Metal Center News

Business Topics

Ergonomic Regs: Threat or Opportunity?

BY GEOFF WRIGHT
AND BOB HOWARD

The work traditionally performed in a metal center is physically demanding. It requires a few people to move tons of metals in various sizes, shapes and weights. Workers repetitively bend, twist and lift as a normal part of their job. A competitive need to achieve higher productivity often means hiring better, stronger and more industrious workers who can be motivated to achieve higher levels of output so that more material can be moved with fewer people.

This need to achieve higher productivity is tempered by the reality that in today's employment market, workers want better working conditions and higher pay for work that is less physically demanding. Metal warehouses have few jobs that fit this requirement.

At the same time, employers fear that the U.S. Occupational Safety and Health Administration's new ergonomics standard, which goes into effect this month, will add cost and burdensome paperwork to their operations. However, it is possible to reduce musculoskeletal disorders in the workplace and at the same time save money by increasing efficiency and productivity through the use of proper ergonomic techniques and technologies.

Geoff Wright, president of Ergonomics Plus in Toronto, is a consultant, engineer and Ph.D. specializing in industrial ergonomics. He can be reached at 416-789-2856. Bob Howard is president of Canrack/PMI, a Mississauga, Ontario, supplier of material-handling equipment. He can be reached at 905-564-6250.

Economics of ergonomics

In announcing the ergonomics standard, Labor Secretary Alexis M. Herman said musculoskeletal disorders are "the most prevalent, most expensive and most preventable workplace injuries in the country." The emphasis is on protecting the workers most at risk—those involved in manual handling or production jobs in manufacturing. Although these workers represent about 25 percent of employees in general industry, they experience about 60 percent of the musculoskeletal disorders reported.

An estimated 600,000 workers miss work due to work-related musculoskeletal disorders each year, and these disorders account for one-third of all lost-work time injuries in the United States. These injuries, which can involve lengthy recovery periods, cost employers $15 billion to $18 billion in workers' compensation, and $30 billion to $40 billion more in other direct costs each year. Yet fewer than 30 percent of employers have developed effective ergonomics programs to address problems involved with awkward postures, excessive force, heavy lifting or repetitive motions. Preventing just one case would save an employer an average of $22,500.

The existence of musculoskeletal disorders at work usually results in the loss of productivity either due to the injury itself or due to a higher rate of staff turnover. Training and motivating new hires adds to the cost of doing business. There is also the cost of higher customer returns with errors created by new workers who have not fully learned their jobs.

The metal center industry has the physical conditions that are most associated with this disorder. At first glance, it seems unlikely that many jobs in a metal center can be done in an ergonomically correct manner. Indeed, many companies using manual metals handling methods will argue that to change this would greatly reduce productivity. Yet implementing ergonomics principles can reduce the risk for workplace injuries and potential for high employee turnover while increasing productivity. That is best illustrated by comparing traditional methods still used in the metal center industry with an ergonomics approach.

Traditional methods

Shearing: Many shears in service centers are stand-alone units without feeders, conveyors or material handling devices. The operator manually removes sheared blanks from the back of a shear that have fallen to the floor or slid down a chute to below waist level. Heavier blanks, especially on plate shears, can be back-wrenching work for an operator to transfer to a pallet or cart and pile neatly for packaging.

Sheet order filling: Sheet order filling and packaging in many service centers has two operators manually picking up and lifting sheets from the inventory stack to a customer skid. Since thin sheets bend, the operators hold the ends of the sheet at or above shoulder level to avoid scratching the surfaces. Operators must reach and twist to pick up and place orders. Back strain is a predictable outcome.

Packaging blanks: When pallets of stacked blanks are moved from a cut-to-length line, they may be taken to various styles of packaging stations that are manual in nature. Often, the workstation is just a pair of horses and manual strapping tools. Packaging materials can be stored in various places requiring operators to walk,

bend or twist to retrieve them.

Ergonomics interventions

The examples given below for shearing, sheet order filling and packaging, and blank packaging indicate some of the ergonomics interventions that have already been implemented in the metals industry.

