Maintain and Operate an Industrial Laundry

D1.HHK.CL3.04

Trainee Manual

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William Angliss Institute

Specialist centre for foods, tourism & hospitality

Maintain and Operate an Industrial Laundry

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Trainee Manual

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The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States of the Association are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.

The ASEAN Secretariat is based in Jakarta, Indonesia.

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Table of contents

Introduction to trainee manual

To the Trainee

Congratulations on joining this course. This Trainee Manual is one part of a 'toolbox' which is a resource provided to trainees, trainers and assessors to help you become competent in various areas of your work.

The 'toolbox' consists of three elements:

- A Trainee Manual for you to read and study at home or in class
- A Trainer Guide with Power Point slides to help your Trainer explain the content of the training material and provide class activities to help with practice
- An Assessment Manual which provides your Assessor with oral and written questions and other assessment tasks to establish whether or not you have achieved competency.

The first thing you may notice is that this training program and the information you find in the Trainee Manual seems different to the textbooks you have used previously. This is because the method of instruction and examination is different. The method used is called Competency based training (CBT) and Competency based assessment (CBA). CBT and CBA is the training and assessment system chosen by ASEAN (Association of South-East Asian Nations) to train people to work in the tourism and hospitality industry throughout all the ASEAN member states.

What is the CBT and CBA system and why has it been adopted by ASEAN?

CBT is a way of training that concentrates on what a worker can do or is required to do at work. The aim is of the training is to enable trainees to perform tasks and duties at a standard expected by employers. CBT seeks to develop the skills, knowledge and attitudes (or recognise the ones the trainee already possesses) to achieve the required competency standard. ASEAN has adopted the CBT/CBA training system as it is able to produce the type of worker that industry is looking for and this therefore increases trainees chances of obtaining employment.

CBA involves collecting evidence and making a judgement of the extent to which a worker can perform his/her duties at the required competency standard. Where a trainee can already demonstrate a degree of competency, either due to prior training or work experience, a process of 'Recognition of Prior Learning' (RPL) is available to trainees to recognise this. Please speak to your trainer about RPL if you think this applies to you.

What is a competency standard?

Competency standards are descriptions of the skills and knowledge required to perform a task or activity at the level of a required standard.

242 competency standards for the tourism and hospitality industries throughout the ASEAN region have been developed to cover all the knowledge, skills and attitudes required to work in the following occupational areas:

- Housekeeping
- Food Production
- Food and Beverage Service

- Front Office
- Travel Agencies
- Tour Operations.

All of these competency standards are available for you to look at. In fact you will find a summary of each one at the beginning of each Trainee Manual under the heading 'Unit Descriptor'. The unit descriptor describes the content of the unit you will be studying in the Trainee Manual and provides a table of contents which are divided up into 'Elements' and 'Performance Criteria". An element is a description of one aspect of what has to be achieved in the workplace. The 'Performance Criteria' below each element details the level of performance that needs to be demonstrated to be declared competent.

There are other components of the competency standard:

- *Unit Title:* statement about what is to be done in the workplace
- *Unit Number:* unique number identifying the particular competency
- *Nominal hours:* number of classroom or practical hours usually needed to complete the competency. We call them 'nominal' hours because they can vary e.g. sometimes it will take an individual less time to complete a unit of competency because he/she has prior knowledge or work experience in that area.

The final heading you will see before you start reading the Trainee Manual is the 'Assessment Matrix'. Competency based assessment requires trainees to be assessed in at least 2 – 3 different ways, one of which must be practical. This section outlines three ways assessment can be carried out and includes work projects, written questions and oral questions. The matrix is designed to show you which performance criteria will be assessed and how they will be assessed. Your trainer and/or assessor may also use other assessment methods including 'Observation Checklist' and 'Third Party Statement'. An observation checklist is a way of recording how you perform at work and a third party statement is a statement by a supervisor or employer about the degree of competence they believe you have achieved. This can be based on observing your workplace performance, inspecting your work or gaining feedback from fellow workers.

Your trainer and/or assessor may use other methods to assess you such as:

- Journals
- Oral presentations
- Role plays
- Log books
- Group projects
- Practical demonstrations.

Remember your trainer is there to help you succeed and become competent. Please feel free to ask him or her for more explanation of what you have just read and of what is expected from you and best wishes for your future studies and future career in tourism and hospitality.

Unit descriptor

Maintain and Operate an Industrial Laundry

This unit deals with the skills and knowledge required to Maintain and Operate an Industrial Laundry in a range of settings within the hotel and travel industries workplace context.

Unit Code:

D1.HHK.CL3.04

Nominal Hours:

60 hours

Element 1: Perform basic laundry functions

Performance Criteria

1.1 Receive soiled linen

1.2 Sort/count items for laundering

1.3 Weigh items

1.4 Operate washer extractors or CBWs

1.5 Operate dryers

1.6 Complete finishing process

1.7 Sort linen for re-wash

1.8 Sort linen for repairs

1.9 Count/package and transport linen

Element 2: Perform dry cleaning functions

Performance Criteria

2.1 Receive and check items

2.2 Sort items for dry cleaning/washing

2.3 Complete stain removal process

2.4 Operate dry cleaning machine

2.5 Perform pressing, inspection, minor repairs and finishing activities

2.6 Package and transport items

Element 3: Complete and maintain laundry records

Performance Criteria

3.1 Complete required internal records

3.2 Complete required external records

Element 4: Undertake maintenance functions

Performance Criteria

4.1 Understand and follow basic maintenance functions

4.2 Arrange for professional maintenance

Assessment matrix

Showing mapping of Performance Criteria against Work Projects, Written Questions and Oral Questions

		Work Projects	Written Questions	Oral Questions
Element 1: Perform basic laundry functions				
1.1	Receive soiled linen	1	1, 2, 3,	1
1.2	Sort/count items for laundering	1	4, 5	2
1.3	Weigh items	1	6, 11	3
1.4	Operate washer extractors or CBWs	1, 2	8, 9,10	4
1.5	Operate dryers	3	11	5
1.6	Complete finishing process	3	12	6
1.7	Sort linen for re-wash	3	13	7
1.8	Sort linen for repairs	3	14,15	8
1.9	Count/package and transport linen	3	16,17	9
Element 2: Perform dry cleaning functions				
2.1	Receive and check items	4, 5, 6	18,19,20	10
2.2	Sort items for dry cleaning/washing	4, 6	21	11
2.3	Complete stain removal process	7	22,23	12
2.4	Operate dry cleaning machine	5, 7	24	13
2.5	Perform pressing, inspection, minor repairs and finishing activities	7	25,26,27,28	14
2.6	Package and transport items	7	29	15
Element 3: Complete and maintain laundry records				
3.1	Complete required internal records	5	30,31	16
3.2	Complete required external records	8	32	17

		Work Projects	Written Questions	Oral Questions
Element 4: Undertake maintenance functions				
4.1	Understand and follow basic maintenance functions	9	33	18
4.2	Arrange for professional maintenance	9	34	19

Glossary

Term	Explanation
Sorter	The staff member who sorts linen into different categories
Washman	The staff member who operates the washing machines
Washer extractor Washing machine Wash wheel	The machine where linen is washed and some moisture is extracted in the final cycle
Par level	The amount of linen required to operate a hotel or restaurant. See example on Page 11
Condemning linen	Removing worn or damaged linen from circulation. All items should be counted and recorded
Lint	Loose fibres from the linen which are removed through processing. These combine to form heavy duty dust in the laundry plant
Manual Feeding	The action where staff physically feed linen on to the flatwork ironer
Folding Machine or Automatic Folder	The machine which folds linen in a pre-determined way
Automatic feeder	A device that opens the sheet out and feeds it on to the ironer. The sheet is clipped into position by a staff member
Towel folder	A machine where clean dried towels are fed manually into a machine which then folds them in to predetermine folds
Tumbler Dryer	A machine which is used primarily to dry towels by extracting moisture
Soluble bag	A heavy duty polythene bag usually red in colour which can be placed into the washing machine directly. It is used mainly for potentially infectious linen. It dissolves from the outside on contact with water
Sorting Area	The area where soiled linen is received from the customer and is sorted for processing
Ph	The scale ranging from 0 to 14 that measures the intensity of acidity or alkalinity of a solution (how strong it is)
Extraction	The removal of moisture from linens by way of high speed rotations

Term	Explanation
Linens	A common term that refers to all items washed in a laundry including bed, bathroom and table linens
Selvedge	The woven edges of the linen. These are the opposite to edges that are hemmed (stitched)
Blend	A combination of two or more fibres
Turndown service	The evening service in a hotel where the bed is prepared for the evening and rooms are tidied and towels replaced
Logo	The hotel's emblem
Stocktake	The process of counting all linen in circulation to determine the stock level and identify losses
Abused linen	Linen which has been used incorrectly and is damaged
On Site On Premise (OPL)	The hotel has its own laundry at the hotel
Off site	The laundry is an external contractor and is located away from the hotel
Linen chute	Linen is placed through a fireproof lockable door on each floor and transported via a tube to the laundry
Formula	The combination of water, temperature and chemicals to successfully launder different categories of linen
Dye	A product that changes the colour of an item
Dye transfer Dye run Dye bleed	The colour of one item will be absorbed from another when wet
Hopper	A funnel shaped receptacle that is used for holding items before dropping them below
CBW	Continuous batch washer
Tensile strength	The ability of a fabric to resist breaking

Element 1:
Perform basic laundry functions

1.1 Receive soiled linen

Introduction

One of the most important functions of a successful hospitality operation is the provision of an excellent laundry service. Clean, well-maintained linen is a vital component for hotels and restaurants of all sizes and standards. The laundry provider must understand the pressures of a Hotel operator. If there is no linen to service guest rooms and restaurants, then the hotel will ultimately lose business and revenue due to poor service delivered to the guest simply because rooms will not be ready on arrival.

Many hotels will present towels to their guests that are stained or appear to look grey or yellow. Towels may feel hard to the touch instead of appearing bright white, and soft. In most cases this is because of poor laundering techniques. This may impact on the guest's perception of the hotel and will ultimately impact on hotel revenue.

The relationship between the laundry operator and the hotel must be motivated by mutual benefit for the long term. In some cases, the linen is owned by the hotel and laundered externally and in others by the laundry operator who leases and launders the linen to the hotel. Some hotels also choose to have their own on-site laundry. Regardless of which process is used, capital expenditure is enormous so all linens must be cared for at all stages of use. It is the responsibility of the laundry operator to wash and rejuvenate all linens while prolonging their life. The linen stock level should be maintained to agreed par levels and should be clean and in good repair at all times to ensure an efficient operation.

Some laundries will also have a dry cleaning facility to process guest clothes and staff uniforms and other hotel items. In most cases however, the laundry operation and the dry cleaning operation will be totally separate.

Overview of the laundry processes

There are many tasks involved in the daily operation of the laundry. These include:

- Collection of soiled linen from source
- Receiving and sorting soiled linen
- Washing linens
- Drying linens
- Finishing linens (Ironing and folding)
- Inspection of clean linens
- Rewash of linens

- Repairs and condemning of linens
- Counting and packaging of clean linens
- Invoicing and relevant record keeping
- Storage and transportation back to customer or user
- Efficient cost control in all steps of production.

To complete all the tasks required in the laundry, there will be many staff employed. Staff may be employed as laundry attendants or may have different titles depending on their individual roles

These titles include:

- Sorter
- Washman
- Tumbler dryer operator
- Feeder
- Ironer operator
- Towel Folder
- General wash hand
- Despatch clerk
- Truck driver.

