

DoD Ergonomics Working Group NEWS



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Ergonomic Risk Assessment at Army & Air Force Exchange Service (AAFES) Distribution Centers: Findings, Conclusions, and Recommendations

Eighteen Months Later

This newsletter is a follow-up to Ergo News #52, published in May 2006, that discussed the need for ergonomic risk assessments at West Coast (WCDC) and Dan Daniel (DDDC) Distribution Centers. The primary purpose of these assessments was to provide a high-level qualitative ergonomic review of operations and formulate recommendations for reduction of potential health and safety risks. Here we offer some of the findings, conclusions, and recommendations from those assessments.

The WCDC Study

The study at WCDC was conducted 20-23 June 2007 by an outside ergonomic consulting firm. The objective was twofold: (1) identify and prioritize potential ergonomic issues related to logistical operations, and (2) provide training to center supervisors and managers to increase awareness of these issues and instill an understanding of steps to lessen or eliminate loss of productivity due to illness and injury. A site-wide screening survey was conducted to qualitatively identify and prioritize job tasks by exposure to ergonomic risk factors. Eighteen separate job/tasks that posed some ergonomic risks were identified and evaluated during a 2-day walk-through survey. Videos and still pictures for each job/task were also taken for further review and analysis.

Findings

All 18 operations assessed during the walk-through survey had some ergonomic risks. The most prevalent ergonomic risks associated with the operations that were assessed were:

- Back bending/twisting - associated with 14 out of 18 (78%) of the operations assessed.
- Extended elbows and shoulders - associated with 14 out of 18 (78%) of the operations assessed.
- Excessive lifting - associated with 6 out of 18 (33%) of the operations assessed.
- Extended reaching - associated with 6 out of 18 (33%) of the operations assessed.



Back Twisting

The ergonomic risks listed above are primarily associated with operations that involve material handling and can have serious impacts on the health and safety of employees working in those areas.

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Recommendations

Based on observations and findings, the study report identified two types of recommendations:

- Comprehensive, including manual handling work: high cost to implement.
- General: easy to fix or implement.
 - ⇒ Need minimum investment to implement.
 - ⇒ Change/improve work practices.

These specific recommendations were made in the report:

- Provide ergonomically designed utility knife to reduce awkward hand posture.
- Provide high friction globes to reduce high-force, non-neutral hand/wrist postures.
- Provide anti-fatigue matting or shoe inserts to reduce foot/leg discomfort and pain.
- Provide tilted work surface to improve access to box interior while loading.
- Set ball conveyors at a greater decline to reduce manual material handling and non-neutral postures.
- Investigate an automatic label dispenser to reduce high-force, non-neutral hand/wrist postures when applying labels.



Back Bending



Extended Reaching

The DDDC Study

A team of ergonomic consultants from the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) conducted an ergonomic study at DDDC on 5-8 September 2006. In addition to a walk-through survey to assess ergonomic risks for different operations, a job requirements and physical demands (JPRD) survey was conducted, and several focus group meetings (comprised of team leaders, foremen, and workers) were held daily.

During the walk-through survey, the team members:

- Observed the tasks performed in the distribution center.
- Measured lifting heights and reach distances.
- Recorded weights of items being lifted.
- Noted the equipment given to workers to help them perform their job.

These observations and measurements helped to determine which components of the workstations or tasks needed improvement.



Lowering a box in the fashion shipping workstation.

Findings

The USACHPPM report concluded that there were certain tasks and jobs within DDDC that pose increased risk of musculoskeletal injury and limit productivity. These ergonomic risks were noted during the survey:

- Dynamic nature of the work; constant movement/lifting/manual material handling.
- Workers spend too much time in non-neutral work postures.
 - ⇒ Constant standing (manual material handlers)
 - ⇒ Repetitive hand/wrist movements
- Groups of workers consistently complain of discomfort.
- Equipment poorly maintained or limited numbers of equipment.
- Merchandise delivered by vendors is often repacked to meet AAFES requirements.
- Process inefficiencies that keep merchandise from moving as fast as it could within the DDDC.



Lifting item on top of a stacked pallet.



Manually moving and carrying a pallet.

Recommendations

- Determine if vendor merchandise can be packed to AAFES standards.
- Improve turnaround time for equipment maintenance and repair.
- Improve the quantity or quality of the equipment within the DDDC warehouse.
- Improve pallet management.
- Improve communication within the distribution center.
- Improve worker retention rates by investigating what can be done to improve worker satisfaction.

Way Ahead

The recommendations from these two ergonomic assessments are currently being implemented at all AAFES distribution centers.

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