The Plastic Lumber Co., Inc., Akron

Intervention Key Words: Pneumatic Chop Saw, Semi-Automatic Cutoff Saw, Boring Machine, Lift Tables
Industrial Key Words: Manufacturing, Other: Lumber
Risk Factor(s): Repetitive motion, Awkward Posture- Back deviations and Wrist deviations, Awkward Posture- Squatting/Kneeling, High Hand Force- Pinching/Gripping, Manual Handling- Lifting/Carrying and Pushing/Pulling, Vibration-Localized

Situation:

The Plastic Lumber Company specializes in the fabrication and assembly of various recycled plastic lumber amenities such as park benches and signs. Their primary consumers are municipalities and parks departments. Daily operations include sawing, drilling and product assembly. There are two types of saws that are used in the factory, miter saws and radial arm saws. A miter saw requires the operator to engage it with a trigger and then lower it onto the work, using up to 8 motions per cut. The radial saw is operated by pulling the blade through the product, usually in one pass. On average, a worker will make over 600 cuts per day using either of these saws, a frequency that can lead to Cumulative Trauma Disorders (CTDs) such as tendonitis and carpal tunnel. Operating one of the drill presses can also be a CTD risk. This procedure involves a very similar motion to the miter saw, requiring several motions to complete one hole. A drill press operator can bore up to 3000 holes in a day. In addition to the repetition risk factors, the lumber is brought to the workers on pallets at floor level. Workers must bend to pick up their parts, and then bend again to replace the finished parts on a new pallet. Lower back injury is a common CTD in workers who must bend numerous times over the course of a day.

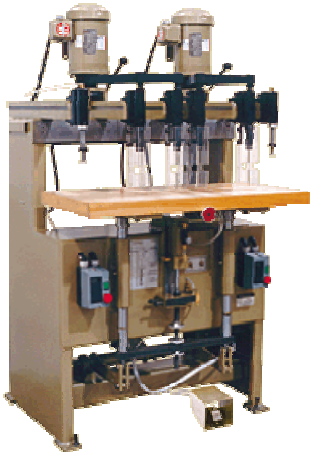
The Plastic Lumber Company product examples

Solution:

The Plastic Lumber Company sought out to reduce CTD risks throughout the factory. Nearly 100% of their 35 employees operate the saws or use the drill press throughout

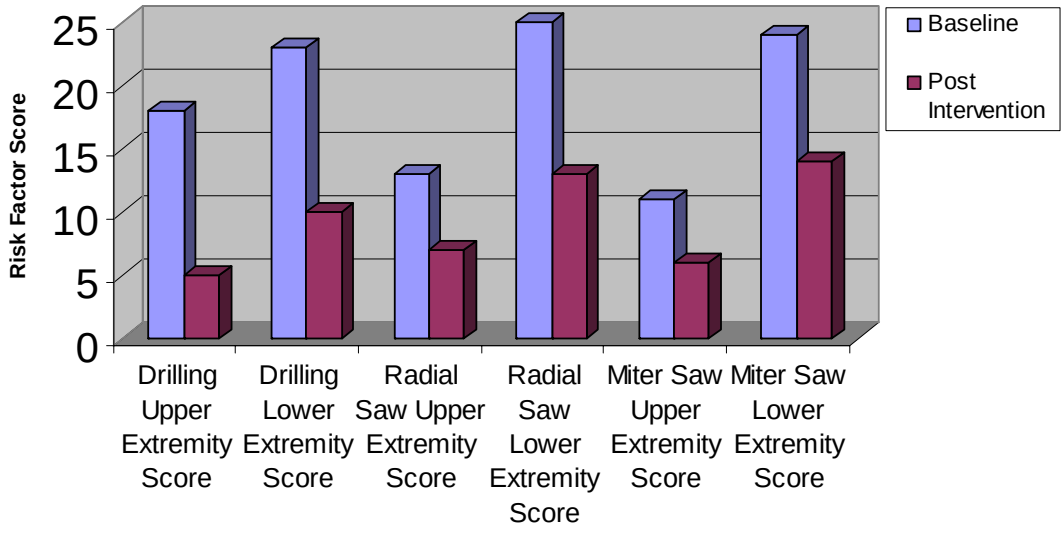
the day. The first order of business was to address the issue with the saws. Plastic Lumber replaced the miter saw with a pneumatic chop saw. This saw is operates by a foot pedal. It makes more accurate, faster cuts while reducing the risk of CTDs to the workers. The radial arm saw was replaced by a semi-automatic cut-off saw. This foot operated saw reduces the number of cuts by increasing the quality and squareness of each cut made. The old drilling process was replaced with a boring machine, capable of drilling multiple holes at once, eliminating the constant motion of the wrists and arms. Rotating lift tables were purchased to assist in the lifting of heavy lumbar that the worker would otherwise have to bend down to reach. The total for all of these interventions was $50,776. The Plastic Lumber Company was awarded $39,932 from Safety Grant$ to offset the costs.

New Cut-Off Saw



Boring Machine

Results:



- Risk Factor scores over 3 tasks dropped and average of 52% in 24 months following the intervention.
- Improvements in production time (reported by the company):
  1. Drilling which once took 11.5 hours now takes 8.5 hours.

2. A sawing task that once needed 18 hours to complete can now be finished in 12 hours.

- Increases in CTD, Lost Day, Restricted Day and Turnover rates (per 200,000 hours worked) were all observed but may not be directly attributed to the intervention.