



A baseline for evaluating ergonomic interventions for construction glass and glazing work

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Terry L. Stentz, Changbum R. Ahn, Kelli R. Herstein, and Zahra Jabbarani Torghabeh. CPWR Report, 2019.

Overview

Construction glass and glazing (CGG) workers have high rates of work-related musculoskeletal disorders (WRMSDs). For this study, the researchers conducted interviews with CGG workers and worksite observations to identify problems leading to the higher rates of WRMSDs and to gather information about improvements that are needed to lower the risk of injury. CGG job tasks were classified in five categories, and ergonomic task-based estimates were done using the Posture, Activity, Tools, and Handling (PATH) method. The CGG workers' level of risk of developing musculoskeletal injuries was scaled using the Rapid Entire Body Assessment (REBA) method. The results of this study provided a baseline database for future evaluations of ergonomic interventions to reduce CGG workers' risk of injury.

Key Findings

- The hardest most challenging CGG job tasks are manual material handling (MMH) of heavy materials for a long period of time, handling material in a dirty or muddy environment, working overhead, and working in intense weather.
- The Posture, Activity, Tools, and Handling (PATH) assessment identified the major CGG ergonomic tasks as glass/panel installation, frame installation, finishing jobs, and loading/unloading. MMH was a major activity for frame installation and glass/panel and loading/unloading tasks, and among finishing job activities, applying or pushing caulking bead ranked at the top.
- CGG workers spent 92% of their time standing or walking, and 27% of their time in unnatural trunk postures. Glaziers spent 21% of the time with one or two elbows at or above shoulder height.
- Frame installation, glass/panel installation, and loading/unloading activities had medium and high work-related musculoskeletal disorders (WRMSD) risk levels based on Rapid Entire Body Assessment (REBA) scores. MMH activity had the highest REBA score and WRMSD risk level for all frame, glass/panel and loading/unloading task activities.
- Cuts, lacerations, and bruises, as well as back and shoulder injuries were the most frequently reported injuries reported by participants.
- Suggestions for safety and productivity improvements to reduce the risks associated with MMH included using more powered and unpowered mechanical handling equipment (if appropriate), additional worker assistance, providing team instruction in safe work methods, and improved instruction in safe lifting techniques.

For more information, contact:

Terry L. Stentz: tstentz1@unl.edu

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