

Liberty Steel Buildings, Inc., Litchfield

Intervention Key Words: Shear, Ball Conveyor, Grinding, Metal, Stacker, Cuts, Plate, Clamp

Industry: Other: Welding/Fabrication, Manufacturing

Risk Factor(s): Awkward Posture- Back deviations, Squatting/Kneeling, Manual Handling- Lifting/Carrying, High Hand Force- Pinching/Gripping, Repetitive motion, Vibration-Hand/Arm

Situation:

Liberty Steel Products is a Welding/Fabrication job shop that focuses on shearing, burning, and welding of various metals on a custom order basis. Due to the heavy nature of their product and their type of work, various Cumulative Trauma Disorder (CTD) risk factors can be associated with their everyday tasks. The operation of the shearing machine poses significant CTD risks including: upper body/torso twisting from movement of the metal sheets (500+lbs) into the shear, pushing and positioning sheets during cutting, constant clamping needed to secure the sheets prior to cutting and repetitive bending/lifting required to remove cut pieces from the back of the shear. Another risk factor is repetitive grinding required by the poor quality cuts their current shearing machine makes. Grinding has elements of vibration and static posture, both leading to CTD issues.



Positioning of whole sheets and lifting of cut pieces

Solution:

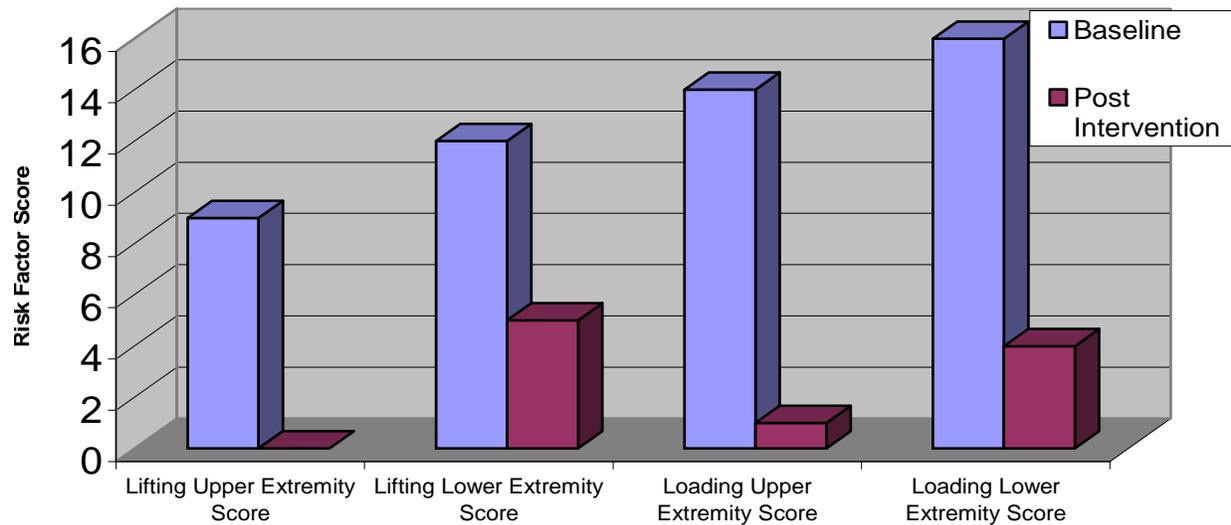
Liberty Steel Products purchased a new hydraulic shear that keeps the employees from being exposed to repetitive heavy lifting and other CTD risk factors. It is equipped with a stacker that keeps cut metal from falling to the floor and also cuts the metal sheets cleaner, which means that the previous method of deburring by grinding is not necessary. A ball conveyor was added to the shear enabling the employees to position

the metal plates more easily when preparing for cutting. The new shear will also hold the sheets securely in place, so that the employee does not have to clamp down the pieces each time a cut is made. Total cost for the intervention was \$59,288. Glenn Welding received \$40,000 in assistance from SafetyGrant\$ to offset the costs.



Loading and unloading new shearing machine

Results:



- CTD Risk Factor scores, averaged over 2 tasks, decreased 80% following the intervention.
- CTD, Restricted Days and Lost Days rates (per 200,000 hours worked) were at 0 the year prior to the intervention and remained at the level for 2 years following.
- Before the intervention, average time to complete a piece was 16.35 seconds. At Twelve months following the intervention average time to complete a piece was 7.60 seconds (reported by the company).