




Unit Three

MANAGING ON-PREMISE LAUNDRY

4.2 LAUNDRY

- ✧ In any hotel establishment, a lot of dirty linen accumulates in the various units and departments.
- ✧ It is essential to ensure a continuous supply of linen, which is well laundered, so that operations can be carried out smoothly and efficiently.
- ✧ Linen is an expensive item, so how it will be laundered requires serious consideration. People involved in handling linen should have some knowledge of the process.


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- ✧ Although it is essential that good quality linen be purchased, the life of the linen depends on the
 - ✧ care of linen in use and
 - ✧ the treatment it gets at the laundry.

The principles of laundering are:

1. Removal of dirt and stains from the linen articles
2. Restoring linen articles to their original appearance as far as possible.

A good laundry facility ensures the following:

- ✧ Careful handling of linen articles while laundering
- ✧ Correct processing and use of a suitable laundry agent
- ✧ While materials are kept white, excessive bleach is not used
- ✧ Proper counting and records maintained to avoid shortages of linen
- ✧ Speedy operations to meet with operational requirements
- ✧ Sound policies regarding damages or loss.



1. A commercial or off-premises laundry refers to laundering activities performed outside the establishment i.e. given on a contract basis to specialists in the field.

2. An on-site or on-premises laundry refers to laundering activities carried on within the establishment by staff employed by the hotel.

4.2.1 Advantages of On-premises Laundry

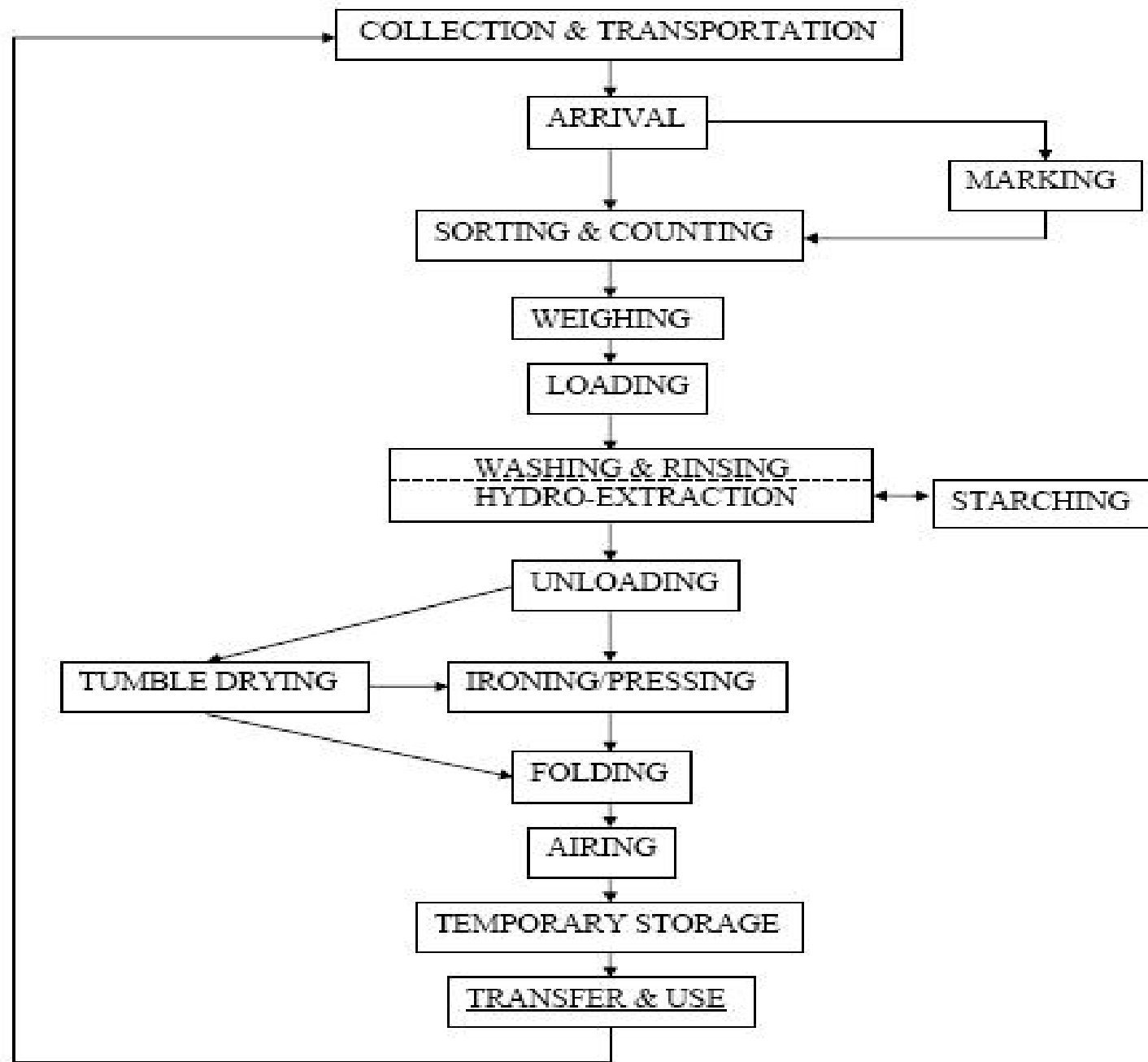
- ✧ Time taken for laundering is reduced because transportation is eliminated
- ✧ Linen is readily available especially in the case of emergency requirements
- ✧ Wear and tear on linen comparatively much lesser – control over the wash process and the laundry agents used.
- ✧ Pilferage is reduced
- ✧ The 'par' stock required is reduced
- ✧ Revenue is earned from guest laundry.

