Hotel Laundry – Fact Sheets



WHAT KIND OF WORK DO PEOPLE DO IN THE HOTEL LAUNDRY?

Work in this case study of a hotel laundry is divided into two operations done by two separate groups of workers. Sorting, washing and drying towels is completed by one group of two workers. Drying (except for towels) and folding is completed by another group of six workers.

What are the tasks involved in "sorting and washing"?

In this hotel, housekeepers use a laundry chute to get the dirty linen from the upstairs down to the laundry area. The "sorting and washing" operation involves the following:

- sorting laundry
- loading bins which weigh 27 kg (60 lbs) of dry laundry, and 55 kg (120 lbs) when wet
- transporting (pushing/pulling) bins to washer
- loading washer
- unloading washer
- transporting (pushing/pulling) bins to dryer (towels only)
- loading dryer with towels
- unloading towels from the dryer

In one eight-hour shift, 20 bins of laundry are processed by two workers (Figure 1). The dry laundry is handled four times – 27 kg (60 lbs) x 4 handlings x 20 bins = 2,200 kg (4,800 lbs); the wet laundry is handled twice – 55 kg (120 lbs) x 2 handlings x 20 bins = 2,200 kg (4,800 lbs). The workload is distributed evenly, so each worker handles approximately 2,200 kg (4,800 lbs) of laundry every day.



Figure 1 – Sorting laundry

The handling of the laundry requires the use of considerable force:

- pulling laundry from the pile under the chute (Figure 2, 3)
- loading laundry into the washer (Figure 4)
- pulling wet laundry from the washer (Figure 5)



Figure 2 – Sorting laundry



Figure 3 – Sorting laundry

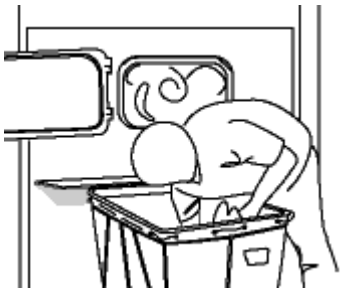


Figure 4 – Loading the washer

These movements are particularly stressful on the hands, wrists and shoulders.

Handling the laundry requires whole body motions beyond acceptable ranges. Reaching above the shoulder, bending to the floor (Figure 5) and twisting are examples. In addition, the job is carried out while standing on a concrete floor which adds stress to the feet and legs as well as to the rest of the body.

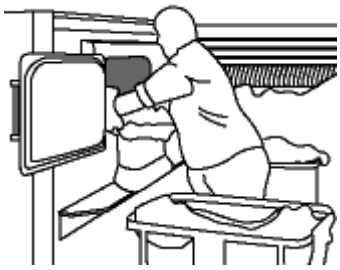


Figure 5 – Pulling wet laundry from the washer

What are the risk factors of "sorting and washing"?

Carrying out the "sorting and washing" tasks can be hazardous to the workers. There are three major risk factors:

- The heavy work load (handling over 2 tonnes of laundry per shift) combined with bodily motions beyond safe ranges create risk for back injuries.
- Frequent and forceful movements (while pulling/pushing the laundry) and forceful grips create a high risk for wrist and other upper limb injuries.
- Working while standing/walking on a hard floor creates the risk for lower leg discomfort, and accelerates the development of fatigue.

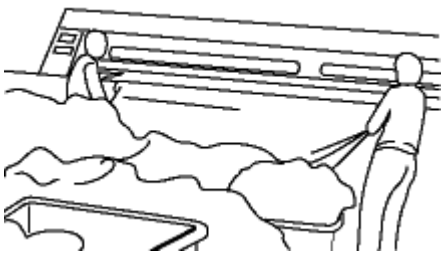
These factors have a compounding effect. In other words, each of them increases the effect of the others.

What are the tasks involved in "drying and folding"?