Shearing: Conveyors at the back of the shear equipped with automatic scrap chutes and stackers with squaring tampers can pile blanks neatly and scratch-free without operator intervention. This eliminates the need for the operator to bend and stoop or lift heavy blanks.

Shear feeders for both sheet and plate are now available that require very little manual handling by the operator. Blank tolerances up to +/- 0.005-inch can be sheared at a very fast rate. The physical demands are within ergonomic guidelines, so a previously demanding job is turned into an easy job that can be handled by any operator, man or woman, who is able to use a calculator.

Sheet order filling: The need for higher quality and scratch-free product has for the most part eliminated the practice of stack picking with a crane by driving wedges into the stack and lifting with sheet hooks. Vacuum lifters mounted on a crane hook can achieve better results but can be too slow and tie up a crane that might better be used elsewhere. However, a sheet order filling station using stand-alone vacuum lifters can pick up to three sheets a minute with one operator who can stand upright.

Packaging blanks: The use of conveyors and ergonomically designed packaging stations with overhead pneumatic strapping and strap feed means that in-line packaging with one operator can be done at a rate that matches the output of the cut-to-length line. The pallet is removed only when the packaging is finished and the pallet is ready for direct truck loading or transfer to storage. With this system, operators do not have to walk on conveyors, bend down to pallets located below waist height, retrieve packaging materials from difficult places, use hand strappers or constantly work under the pressure of keeping up with the line.

Threat or opportunity?

In the past, scant attention was paid to improving the ergonomics of many workstations. Rather, the emphasis was on making a very tough job possible in order to be highly productive. But with OSHA looking at a 51-pound maximum for repetitive lifting, most order-filling methods used today are not ergonomically correct. This reality is even more challenging to metal centers, as OSHA is very serious about its pending ergonomic standards.

Is this a threat or an opportunity, a cost or a benefit for metal distributors?

Under OSHA's proposal, about 1.6 million employers will have to implement a basic ergonomic program. This means assigning someone to oversee ergonomics; provide information to employees on the risk of injuries, signs and symptoms to watch for; and set up a system for employees to report signs and symptoms early. Full programs would be required only if one or more musculoskeletal disorders occurred.

The OSHA proposal also offers a "Quick Fix" alternative to setting up a full ergonomics program. That is, if the employer corrects a hazard within 90 days and checks to see that the fix works, then no further action is necessary.

Examples of simple and inexpensive solutions to reducing the risk of work-related injuries include adjusting the height of work surfaces, varying tasks for workers and encouraging short rest breaks. These are all good interventions. Thus, the "Quick Fix" solution may provide some opportunities for ergonomics improvements within the service center industry.

However, the physical nature of the work being performed and the size of the stock being handled means that such interventions may not be the only ergonomics practices required. More widely applicable interventions that can be cost justified through a dramatic increase in productivity will also be needed to reduce the risk of work-related injuries.

Ergonomics interventions that have already been implemented by metal centers illustrate the potential for how profits can be increased through higher productivity while realizing lower employee turnover and increased quality and service.

Shearing is one job that can be made more ergonomically correct with a definite quick return on the cost of necessary equipment purchases. Quality is increased and machine output can double. The example of automated shearing perhaps best illustrates the benefits of ergonomics practices that can change a very improper job into a very correct job, while minimizing safety hazards.

Costs vs. benefits

In determining the feasibility of buying equipment, the ergonomist and the production manager must evaluate whether equipment costs can be recovered through productivity gains and other savings. The cost calculation should include the fact that an ergonomics approach can correct the problems of low productivity, musculoskeletal injuries and high employee turnover.

Another factor to consider is that within an ergonomically correct metal center, operators need not be particularly strong or have exceptional muscular endurance. An ergonomics assessment of manual and automated bar order filling (Wright, Lapenny and Howard) found that orders can be bundled, strapped, tagged and delivered with a level of energy expenditure that can be sustained by a large percentage of both men and women on the shop floor. Opening operator jobs to women doubles the available workforce. ■