4.2.2 Disadvantages of On-premises Laundry

- ✎ Cost of equipment and its maintenance is fairly high
- ✎ Related expenses like printing of forms, employee taxes, water taxes, energy costs and insurance are high
- ✎ More staff who are technically qualified and adequate space is required

4.3 PROCESS OF LAUNDERING

∞ The following flowchart shows the process of laundering in a chronological order:



4.3.1 Collection & Transportation

A. Collecting soiled linens; never use linen for any cleaning purposes

B. Transporting soiled linens to the laundry; hand-carry/cart/linen chutes

4.3.2 Arrival

- ✧ On arrival, linen must be dealt with as quickly as possible to ensure fast turn around time for linen. There must be a separate section for guest laundry.

Marking:


- ✧ Marking may be temporary (guest laundry) or permanent (monogramming of hotel linen).
- ✧ For guest laundry initials of the guest as well as the room number helps provides a clear identification and helps correct billing.

4.3.3 Sorting

Sorting by


- the degree of soiling (lightly, moderately and heavily soiled) and
- the type of linen (fibers, weaves, colors and categories)

✎ Sorting is done to separate those articles that need dry cleaning from those that will go through the normal wash process.



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.



☞ Those that need mending or stain removal must be separated so that they can be dealt with accordingly.

☞ It takes less effort to pre-sort soiled linen than to post-sort washed linen which is 50% heavier in weight due to water retention.

4.3.4 Weighing

- ✧ Weighing is carried out to conform to the capacity of the washing machine and to avoid overloading.
- ✧ Repeated overloading can cause the machine to breakdown.
- ✧ Under loading will lead to wastage of detergents and water, both cold and hot.

4.3.5 Loading

- ✧ Loading is often done manually or with a certain degree of full or partial automation.
- ✧ Machines may be top loading, front loading or side loading.

4.3.6 Washing

This process is designed to perform three basic functions:

- Removal of soil / dirt
- Suspension of soil
- Discharge of the soil from the machine to the drain

4.3.7 Unloading

- ✧ Transferring washed linen from the Hydro-extractor to the Tumble Dryer is normally done manually.
- ✧ It may be done by an automated system where the 'cheese' is unloaded onto a conveyor belt that will transport the linen to the next set of operations.

Tumble Drying:

- ✧ This process is capable of rendering the linen completely dry by blowing hot air ranging between 40°C and 60°C onto the articles.
- ✧ For articles that are susceptible to damage by heat, there is the option of simply air drying by circulating air at room temperature.

