

Example 1

The job illustrated in Figure 13 consists of a worker inspecting compact containers for damage on a low shelf, and then lifting them with both hands directly in front of the body from shelf 1 to shelf 2 at a rate of 3/min for a duration of 45 minutes. For this analysis, assume that (1) the worker cannot take a step forward when placing the object at the destination, due to the bottom shelf, and (2) significant control of the object is required at the destination. The containers are of optimal design, but without handles (For classification, refer to Table 6).

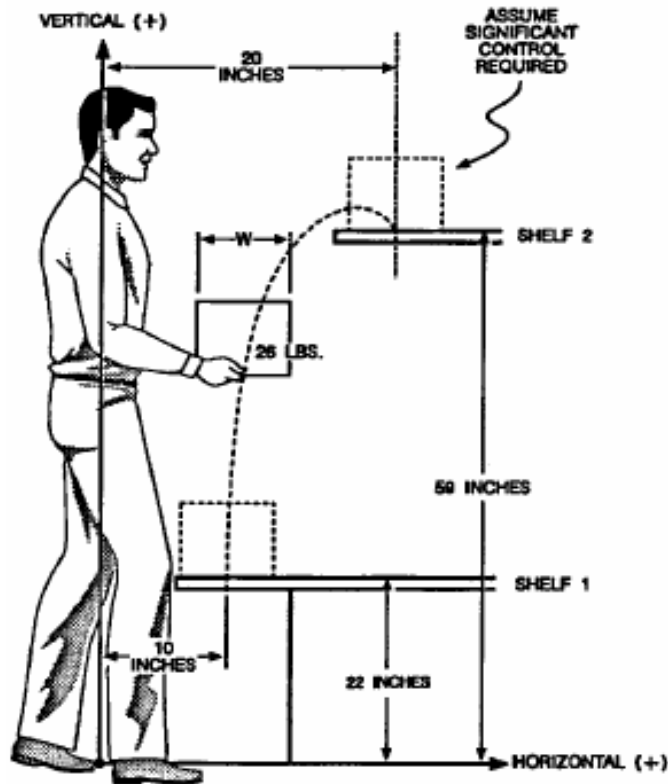


Figure 13 Package Inspection

Example 2

A worker manually lifts trays of clean dishes from a conveyor at the end of a dish washing machine and loads them on a cart as shown in Figure 15. The trays are filled with assorted dishes (e.g., glasses, plates, bowls) and silverware. The job takes between 45 minutes and 1 hour to complete, and the lifting frequency rate averages 5 lifts/min. Workers usually twist to one side of their body to lift the trays (i.e., asymmetric lift) and then rotate to the other side of their body to lower the trays to the cart in one smooth continuous motion. The maximum amount of asymmetric twist varies between workers and within workers, however, there is usually equal twist to either side. During the lift the worker may take a step toward the cart. The trays have well designed handhold cutouts and are made of lightweight materials.

