

October 12, 2000

OR-OSHA  
Attention:  
Sharon Dey

Re: ESCO grant # 95/97

Attached please find a summary of the worksite redesign grant awarded for an ergonomic study and redesign in the paint and packaging area at ESCO Corporation in Portland, Oregon.

The study and redesign involved three main areas in the paint and packaging department where metal castings are sorted, painted and packaged for shipment. The goal of the redesign was to reduce back and upper body strains and sprains by bringing all work up to work bench height, reduce the manual handling of castings and reduce reaching and lifting.

The final evaluation shows that all of the goals were met. There has been a reduction in injuries, work is being done at an adjustable work bench height, manual handling of castings has been reduced and reaching and lifting has been reduced.

### **Summary**

The worksite redesign grant was used to evaluate methods of reducing:

- Bending and lifting from floor level
- Awkward reaching and lifting
- Unnecessary handling of castings

Steel castings weighing between 15 and 50 pounds are brought into this work area in large metal tubs. ( Larger castings are handled by a crane) The casting were manually sorted, from floor level, and placed in metal baskets or on racks to be dipped in paint. All of this work was being done from floor level. After the castings were painted the baskets and racks were transported to the packing area. The castings were manually sorted, counted and packed in boxes or barrels, all at floor level. The barrels were filled by hand, taking castings from a basket or rack setting on the floor.

## ESCO worksite redesign

Another area that was addressed as part of the study was box making, the shipping boxes were being assembled on the floor or a very low non adjustable surface requiring awkward posture and reaching.

Improving ergonomics in all of the areas was the main overall goal in every area that was studied. A variety of methods were suggested, trialed and/or implemented during the study. All work is now being done from workbench height; the box making is being done on an adjustable table with a suspended stapler.

There has not been any OSHA recordable strain sprain type of injuries in this department in over 2 years.

### **Discussion**

A worksite redesign grant was awarded to ESCO Corporation to study the feasibility of reducing injuries that resulted from lifting from floor level, and improve the ergonomics of the box making area.

Several changes were implemented addressing each of the above issues. Each change or trial was evaluated as part of the overall goal.

In the intake area where castings are brought in from the foundry in tubs, a Titan model TL conveyor was installed. The conveyor was modified per enclosed drawings.

Attached to the conveyor was a Hercules Hydraulic Box Dumper, modified per Enclosed drawings. The tub of castings are dumped by lift truck directly into the box dumper, the castings then are dumped onto the conveyor. The empty paint baskets and racks are picked up by a lift truck, the worker can adjust the height of the forks on the truck to place the baskets and racks at a comfortable height. The castings are then sorted and placed in the baskets or racks from the conveyor.

In the area where the painted castings are sorted and packed into 50 gallon drums, another modified Titan TL Conveyor was installed with a Hercules Hydraulic Box Dumper and an attachment to allow the dumping of racks of castings onto the conveyor. See modification below. A 50 gallon drum is set at the end of the conveyor allowing the castings to dump directly into the drum greatly reducing the handling of the castings.

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In the area that casting are packed into boxes, A Raymond Handylift Electric Walkie Stacker Truck EMB was purchased and with the help of the manufacturer, the forks modified to pick up a basket of castings and an empty box at the same time. This allows the worker to adjust his work height by adjusting the height of the forks of the walkie stacker. Pictures of the walkie stacker are included in the final evaluation.

In the Box building area a Lee Light Duty Scissor Lift was installed, with adjustable height from 29 inches to 5 inches. A suspended stapler was also installed. This arrangement allows the worker to work at a comfortable height and use the stapler directly in front of them. Pictures of the walkie stacker are included in the final evaluation.

### **Summary**

The result of the redesign is a significant reduction in the overall lifting, reaching and manual handling of metal castings in the paint and packaging department, and improvement in the ergonomics of every work area. There has not been an OSHA recordable sprain or strain injury in this department in 2 years. (Before the redesign started the department averaged 6 to 8 a year)