4.3.8 Finishing

- ✧ For those articles that require a pressed finish/bed sheets, pillow cases, table clothes etc/, ironing and pressing are usual.
- ✧ Articles like blankets, towels, candlewick bedspreads, hosiery, etc. that do not require a pressed finish are only tumble-dried.

4.3.9 Folding

- ✧ Can be done by machine but in most cases is carried out completely manually /time consuming/.
- ✧ Employees in this area are the one ones who 'reject' stained or damaged linen.
- ✧ Correct folding is important to the appearance of the article and makes it convenient to store and use.

4.3.10 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.

4.3.11 Storage


- ✧ Should be properly done in a well-designed storage space.
- ✧ Linen should be allowed a rest period to recuperate before it is used again.

4.3.12 Distribution

- ✧ The linen is issued to the unit / department for use and is usually done by linen trolleys.



∞ Washing cycle



In the wash process, the following factors must be considered:

1) Setting Length of Wash Cycle

If the cycle is

- ⌘ Too short – the linen will not be cleaned properly and sufficiently.
- ⌘ Too long – unnecessary wear and tear and the clothes may actually become dirtier as a result of redeposition of soil.

ii) Temperature of Water

- ✧ For hot water washing, if the temperature of water is too high, it is likely to damage the linen.
- ✧ If the temperature is inadequate, the chemicals will not work effectively.

iii) Water Level

✧ Incorrect 'dip' levels can alter the concentration of the laundry agents rendering them ineffective.

iv) Type and Amount of Detergent and the Time of Dispensing

- ❧ laundry agent should be used is dependent on the nature of the **fabric being washed**.
- ❧ Too little detergent will result in an incomplete cleaning process.
- ❧ And too much may remain as a **residue** on the cloth after the rinse cycle is complete.
- ❧ It is important that the laundry agent is introduced into the wash cycle at the **appropriate time** for best results.

v) *Mechanical Agitation*

- ✧ This refers to the centrifugal action brought about by the movement of the drum that causes friction between the linen articles
- ✧ is radically affected by **overloading** or **under loading** as it affects the speed of the drum.
- ✧ Modern machinery often operates on **sensors**, which are **capable of gauging and maintaining optimum conditions for a specific load**.

vi) Rinsing

Once the wash cycle is completed, rinsing is carried out **at least twice**.

The purpose of this stage is to:

- **remove residue of laundry agents,**
- **remove suspended dirt,**

✧ Lower the temperature of the wash load by the use of using cold water.

✧ A running rinse with an open drain is more effective but a larger volume of water is utilized.

vii) Hydro-Extraction

- ✧ Is the removal of excess moisture through centrifugal action.
- reduces the weight of the laundry, makes it easy to lift, reduces drying time.
- ✧ Draining must precede hydro-extraction and hydro-extraction must precede tumble drying.

4.4. Wash Cycle


- ✧ A complete wash cycle is composed of various stages and the time taken is approx. 40 to 50 minutes.
- ✧ To be most effective it includes sequence


Flush > Suds > Bleach > Rinse > Sour & Soft > Extract

Additional Stages in the Wash Cycle:

☞ These are essential where there is a *specific type of soiled* or the articles are heavily soiled:

Soak > Break > Carryover Suds
(Intermediate Rinse) > Intermediate
Extract > Starch (Sizing)

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1. Flush (1.5 - 3 min): dissolve and dilute water-soluble soil to reduce soil load.
 2. Break (4 - 10 min, optional): a high-alkaline break products is added to loosen soil.
 3. Suds (5 - 8 min): actual wash cycle with detergent.
 4. Carryover suds or intermediate rinse (2 - 5 min): removes soil and alkalinity to help bleach.
 5. Bleach (5 - 8 min): kills bacteria, whitens fabric, removes stains.

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7. Intermediate extract (1.5 - 2 min, optional): high-speed spin removes detergent and soil, after the first rinse step. Should not be used after suds step because it could drive soils back into the fabric.
 8. Sour/softener or starch/sizing (3 - 5 min): starches are added to stiffen cotton fabrics; sizing is added for polyester blends. Starching/sizing replaces the sour/softener step.
 9. Extract (2 - 12 min): high speed spin removes moisture, length of it depends on fabric types, extractor capacity and extractor speed.