With the exception of the truck driver, all laundry staff should be cross trained in all aspects of the laundry operation and be able to handle all tasks. This ensures flexibility when staff are sick or on holidays. Due to the repetition and sometimes monotonous tasks, it is recommended to rotate staff at regular intervals.

Workflow

- An efficient laundry plant must be planned well. Location and size of sorting areas, washing machines, tumbler dryers and presses and folders should be planned so there is a smooth work flow at all times
- If washed laundry has to be transported a long distance across the laundry floor to the tumbler dryers this will waste time and be less productive
- Consideration should be given to storage and transport of both soiled and clean linen and there should always be space on the floor to accommodate all the necessary trolleys without creating a hazard
- Deliveries of soiled linen to the washroom should be staggered so that there is a constant supply to the washroom. If all soiled linen arrives at once, then there will be too much work for the sorters to do and the washmen and other staff may be standing idle
- This may necessitate these staff working longer to service the workload
- Staff rosters need to be also considered to service delivery schedules
- There should always be work for all sections of the laundry so that staff do not waste time.

Receiving linen by client

When soiled linen arrives at the laundry for processing, it will be identified in different ways:

- **By client** – which hotel or restaurant the linen has been used by. This is important for accounting proposes
- **By urgency** – there may be times when linen needs to be processed quickly due to unexpected business demands or shortages of certain stock items.

By client

Hotel linens are identified in different ways:

- By heat stamping machines. Each piece of linen is marked with the name of the property and the date when the linen was placed into circulation e.g. "Regent 02/12". This identifies that the linen belongs to the Regent Hotel and was placed into circulation on February 2012. It is important to identify all linen so that, should errors occur in deliveries, they can be easily rectified .When condemning linen due to wear, it is important to review how long the linen has lasted. This method is usually used when the hotel owns the linen
- If the laundry has many clients to which it leases linen, all linen pieces for each client may be identified by a number which simply represents that client e.g. Royal Hotel is client number 95 and Raffles Hotel is client number 57, then all the linen pieces assigned to each of these hotels will be marked with that number using a heat stamp machine
- Table linen from upmarket restaurants and hotels may have the hotel logo woven into the cloth during manufacturing. This makes it easy to identify by all parties
- Many five star hotels have towels and bathrobes for example with the logo woven in or embroidered upon. This also makes identification easy. (See photo of bathrobe with logo)

- Some linen also needs to be identified by size. This is helpful for room attendants when servicing rooms to differentiate between a Queen size sheet and a King size sheet for example. This is usually done through sewing a line of coloured thread through one end of the sheet e.g. green for queen and red for king etc.
- Plain white tablecloths may also be stamped with the size e.g. 150 x 150. This is usually heat stamped on one corner of the tablecloth on the inside hem
- On coloured linen this printing will be on a label which will be heat sealed to the garment for easy visibility.

By urgency

If there is a shortage of certain stock items due to heavier than normal demand, e.g. napkins, it is important that the laundry operator recognises this fact and expedites a quick turnaround of these items. In other words these items should be given priority in the washing process. If there are constant requests for urgent processing in the laundry, then consideration should be given to increasing the par levels or conducting a stocktake of linens so that shortages can be identified and replenished.

What is a par level?

A one par level is the amount of linen needed to dress all rooms and bathrooms ready for letting or to cover all tables in a restaurant with tablecloths and napkins ready for service.

Most hotels and restaurants operate on an average of 3 – 5 par levels to allow for all laundry operations. Par levels need to be maintained at all times otherwise service to the guest and client will be compromised.

See below example

If a hotel has 100 rooms each with 1 x Queen size bed and uses 2 sheets and 4 pillowcases per bed and stocks each bathroom with:

- 2 x Bath towels
- 2 x Hand Towels
- 2 x Face Washers
- 2 x Bathrobes
- 1 x Bathmat.

Then one par level will equal:

Activity 1

Linen items	One par level	Five par level	Unit cost	Total cost
Queen sheets	200	1000		
Pillow cases	400	2000		
Bath towels	200	1000		
Hand towels	200	1000		
Face washers	200	1000		
Bathrobes	200	1000		
Bathmats	100	500		

There are many factors which will determine par levels but damaged, stolen and lost linen needs to be replaced regularly back into stock. If par levels are too low, linen will wear out more quickly as it is in constant use and par levels will continue to diminish rapidly. The shortages will also impact on laundry staff and the possible need to work longer hours to maintain productivity to the customer. Perceived capital outlay savings may prove to be false.

Some factors affecting the number of par levels used may include:

- How often beds are changed (daily, weekly or every third night)
- If hotels provide turndown service (more towels will be used)
- The turnaround time of the laundry operation. (How long does it take to complete the whole laundering process?)This will be affected by volume of soiled linen and business fluctuations
- How many days per week the laundry operates. If the laundry operates only five days per week , then par levels must reflect an extra two levels to service the needs of the client on weekends
- The amount of abused linen which cannot be recovered
- The operating hours of the restaurant (is it open 24 hours per day or just for dinner?)
- There will always be a higher loss factor with small items such as face washers and napkins as these may be stolen, misused by staff and guests or simply lost.

When planning par levels, also consider:

- 1 set on the bed
- 1 set on the shelf
- 1 set being washed
- 1 set going to laundry
- 1 set coming back from laundry
- 1 reserve set to allow for breakdowns and emergencies.

1.2 Sort/count items for laundering

Why sort linens?

When soiled linen arrives at the laundry for processing, it is important that the linen be sorted into different categories before washing takes place. Different linen items are washed at different temperatures, with different water levels and washroom chemicals depending on the level of soil and fibre content. The sorting process expedites linen processing and items are kept separate for easy identification. It is also quicker and easier to sort "dry" linens than damp, washed and sometimes twisted linen.

Soiled linen should ALWAYS be kept separate from clean linen to reduce the risk of potential cross-contamination.

The sorting room

- When linen arrives at the laundry for processing, it is usually identified in order of receipt for processing
- Soiled linen may be collected and transported to the laundry in either linen bags, trolleys or hampers or via a linen chute
- The bags and trolleys of linen are emptied in most cases manually. The bags are emptied either on to a stainless steel sorting table (in small operations) or directly on to a conveyor belt. Sorting linen may be conducted by teams of sorters or individuals. One sorter should be capable of sorting approximately 220-300 kgs of linen per hour
- Where there are teams of sorters, each sorter is usually responsible to sort one type of linen only and place in the respective sorting receptacles ready for the washing process
- Linen should NEVER be sorted on the floor. Certain floor types especially concrete may impart permanent stains on to the linen. Staff may also stand on the linen causing damage. It also places the staff member at risk due to excessive bending and lifting and the possibility of tripping and falling over linen
- In laundries where space is limited, linen may be sorted at source (at the hotel or restaurant)
- Where linen arrives at the ON-SITE laundry via a chute, it should be directed onto a sorting table and NEVER on to the floor. The base of the chute should be cleared regularly so that the weight of the linen does not compact all linens and block the chute.

  N.B. It is important that the base of the linen chute can be closed at night or in the case of a fire in the laundry. If this is not done, the fire may spread by way of the chute which will act as a chimney and carry smoke to other floors
- The sorting area should be regularly cleaned and disinfected and have good ventilation. Air filters will also need regular vacuuming to remove lint
- Ventilation in the sorting room should always be operational and should include sufficient intake, filtration, exchange rate and exhaust in line with local and government regulations. Air from the sorting room should never be passed through to where clean linen is being processed as this can transfer air borne bacteria and potentially contaminate clean linen.

How is linen sorted?

Linen is usually sorted as follows:

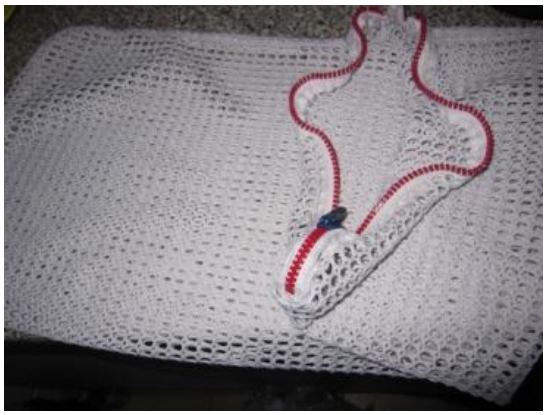
- Dry soiled linen is easier and quicker to sort than damp linen as linen that has been washed may become twisted in the wash
- All linens must be sorted by fibre type. Sheets and tablecloths may be constructed of 100% cotton, or a polyester/cotton blend or 100% linen fibre .Tablecloths may also be constructed of 100% polyester. Sorting by fibre type helps to expedite production by washing all same items together

- Linen must also be sorted by the degree of soiling. Kitchen cleaning cloths for example will be much greasier than those used by Housekeeping staff to clean the rooms. As such they will need to be washed separately with a much harsher wash formula
- Coloured linens are sorted separately from white linens
- It is necessary to open out linen to ensure there is no waste within it that may get into the washing machine. Shaking however should be kept to a minimum so airborne bacteria will not be dispersed into the atmosphere
- Linen used in hotels is often referred to as "flatwork" as most of it is finished on a flatwork ironer.

Items are sorted in to the following categories:

- **Sheeting** – When sorting through sheets and pillowcases, it is not uncommon to find soiled tissues, or guest clothing (usually nightwear) removed in error by the room attendant when stripping the bed. On occasions pillows may be inadvertently wrapped up in sheets and children's' soft toys may also be found. It is important that these items be removed from the linen before washing, noted and returned to the client at the end of the day. In the case of nightwear being found, this should be laundered separately as a courtesy before being returned
- **Pillowcases** – must be separated from sheets as they are washed separately. It is much easier to separate them when dry. If they are washed with sheets, they will get twisted in the final extraction and will be much more difficult to sort. This wastes time and slows down production
- **Duvet covers** – these need to be sorted from the sheets as again they are processed differently
- **Towels** will need to be sorted from sheets as they are washed on a different wash cycle because of fibre type and degree of soiling. In a hotel environment towels are usually more heavily soiled than sheeting. Items found mixed with towels may include soap and tissues and these all need to be removed prior to washing

  Whilst all sizes of towelling can be washed in the same wash cycle (bath towels, hand towels etc.) white towels should always be washed separately from coloured towels
- **Coloured towels** – Sometimes if there is a spa, massage rooms or hairdresser within the hotel, coloured towels are used. These may be heavily soaked in massage oils or hair dye and must be washed separately. Coloured towels will always fade over a period of time



- **Bathrobes** – These will need to have the belts removed before washing otherwise they may get tangled in the wash causing damage to the belt loops on the robes. If there are pockets in the bathrobes, these will also need to be checked for guests' personal items or old tissues etc. Bathrobe belts will be placed into a mesh laundry bag before being placed in the machine

Table linen – must be sorted to remove food scraps, cigarette butts, cutlery and sometimes even pieces of crockery!! Cutlery that circulates in a washing machine may cause extensive damage to the mechanics of the machine and may necessitate the machine being out of service for an extended period due to repairs. It may also cut and damage the linen being washed. This will add pressure to the laundry operation. White table linen must be sorted from coloured table linen to prevent dye runs

- Sometimes in hotels that have a high volume of functions and events, coloured paper napkins may be used alongside white linen napkins to create a certain ambience. It is absolutely essential that these be removed prior to washing. One red paper napkin overlooked can cause a whole wash load of white linen to turn pink!!! This pink washload will then need to be rewashed with stronger chemicals to remove the pink tint. This will add cost and time pressures to the processing of linen. The necessary rewash of these items will require large amounts of bleach at high temperatures. This wash formula may damage the linen
- When an excess of these items are found regularly in table linen, this must be reported to the client or restaurant manager for their action and follow up in order to eliminate this practice
- **Tea towel** – Those from the kitchen should be washed separately than those from the guest rooms and bar areas due to the grease content. It is recommended to have different colours for different areas of a hotel a) for identification and b) to reduce cross contamination e.g. a greasy tea towel used by kitchen staff will leave smears on polished glasses!
- **Cleaning cloths and mops** – All hospitality operations require cleaning and so will have a supply of cleaning cloths and mops. These may require laundering daily. Kitchen cloths should always be laundered separately from those of Housekeeping due to having higher levels of grease and fat contained within. Where colour coded mops are used for Housekeeping and Kitchen areas, these must also be washed separately.