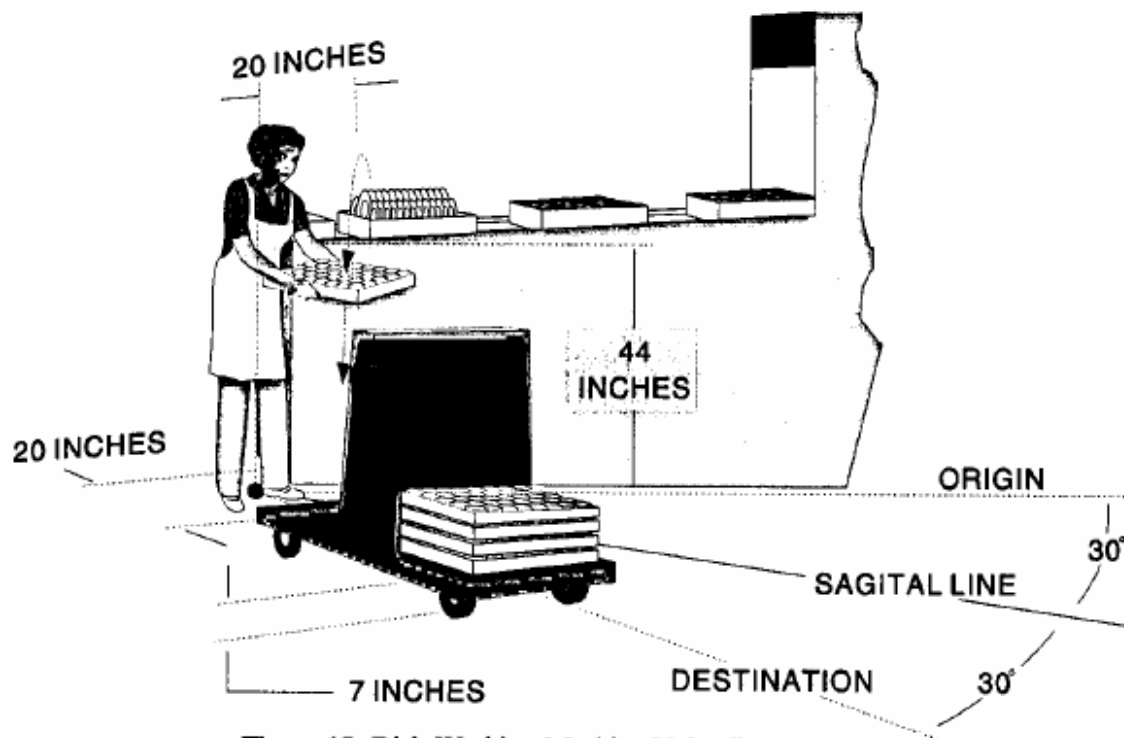


Figure 15 Dish-Washing Machine Unloading.

Example 3

The worker positions himself midway between the handtruck and the mixing hopper, as illustrated in Figure 11. Without moving his feet, he twists to the right and picks up a bag off the handtruck. In one continuous motion he then twists to his left to place the bag on the rim of the hopper. A sharp edged blade within the hopper cuts open the bag to allow the contents to fall into the hopper. This task is done infrequently (i.e., 1-12 times per shift) with large recovery periods between lifts (i.e., > 1.2 Recovery Time/Work Time ratio). In observing the worker perform the job, it was determined that the non-lifting activities could be disregarded because they require minimal force and energy expenditure.

Significant control is not required at the destination, but the worker twists at the origin and destination of the lift. Although several bags are stacked on the hand truck, the highest risk of overexertion injury is associated with the bag on the bottom of the stack; therefore, only the lifting of the bottom bag will be examined. Note, however, that the frequency multiplier is based on the overall frequency of lifting for all of the bags.

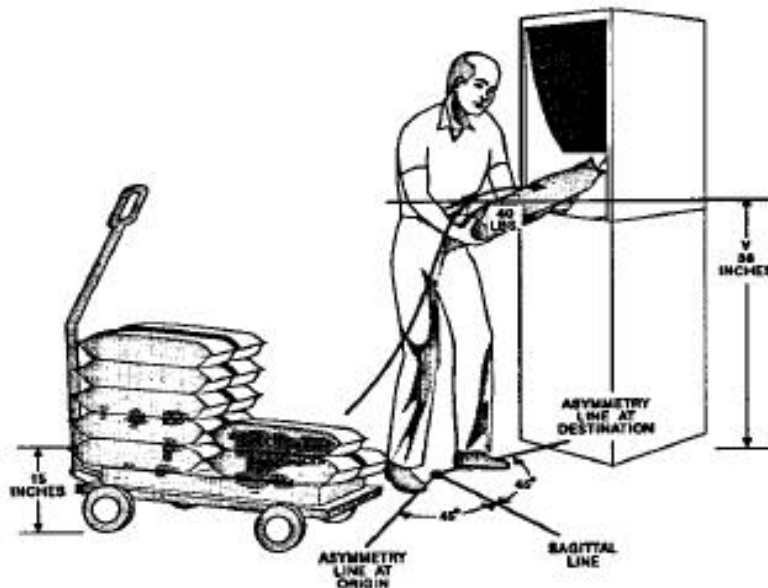


Figure 11 Loading Bags Into Hopper, Example 3