

Case Study 6074

Intervention key words

Tier tools, tool extension, automate tying of rebar

Industry

Construction

Risk factors

Manual handling – lifting/carrying; awkward posture – wrist deviation; awkward posture – back deviations; awkward posture – neck deviations; high hand force – pinching/grasping; repetitive motion

Situation

This construction employer installs and fabricates reinforcing bars. Reinforcing iron and rebar requires workers to set steel bars in forms that hold concrete, and then fasten the bars together by tying wire around them with pliers as shown in the photo below. Ironworkers spend most of their day tying rebar, which causes workers to have series injuries such as the following:

- Lumber back strain due to cumulative wear and tear from continuous bending and twisting of trunk;
- Shoulder and neck strain from repetitive bending and twisting motions;
- Carpal tunnel of the wrist and forearm from repetitive twisting of tie wire.



Solution

This employer purchased automatic rebar tier tools with tool extension to reduce the risk factors to their employees. The tool has a long arm, which an employee can operate without bending or twisting the trunk as shown in the photo below. The total cost of the intervention was \$67,926.



Results

- The incident rate (standardized for each 200,000 hours worked) decreased from 1.91 the two years prior to the intervention to zero the two years following, a 100-percent improvement.
- The National Safety Council reports the average cost for a workers' compensation claim is \$19,382. This employer's return on investment was 3.5 years.
- The number of ties done by a single worker per a day increased by 100 percent. This increased the productivity of an ironworker by 15-percent annually.