In this operation there are three workstations at which five different tasks are performed:

- feeding the rolling dryer with small pieces of laundry (Figure 6)
- feeding the rolling dryer with large pieces of laundry (Figure 7)
- retrieving small pieces of laundry from the rolling dryer (Figure 8)
- retrieving large pieces of laundry from the rolling dryer (Figure 9)
- folding towels (Figure 10)





Figures 6 and 7 – Feeding the rolling dryer





Figures 8 and 9 – Retrieving laundry from the rolling dryer

As an example, to feed the roller dryer with small laundry such as pillow cases (Figure 6), a worker performs the following tasks:

- reaching for the laundry in the bin (Figure 11)
- unfolding and stretching the laundry
- spreading the laundry on rollers (Figure 6)

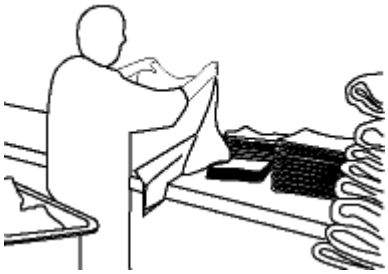


Figure 10 – Folding towels

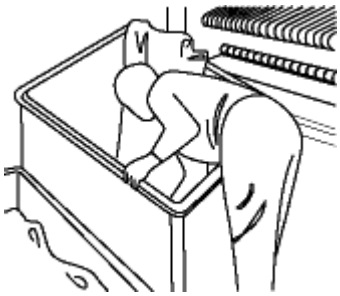


Figure 11 – Reaching for the laundry

To feed the dryer with laundry such as bed sheets, two workers form a team (Figure 7). This task involves the following:

- reaching for bedsheets in the bin (Figure 11)
- unfolding the bedsheets
- spreading the bedsheets (Figure 12)
- spreading the bedsheets on rollers

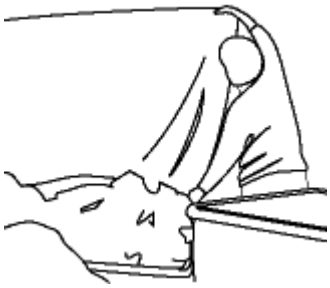


Figure 12 – Spreading the laundry

What are the risk factors of "drying and folding"?

Several aspects of feeding the dryer with both small and large pieces of laundry pose the risks for repetitive motion injuries. Workers are at a high risk for upper arm, neck and shoulder injuries because of limited control over the pace of work, highly repetitious movements (one task lasts approximately 3 to 8 seconds), working with arms at or above shoulder level, and hand manipulation while handling the laundry. Bending and twisting, reaching forward and upward, and standing in a leaning-forward position contribute to low back pain. Prolonged standing on a hard floor contributes to lower leg discomfort and speeds up the development of muscular fatigue. All of these factors have a compounding effect. In other words, each of them increases the effect of the others.

What are the tasks involved in retrieving pieces of laundry?

To retrieve small laundry such as pillow cases from the regular dryer (Figure 8) a worker performs the following tasks:

- reaching forward to pick up the laundry
- folding laundry

To retrieve big pieces of laundry such as bedsheets, which come out of the dryer partially folded (Figure 13), a worker performs the following movements:

- bending and reaching for the bedsheet
- folding the bedsheet
- piling the bedsheet



Figure 13 – Retrieving bedsheets

What are the risk factors of retrieving pieces of laundry?

Workers involved in retrieving small pieces of laundry are at risk for repetitive motion injuries. The hazardous conditions are:

- no control over pace of work
- repetitive movements
- constrained work posture
- leaning forward standing position
- reaching forward beyond recommended range
- working with extended arms
- standing on a hard floor

The lack of control over the pace of work, highly repetitious movements, constrained work posture, and extended arms while working create a high risk for RMIs. Neck, shoulders and upper arms are at the highest risk for injuries. Leaning forward, over-reaching and prolonged standing in a restricted position put workers at high risk for low back injury. Prolonged standing on a hard floor contributes to lower leg discomfort and speeds up the development of muscular fatigue. All of these factors have a compounding effect. In other words, each of them increases the effect of the others.

Workers involved in retrieving big pieces of laundry are at risk for repetitive motion injuries, including low back pain. The hazardous conditions are:

- prolonged stooped standing position due to a low work surface
- repetitive movements
- standing on a hard floor
- no control over the pace of work

Contributing factors are prolonged, restricted, and stooped working positions and bending. There is also a risk for injuries of the neck and shoulders. Prolonged standing on a hard floor contributes to lower leg discomfort and speeds up the development of muscular fatigue. All of these factors have a compounding effect. In other words, each of them increases the effect of the others.

What are the tasks involved in folding towels?

Towels are dried in a drum type dryer. Dry towels are placed in a bin and are sorted according to size and then folded (Figure 10). This task involves the following:

- reaching into the bin
- grasping the towels
- folding the towels
- piling the towels according to size

What are the risk factors involved in folding towels?

