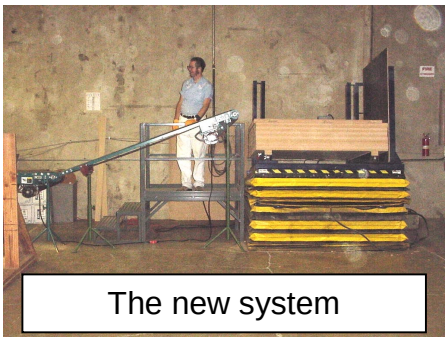
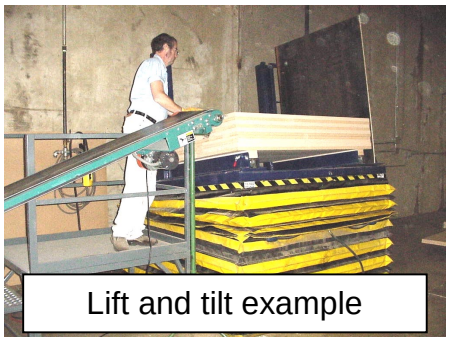
TILTING STACKER

Old method



The new system



Lift and tilt example

NEED

Cherry City Woodshop, a subsidiary of Shangri-La Corporation, manufactures a family of products that are made from wood particleboard sheet stock. It is sawn to width and length, and eventually laminated together with pneumatic nailguns. These finished products are then stacked and metal banded into bundles for shipping to the customer. This is a long term repetitive product that until now, required continuous lifting, twisting and bending for the employees. Despite all research, we could not locate an off the shelf product that had a stacking frame that was adjustable for the various lengths of final products and would also address a large majority of the ergonomic issues associated with the job. This solution also had to be safe and easy to use in a sheltered workshop environment.

SOLUTION

After being awarded an Oregon OSHA Worksite Redesign Grant, we completed a baseline ergonomic assessment on the existing stacking process. With that in hand, we followed a plan where our employees defined the other specific issues in the material handling that we wanted to address. We worked with a material handling equipment vendor to have a modified lifting/tilting stacker constructed. A secondary adjustable fixture was designed, fabricated and attached to the top of the lift unit. This gave us the ability to quickly adjust the fixture to fit the length of product being produced in each run. The hydraulic lift, built into the sub-unit, can be adjusted to an optimum height as the products are conveyed from the nailing process. When starting a bundle, the lift is elevated, and as the pile of finished product increases, the base is lowered to maintain the correct height relative to the out feed of the conveyer. The tilting function uses gravity to slide the products to the back of the stacking frame as products come off the conveyer. It has eliminated almost all of the lifting, twisting and bending that was previously required. This process can now be completed with a single guiding hand for a majority of the work involved. The equipment can safely handle a 3 ton bundle of finished product.

BENEFIT

The Post ergonomic assessment of the solution states " All post-project surveys (100%) now indicate the employees reporting no discomfort related to this job task after implementation of the new stacker device." " The elimination of all task related discomfort, as measured by the post-project Discomfort Survey, is a very strong indicator of the success of this project." " All of the recommendations identified in the baseline ergonomic evaluation have been successfully implemented, resulting in the ability of employees to work in optimal positioning while off-loading and stacking wood load separators. There are no new MSD risk factors identified resulting from the engineering improvements. Production rates appear to be at least the same if not greater (more efficient) according to company management."

CONTACTS

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