

Recycling Express, Cincinnati

Intervention keywords: Debinder, conveyor, dust collector, hydraulic lift table

Industry: Manufacturing

Risk Factor(s): Repetitive motion, Manual Material Handling - Lifting/Carrying

Situation:

Recycling Express recycles outdated textbooks for college textbook distributors. They destroy roughly 7,500 tons of textbooks per year. To destroy a textbook, the glued binding and covers must first be removed from the books. Saws are used to “cut” the binding and the operator then tosses the separated parts into their respective crates. During this process, the employees must frequently lift, catch, reach, toss, and separate the books. These repetitive motions can lead to Cumulative Trauma Disorders in the hands, wrists, and shoulders. Along with these safety hazards, crates full of paper from the destroyed books must be pushed out and replaced with empty ones. These crates can weigh up to 1400 lbs and also create a significant risk of CTDs. Multiple incidents of strains and sprains due to pushing the crates have led to lost time and restricted workdays, which decreases the overall productivity of Recycling Express to unacceptable levels.



Old workstation, note the excessive amount of dust in room

Solution:

To decrease the hazards associated with manually separating the books, Recycling Express purchased an automatic debinder. The debinding machine separates the glue and bindings automatically, and conveyors take the resultant pieces to pits, eliminating the need for crates to be pushed around. This new system makes it unnecessary for the repetitive CTD-causing motions that affected workers using the old method. The machine also has a dust collector to help remove any possible inhalation hazards that flying debris can create. Total cost of the new equipment was \$56,130.30. Safety Grant\$ provided \$40,000 in assistance.



Employee using new machine
Note reduction of dust



New Machine at Manufacturer

Results:

- Incidence of CTDs, lost days and restricted days was 0 for the year prior to intervention and remained at 0 for 2 years after the intervention was in place.
- Employee turnover remained relatively constant at 165 employees per 200,000 hours worked.
- Upper extremity risk factor scores dropped from 15 to 6, a 67% improvement, while lower extremity scores dropped from 24 to 9, a 63% improvement.