The most common stains found on bed and bath linen are:

- Perspiration
- Hair oils
- Body lotions
- Cosmetics
- All body fluids.

Special note regarding body fluids

If bed and bath linen are found with large amounts of blood, faeces, vomit or urine, this linen should ALWAYS be treated as potentially infectious linen. This linen should always be kept separate from other lightly soiled linen.

The room attendant or cleaner should wear rubber gloves when handling such linen. Solids should be flushed from the linen wherever possible prior to sending to the laundry, this linen should then be placed directly into a soluble bag which is a heavy duty polythene bag which is usually red in colour and tied with its own soluble tie. These bags can be placed directly in to the washing machines and are designed to dissolve in water. Where blood is present the water temperature should be low as hot water will set the stain. This will then require additional special treatment before rewash. The red bags alert laundry staff of potentially infectious linen and reduce its handling. The bags are designed to dissolve from the outside on contact with water in the first flush of the wash cycle.

The most common stains found on table linen are:

- Red wine
- Coffee and tea
- Lipstick (on napkins)
- Food colourings and food residue
- Salad dressings and butter.

Special care Items

Class Activity

Item	To launder?	To dry clean?	Notes
Duvets			
Polyester pillows			
Feather pillows			
Mattress protectors			
Bed valance			
Bedspreads			
Blankets			
Net curtains			
Drapes			
Cushion covers			
Banquet table skirtings			
Staff Uniforms			
Pool towels			
Shower curtains			
Rubber bathmats			
Massage room towels			
Banquet chair covers			

Precautions for the sorter

When sorting linen, the sorter must take some precautions for his or her own well being. These are as follows:

- **Protective clothing** – Whilst hotel linen is not as potentially infectious as hospital linen, protective clothing should always be worn. This may include a hospital style gown which ties at the back or a rubber or plastic apron, rubber gloves and even a face mask. The face mask is worn to protect the sorter from "lint dust" which becomes airborne. Soiled towels will always come into contact with all parts of the human body when used by the guest and as such may be contaminated with potentially infectious body fluids
- If the sorter has any cuts or abrasions on his hands, these must be covered by a protective waterproof dressing at all times to prevent the entry of bacteria to the wound reducing the risk of infection
- Food and drink should NEVER be consumed when sorting linen
- Hands should be washed regularly with an antimicrobial soap, and definitely before scheduled rest breaks and before eating
- Uniforms should be changed and laundered daily to prevent cross contamination to the wearer
- It is important when sorting linen to be aware of potential hazards in the linen (razors, syringes, bloody tissues etc.) and know the procedure for correct disposal of these items if found.

Other considerations in the sorting room:

- Soiled linen should NEVER be allowed to come into contact with clean linen. Trolleys or linen bags used for transporting soiled linen should be washed or sterilised before being used to transport clean linen. In some laundries, trolleys used for clean linen may be a different colour to those used for soiled linen. In other laundries, trolleys may be marked quite clearly as CLEAN LINEN ONLY
- It may not be practicable to have separate trolleys for both clean and soiled linen due to space and cost. In this case, trolleys MUST be sanitised and dried before being used for clean linen. Where there are fabric liners in trolleys, these must be replaced daily. (Hospital laundries have a special steam room for this function)
- As linen is sorted, it is placed into trolleys or slings for transporting to the washing section of the laundry
- Some very large laundries may have an automatic trolley lifting device that will lift the trolleys and empty the linen on to the conveyor belts for sorting thereby reducing manual handling and risk to the employee
- Soiled linen should always be stored in a separate area to clean linen
- Soiled linen should be washed as soon as is practicable when received at the laundry. If damp soiled linen is not washed for several days, it will form mildew, start to smell and may need to be discarded

- If soiled kitchen rags with traces of food on them are not washed promptly they will start to smell and may even promote the growth of maggots. They will most certainly attract flies and vermin
- If wet coloured linens are stored in the same bags as white linen, dye transfer may occur. (The coloured linen may bleed its colour on to the white linen).

1.3 Weigh items

Introduction

In order to produce clean well laundered linen it is essential that washing machines not be overloaded. It is preferable that washing machine loads be weighed prior to processing.

Why weigh wash loads?

In a commercial laundry, there are many different styles, brands and load capacities of washing machines (sometimes called washer extractors). In order to produce clean well laundered linen, it is important not to “underload” or “overload” a machine. To overload a machine will result in a higher percentage of linen requiring to be rewashed due to stains not being removed. Overloading may also cause undue wear on machine bearings.

Underloading a machine may cause too much water and wash chemicals to be used causing premature ageing to the linen and possible high maintenance to the machine. Underloading will also add cost to the operation as more wash cycles will be needed to complete the work. Costs will increase for the use of water, electricity, sewage, chemicals and labour.

Use of weighing scales

In small laundries, platform scales are used. The weight of trolleys used is known and then trolley loads of items are weighed as appropriate for the particular washing machines e.g. if the washing machine has a capacity of 80 kg and the soiled linen trolley weighs 20 kg, then the total amount of linen pieces placed into the trolley to be weighed should total 100 kg approx. It is always better to SLIGHTLY underload a machine if necessary.

This linen is then placed manually in to the washing machine for processing.

When there are no scales

Not all laundries have weighing scales, In this case it is vital to know the approximate individual weight of all items e.g. If a bath towel weighs 1 kg, then approx 80 bath towels may be washed in an 80 kg machine. With bath towels, it is important to remember that there will always be some moisture content when soiled which adds to the weight. This moisture is equivalent to an additional 5-8% so an allowance should be made when loading the machines.

Manual sorting into weigh slings

A sling is a fabric bag which is open at one end and has a drawstring closer at the bottom of the bag. The sling hangs attached to a set of scales. When linen arrives at the laundry, it is sorted by hand. Trolleys and bags are emptied on to a sorting table or conveyor belt. Sorters sort the linen and place all same items of linen pieces directly into the slings which also weighs the linen. When the weight capacity is reached, the sling is then placed on a monorail and directed automatically to the next available washing machine e.g. one sling will be filled manually completely with pillowcases from which all foreign objects have been removed by the sorters.

Photo Electronic sorting

With this system of sorting, items of linen are again emptied on to a conveyor belt and several sorters manually sort through the linen. As they sort, all items are thrown into a series of numbered bins according to the linen type e.g. bin number 3, may be for bath towels and bin number 5 may be for pillowcases. (Insert photo). These bins have an electronic sensor light which also counts and weighs the linen. This is recorded via a computer. When the slings below these bins are full, the light will flash alerting the operator and the slings are then automatically directed to the next available washing machine. As linen is sorted all foreign objects are moved along the conveyor belt and collected in a bin at the end.

Continuous batch washer scales

Where the laundry has a continuous batch washer, there may also be an automatic platform scale. The sorters place the linen directly into a stainless steel container which records the weight and when full is automatically elevated to be placed directly into the hopper of the washing machine for the next wash cycle.

w.w.w.laundryconsulting.com/scales-computer tracking

1.4 Operate washer extractors or CBWs

Introduction

There are many different styles of washing machines within a commercial laundry environment. Most laundries have a mix of the different styles of machines. It is important at all times to follow the manufacturer's instructions in both the use and maintenance of these machines. Failure to observe all instructions may negate the warranty. If washing machines are continually taken out of service due to breakdowns or misuse, this will place unnecessary strain on the laundry staff and cause disruption to the services offered to the customers.

The biggest change to occur in washroom procedures over recent years is the increase in technology and automation.

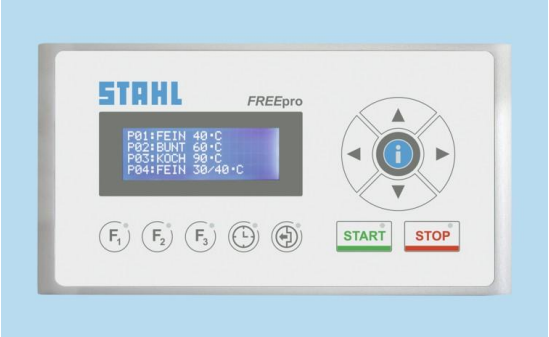
Washer Extractors (washing machines)

Introduction

Washer extractors (washing machines) vary in capacity from 5 kg to 200 kg approximately. Small machines may be used to wash uniforms or guest clothing but the larger ones will be used to wash hotel linens. They consist of an internal stainless steel metal drum which is perforated with many holes. This drum sits within a heavy metal frame which is bolted to the ground. All will have springs and shock absorbers to help prevent "shake" on the extraction cycle. There will be connections at the back or side of the machine for the chemical pumps, a drain outlet, a pre-programmed card holder or microprocessor and a heavy duty lockable door. There will be temperature gauges to measure water temperatures and some may have timing devices that allow the operator to see how long the washing cycle has until it is finished. Some older machines may have a hopper attached for the manual addition of chemicals such as starch in the final rinse. Some machines also have a tilt mechanism which makes it easier for the washman to empty the machine. The most important factor of an efficient washing machine is the amount of mechanical action the machine can produce. The more agitation of the washing machine, the better the wash result will be:

- **Stainless steel drum** – This is perforated to allow water and chemicals to be drawn into the machine and also drained out when appropriate. The internal cylinder rotates at different speeds to provide agitation in the wash cycle (30-40 r.p.m) and water extraction in the final cycle (500-750 r.p.m). The inside of this drum has ribs which assists with the mechanical action of the machine by lifting the linen, allowing it to drop into the chemical solution
- **Pre-programmed card reader** – Where a washing machine uses the card system, there will be a different card for each item to be washed. The card is made of a heavy duty plastic. There will be a different card to use when washing white sheets than when washing red napkins, for example, and these cards will be clearly marked as to which items they are to be used for. These cards have a series of holes punched into them usually by the chemical supplier who designs the wash cycles according to the chemicals required. These cards are then inserted into the card reader before switching on. These cards programme the machine to call for different water levels at different temperatures and different chemicals at different times within the wash cycles. When towels are washed then the card marked" towels" will be used. These cards do wear out so it is recommended to have several sets of cards for the same wash cycles and a set of cards for each machine that uses them.

- **Micro-processor** – These are slowly replacing the cards as already discussed above. The micro processor is attached to the machine and again is usually programmed by the chemical supplier for each item to be washed. It is more efficient than a card reader but the operator must remember to punch in the correct number assigned to each wash load prior to starting the machine



OPERATOR WASH FORMULA REFERENCE CHART

PREPARED BY FLOTSAM CHEMICALS LTD FOR ANGLISS LAUNDRY	
PROGRAMME/FORMULA NUMBER	**CLASSIFICATION**
1	WHITE COTTON SHEETS
2	WHITE TOWELS
3	NEW WHITE TOWELS
4	NEW WHITE SHEETS
5	REWASH WHITE SHEETS
6	REWASH WHITE TOWELS
7	WHITE TABLE LINEN
8	POLYESTER TABLE LINEN
9	COLOURED SHEETS
10	WHITE COTTON PILLOW CASES
11	REWASH WHITE TABLE LINEN
12	NAPKINS
13	WHITE POLYCOTTON SHEETS
14	WHITE POLYCOTTON PILLOW CASES
15	COLOURED TABLE LINEN

This chart would be placed close to the washing machines so that the washman operator will know which number to programme into the microprocessor depending on which items are being washed.