4.4.1 WASHING MACHINE

- ✧ A washing machine, or washer, is a machine designed to clean laundry, such as clothing, towels and sheets.
- ✧ The term is mostly applied only to machines that use water as the primary cleaning solution, as opposed to dry cleaning (which uses alternative cleaning fluids, and is generally performed by specialist businesses)



✧ All washing machines work by using mechanical energy, thermal energy, and chemical action.


✧ Mechanical energy is imparted to the clothes load by the rotation of the agitator in top loaders, or by the tumbling/rotating/ action of the drum in front loaders.

✧ Thermal energy is supplied by the temperature of the wash bath.

4.5 OTHER MACHINES

4.5.1 Tunnel Washers

- ✧ These are also called batch washers or continuous washers and are in effect a series of inter-connected washers.
- ✧ Each 'bath' is in a different cylinder and the load moves from one cylinder to the next.
- ✧ Computerized systems automatically adjust the time, temperature and chemicals to be used, so that each batch receives the required



❧ Machines may be top transfer or bottom transfer.

❧ Tunnel washers have distinct advantages in that they are timesaving, thereby reducing staff requirement. There are also significant energy and water savings.

4.5.2 Tumble Dryer

- ✧ Dryers are machines that dry laundry by tumbling it slowly in a perforated drum exposed to hot air ranging from 40°C to 60°C in low capacity dryers and going right up to 85°C in an industrial dryer.
- ✧ There are programs for delicate articles with low or no heat.
- ✧ Dryers may operate on gas, electricity or steam.

4.5.3 Finishing Equipments

✧ For those articles that require a pressed finish there are many finishing equipment.

Flatwork Ironer / Roller Iron / Calender:

✧ Is used for flatwork i.e. items like sheets, pillowcases, tablecloths, serviettes, aprons, etc.

✧ The items are passed through heated rollers for ironing.

Figure 4.5 Roller Iron



Press:

- ✧ Press is used for fine pressing of Flat Linen like Table covers, Pillow covers, Napkins, Kitchen linen, Staff uniforms.
- ✧ They are special presses to perform specific functions and operation can be on electricity or steam.

Figure 4.6 Press



4.5.4 Puffer or Suzie


- ✧ For coats and articles that do not crease heavily.
- ✧ The articles are put onto a dummy that is inflated with steam to remove creases and then with hot air to remove the moisture created by the steam.


4.5.5 Tunnel Dryer

- ✧ Clothes are hung on conveyor belts that pass through a tunnel. Hot air blowing in the tunnel, renders the articles completely dry by the time they exit.
- ✧ It is a fully automated process that also transfers the linen to the next area of activity.

4.6 LOCATION AND PLANNING OF ON-PREMISES LAUNDRY


- ⌘ When planning an on-premises laundry it must be located far from guestrooms so that guests are not disturbed.
- ⌘ It is essential laundry to locate near the linen room for convenience and reducing transportation time.

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- ✧ Ideally, the laundry is located in the basement with proper ventilation because laundry equipment is very heavy and the area should have an outside wall since equipment need to be vented to the outside.
 - ✧ Walls of the room should be durable and moisture resistant;
 - ✧ Ceilings should be at least ten feet high, must resist moisture and absorb sound.
 - ✧ A cement floor with easily cleanable floor drains and no spots where water can pool is vital.



✧ The basic design factors that need to be thought out when designing or redesigning an on-premises laundry include location, size, equipment layout, utilities and labor.

✧ The versatility of equipment is important, especially in a washer extractor. It should be able to dispense a variety of chemical formulas and have different cycles to deal with different laundry items and soiling conditions.



✧ Machines may work on gas, electricity or steam and should be connected to a common master switch that can be switched off in case of emergencies.

✧ Fire-fighting equipment must be installed in this area.


