

Proceedings of the 3rd Annual World Conference
of the Society for Industrial and Systems Engineering,
San Antonio, Texas, USA
October 20-22, 2014

Housekeeping Cart Push-Pull Forces: A Case Study

B. F. Ware¹, J. E. Fernandez¹, A. Subramanian¹, A. Noriega², and S. Lopez²

¹JFAssociates, Inc.
Vienna, Virginia USA

²Department of Industrial and Manufacturing Engineering
Universidad Autonoma de Ciudad Juarez
Avenida del Charro 450 Norte
Ciudad Juárez Chihuahua, México

Corresponding author's Email: bw@jfa-inc.com

Abstract: Housekeepers, house aides, and other room cleaning personnel make up 29% of workers within the hotel industry. These personnel often use carts to carry items needed to service rooms. Carts often carry cleaning chemicals, vacuum cleaners, towels, linen, room amenities (e.g. shampoo, conditioner, soap), and other items. A case study was conducted to determine the push and pull forces required for two types of housekeeping carts in a variety of conditions. These conditions included comparing push versus pull forces, overloaded carts versus properly loaded carts, and typical wheels versus properly maintained wheels. These results indicate that pushing requires less force than pulling, that forces are lower with carts that are not overloaded, and that forces are lower with for maintained carts (e.g. greased wheels in good working order) than for carts that are not maintained.

Keywords: Ergonomics, Hospitality, Housekeeping, Cart, Push, Pull