- **Lockable door** – Some machines have a single hinged lockable door whilst other machines will have a pass through door. The soiled linen may be placed into one side of the machine and emptied on the other side through another door, when the wash cycle is complete. This is often used where space is limited
- **Tilt mechanism** – This apparatus is attached to the machine and is a hand held device with a series of buttons which are pushed to tilt the machines for emptying. It also moves the linen which may be at the back of the machine to the front. This prevents the washman from having to reach inside the machine, risking possible injury
- Some newer washing machines self tilt when the door is unlocked
- **Chemical pumps** – These are usually located in a convenient place close to the washing machines. If four chemicals are used in the wash process, then there will be four chemical pumps attached to each machine. The tubes are placed in the chemical drums or bottles and the machine will automatically draw the chemicals required during the pre-programmed wash cycle. Chemicals should be checked daily to make sure there is enough quantity and replaced as required
- All washing machines will have temperature and water level gauges
- These are sometimes called open pocket washers.

www.huebsch.com

www.laundrysystems.electrolux.com

Pocket washers

These machines are also free standing and usually have a larger capacity. For this reason they are divided into “pockets”. There are usually 3 pockets e.g. a machine that has a capacity of 240kg would have three separate compartments each capable of washing 80 kg simultaneously. Each pocket would have its own door. These pockets are all separate and can be loaded and emptied individually by the washman. This makes the handling of linen easier and also reduces the amount of "tangled linen". Again there would be connections for the chemical pumps, a card holder or micro processor. Some older machines may have a hopper attached for the manual addition of chemicals such as starch in the final rinse. As there is limited space inside each pocket, the mechanical action is not as great as an individual free standing washing machine. Items of one kind should be placed in each pocket (all towels or all sheets). Washing different items in each pocket will not produce a good result.

Continuous batch washers (CBW) or Tunnel washers

These machines have been in operation for many years and are extremely popular in commercial laundries as they are capable of washing very large amounts of linen in a very short period of time with minimal labour. They are sometimes called tunnel washers as their appearance resembles a tunnel. They are available in various sizes depending on the amount of linen processed and the space available. They are designed to be used where there are several tons of linen processed daily and run continuously with minimal manual labour.

They are controlled by a computer with a very extensive computer programme.

The automation of these machines replaces many manual tasks within the laundry and speeds up the whole process of processing linen.

The machine is divided into several compartments within which a different washing cycle takes place. The washload is continually being transferred to the next compartment until the final rinse takes place. These washing machines are loaded and emptied automatically by a series of conveyor belts and chutes. They are extremely efficient in reducing water usage as water from the final rinse is then recycled to be used for the first cycle of the next washload.

www.milnor.com

E.g. A 16 compartment machine each with a 50 kg capacity can process 800 kilos of linen in approximately 45 – 50 minutes without any manual handling.

In comparison, to process 800 kgs of linen through 10 x 80 kg machines considerable time can be saved as these would have the linen loaded and unloaded manually by an operator. The above example demonstrates the efficiency of the C.B.W.

The computer programme

Every CBW machine will be different as will every computer system. The computer programme has the capability of linking the CBW to all other laundry machines.

There will be a main computer screen which can show the operator at any one time what type of goods are being washed and where exactly they are within the machine.

Each customer's goods can be identified as to where they are within the batch washer and any problems in the wash cycle can be identified.

The computer recognises when wash loads are complete and can direct them to the next available dryer by way of conveyor belts. The conveyor belts transport the goods in to the dryer. The dryer door closes and starts its cycle.

When the tumbler dryers have completed their cycles, the computer allows the dryer to discharge its loads automatically into a conveyor or trolleys.

Conveyor belts can take the processed goods directly to the flatwork ironer or towel folders.

Washroom chemicals

Introduction

No matter which types of washing machines are used, the selection of washroom chemicals and the chemical supplier is a vital component to any successful laundry. The relationship between the selected chemical supplier and the laundry manager is extremely important as the processes that take place in the washroom area can affect the rest of the laundry procedures. If linen is not washed correctly and stains are not removed, this will result in a large percentage of rewash items which in turn adds to the operating expenses and production time. Errors in selection, use and dilution rates can affect the final product. If complaints occur from customers, then the integrity of the business is compromised and business may be lost. Washroom chemicals that are not effective will also add to the processing costs.

There are thousands of chemical companies who manufacture laundry chemicals. It is wise to select a reputable chemical supply company which has the support of trained chemists who can assist to analyse washroom problems. Knowledge of washroom chemicals is a science which constantly evolves.

Chemical pumps may be supplied, maintained and installed free of charge by the chemical company for all washing machines for the duration of their supply contract. However if the contract is terminated the company will remove their equipment and the laundry may be left with no pumps until a new contractor is selected.

It is wise for the laundry to consider purchasing and owning all chemical pumps.

The chemical company representative should visit the laundry at a minimum of every two weeks and conduct wash piece tests. This is to measure the ph level of the wash cycles and to review cleaning, disinfection and whiteness of the linen.

Many chemical companies use the W.A.T.C.H. principle when checking the wash cycles.

WATER – to measure water levels and the quality of the water.

AGITATION – to review the mechanical action of the machine.

TIME – necessary for chemicals to work. It is important to review the timing of each process of the wash cycle so that the chemicals stay in the wash long enough to allow them to work.

CHEMICALS – the selection of the correct chemicals is extremely important to enable all linens to be washed to an acceptable standard for all parties whilst ensuring they do not prematurely age the linen.

HEAT – the activity of many chemicals is increased when the temperature of the water rises. It is important to check the temperature of the water.

Types of washroom chemicals

Water

Whilst water is not a chemical, it is one of the most important elements of the wash cycle. The quality of water is important in determining which washroom chemicals will be chosen. Water may have a high iron or calcium content or even a high volume of vegetable dyes from plants located by the supplying dam. All these minerals will affect the effectiveness or not of washroom chemicals chosen. Water testing must be carried out at regular intervals by a reputable company.

The results of the water testing must be shared with the chemical supplier who will consider these findings when recommending the choice of chemicals necessary to produce good wash results.

Hard water (calcium and magnesium chlorides) will have an impact on the type of detergents selected and cleaning quality of the linen will decrease. Water treatment of the boiler may be necessary by a qualified company.

When there is a high iron content in the water, this may be caused by old iron pipes. Where possible these pipes should be replaced so that deposits of iron will not be left on clean linens.

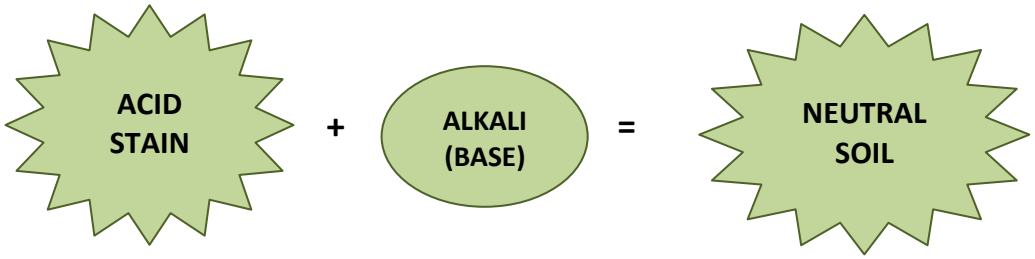
Water by itself is not a good cleaner but the chemicals that are added to the water makes it a medium to allow the chemicals to penetrate the soil and hold it in suspension. Water also allows the chemicals to be transported to the washload and to carry away the soiled solution. It is an excellent rinse aid.

Water temperature

Washing at a temperature of 70C for approximately 25 minutes will kill most bacteria in hotel linen (except spores.)This is known as thermal disinfection. This temperature is however not recommended for woollens or synthetic fabrics.

Alkalis

Most soil is acidic in nature and alkalis are used in the first part of the wash cycle to neutralise the soils in the linen prior to the main washing process. They also assist the detergent to "wet" the linen thereby penetrating the soil and holding it in suspension. Alkalis also assist in converting fats and oils to soap so that they become water soluble.



Builders

Builders can be added to both alkalis and detergents. Their function is to assist in water softening and to increase the function of the detergent to get better wash results. Common builders include phospates silicates and carbonates.

Detergents

These are used to wash the linen, allowing water to penetrate the soil and hold it in suspension before rinsing. All detergents used in a commercial laundry are synthetic combined with builders to allow fats to emulsify. Detergents have a high tolerance to hard water and can be efficient at all temperatures. They are more suitable for commercial laundering than soap which can produce a film when used in hard water.

Chlorine bleaches

These are used to whiten linen and remove residual stains. Chlorine bleaches must only be used on white linen. Chlorine bleaches if used in excess can cause fabric damage and loss of tensile strength in linens. They also act as a sterilising agent leaving linen in a sanitary condition. Chlorine bleaches are available in both liquid and powder form. The most common chlorine bleach is sodium hypochlorite.

Oxidising bleaches

These can also be used to remove stains. Examples include hydrogen peroxide and sodium perborate.

Antichlors

These are used to inactivate any residual traces of chlorine bleaches and they prevent linen from yellowing .Some contain an optical brightener which makes white linen seem whiter by increasing light reflection. They are usually added to the second rinse cycle with a high water level.

Fabric softeners

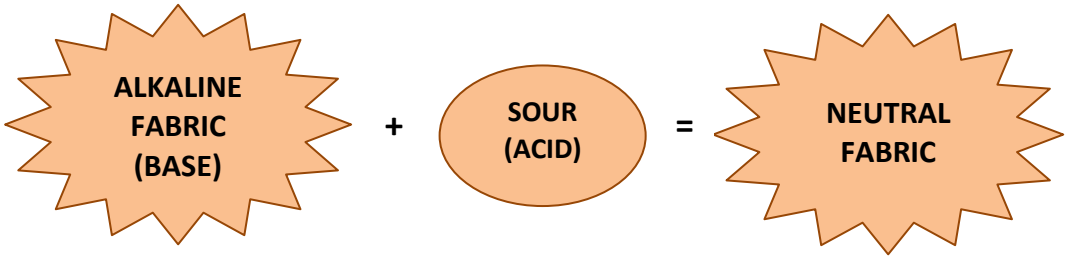
These are used to soften towels and reduce lint but are also used in the wash cycles of sheets to assist ease of ironing by reducing static electricity on the flatwork ironer. They are absorbed into the fabric and form a protective coating. They make towels softer to the feel and also assist the washman as linen will be easier to pull from the washing machine when emptying.

Starch

Starch may be made from corn or wheat .It is added to the final rinse in the washing of COTTON table linen and chefs' jackets to present a crisp and fresh appearance. Starch lays down a protective barrier on the fabric to help prevent stain absorption. This makes stain removal in the next wash cycle easier. Starch should never be used for sheeting due to the stiffness and itch factor!! Care must be taken not to over use. It is usually in a powdered form and must be pre-dissolved. Starch will not be absorbed by polyester fibres.

Sours or Acids

These are added in the final rinse to neutralise residual alkalis. If alkalis are not removed, white linen can turn yellow or grey. Some sours contain optical brighteners.

