Ergonomics Know How

As employees expect more, facility managers must be prepared to provide safe, comfortable furnishings.

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Outfitting a facility with ergonomic products can be a tricky road to travel for facility managers. Comfortable seating, safe lighting, and proper keyboard positioning are just a few of the issues that need to be addressed during the product selection process.

Productivity, occupant satisfaction, and reduced health concerns are all reasons to create an ergonomic workspace. Many people have the natural assumption that the tools in their workspace will accommodate their comfort. "Ergonomics is starting to become something people expect," says Scott Openshaw, human factors and ergonomics manager at Muscatine, IA based Allsteel. "A lot more people think ergonomics should be part of a product as a basic feature."

While there is a vast amount of research on the subject of ergonomics, there is no foolproof formula. And on top of it all, different people have varying preferences as to what goes into a comfortable, productive workspace. However, one principle is constant when considering products and processes for an ergonomically beneficial workspace: strain on the human body should be minimized as much as possible.

Professor Alan Hedge, Ph.D., CPE, who directs the Cornell Human Factors and Ergonomics Laboratory at Cornell University in Ithaca, NY, says, "Facility managers can identify potential problems with the ergonomic design in their facilities by finding out about workplace injuries and employee discomfort complaints. They can also conduct walk-throughs to observe awkward working postures, and they can distribute surveys asking about musculoskeletal comfort."

Hedge, also a Fellow with the Human Factors and Ergonomics Society in Santa Monica, CA, adds that a board certified professional ergonomist can be hired as a consultant to perform a facility walk-through and evaluation.

Outfitting the Office

Today, the typical office work station includes-at the very least-a chair, a desk, or other worksurface, a computer (complete with monitor, hard drive, keyboard, and mouse), and a light source. With this list of items necessary to furnish the most basic work station, even seasoned facility managers may find it a challenge to find the right ergonomic products, at the right price, for the right job.

Openshaw offers the following advice on product selection: "There are four main issues to consider: fit, need for mobility, intuitive ergonomics, and education.

"There are two types of fit to consider," he explains. "One type is how the product fits to the individual; the second is the way the product fits to the task that the user is performing. You want to make sure the product fits what people measure and that it meets a wide variety of the population."

The height of the worksurface is a central component of a properly fitting work station. While the ideal height may vary from person to person, Hedge says, “The recommended height for a desk used in an office setting is 28”. This allows the user to be comfortable while performing activities such as reading and writing. This is also an appropriate height for computer use.”

If the facility manager is looking to go a step further and provide occupants with a height adjustable worksurface, he or she will not have to look far. There is a wide selection available, ranging from desks that are adjusted by moving around several screws to work stations that the user can adjust at will with either a mechanical or electronic control.

These “sit-stand” work stations address another aspect important to proper ergonomics – the need for mobility. With the height adjustable option, users can alternate between sitting and standing throughout their workday.

The ability to change positions and foster movement helps to maintain a comfort level. Derek Timm, technical services manager at WorkRite Ergonomics, based in Petaluma, CA explains, “When a person is in a sedentary position, oftentimes blood will pool in the lower legs, which reduces oxygenation and creates fatigue and discomfort. There are natural timers in the body that indicate the need to stand or to move. A sit-stand work station enables the user to alter that position while staying on task.”

In a 2005 study commissioned by WorkRite Ergonomics, 57% of the respondents said they would prefer to stand rather than sit for at least part of the day. Furthermore, 92%, if given a choice, would like to have a work station that allowed them to make minor height adjustments. Sixty-two percent reported that they leave their workstation at least five times during the day to stretch their legs.

The WorkRite study also revealed that 82% of the respondents prefer a slightly angled keyboard surface. This finding coincides with other studies that indicate a keyboard positioned at a slight negative tilt-down and away from the body-puts the least amount of stress on a person’s wrist area, thus reducing the possibility or repetitive stress injuries (RSI).

Tom Revelle, vice president of marketing for Humanscale in New York, NY, says, “An ergonomic keyboard system must allow users to position the keyboard where they want it with almost no thought or effort. The ideal system allows the keyboard to be angled 0º to 15º away from the user.”

Facility managers who need to know the lingo should note that a recent report from Harvard Medical School stated that one should not confuse an RSI with carpal tunnel syndrome. Researchers found that carpal tunnel is caused when nerves in the wrist are pinched; however, it’s not caused by frequent use of a keyboard. Rather, it is caused by heredity, body weight, fracture, or even pregnancy, the report states. Still, researchers warned that improper computer use could cause different types of RSIs; carpal tunnel is just incorrectly described as one.

Revelle points out that keyboard position is only one part of the ergonomic equation. “A true ergonomic solution usually requires several products working together, so the benefits of each can be maximized,” he explains. “For instance, if employees have great keyboard support that lets them sit back and great chairs that let them recline easily, but they lean forward anyway,

because their monitors are positioned so far away that they can't see them, then they won't realize benefits from the keyboard support and chair."

Products designed with features that facilitate intuitive movement may help users maximize the ergonomic benefits. The way a chair is designed, for instance, can directly affect the benefits reaped by the user. This translates into maximized benefits for facility managers.

"Some chairs have numerous levers," says Openshaw, "and people are often intimidated by them. So instead of making adjustments, they sit in a chair not correctly set for them. Even if they've been educated on how to use it, it may still be intimidating, so they don't make any adjustments after the first time. Intuitive ergonomics means you have a product with features people will look for; users intuitively look for those adjustments and find them quickly."

Says Revelle, "Our focus is on designing products that allow users to reap the most ergonomic benefit without having to think about it. We do this by creating products with automatic or intuitive adjustments. As a result, users can focus on their work instead of their environment."

Lighting is also an important contributor to a person's comfort level, since the proper lighting can help to reduce eyestrain. Facility managers can maximize this comfort by providing task lighting at work stations. If feasible, individual control of light levels is another tool.

But there's more beyond simply providing occupants with their own light source. Revelle points out that how the user positions the lamp is just as important. "From an ergonomic standpoint, task lighting must allow users to put light where they need it without creating glare on the work surfaces, monitors, or documents," he explains. "In general, it is best for the light to be positioned to the side of users opposite their writing hands. This allows light to be directed across the work area to minimize glare and toward the writing hand to minimize shadows."

Relearn What Has Been Learned

There is a plethora of ergonomics research and information available to facility managers who want to provide occupants with a comfortable, productive workspace. However, such mass amounts of information can lead to misconceptions.

"The real benefits of truly ergonomic products can usually only be fully realized when a total solution is implemented," says Revelle. "Among the most common misconceptions is that [this] may be expensive and not worth the cost. But, when considering the total facility costs for each employee, the costs for a full ergonomic solution are minimal. Yet the benefits of improved comfort, health, and employee happiness can be quite significant."

Openshaw cites an example of the effect of so much ergonomic information. "Many facility managers are concerned that a chair has a good lumbar support, because it helps the back keep its correct curvature," he says. "But, just because a chair has a lumbar support that is thick and protrudes doesn't necessarily mean it's going to be healthy and comfortable. On the other hand, there are products that allow the lumbar support to conform to the user."

To ensure maximum comfort for users, as well as maximum return on investment, facility managers should look at each aspect of the workspace individually. Once the best products are discovered, combining them to create an overall healthy and comfortable area will mean success for both users and the organization.

This article was based on interviews with Hedge, Openshaw, Revelle, and Timm. A variety of ergonomics research is available from Cornell University at http://ergo.human.cornell.edu.