

Ergonomic Assessment

Rear Courier Truck Doors

Concern Details

Task Description:

Courier drivers are required to deliver and load packages through the rear door of the truck numerous times throughout the day (up to 80 times in a shift). Forces to open the rear door range from 5 – 32 kg (average 19 kg) and the forces to close the rear door range from 7 – 26 kg (average 16 kg). The forces to open and close the door are greater when the springs wear out and the door is poorly maintained. The handle height of the door is floor level when in the closed position and at 200 cm when in the open position.

Evaluation:

The vertical heights result in awkward postures including bending and overhead reaching. The rear doors are opened and closed using one hand, while the opposite hand may be used to unlock the latch. The forces to open and close the doors exceed the maximum acceptable pull forces of 8 kg [1, 2]. In addition, less than 90% of the population has the shoulder and elbow strength required to safely open and close the doors at the current forces [3]. When forces exceed strength capabilities, it hinders an individual's ability to perform the task, and the higher the portion of the population not capable of performing a task, the greater the risk of overexertion injury. . The forces of open and close the doors results in increased risk of injury and is cause concern.

Countermeasures

It is recommended to investigate countermeasures to decrease the force to open and close the doors and to improve the vertical height of the handles. Ensuring maintenance of the doors is critical. A recommended countermeasure is to install a new lighter door. An optimal recommendation is to install bifold doors or automatic roll-up doors which would eliminate the awkward postures and improve the force.

References

- (1) Eastman Kodak Company. (2004) Kodak's Ergonomic Design for People at Work (2nd Edition) (S. N. Chengalur, S. H. Rodgers, and T. E. Bernard, Eds.) John Wiley and Sons, Inc., New Jersey.
- (2) Mital, A., Nicholson, A.S. and Ayoub, M.M., A Guide to Manual Material Handling, 2nd Ed. Taylor and Francis Ltd., 1997
- (3) 3D Static Strength Prediction Program (3DSSPP) 6.0.1, University of Michigan.

