

An Ergonomic Process for the Construction Industry:

Prevention of Work-Related Musculoskeletal Disorders

Interaction between Workers and their Tools

Definition of Ergonomics: An applied science concerned with designing and arranging the workplace and tools within the most efficient capacities and capabilities of the worker.

Construction job tasks are often physically demanding, and performed on the ground or at heights. The construction industry exposes workers to a variety of ergonomic risk factors. These risk factors can include the following:

- ▶ Excessive force
- ▶ Awkward postures
- ▶ Contact stressors
- ▶ Whole body or segmental vibration
- ▶ Hot/cold work environment
- ▶ Secondary conditions
 - Adverse environmental conditions
 - Improper fit of PPE
 - Inadequate recovery time

Repeated exposure to these risk factors over time can lead to work-related musculoskeletal disorders (WMSDs) (Bernard 1997).

Starting an ergonomics process may mean that changes have to be made in the construction-project site and in work practices so that the workers interact most efficiently and safely with the “things” they’re using. As construction companies put the ergonomics process in place, they may have to modify project layout and planning, alter work methods and stations, and/or change equipment and tools so that they do not exceed the capabilities of their workers. Many changes can be made without significantly increasing costs; moreover many ergonomic interventions result in increased efficiency by reducing the time needed to perform a task.

ELEMENTS OF AN ERGONOMICS PROCESS

1. Assure Management Support

Management should consistently communicate the importance of employee safety and health. They should commit resources to the process, and lead by example as well as Integrate production processes, schedules, and improvements with safety and health concerns. To ensure the process works all managers and employees should be held accountable for carrying out their responsibilities safely.

2. Involve Employees

Encourage employees to report injuries early. Set up a procedure that encourages prompt and accurate reporting of WMSDs. Develop a system that involves employees in the design or arrangement of work, equipment, procedures, project planning/layout, and training to reduce exposure to ergonomic risk factors.

3. Provide Training to Managers, Supervisors, Engineers, and Employees

The training should include:

- ▶ Review of ergonomic concerns in each of their work environments
- ▶ Ways to minimize the risk factors in each work environment

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- ▶ Procedures for reporting work-related injuries and illnesses
- ▶ Proper work practices and use of tools/equipment

4. Identify Problems

The following three steps are useful for pinpointing problem areas:

- ▶ Gather information from injury reports and/or history of complaints
- ▶ Talk to workers in the area
- ▶ Prioritize and make preliminary workplace surveys of risk factors (force, posture, repetition, and secondary concerns)
- ▶ Perform job hazard/ergonomic analyses of the at-risk areas

5. Implement Solutions

- ▶ **Process elimination** — does it need to be done at all?
- ▶ **Engineering controls through redesign** — devise a better way.
- ▶ **Administrative Controls**— education, stretching, etc
- ▶ **Personal Protective Equipment**

6. Address Reports of Injury with a Formal Claims Management Process.

7. Evaluate the Ergonomics Effort – How are the interventions working?