

# LAUNDRY

Flow process of Industrial Laundering involves following steps:-

1. Collection
2. Arrival
3. Sorting
4. Marking
5. Weighing
6. Loading
7. Washing
8. Rinsing
9. Hydro Extraction
10. Tumble drying
11. Finishing
12. Folding
13. Airing
14. Storage
15. Transfer & Use

## Collection

Collection of linen may be done in the Linen Room if the laundry is off-site but is usually in the laundry itself, if the laundry is on-premises. Certain linen items are collected separately. For example, kitchen uniforms or dusters are collected separately, as are butchery aprons and dusters, because they have a specific type of soil. Similarly, in a hospital, linen from the surgical ward would be collected separately. The linen is usually packaged in canvas bags lined with polyvinyl. Eyelets on the rim of the bag facilitate passing a nylon cord through, which can be tightened in order to shut the opening of the bag. In some cases elasticized net bags called 'skips' are used to collect and carry linen. Trolleys are most popular for transportation and the collapsible wire cart can be used to transport clean as well as soiled linen. If planned at the construction stage, an in-built chute is used for transporting linen from the floor pantries. It is preferable to put linen into canvas bags before dropping it down the chute so that wear and tear is reduced.

## Arrival

On arrival, linen must be dealt with as quickly as possible. There must be a separate section for guest laundry that is usually handled by the most experienced staff. Processing linen for laundering as quickly as possible is necessary:

- to ensure that linen items are available as and when required.
- to avoid transfer of stains and to prevent stains from becoming permanent.
- so that it does not provide a breeding ground for bacteria and pests.
- to prevent the formation of mildew on damp articles particularly bath linen.
- to reduce the possibility of linen getting misplaced or lost.

## Sorting

Gloves may be used when handling or sorting linen. Sorting is carried out according to the type of fabric and item, colour as well as the degree and type of soil. Sorting is done to separate those articles that need dry cleaning from those that will go through the normal wash process. Those that need mending or stain removal will be separated so that they can be dealt with accordingly. Also, different articles take a different wash process in terms of temperature of water, type of laundering agent, length of wash cycle, whether hydro-extraction should be done and if so, the length of the

hydro-extraction cycle. It takes less effort to pre-sort linen than to post-sort washed linen which is 50% heavier in weight due to water retention. Post-sorting is often essential in healthcare processes.

### **Marking**

Marking may be temporary (guest laundry) or permanent (monogramming of hotel linen). It is the temporary marking that is carried out at this stage. Most good establishments have a marking machine that attaches a heat sealed tape in an inconspicuous place. The tag has scope for six characters and is intended to indicate the initials of the guest as well as the room number. It provides a clear identification for correct billing, and although it does not come off in the normal wash process, it can be peeled off if so desired.

### **Weighing**

Weighing is carried out to conform to the capacity of the washing machine. In case of overloading, there is reduced centrifugal action because the linen articles are too tightly packed in the drum. As a result, there is inadequate friction and the deeply embedded soil is not removed so the wash process is ineffective. Certain synthetics develop creases as a result of overloading that are difficult to get rid of in the subsequent ironing process. Repeated overloading can cause the machine to break down.

In case of underloading, there is inadequate friction because the linen articles are too far apart. It causes a good deal of wastage in terms of time, labour, laundry agents, water and power.

Many modern machines have sensors that can gauge not only the load but also the length of the cycle, temperature of water, water level, the type and amount of laundry agent and when it will be dispensed in the wash cycle. This is highly beneficial in the conservation of water and energy as well as reducing wear and tear on the linen articles.

### **Loading**

This is often done manually or with a certain degree of automation. Shovel type cranes may be used for lifting and depositing linen, thereby providing complete automation by eliminating the need for handling by operators. Alternatively, weighed linen in bags is transported along a track and directed to the opening of the washer-extractor with the help of a nylon cord. A lock in the lower half of the bag is released, dropping the soiled linen into the washer-extractor. Machines that tilt provide ease in both loading as well as unloading. Machines may be top loading, front loading or side loading.

### **Washing**

This is the stage during which the actual cleaning of the items takes place. It is designed to perform three basic functions i.e. remove soil from the textiles and suspend it in solution so that it can be discharged from the machine through the drain.

### **Rinsing**

Once the wash cycle is completed, rinsing becomes essential. A running rinse with an open drain is more effective but a larger volume of water is utilized. Rinsing is carried out at least twice so as to ensure removal of residual laundry agents and suspended dirt. It may also help to lower the temperature of the wash load by using a cold water rinse.

### **Hydro-extraction**

Draining followed by hydro-extraction will remove excess moisture through centrifugal force by spinning the load at a high speed. The absorbency of the fabric affects the length of the cycle (6 to 8 minutes) and the residue of moisture. The most efficient extraction for cotton takes place at temperatures higher than 38°C but lower than 55°C so that they are not too hot to handle. Polyesters and blends should be extracted at a temperature below 38°C to prevent wrinkling. The compact mass of hydro-extracted clothes is referred to as 'cheese'.

### **Tumble Drying**

This process is capable of rendering the linen completely dry by blowing hot air between 40o C to 60o C onto the articles as they are slowly rotated in the drum. For articles that are susceptible to damage by heat, there is the option of simply airing by circulating air at room temperature. To avoid wrinkles and the risk of spontaneous combustion, many dryers have a cool-down cycle at predetermined intervals. The process of tumble-drying creates a good deal of wear and tear on the fabric as particles of lint come off the fabric in the drying process. The time taken is approx. 30 minutes depending on whether the article is to be completely or partially dried.

### **Finishing**

For those articles that require a pressed finish, ironing and pressing are usual. Articles like blankets, towels, candlewick bedspreads, hosiery, etc. that do not require a pressed finish are only tumble-dried.

### **Folding**

This can be done by machine but in most cases is carried out manually. The use of a folding stand helps minimize this otherwise very labour-intensive operation. Manual folding makes it possible to achieve the desired fold as well as ensure quality control. Employees in this area are the one ones who 'reject' stained linen and are a good source for ascertaining what types and quantities of stains commonly occur. Correct folding is important to the appearance of the article and makes it convenient to store and use.

### **Airing**

This is essential prior to storage, especially if the articles are to be stored in closed shelves. It ensures that any moisture that is likely to cause mildew will be got rid of.

### **Storage**

This should be properly done in a well-designed storage space. Linen should be allowed a rest period to recuperate before it is used again. The lifespan of linen is greatly increased if the proper rotation of stock is carried out, thereby ensuring a 'rest period' between uses. As a general rule, at any given time, approximately 50% of the total linen inventory should be on the shelves, 25% in use and 25% in processing. The storage area must be isolated from the soiled linen and kept clean.

### **Transfer & Use**

The linen is issued to the concerned department for use. Since the transfer of clean linen is usually done by linen trolleys, it is important to keep the trolleys clean. The linen is utilized for the purpose intended and the cycle begins all over again.