Workers performing this task are at risk for repetitive motion injuries, including low back pain. The hazardous conditions are:

- continuously bending and twisting
- working with extended arms
- standing on a hard floor

Folding towels puts workers at risk for neck and shoulder injuries. Bending and twisting pose the risk for back injuries. Prolonged standing on a hard floor contributes to lower leg discomfort and low back pain.

How can we reduce the risk factors for RMI?

General

Continual twisting and reaching while working with extended arms can contribute to the development of repetitive motion injuries. However, the risk for such injuries while folding towels is somewhat lower than “drying and folding” of bedsheets and pillow cases. Some control over the pace of work and some flexibility in the working postures are responsible for the reduced risk.

Let’s see how we can improve the operations in this hotel laundry facility:

Sorting and Washing

In the laundry processing plant, the “sorting and washing” operations are typically manual material handling tasks. These tasks pose the risk for low back pain.

Manual material handling cannot be fully eliminated but it is possible to reduce it by reorganizing the flow of work. For example, instead of sorting towels and linen before loading them into the bins, it would be preferable to load the laundry in the bins directly from the pile under the chute. This would eliminate handling the same laundry twice.

Further improvements of working conditions can be achieved by reducing stressful body movements while handling the laundry. Shortening the laundry chute (pipe) through which laundry is dropped would create more space so that the laundry would not compress against the pipe itself. As a consequence, the sorting of the laundry would require less pulling force.

To reduce bending while reaching for the laundry at the bottom of the bins, it would be advisable to use different types of bins. For example, a bin with one side that opens mounted on a moveable tilt/lift table (Figure 14).



Figure 14 – Tilt-lift table

To reduce pulling and pushing while maneuvering the bins full of laundry, it would be advisable to use lighter bins with wheels designed for hard floors. In

addition, the bins should be maintained regularly with particular attention to the wheels.

Working in the “sorting and washing” areas requires standing on a concrete floor. Workers should wear shoes that provide good cushioning or they should use proper inserts to lessen the stress on the feet and on the lower back, and use anti-fatigue matting if practical.

Drying and Folding

The overall workload, poor layout of the work station, improper design of the laundry bins and the repetitiveness of the work are the major risk factors for repetitive motion injuries in the “drying and folding” job.

Providing bins with one side that opens on elevating devices would reduce bending and other awkward body positions while reaching for towels at the bottom of the bins.

To reduce awkward body positions such as reaching above shoulder level while feeding the dryer, it would be advisable to use a platform. Narrowing the counter that separates the worker from the dryer would reduce reaching forward.

Retrieving pieces of laundry and folding towels

To reduce awkward body positions such as reaching above shoulder level while retrieving pillow cases from the dryer, it would be advisable to use a platform (Figure15). Narrowing the counter that separates the worker from the dryer would reduce reaching forward. Workers should have a sit/stand stool available to rest between tasks. Also, a foot bar to allow the worker to switch the weight of the body from one foot to the other should be made available.



Figure 15 – Standing on a platform while retrieving laundry

Partially folded bedsheets coming out of the dryer should be collected in a basket (Figure 16) so that when completing the folding operation, a worker can use a counter of appropriate height to reduce excessive bending.

To reduce discomfort due to prolonged standing while folding towels, anti-fatigue matting should be used. Also, a sit-stand saddle chair and a foot bar should be provided (Figure 17).

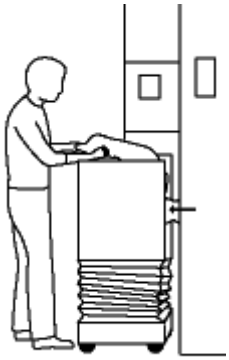


Figure 16 – Collecting bedsheet in a basket

If it is not practical to sit while performing the task, workers should use these devices between tasks.



Figure 17 – A sit-stand saddle chair

General Recommendations

One of the main risk factors for repetitive motion injuries in the laundry is the repetitiveness of the work. Incorporate different tasks to change the repetitive patterns of work. Job rotation and team work are two options that allow workers to vary tasks.

Job rotation requires workers to move between different tasks at fixed or irregular periods of time. Workers in the laundry cannot fully benefit from job rotation because all the tasks are similar in nature. Still, the feeling of change reduces monotony and slows down the development of fatigue.

In team work, workers form a team and each member of the team shares several different tasks. The whole team is involved in the planning of the work. The team controls all aspects of work. This improves attitude and job satisfaction, which are important factors in the prevention of occupational injuries and diseases.

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