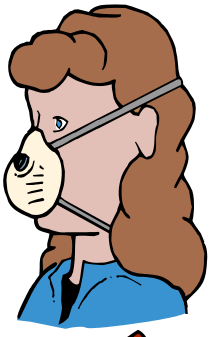


Precautions when handling chemicals

All chemicals must be treated with respect. If they are not used, stored or handled correctly all chemicals have the potential to be hazardous to long term health and compromise daily safety in the workplace. It is important as an employee to know all aspects of the chemicals before you use them:

- Every chemical is designed for a specific purpose. Each chemical that is manufactured must have a technical bulletin and a Material Safety Data Sheet (MSDS)
- The technical bulletin will have specific information on recommended usage, packaging size along with a description and characteristics of the product
- The M.S.D.S of each chemical contains lots of critical data. It seems like too much information but it contains:
  - Hazardous nature of the chemical
  - The composition of the chemical

  - Long-term health exposure consequences
  - Safe handling
  - Product information
- A copy of all MSDS must be available for staff to read and also in case of an emergency such as an accidental spillage. They must be available for the emergency services so that they know what they are dealing with should there be a fire or leak
- It is important to use the correct personal protective clothing and equipment when handling chemicals. This should always be readily available and of the correct size for individual employees:
  - Safety goggles or face masks
  - The correct protective gloves
  - Protective clothing and footwear
- When handling chemicals it is important to always wash your hands after handling them and NEVER to smoke, eat or drink
- NEVER mix chemicals at any time. To do so may cause a chemical reaction which may give off toxic gas and may harm your health. The action of mixing will also negate the action of a chemical e.g. Alkali + Acid = neutral
- Always clean minor spills up immediately to prevent falls and slips. This may be possible by hosing down the spill to the nearest drain or using a mop and bucket
- Always use chemicals at the correct dilution rates. To use a chemical that is too strong will damage the linen and increase costs because of over usage (Less is best)
- Always add chemicals to water and not water to chemicals. If some should spill, there will be less harm
- Always store chemicals correctly at the right temperature and preferably in a secure area
- Always use correct equipment for transporting and lifting chemical drums
- Chemicals must ALWAYS be correctly labelled for easy identification and NEVER stored in soft drink bottles
- Empty chemical drums must be disposed of as per local regulations.



What to do in case of a chemical spill:

- The size of a spill will affect how you deal with it
- If the spill is large, all staff should be evacuated from the immediate area
- Ventilate the area as much as possible
- Call the relevant emergency services to assist and advise
- Wear protective equipment at all times in this situation – gloves, face mask, protective clothing and rubber boots
- Try to stop the spill if possible – turn off the tap or place the container on its side. The use of sand or an absorbent compound is particularly helpful in this case. This can then be swept up as a solid matter and disposed of later

- Wash the area down completely after clean-up
- Investigate how the spill occurred in order to review all handling procedures. Record the incident and retrain staff.

The wash cycle

There are several stages of the wash cycle and this does vary depending upon which items are being washed. The stages of the wash cycles are:

- **Pre-wash or Break** – This is the first cycle of the wash and one of the most important. Alkalis are added to the wash with a high water level at low temperature (15-20C) to wet the linen and neutralise the soil
- Suds or Main chemical wash (there may be several suds cycles depending on the degree of soiling). This is the cycle where detergents are added to wash the linen. Water levels are low to medium to maximise mechanical action and increase the efficiency of the detergents. Water temperatures vary between 75 – 85 C. This is the longest part of the wash cycle
- **Bleaching** – Bleach is used for removal of stains and is effective in the sanitising process. Bleaching also helps to whiten the linen. Higher temperatures accelerate the bleaching process. Water temperatures vary between 60-70 C
- **Rinsing** – Rinsing is the process that is designed to remove all suspended soils and residual chemicals from the linens being laundered. There may be several rinse cycles where antichlors are added to one on a high water level. High water levels will dilute any residual chemicals left in the linen. Rinsing takes only a few minutes
- **Souring** – A weak acid solution is added to the final rinse which will neutralise any residual alkalis.

N.B. It is very important that the ph level of the final rinse water measures between 6 and 7 on the ph scale. Incorrect ph levels may cause white linen to yellow and may cause skin irritations to the end user. Local and state government laws may have regulations which govern the ph level of waste water due to environmental concerns.

Water levels

Low water levels allow for the least dilution of chemicals in the wash and exposure to the most mechanical action. Mechanical action in the wash lifts the linen allowing it to fall into the chemical solution and bump and rub against other linen. This is known also as agitation. Low water levels are most often found on the suds, bleach and sour cycles. The rinse cycles have the highest water level to allow for the maximum dilution rates for any residual chemical. Water levels vary depending on the make and size of the machine and the diameter of the drum.

Low water levels vary from 8cm to 22 cm.

High water levels vary from 20cm to 50cm approximately.

Extraction

Extraction is the final cycle in the washing machine when water is removed by extraction. This is commonly called the "spin" cycle where the internal drum of the washer extractor spins creating a centrifugal force removing the water via the drain outlet.

Approximately 50% of the water is removed from a towelling washload cycle and 70% removed from a sheet washload e.g. a towel that weighs 1 kg dry will weigh approximately 1.5 kg after extraction.

Extraction from the continuous batch washer

When the wash cycle in the continuous batch washer is completed, the linen will be automatically compressed with a circular heavy metal press which squeezes the water from the washed linen. Once squeezed this linen resembles a pancake.

This compressed linen is then automatically directed to the next available tumbler dryer within a bank of dryers via a conveyor belt. The linen will be placed into the dryer from one side and when dry is passed automatically through a "backdoor" where it falls on to a stainless steel conveyor belt or into clean linen trolleys. Clean dried towels will be transported to the folding area. Whilst sheeting is not usually dried in the tumbler dryer, with a continuous batch washer, the "pancake" of sheets is placed briefly (approximately ten minutes on a low temperature) into the dryer to break up and loosen the sheets. From here all sheeting is then directed to the finishing area for folding or ironing and final processing.

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Sample Linen cycle

Item	Washing	Tumble dryer	Flatwork ironer	Folder
Sheets	Yes	Only 10 minutes when washed in CBW	Yes	Yes
Pillow cases	Yes	No	Yes	Yes
White towels	Yes	Yes	No	Yes
Bathrobes	Yes	Yes	No	Manually or on hangers
Table linen	Yes	No	Yes	Yes
Tea towels	Yes	No	Yes	Manually
Chefs aprons	Yes	No	Yes	Manually
Coloured towels	Yes	Yes	No	Yes

1.5 Operate dryers

Introduction

Care must be taken when operating tumbler dryers as everyday somewhere in the world there will be a tumbler fire caused by excessive lint build up in the filters or exhaust ducts.

Tumbler dryers are used mainly to dry towelling. Most items that are tumble dried then go to either a towel folding machine or to be manually folded and stacked.

Tumbler dryers may be gas fired, steam-heated or electrically powered. They need to be vented to the outside for the release of steam and gas vapours if gas heated.

They will usually be approximately twice the capacity of dryers to washing machines e.g. if 80 kg of towels are washed, there will be the need for 2 x 60 kg tumbler dryers as towels once washed are approximately 50% heavier due to the higher moisture content and the drying cycle takes longer than the wash cycle.

Function of the tumbler dryer

The function of the tumbler dryer is to evaporate water from the linen. This process is called extraction. Air is heated and circulated and the better the circulation, the more efficient the drying function. The tumbler dryer is usually a free standing module bolted to the ground. The inner drum is stainless steel in construction and has perforated holes through which the air can circulate. Blocked lint filters and exhaust ducts can reduce the efficiency of the air flow. It is imperative to follow the manufacturers' instructions for operation of the tumbler dryer to maximise productivity. Each tumbler dryer will have an automatic timer and a temperature gauge. All tumbler dryer cycles will have a cooling down period at the end of the cycle. This makes linen easier to handle by the laundry attendant and reduces the potential for burns. The temperature of a dryer varies between 170 – 200C.

Free standing tumbler dryers are manually loaded and unloaded from and into trolleys.

In older style dryers, the inside drum may rotate only one way (usually clockwise). In newer styles of dryers, the drum will circulate clockwise for one minute and then anti-clockwise for one minute. This is repeated throughout the cycle. This alternate rotation prevents linen becoming tangled in the drying process. In many cases though, staff are needed to untangle linen prior to being ironed.

Sheets may need to be "roped" This is a system where the washmen lay out the sheets length ways on top of each other to facilitate easier handling by the feeder operator at a later stage.

N.B. All dryers that are attached to the continuous batch washer are loaded and unloaded automatically by conveyor belts. These usually have "pass through doors" where the wet items are placed into the tumbler dryer from one side and dry items are then automatically unloaded onto a stainless steel conveyor belt or into clean linen trolleys for transport to the finishing area. These functions are all controlled by the computer system.

Problems that can arise

Under extraction

If towelling items are still damp when the drying cycle has finished it is possible that:

- **The towels were too wet when placed in the dryer** – it may be necessary to check whether the extraction cycle on the washing machine is long enough to prevent this
- **The tumbler dryer was overloaded** – it is important to maintain correct weights as overloading will reduce air flow and increase drying times. Overloading of the dryer generates more heat and friction reducing the wear life of the towels
- **The time of the cycle was too short** – may need review
- **The temperature was too low** – check that the temperature gauge is accurate and set on the correct temperature for the goods being dried
- The timer will normally ring or buzz when the cycle is finished to alert the washman to unload the machine
- Some more modern dryers will have an automatic shutdown device if the temperature builds up too high. Others have an automatic sprinkler system which will wet the linen inside the tumbler to prevent spontaneous combustion should the tumbler overheat.

Precautions when operating a tumbler dryer

- The major safety concern when operating a tumbler dryer is the accumulation of lint on heating coils, in lint traps and exhaust ducts
- Lint on the heating coils can become clogged with lint from the air in the laundry and this is how fires may start
- Lint traps on tumble dryers should have the lint removed after every cycle or at least every second cycle. The lint trap can be located within the tumbler drum or below within a cabinet. Both are usually easily accessible and should be cleaned by the laundry attendant. Lint can be removed by hand, by brush or by using a vacuum cleaner
- Exhaust ducts must be cleaned on a regular schedule. These may not be easily accessible by the washman but it is ESSENTIAL that regular scheduled cleaning take place
- Never place your hands in the dryer when hot
- Never touch the rotating tumbler, always wait until it has stopped before opening the door
- When items are removed from the dryer, they are placed into clean linen trolleys and taken to the finishing section. Towels will be placed in the folding section whilst sheeting and table linen will be taken to the flatwork ironer.

www.princeslaundry.com.au (videos)

1.6 Complete finishing process

Introduction

The finishing process includes the ironing, folding, stacking, counting and transporting of linen. Between 60 and 70 % of all linens processed in the laundry will be ironed, dried and folded on the flatwork ironer.

The Roller Ironer

This is used in very small laundries or hotels where there is a small on-site laundry. There may be one or more rollers which iron the linen. The linen is fed through manually and is pressed and returned to the same point to the operator for manual folding. The process is slow and very labour intensive. The average speed is 5 m.p.m (metres per minute).

The overall quality of the end product is inferior to the industrial flatwork ironer. Where a small motel uses 50/50 polyester blend sheets, the overall result may be satisfactory for their standards.

The Flatwork Ironer

What is a flatwork ironer?

Whilst the flatwork ironer is an integral piece of laundry equipment, in industrial laundries today there are many combinations of flatwork ironers, feeding systems and folders. Some small laundries may operate with just a one roll ironer whilst others will have several feeders ironers and folders. They may work together as if one piece of equipment or each unit may work independently from the other. No two laundries will be the same.