4.7 LAYOUT OF A LAUNDRY

- ✧ When planning the layout of a laundry, consider the work flow and wherever possible ensure that the plan does not hinder the smooth flow of operations.
- ✧ To reduce turnaround time between loads, ease of loading and unloading, equipments must be arranged properly, taking into account ease of each operation.



☞ When positioning laundry equipment, the following must be considered:

- entrances and exits
- space between adjacent machines and adequate space between the back of the machine and the wall which is essential to facilitate servicing and repair.
- Power points for electrical supply and the required voltage (gas and steam may also be used)
- water supply at the rate of about 10 gallons per Kg of linen approx.

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- Installation of proper drainage system
 - Installation of drain to control discharge rate
 - A separate section to deal with guest laundry / valet service.
 - Local code for restrictions / permit requirements.
 - Energy and water conservation and safety factors consideration
 - Selection of equipment to suit the premises and projections.
 - Area must accommodate the total number of staff working at the busiest times
- ∞ As technology strives to automate every face of hotel operations, computerized laundry systems are getting popular.

4.8 LAUNDRY AGENTS

- ✧ Water by itself is ineffective as a cleaning agent, due to a phenomenon known as 'surface tension'.
- ✧ It although removes water soluble dirt, it has little effect on oils and grease.
- ✧ Addition of a detergent allows the water to penetrate, wetting the garment thoroughly so that soil is more accessible and its easy removal.

4.8.1. Detergents

Classification of detergents:

- Synthetic – active detergent effective on oil and grease
- Built-soap detergent are soften water and remove oil and grease

4.8.2 Suspending Agent

✧ The role of the suspending agent in cleaning is to hold the dirt in suspension and prevent it from redepositing onto the surface of the clothing. The suspending agent is carboxyl methyl cellulose.

4.8.3 Sequestering Agent

- ✧ They assist by holding a greater amount of dirt in suspension thereby reducing the likelihood of redeposit ion.
- ✧ They also have the additional ability to dissolve lime salts that are responsible for temporary hardness in water.

4.8.4 Other Laundering Agents

Alkali

✧ Alkalies used in the wash process include: Washing soda, Sodium phosphate, Sodium hydroxide, Sodium metasilicate etc.

✧ Alkalies: help detergent lather better and keep stains suspended in the water after they have been loosened and lifted from the fabric. Also help neutralize acidic stains (most stains are acidic), making the detergent more effective.




❧ Bleaches: help remove stains, kill bacteria and whiten fabrics.

❧ There are two kinds (a) chlorine: used with any washable, natural, colorfast fiber. safe for some synthetics and destroy others.

(b) Oxygen: is milder. safe for most washable fabrics. works best in hot water and on organic stains.

❧ Both should not be used at the same time because they neutralize each other.



A bleach's pH (degree of acidity or alkalinity) and water temperature must be controlled to prevent fabric damage.

These are mostly used on white articles only. They remove coloring matter by their oxidizing or reducing action.


∞ The bleaches commonly used in the laundry process are sodium per borate and sodium hypochlorite.

Antichlor: used in rinsing to neutralize the residual chlorine in the bleach, particularly in the case of polyesters.

∞ The use of chlorinated bleaches has a tendency to leave yellow deposits on the clothing.

Sour: : are mild acids to neutralize alkalinity in fabrics after washing and rinsing. Detergents and bleaches contain alkali and any residual alkali can damage fibers and cause yellowing/fading, and skin irritation and leave odors.

e.g. Acetic acid is used as the sour. In case where there is a high iron content in the water, Oxalic acid is used to get rid of the reddish, iron deposits.



Optical Brightener / Whitener: keep fabrics looking new and colors close to original, often pre-mixed with detergents.

Starch: This is a stiffening agent used to impart a better crease and appearance to the fabric. Give linen crisp appearance, added in the final step in washing.

✧ The use of starch has declined due to the minimum-iron finishes on fabrics and garments and the reduced use of cotton in favor of manmade fibers.


Mildewcides: prevent the growth of bacteria and fungus on linens for up to 30 days.


❧ These microorganisms can cause permanent stains that ruin linens.

❧ Moisture helps these to grow, that is why, soiled damp linen should not be allowed to sit in carts for long periods, should be dried and/or ironed when they are removed from washers or extractors.

