capacity.
- Lower costs as workers' compensation and other payments for illness and replacement workers go down.
- Improve worker safety.
- Increase worker comfort.
- Reduce worker fatigue.
- Improve worker morale.

WTCA's forthcoming safety manual will include a wealth of information about how to set up and

implement an ergonomics program in your plant. Stay tuned for details about this manual in future issues.

Do you have a question about safety that you would like us to explore in this column? Or, do you have an innovative method for handling a common safety concern? Submit your comment or question to safety@sbcmag.info.

[SBC HOME PAGE](#)

Copyright © 2003 by Truss Publications, Inc. All rights reserved. For permission to reprint materials from SBC Magazine, call 608/310-6706 or email editor@sbcmag.info.

The mission of Structural Building Components Magazine (SBC) is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing of structural building components to ensure growth and continuity, and to be the information conduit by staying abreast of leading-edge issues. SBC will take a leadership role on behalf of the component industry in disseminating technical and marketplace information, and will maintain advisory committees consisting of the most knowledgeable professionals in the industry. The opinions expressed in SBC are those of the authors and those quoted solely, and are not necessarily the opinions of any of the affiliated associations (SBCC, WTCA, SCDA & STCA).