The flatwork ironer may be a standalone unit but in a large commercial laundry it will most certainly be attached to a feeder on the front end and a folder on the back end. The ironer is used for both ironing and drying sheets, pillowcases, tablecloths and napkins as well as chefs aprons and tea towels. The flatwork ironer measures approximately three metres wide and can run at a maximum speed of 50 metres per minute (M.P.M). Most flatwork is processed at speeds of between 20 and 35 m.p.m. The flatwork ironer comprises:

- The bed of the ironer which has a series of concave steam heated chambers across which several padded rollers pass
- There may be between 3, 4 or 6 rollers. The larger the roller the more efficient the ironing process. The more rollers there are the more efficient the ironing process
- The diameter of the rollers can vary between 600 mm and 1200 mm. The size of the roll will determine the drying surface
- The metal rollers have perforations through which moisture is drawn by a vacuum fan The moisture passes through the pads, through the perforations and into the vacuum pump to the steam traps below
- The rollers are covered with a felt padding which is heat resistant to 200C. These pads needs to be replaced as needed (between three and nine months) depending on the amount of work the flatwork ironer does

- When damp items are passed between the bed of the ironer and the rollers, they are both dried and ironed in one action
- Feed ribbons are made of a heavy canvas material and are clipped together. They assist the linen to pass through the ironer. Sometimes, coloured markings are made on these ribbons to guide the operators as to where to place the sheets or table linen of different sizes so that when they pass on to the folder, they are correctly placed for easy automatic folding. Other ironers may have individual colour coded belts
- Ironer tapes guide the linen through the ironer. These tapes are made of a synthetic fabric and are clipped together. Broken tapes should be replaced as soon as possible as broken tapes may cause linen to wrinkle and roll on the ironer. This linen will need to be rewashed
- Ironer temperatures are shown on a small screen close to where the linens are fed in along with the speed of the ironer. Temperatures vary but generally the ironer is heated to 100-180C
- The speed and temperature of the ironer rolls may be adjusted for thicker items. Thicker items will need to be ironed at a slower speed so that they may be dried properly. A duvet cover for example is double the thickness when compared to a sheet and so will take longer to dry
- All ironers are different but temperatures and speeds are controlled by the operator so that all goods are ironed well and dried properly and can be adjusted if necessary If an item passes through the ironer and is not dry, it may be necessary to review both the operating temperature or the speed of the ironer or both
- The ironer can be used for both large items such as sheets or small items such as napkins
- A flatwork ironer if run correctly, with correct numbers of operators at both ends, should be able to produce approx 1000 sheets per hour and 500 pillow cases per hour
- There will be reject buttons on the machine so that the operator can reject stained or torn linen. This linen will then be automatically rejected by the ironer and directed into a separate trolley at the end of the ironer before reaching the folding machine
- There is also an emergency button (red) so that should something go wrong on the feeding process, the ironer can be stopped immediately
- The ironer will also have a protective finger guard on the front so that hands cannot be placed beyond a certain point. If the guard is pushed, the machine will automatically stop.

Precautions when using the flatwork ironer

There are several safety precautions when operating the flatwork ironer:

- The ironer should be switched on in plenty of time to heat up prior to using. Each flatwork ironer will be different but if is not hot enough, problems will occur in the ironing process and linen will have to be rewashed
- The staff who work on the flatwork ironer should have a safety mat to stand on to prevent back injuries from constant standing on a hard floor

- The trolleys from which the staff take the washed items from should be at safe height to accommodate easy feeding and should be placed between them and the ironer so that there is no twisting movement. This will reduce potential injuries
- The same trolleys should have a calibrated spring insert which will elevate the remaining linen as linen is removed. This prevents the staff from constantly bending
- There should be very good lighting so that staff may see and sort stained or torn linen at this point
- Care must be taken when removing dried linen off the ironer as it will be very hot. Many operators wear white cotton gloves for this process
- If linen gets caught between the rollers, staff should NEVER climb on top to remove the item nor place any part of their body between the moving rollers
- Many flatwork ironers are covered with a hood complete with an exhaust motor which must be physically removed before gaining access to the ironer rolls
- The ironer should be switched off when not in use to conserve energy and the rollers lifted from the ironer bed

- The ironer should have the ironer bed waxed and cleaned at least twice daily to remove lint, dirt and chemical deposits. This is done with a special ironer cloth that is waxed. Several old damp sheets should be passed through the ironer after cleaning to remove any deposits of the wax cleaner
- This special waxing cloth must be hung over a rail to cool down and never folded. The heat and wax build up may cause a fire
- If the ironer bed is not clean, stains may be deposited on the linen and may cause rolling of the linen.

www.TingueBrownCo.com

What is rolling of the linen?

Rolling of linen is one of the most common problems with ironers. If linen rolls through the ironer, it is compressed into a roll that resembles a broomstick or a pencil. This is inconvenient and troublesome for the operators. All rolled linen will need to be rewashed. The reasons this happens are complex and many but the most common ones are that:

- The ironer bed is dirty
- The ironer is not hot enough
- The items may be too wet from the washer
- Too much steam pressure within the ironer
- Missing or broken feed ribbons
- Missing or broken ironer tapes
- Too much static electricity. Fabric softener in the wash can assist in reducing the amount of static electricity.

The Feeding process

Manual Feeding on to the flatwork ironer

The process of "feeding" is a manual physical process. The process involves placing items that have been washed on to the ironer for ironing and drying. Two operators will be needed to feed large items such as sheets, duvet covers and tablecloths. Each operator will grab one edge of the item and "feed" them on to the ironer whilst straightening the hemmed edge. It is important not to pull the corners of sheets and tablecloths when wet as this will result in misshapen linen.

When feeding linen on to the flatwork ironer, productivity will be maximised if there is minimum space between items. In other words there should be a continuous feed.

The ironer then passes the item through the ironer where it is simultaneously dried and ironed. Where there is a folder, the sheet will continue on to the folding machine to be folded automatically.

Where there is no folder, the sheet will be returned via the rollers on the ironer back to the feeding staff to be manually folded. This is laborious, labour intensive and does not produce a good finish.

If sheets are a blend of 50% cotton and 50% polyester fibres, drying time is reduced considerably than if using linen made of 100 % cotton. This is because polyester is a man-made fibre and as such is a very smooth fibre which does not absorb water. In small hotels and laundries folding may be done by hand using only a one roll ironer. However consideration should always be given to the quality of the finished product and the standard expected by the hotel and its guests.

When smaller items such as napkins and pillowcases are being ironed, there may be up to 4 feeders feeding in these items at the same time. These smaller items will not be folded by the folder but taken off manually by staff when ironed. This process in known as multi-lane ironing.

In large laundries where there is a high volume of small pieces processed, ironed pillow cases or napkins may be laid directly on to a series of mobile rails in piles of ten. The rail moves forward, the pillow cases are removed by hand and the process continues.

Pillow cases and duvet covers should be fed in with the closed end first so that air will be pushed out as the ironing progresses for a more professional finish.

Automatic Feeding on to the flatwork ironer

Manual feeding has been speeded up in the last few years by automation. Whilst staff are still needed to feed items on to the automatic feeders, the process is much more productive and cost efficient. Several feeder operators can feed sheets at the same time. This involves placing 2 corners of the sheet in to 2 clips. These clips then open automatically, spreading the sheet and feeding it by suction onto the ironer. There is no lost time between sheet feeding with an automatic feeder as there is when manual feeding takes place and so is much more productive.

There may be up to four sets of clips at the front of the machine and one set on the side. This would allow for five feeders.

Where there are five feeders there would need to be at least two people on the back end of the ironer removing the finished goods and placing on to trolleys ready for transport back to the customer.

www.chidry.com/category/ironing

The Automatic Folding Machine (Folder)

As previously explained, the automatic folder is usually attached to the flatwork ironer. The folder can be programmed to fold several ways and all makes of folders are slightly different. The folds can be pre-programmed to fold sheets, pillowcases and table linen.

The folds can be made both horizontal and cross ways.

It is important when feeding items through the ironer that they are fed straight so that correct folding can take place. The items pass through the folder over rollers and air draws in the item to be folded.

In the case of large sheets and table linen, the item will be folded several times and then transferred via a conveyor belt where sheets are stacked in pre-programmed piles of five or ten. A staff member removes them from the folder and stacks them neatly on to trolleys or places into bags for transportation back to the customer. The folder has a counting device which counts the items processed. This counter is placed back to zero when a different customer's goods are being processed.

The belts on the folding machine should be replaced immediately they wear or break as this could lead to articles being jammed in the folder causing a loss of productivity.

When small items such as napkins and tea towels are being ironed, then the folding mechanism is switched to bypass. Napkins, pillow cases, tea towels and chefs' aprons will be removed manually at the end and folded by hand.

The folder will have a piece counter attached which records how many pieces are processed. This quantity will be used for invoicing customers.

The Towel Folding Machine (Towel Folder)

The towel folding machine is a machine that is used for folding towels. All sizes of towels can be folded on these machines. All towels folded have been washed and dried. The type of fold that is required by each customer may be different but it is important that each customer's needs be met. If the customer presents the towels in a certain way in the guest rooms, time will be wasted by hotel staff who may need to re-fold them.

There are two main types of towels folders:

a) Single lane

b) Multi lane

Single Lane

On these machines, the dried clean towels are fed by one operator on to the feeding ribbons. The machine then folds, automatically counts and stacks the folded towels into piles of five or ten. The piles of towels are moved back towards the operator on a return conveyor belt. From here they are placed on trolleys to be returned to the customer.

Similarly to the ironer, there are usually marks placed on the feeder ribbons to identify at which place different size of towels are to be fed in e.g. bath towels or hand towels. Face washers are not folded but usually manually stacked and counted in piles of 20 or 50.

Towels of one size only can be folded at any one time. Folding of a different size towel requires the setting to be changed.

The quantities are recorded for invoicing at a later stage.

Average production for a one lane would be 200-250 towels per hour. The production figure is low as the same operator must remove the folded towels on to the trolleys and also keep a record of the count.

Multi Lane

These are much bigger machines than the single lane machines and are found in large laundries. Towels of one kind are fed in by several operators at the same time. The towels are then folded and stacked on a straight conveyor belt. There may be four feeders and one or two staff members stacking and recording the counts. The counting mechanism is returned to zero when one customer's goods have been processed.

These machines are also fitted with reject and emergency buttons.

Multi lane towel folding machines produce between 380 – 420 items per operator hour. A four lane machine then can produce approximately1600 folded towels per hour.

These machines are also fitted with 2 buttons, one to reject soiled or damaged linen and an emergency button to stop the machine.

Quality control

The towel folding stage is the best time to inspect the condition of the finished goods. Good lighting is imperative for this. Whilst towels are being fed in manually to the towel folders, operators should inspect all clean and dried towels for stains, wear and tear and damage. These towels should be separated out into two separate receptacles at this stage for either repairs or rewash.

Manual folding

In many small laundries, sheets and towels are still folded by hand. A very large space is needed for manual folding with several large tables. Clean dried towels are placed from the dryer into a trolley and then taken to the folding area. Manual folding should always be carried out on a clean washable table which has been disinfected to prevent contamination of clean linen.

The towels are folded by hand into pre-determined folds and usually stacked in piles of ten with the tenth towel wrapped around the other nine. This makes the counting process easier. Piles of folded towels are then placed on trolleys for transportation to the customer. The count is recorded manually for invoicing.

Manual folding of sheets will normally require two people. Sheets are folded length ways twice and then in half three times. This is a very unsatisfactory method and two people will only manage to fold approximately 120 sheets per hour.

Approximately 360 towels can be manually folded per operator hour.