4.9 STAIN REMOVAL

- ✧ A stain is defined as a discoloration brought about by contact with a foreign substance which is difficult to remove.
- ✧ A set of general rules given below for stain removal may serve as a guideline.
 - Identify the stain
 - Deal with the stain as quickly as possible.
 - Remove excess staining material immediately.
 - Test the stain removal agent on an inconspicuous place.

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- Avoid hot water on an unknown stain.
 - Use simple methods before resorting to the use of chemicals.
 - Use milder agents first and then stronger ones.
 - Repeated mild applications are better than one strong one.
 - Ensure that the stain removal agent has been neutralized or washed away.

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- ✧ There are two major factors which are responsible for ensuring correct stain removal.
 - ✧ One is the stain removal agent and
 - ✧ the other is the method of stain removal. It is important to select the right stain removal agent which are friendly.
 - ✧ Figure 4.8 Methods of Stain Removal

METHODS OF STAIN REMOVAL

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graph TD; A[METHODS OF STAIN REMOVAL] --- B[PHYSICAL]; A --- C[CHEMICAL]; B --- D[Absorbent]; B --- E[Friction]; B --- F[Heat]; B --- G[Freeze]; C --- H[Detergents]; C --- I[Solvents]; C --- J[Reagents]; C --- K[Bleach]
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PHYSICAL

Absorbent
Friction
Heat
Freeze

CHEMICAL

Detergents
Solvents
Reagents
Bleach

4.10 DRY CLEANING

- ❧ Dry cleaning is a cleaning process for clothing and textiles using a chemical solvent other than water.
- ❧ The solvent used is typically tetrachloroethylene (perchloroethylene), which the industry calls "perc".
- ❧ It is used to clean delicate fabrics that cannot withstand the rough and tumble of a washing machine and clothes dryer; it can also obviate labor-intensive hand washing.
- ❧ The solvent after dry cleaning is removed first by centrifugal action followed by evaporation. The solvent being expensive is filtered off and recycled. Darker coloured articles are dry-cleaned after the lighter coloured ones. All articles require to be aired after the dry-cleaning process.

4.11 GUEST LAUNDRY


- ⌘ Among the many amenities provided by a hotel, one of them is laundry service for the guest.
- ⌘ It is an amenity which is essential in resort hotels where guests are long-staying and prefer to travel light.
- ⌘ Even if a full-fledged laundry service is not available, at least some facility for ironing is required as clothes get crumpled in packing.
- ⌘ It is a source of revenue in hotels and may serve as a means of preventing the guests from washing clothes and hanging them out to dry in hotel guest rooms.
- ⌘ Laundry service, including dry cleaning may be normal (ordinary) or urgent (express).
- ⌘ The time gap between the collection and delivery is dependent on whether the laundry is on-premises or off-premises.

4.12 LAUNDRY PROCEDURES FOR DIFFERENT FABRICS

i) Laundering of Cotton

✧ The process of laundering cotton fabrics is dependent on the texture of the fabrics, fastness of colour and they are sorted into various categories, such as:

- fine, delicate cotton (muslin)
- white and light fast colours
- dark, fast colours
- non-fast colours.




✧ A further classification into coarse articles, bed linen and personal articles and table linen.

✧ This sorting will help decide:

- the temperature of water in the main wash
- the need for disinfection / sterilization
- the detergent used
- the speed of rotation of the drum
- the length of the wash cycle
- the use of bleach and optical brighteners
- the need to starch
- suitability of hydro-extraction

ii) Laundering of Silk

- ✧ Silk should be washed frequently as perspiration damages the fabric.
- ✧ Never soak articles as it weakens the fabric nor should they be subjected to high heat (wash temperature approx. 30°C).
- ✧ The detergent should have a good surfactant and should not depend on mechanical action for cleaning.
- ✧ No harsh chemicals should be used.
- ✧ The final rinse of silk articles should be carried out with a little vinegar in it. (1 tspn / 10 litres water) in order to preserve luster.
- ✧ Silk is too delicate to be hydro-extracted.

