Washington State Department of Labor & Industries

Ergonomics Case Study
TMX Aerospace Raised Workstations

Background

TMX Aerospace, a division of ThyssenKrupp Aerospace, requested help from an L&I Ergonomist to reduce back injuries.

Issues Found

Completed materials were delivered via forklift to the floor of the packaging department for quality checks, packaging and banding. Materials were placed randomly, wherever there was free space. When too close together, workers had to twist or lean to fit between them. Workers spent a substantial amount of time stuck in bent, squatting or kneeling postures as they measured for quality checks. Workers risked developing musculoskeletal disorders such as low back pain or disc injuries and bursitis of the knees or hips.

Prolonged kneeling while completing quality checks.

Repeated bending while packaging.

Recommendations

The L&I ergonomist proposed solutions that would elevate the work to a comfortable height for standing. These included:

- Stack up several pallets with the fork lift
- Provide work tables at different heights
- Use scissor lifts

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Implementation

To determine the right height for standing workstations, pallets were stacked to various heights and tested. Workers identified three optimal heights that allowed them to do the job with a minimum of bending.

The in-house maintenance department fabricated three pairs of various sized sawhorses. The sawhorses created standing workstations that significantly reduced awkward postures and contact stress.

Follow up

Initially, workers thought it took too long to stage the packaging area. It seemed quicker to put the material anywhere on the floor and work the jobs in random order. Time studies revealed that it only took a few seconds longer to do it the new way. And now the jobs are worked in the correct order, contributing to the Lean Manufacturing "just in time" principle.

TMX Aerospace reported benefits of the changes, which include:

- Improved quality of life and happier packers
- Improved productivity and quality of product
- Reduced probability of an overexertion injury

Lessons learned by the TMX team involved in the ergonomics changes:

- Floor packing is bad for the workers and bad for the product
- A wrong sized work table creates congestion, while better ergonomics improves work flow
- To step outside the box and develop "ergo eyes" to see potential hazards and solutions
- Upstream processes have a high impact on the ergonomics and methods

For continuous improvement, TMX Aerospace plans to add spring-loaded casters to the sawhorses to make them easy to move from place to place on the shipping floor.