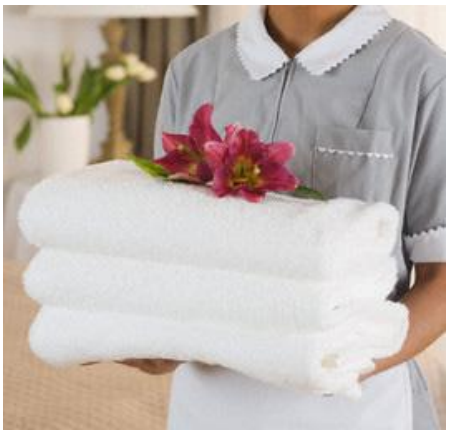
Bathrobes may be folded or placed on coat hangers and placed on mobile clothes racks for transporting.

1.7 Sort linen for re-wash

Introduction

Sorting linen for rewash is always done when goods have been washed. The most important time to detect stains and tears is when items are processed through the flatwork ironer and towel folders. This is when linen is laid flat and stains can be seen and identified easily.

Why do we need to rewash items?



There are many reasons why items will need rewashing and it is important to investigate regular unexplained staining. As part of a linen conservation programme and in order to keep costs controlled, a rewash percentage should never be more than between three and five per cent of total washloads for hotel linens.

For example, if a laundry processes 1000 kg per day, the rewash factor should never be more than 30 – 50 kg per day. Towels and table linen will usually have a higher rewash factor than sheeting due to its usage and the type of original staining.

To rewash goods generates no revenue but it will cost the laundry many man hours, chemicals, water and power. Additional heavy duty recovery washes will age linens prematurely. It is important therefore to minimise rewash and to investigate the reasons.

Investigate the need for rewash

- Check with the sorting department if there is a particular customer's goods that are being received very heavily soiled. It may be necessary to address heavy soiling with the client
- Check in the sorting department that linen is not falling on the floor and that the floor is clean. If there is a backlog in the sorting room, it may be necessary to roster more staff
- Check that all areas of the laundry are being regularly cleaned
- Check that all conveyor belts are clean
- Check the linen handling procedures away from the laundry such as on the guest floors or in the restaurants

- Check that cleaning staff are not using small items like face washers, pillow cases and napkins as cleaning cloths instead of rags. These stains will be much harder to remove
- Check that waiters and kitchen staff are not using napkins as kitchen or waiters' cloths
- Soiled table linen should never be mixed with greasy rags as the linen will pick up stains from the rags
- Check that correct wash formulas are used and that chemicals, water levels and temperatures are being maintained. You may need the assistance of the chemical supplier to do this by running test pieces of linen in the normal wash cycle
- Check that the ironer pads are clean and that the ironer bed is being regularly cleaned. Over lubrication may cause oil stains on pads. Stained ironing pads can redeposit a stain on fabrics
- Check that there are enough linen trolleys and bags for the storage of soiled linen. For example, if a hotel has more soiled linen than it has trolleys or bags to place it in, linen may be tied up in bundles with sheeting or tablecloths being used and incorrect handling will result in stains from linen being dragged across floors.

www.rudplas.com.au

The rewash of linens

Recovery wash formulas will be designed depending on the nature of stains.

If stains are caused by the iron content of the water, a stain removal formula for rust removal will be used. This will involve the use of oxalic acid in the second cycle for ten minutes at a temperature of between 65 – 75C. This solution will then be rinsed followed by a cycle with alkali at high temperature followed by rinses and bleach formulations.

Mildew stain removal may require heavy concentrations of bleach and items may need to be soaked in a soak sink with a solution of bleach.

Both methods will seriously compromise the fibre strength and, if stains cannot be removed, linen will then need to be discarded.

1.8 Sort linen for repairs

Introduction

In all laundries everywhere, linen will need to be taken out of service through normal wear and tear, accidental damage and abuse or misuse of linen by both staff and guests. There will always be loss through deliberate theft and disposal.

Normal wear and tear of linen

All linen items have a normal life span. Linen with a blend of polyester and cotton will last longer than linen that is 100% cotton. Polyester extends the life of an article because polyester helps to reduce friction. Cotton is a natural vegetable fibre but it is less resistant to bleaches which can weaken the fibres which can then break when wet. There may be a tendency for cotton polyester sheets to stay too long in circulation because the cotton breaks down sooner than the polyester. The sheet then loses its crisp clean feel and the polyester skeleton is all that remains.

Average wash life spans

See table below.

Linen item	Average wash life	Notes
100 % cotton sheet	100-120	
80% cotton / 20% polyester sheet	150-200	
50% cotton / 50% polyester sheet	200-240	
Bath towels (100% cotton)	80-100	100% cotton towelling is preferable for absorbency qualities.
Hand towels	50-75	
Face washers	15-20	There is a large loss and misuse factor with face washers
Bathmats	80-120	
Pillowcases	120-180	These are often used as dusters.
Table linen	80-120	
Napkins	50-60	
Tea towels	40	
Bathrobes	70-100	

Whilst the above table shows expected average wash lives of items, some items will last much longer and others will not last as long. Linens may be damaged by external factors including:

- Sheets may be torn by sharp edges on trolleys or linen chute doors
- Sheets may be torn by excessive pulling when stripping beds or being caught under bed castors
- Face washers may be used by guests to clean their shoes
- Face washers and pillowcases may be used by cleaning staff to clean
- White towels may be used by guests when dyeing their hair
- Edges of towels may fray
- Abused linen may disintegrate when washed in a recovery solution
- Table linen may be burnt where gueridon cooking takes place
- Table linen and sheeting may be damaged by cigarette butts from guests smoking in bed or being careless with lit cigarettes at the table.

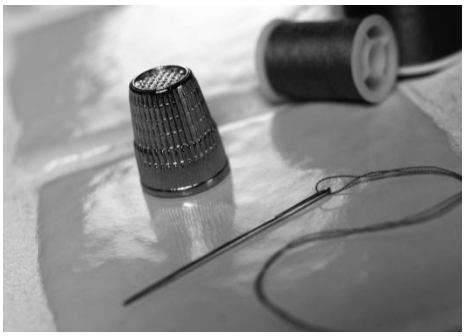
Depending on the damage to linen, it may be possible that some linen may be repaired or remade. The standard of repair of what is acceptable must be decided by all relevant parties. What is an acceptable repair for a two star motel may not be acceptable for a five star international hotel.

Methods of repairs

Large laundries may have access to their own sewing room where one or several seamstresses work. There will need to be several different styles of sewing machines such as a straight stitcher, a hemmer and an overlocker.

Other smaller laundries may contract out their repairs for a fee.

Examples of repairs



- Where a large sheet is torn on the outer edge, the sheet may be repaired by sewing as this part of the sheet will not be seen when the bed is made as it will tucked in
- If damage to the sheet is closer to the centre, the remaining fabric can be measured and possibly remade into a smaller sheet e.g. a king size or a Queen size sheet could be made into a single sheet
- If a sheet is torn in the middle but the body of the fabric is still in good condition, this may be remade into cot sheets for babies or into pillow cases
- Small holes on bed linen may be machine darned but it must be determined how many darns are acceptable before the sheet is condemned and taken out of service
- Similarly large towels can be remade into hand towels and face washers by over locking
- Old towels may have a line of coloured stitching sewn through one end and be used for staff towels or in the hotel gymnasium
- Large banquet tablecloths may be remade into smaller tablecloths or tray mats
- Condemned table cloths can be remade into chefs' aprons with the addition of apron ties
- Condemned sheeting may be remade into chefs' neckerchiefs
- Whilst sewing is an option, some laundries choose to repair linen with heat patches. These are white pieces of fabric that are applied over a hole and adhered by a heat machine. The end result is not as professional as sewing but is a satisfactory option for many companies. This process can also be used to mend some staff uniforms
- Old mattress protectors can be cut and sewn and made into oven cloths
- All condemned and discarded linen could eventually be used for cleaning cloths.

www.thermopatch.com.au

Condemning of linen

When linen is taken out of stock and discarded, it must be counted and recorded. It is important on a monthly basis to know what has been condemned so that replacement pieces can be placed into circulation to maintain the par levels. If the laundry or hotel operates below par levels, this will cause problems in meeting the requirements of the customers as there will most definitely be shortages.

Shortages will lead to additional man-hours to meet production quotas (increased costs) as well as increasing the wear on linen still in circulation.

It is important that the laundry manager check the discarded linen periodically to ensure that it is indeed not recoverable and is not being discarded prematurely.

Condemned linen should be carefully counted and recorded every day and monthly totals be given to the laundry manager for review.

1.9 Count/package and transport linen

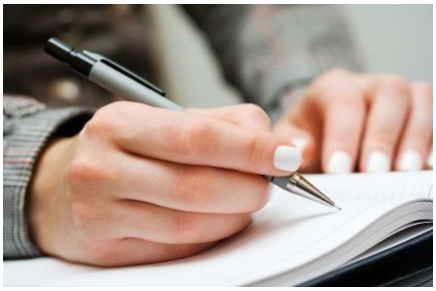
Introduction

The most important administrative tasks within the laundry environment is the correct counting of all linens processed. It is important that records are kept so that correct invoicing can be sent to the customer at each month's end.

Whilst most invoicing is done using a computer, counting processes on the laundry floor must be consistently accurate. All staff must be trained in the correct and necessary daily record keeping.

With every delivery of clean laundry to the customer, there should be a delivery docket which should match all items being delivered.

The paper cycle



- Most counting is done in the finishing area i.e. at the flatwork ironer and towel folders
- Before each client's work is processed, the counter on the machines is turned back to zero
- As items are ironed and folded, the counters record quantities processed
- These quantities must then be manually recorded on an internal record sheet kept at the end of each machine
- At the end of the working day, all records from both the towel folders and flatwork ironers are then either totalled for a hand written delivery docket or posted to a computer for the production of a printed delivery docket
- Any items that are not returned to the customer due to rewash should be duly noted
- These delivery dockets are attached to the trolleys for transportation to the customer
- The customer should check that the delivery docket matches what is delivered and report shortages as soon as practicable.

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From finishing to transport

- As items are finished and removed from the folding machines, they are placed on to the trolleys ready for return to the customer. It is extremely important that this operator checks quantities and places items in a neat and tidy way
- Where a fabric trolley liner is used, this must be freshly laundered daily and should have the cover secured
- In some laundries, linen is wrapped in plastic or brown paper for hygienically transporting back to the customer
- There are both automatic and manually operated wrapping machines. Linen is wrapped in strong plastic and is sealed
- In other laundries, items may be tied in bundles with string. This is done by a special machine known as a stringer or strapper. This makes the bundles easy to handle when unloading linen for placement at the hotel

- The strapping machine is used next to the folders where bundles are then automatically strapped into bundles with polyester cord. The machines are capable of strapping 30-50 bundles per minute
- Sheets are always stacked with the folded edge outwards so that they may easily be counted
- Towels should always be stacked with the folded edge outwards so that they may easily be counted
- Face washers are usually stacked flat
- Bathrobes may be placed on coat hangers and hung on mobile rails for transport or folded and placed on trolleys
- All bags should be securely tied so clean linen will not fall out during transport.

w.w.w.davispackaging.com

Storage of Linen

When linen has been finished it will need to be stored ready for the next delivery. Linen should be stored in a clean, dry and well-ventilated area away from the washroom and soiled linen area.

Clean linen should be kept covered and stored on clean slatted shelves. Slatted shelving is better as air circulation will help to prevent mildew.

It may also be stored in clean trolleys whilst awaiting delivery. Laundries will need to have plenty of storage to accommodate all processed clean linen until being delivered.

Usually soiled laundry is collected once per day and clean linen is delivered back to the client at the same time.

Clean linen should always be stored separately from soiled linen at all times.

