

## Integrating Barrier Protection with Ergonomics

BY JEAN FEINGOLD

**W**orkers doing manual material handling have the best chance of avoiding injury in workplaces where barrier protection is integrated with ergonomic equipment. In planning or reviewing what safety equipment to use in your plant, look at potential physical risks to workers from machines, slipping and falling and falling debris at the same time as considering ergonomic hazards of the job itself like repetitive lifting, bending, twisting and reaching.

Areas of concern include work cells, large machinery, assembly lines, conveyors, walkways and mezzanines. Examine how workers move through the plant and what they do on their jobs. Here is a typical scenario. A worker enters the building through the plant door, arriving at a walkway where he walks 80 feet, passing an intersection, to a landing. He goes up the stairs to a mezzanine where goods or parts that were delivered by a forklift are stored in racks all the way up to the ceiling.

How can this worker be kept safe? Barrier protection is needed from the door all along the edge of the walkway. The floor should be covered in non-slip, light-colored material. The walkway must be well-lit. At the intersection, additional barrier protection, a caution light, a gate and a mirror to see around

the corner may be needed. The stair steps should be ergonomically designed, well-lit and covered with a non-skid highly visible surface. In addition to having handrails on both sides, install a spill guard at each edge of the stairs to prevent anything that is dropped from going beneath the handrail and falling to the floor below.

Protect the mezzanine's edge with both handrails and spill guards. The items stored in the racks need netting or rack safety panels to keep them from falling onto walkways below, potentially damaging workers or equipment. That covering must be easy to open and close so workers will not strain themselves when doing so.



These six partially raised hydraulic work access lifts raise, lower and position workers to gain good ergonomic access to their work. The work area is behind a barrier and the lifts are fitted with handrails with spill guards, gates and ladders for egress on and off the platforms.



The path where the forklift moves needs barriers. The gate where the forklift enters the lift between floors must be counterbalanced and easy to open and lock automatically after the lift is used. This protects workers from both falls and overexertion. Electrically powered gates are available, allowing easy, stress-free pushbutton functioning.

“In examining a facility for safety risks, many people only look at the lowest eight feet and not higher,” said Raymond Niemeyer, Vice Chair of MHI’s

Protective Guarding Manufacturers Association (ProGMA). “There could be a conveyor system moving product above that area. Netting or other protection is needed to catch anything that falls off.”

### Selecting appropriate safety equipment

“These days, more companies want large machine equipment manufacturers to supply equipment guarding as part of their machine tools, robotic

equipment and packaging machines,” noted Niemeyer. “They like the convenience of dealing with only one supplier.” Buyers must determine whether those built-in guarding devices are ergonomically designed.

“Any controls, adjustable devices and guarding that are part of a machine must be both accessible and ergonomically correct,” said James Galante, chairman of MHI’s Ergonomic Assist Systems & Equipment (EASE) Council.

“Are they at the right height for workers to reach without needing a stool or having to bend down? The machine’s guarding protection should be easy to move when access to the machine is needed for adjustments or settings.” If machine access is not ergonomic, different protective guards should be considered.

In companies with fewer than 200 employees, the designated safety manager usually has other major responsibilities. These companies often cannot afford ergonomists or other safety professionals to determine the safest ways of operating their businesses. They tend to rely more on the recommendations of safety product sales representatives.

It is important for safety managers to ask questions to get these reps to look at the whole picture of the facility to find the most complete safety solutions. Find out how easy it is to access and open a guard on a machine to service or adjust it. Ask how to protect work cells when forklifts move nearby. Make sure the contents of racks will be visible after a rack guard is installed.

Every plant is different, needing its own specific safety, guarding and ergonomic answers. MHI can help. MHI resources include links to equipment and solution providers who offer ways to make your facility safer.

The EASE Council ([MHI.org/ease](http://MHI.org/ease)) and ProGMA ([MHI.org/progma](http://MHI.org/progma)) offer case studies, articles, photos, checklists and helpful tips to guide you in finding the best solutions.

Installing safety solutions is not a set-and-forget process. Evaluate your plant continuously to make sure you have created the safest, healthiest and most productive workplace possible, adding new equipment and processes as needed. ●

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