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- ❧ Silk should never be sundried as this damages the fabric and causes yellowing.
 - ❧ Ironing is on medium heat as silk scorches easily.
 - ❧ The article must be evenly dampened and water should never be sprinkled on the fabric as it leaves watermarks.
 - ❧ Ensure that the articles are completely dry so that creases do not reappear on the portion which is damp.
 - ❧ Ironing is carried out on the reverse in order to preserve luster and air all silk garments after ironing.

iii) Laundering of Wool

✧ In the laundering of wool, the articles must be shaken out to remove the dust particles that are held in the loosely constructed weave.


✧ In the laundering of wool, the following should be avoided:

- Application of friction
- High and fluctuating temperatures
- Use of strong laundry agents
- Wringing tightly and hydro-extraction
- Hanging the fabric when wet
- Prolonged soaking as it makes the fabric weak

- ✧ The movement of the drum should be gentle and a scrubbing brush should never be used.
- ✧ The wash cycle should be short and water temperature (not more than 35°C).
- ✧ No hydro-extraction is permitted but there is instead a pumping action for the removal of moisture.
- ✧ Usually ironing is not required, but wherever necessary, iron when the article is completely dry, using a low temperature and ironing on the reverse of the article. It is very essential to air the fabric after ironing.

iv) Laundering of Synthetics

- ✧ These are specially manufactured so that they shed dirt quickly in the wash. However if they become heavily soiled, (especially collars and cuffs) they become difficult to clean, so it is better to wash them after every use.
- ✧ Soaking the garments before laundering is beneficial as it loosens the dirt.
- ✧ Care must be taken when loading the machine as overloading results in creases which may be difficult to remove later.

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- ❧ The application of friction should be avoided. Use of a scrubbing brush should be restricted to heavily soiled parts only.
 - ❧ The wash cycle is short and carried out at a low temperature (30°C). Rinsing should be carried out in water at room temperature.
 - ❧ The hydro-extraction cycle is also short as synthetic articles have a low absorbency.
 - ❧ Iron on low heat but quickly since a prolonged contact is likely to burn the fabric.



Thank
You!

4.13 LAUNDRY PROCEDURES

The following are the steps involved in laundry:

- Step 1: Sort the dirty clothes, into separate piles for whites, bright colors and darks.** If whites are mixed with colors in the wash, the colors may bleed onto and ruin whites. Also separate clothes that tend to produce lint (towels, sweatshirts, chenille and flannel) from clothes that tend to attract lint (corduroy, velvets and permanent-press clothes).
- Step 2: Close zippers to prevent snagging, and empty pockets.**
- Step 3: Pre-treat heavy stains with laundry detergent or stain remover,** heeding instructions on the product label.
- Step 4: Measure out the right amount of laundry soap according to the manufacturer's instructions.**
- Step 5: Pour the soap into your washer or its detergent dispenser.** Add liquid fabric softener, according to product instructions.
- Step 6: Choose the water temperature for the wash cycle: hot, warm or cold; use cold rinse cycle for any load.** Consult the labels on clothes, washing machine's instruction manual or the detergent container for recommendations on washing temperature.
- Step 7: Start the washer, add and allow the detergent to dissolve in the water before adding clothes.** Adjust the water level to the size of load.

Step 8: If needed to add bleach, allow the machine to run for a few minutes to mix the detergent and water, and then add about a cup of bleach to the washer or the bleach dispenser.

Step 9: Add the clothes, close the lid and let the machine run. Washing takes approximately 45 minutes.

Step 10: Put the clothes (and an anti-static sheet, if desired) in the dryer after the wash is complete. Hang delicates (such as bras and certain sweaters) to air dry on a clothing rack or hanger.

Step 11: Remove lint from the dryer's lint tray.

Step 12: Select the correct drying temperature for the laundry load: low for delicates, medium for most fabrics and high for cotton. When in doubt, low or medium is the safest bet.

Step 13: Close and turn on the dryer. Expect the drying cycle to take an hour or more for a full load.

Step 14: Once the clothes are completely dry, remove them from the dryer or drying rack and fold and store.