External Transportation

- Transportation of linen with both pickups and deliveries requires good planning. It is important at all times not to have truck drivers standing idly waiting for linen to be processed
- There should be designated routes for each driver so that all hotels and restaurants where collection is required are close to each other. It is important to save time and motion wherever possible to conserve costs
- Pickup and deliveries of linen should be co-ordinated well to coincide with both the laundry and hotel operations. When the laundry is off-site, hotel linen pickup and delivery is usually done simultaneously and at the same time every day e.g. the Royal Hotel will have its pickup and delivery at 7a.m whilst the Duxton Hotel would have their delivery at 10 a.m. The hotel staff will know their linen delivery is due and will have the soiled linen ready for pickup
- At the end of day when most linen has been processed, trucks are normally loaded ready for the next day's delivery in order of customer delivery e.g. The first hotel to receive its deliveries the next morning would have its clean linen loaded last to facilitate easy delivery for the driver avoiding the need to remove all other customers' linen off the truck
- The truck driver will collect all soiled linen from each customer and when the truck is full will need to return to the laundry to unload. During busy periods he may have to return to the same hotel if there is excessive amounts of soiled linen for pick up. He will then continue on his rounds until all hotels have been serviced
- The delivery truck should be thoroughly cleaned daily
- When trolleys are placed on to the delivery truck, they should be secured by means of straps inside the truck to prevent trolleys from moving
- The driver will have a list of all deliveries with a notation of how many trolleys or bags to be delivered to each customer
- In some cases, the customer will be asked to sign on receipt of the delivery.

Internal Transportation

- Where the laundry is on-site at the hotel (OPL), transportation of linen to the laundry may be done by laundry, housekeeping or restaurant staff
- Soiled linen may be delivered directly to the laundry via a chute from the guest floors. The room attendants will strip the linen from the rooms and then place the soiled linen down the chute. This method does save time and ensures that the laundry has a consistent flow of soiled goods at all times
- In other hotels the linen may have to be collected manually from each floor and packaged into trolleys or bags and then transported to the laundry via lifts and corridors
- Restaurant staff may also deliver soiled table linen directly to the laundry in trolleys and bags
- In some hotels there may also be a linen room from where all soiled linen is received and counted and from where clean linen is issued. In this case all clean linen is returned to this location from the laundry for re-issuing the same quantities back to the guest floors and restaurants.

Methods of Managing Linen Stock

There are essentially three different methods of managing linen stock when there is an onsite laundry:

a) 1 for 1

b) Top up system

c) Requisitioning system

1 for 1:

- The hotel or restaurant is issued with an agreed par level of linen. With this system, all items are exchanged clean for dirty. If the hotel uses 100 sheets and 200 napkins then 100 clean sheets and 200 clean napkins will be returned
- In some hotels for example, guest room floor pantries are set with correct par levels for that particular floor. As room attendants remove soiled linen from each room, they count the linen. These quantities are recorded on their work sheet next to each room number
- At the end of the day, the quantities are totalled and checked by the Housekeeping supervisor and sent to the linen room or laundry for replacement in exact quantities on to these floors

For example, if the room attendants on the 43rd. floor use:

- 46 Queen sheets
- 48 pillow cases
- 36 bath towels
- 29 hand towels
- 52 face washers
- 24 bathmats
- 12 bathrobes.

Then this will be the amount that is replaced in to the floor pantries.

Top up system

- This is a system where no par levels are established so stock levels are just "topped up" daily
- This may lead to overstocking of items and uncontrolled costs. It may also lead to extreme shortages of linen because there is essentially little or no control over the linen.

For example, room attendants use linen and rely on laundry or housekeeping staff to replenish the stock.

Requisitioning system

- This is a system where the hotel does not keep a stock of linen. It is a method used for very small hotels and restaurants who need to control their costs tightly
- An estimate is made of the linen that will be needed based on hotel occupancy and restaurant bookings

- The quantities required will be ordered from the laundry who will deliver these items
- Whilst the system is financially responsible, it may cause problems if occupancy increases or if there is unexpected patronage of the restaurant.

For example, a 100 room hotel has a forecasted occupancy of 80% i.e. 80 rooms. So the hotel needs 160 sheets and 160 pillow cases. If exactly these quantities are ordered and room occupancy increases to 90% then there will a shortage of linens to service rooms and revenue may be lost.

Linen stocktaking

Regardless of which type of laundry service is offered or whether the laundry is off-site or on-site, regular linen stocktakes of all linen should take place. This will identify any loss or theft of linen but primarily it will assist in maintaining par levels.

Stocktakes should take place at least quarterly and should include all items used by all properties, restaurants and in guest rooms.

It is preferable to conduct linen stocktakes overnight when linen is not moving. To conduct a linen stocktake:

- (A) Count all linen in guest rooms
- (B) Count all linen in store rooms whether clean or dirty
- (C) Count all linen in soiled linen trolleys or in the laundry
- (D) Count all clean linen in the laundry and other adjacent storage areas
- (E) Count all table linen in the restaurants and storage areas
- (F) Count all excess table linen, both clean and dirty, in the restaurants
- Total quantities of all of the above (A+B+C+D+E+F)=G
- G is the number of all linen items currently in circulation
- Refer to the totals at the previous stocktake (H) and add the total of any new linen placed in to circulation since that stocktake (J) (H + J) =(K)
- K is the amount that should be in circulation
- Add up the number of items that have been condemned since the previous stocktake (L)
- Then K minus G (K-G) = N is the actual loss factor.

  Subtract the total at G from the overall par level and this is the quantity of linen that will need to be replaced in to the operation
- See example table below.

Regular stocktakes will assist in identifying areas of high loss and this should be addressed with individual departments to investigate how linen is being lost or damaged.

STOCKTAKE OF LINENS												
DATE:						CONDUCTED BY:						
ITEM	PAR LEVEL	LAST STOCKTAKE (H)	NEW STOCK (J)	QUANTITY IN GUEST ROOMS (A)	STORE ROOMS (B)	SOILED IN LAUNDRY (C)	CLEAN IN LAUNDRY (D)	CLEAN & DIRTY IN RESTAURANTS (E)	TOTAL (A+B+C+D+E)= (G)	CONDEMNED SINCE LAST STOCKTAKE (L)	K-L (M)	M-G ACTUAL LOSS (N)
		H + J = K=TOTAL CIRCULATING STOCK										
KING SHEETS												
QUEEN SHEETS												
SINGLE SHEETS												
PILLOW CASES												
BATH SHEETS												
BATH TOWELS												
HAND TOWELS												
FACE WASHERS												

BATHMAT												
BATHROBE												
TABLE LINEN												
45 X 45 WHITE												
45 X 45 BEIGE												
150 X 150												
230 X 230												
TRAY MATS												
310 X 160												
90X 90 RED												

Work Projects

It is a requirement of this Unit that you complete Work Projects as advised by your Trainer. You must submit documentation, suitable evidence or other relevant proof of completion of the project to your Trainer by the agreed date.

Work Project One (1.1 – 1.4):

- Arrange to visit a large on site hotel laundry. Investigate the way linen is received, sorted and washed
- Document the type and size of the washing machines that are available and for what they are used including how they are heated and if there are any challenges with the water quality
- Prepare your questions in advance of your visit so you do not waste the Laundry Manager's time
- Write an essay, include photographs on what you have discovered about managing an on-site laundry including the advantages and disadvantages from the hotel's perspective. Include the questions you asked in your essay.

Work Project Two (1.4):

- Your trainer will arrange a visit by a leading washroom chemical supplier to talk about the chemicals that are used in the laundry washroom
- Prepare a one page instruction sheet for all laundry staff entitled "Safe chemical handling in the laundry washroom".

Work Project Three (1.5 – 1.9):

- Arrange to visit a commercial laundry that processes several hotels' linen. Investigate the way that linen is handled after the washing process is completed
- Research the drying cycles, tumbler dryers and the use of the flatwork ironer through to the folding, stacking and transportation of goods back to the customer
- Pay particular attention to the counting, rewash and repair processes
- Prepare your questions in advance so you do not waste the Laundry Manager's time. Include these questions in your presentation
- Create a short training presentation to present to your trainer with your findings.

Summary

Perform basic laundry functions

Receive soiled linen:

- Understand the laundry processes
- Receive linen by client and by urgency
- Understand par levels.

Sort items for laundering:

- Sort linens by category
- Sort linens by degree of soil
- Sort special care items
- Take precautions while sorting.

Weigh linens:

- Use scales to weigh linens
- Understand automated sorting of linens.

Operate washer extractors:

- Operate the different washing machines
- Select washroom chemicals
- Take safety precautions when handling chemicals
- Handle a chemical spill
- Complete a wash cycle
- Select correct water levels.

Operate tumbler dryers:

- Use a tumbler dryer
- Solve the problems that can arise
- Take precautions when using a tumbler dryer.
- Complete the finishing process
- Operate a roller ironer
- Operate a flatwork ironer
- Take precautions when operating a flatwork ironer
- Prevent the rolling of linen
- Operate manual feeding
- Operate automatic feeding
- Operate a folding machine
- Use a towel folding machine
- Complete manual folding.

Sort linen for rewash:

- Investigate the need for rewash
- Rewash linens
- Know the average wash life of linens
- Repair linens
- Condemn linen.

Count, package and transport linen:

- Complete relevant paper work
- Complete wrapping, stacking and storage of linen
- Arrange external transportation
- Complete internal transportation
- Manage the issuing of linen
- Complete linen stocktaking.

Element 2:
Perform dry cleaning functions

2.1 Receive and check items

Introduction

In all hotels there will be items that will require dry cleaning rather than washing. Whether or not an item will be dry cleaned or washed will be determined by the fibre and fabric of the item or garment.

If the hotel has an on-site dry cleaning facility service to guests will be greatly improved. The hotel may be able to offer an "express service" for garments to be dry cleaned or pressed only. The onsite facility will be particularly helpful if guest room furnishings such as curtains need to be cleaned and returned the same day.

In many cases however, the hotel will elect to have an on-site laundry but use a contractor to provide this service. It must be emphasised that dry cleaning is an extremely specialised field and a good dry cleaner must have extensive knowledge of fibres and fabrics as well as stain removal techniques and pressing systems.

The guest laundry and dry cleaning cycle

In most hotels a same day laundry and dry cleaning service is offered to their guests for their personal clothing. In many cases this service is offered Monday to Friday and is usually returned by 5 p.m. if received for processing by 10 a.m. Five star properties however would offer this service 24 hours per day, seven days a week. If some guests prefer their laundry to be returned within two hours, they may incur a 50 % surcharge.

In small motels, however, there may only be a small guest laundry where guests may launder their own clothes using the hotel's coin operated washing machine, dryers and irons.

Where hotels do provide this service, the following is a brief overview of the process:

- The room attendant places laundry bags (either plastic or fabric) and laundry dockets into the wardrobe or drawer when cleaning the guest room
- This docket may be in duplicate or triplicate depending on the hotel's accounting processes. It will have all the most common items listed complete with itemised charges for each item and a space for the guest to complete his name and room number
- When the guest requires this service he should complete the docket with his name, room number and quantity of items to be processed on the relevant lines
- The docket is then placed in the bag and the guest may take it to Reception by 9 or 10 a.m. (in smaller hotels) or call Housekeeping or Valet service for the laundry to be collected (larger hotels)

- The staff member will collect the laundry from the guest room and MUST check that the docket is complete with all guest details. If not, the room number should be noted on the bag
- If this is not done, the laundry may still be processed but will be unable to be returned to the guest's room or charged for as it will be unidentified
- If the laundry is ON site at the hotel, the staff member will deliver the bags directly to the laundry for processing
- If the laundry is OFF site, the laundry will be delivered to a central point within the hotel such as the linen room or Housekeeping office to await collection by the laundry driver. Some guests may give their laundry bags to Reception or even to the doorman. This must all be sent to the central point

- Here the staff member will enter all guest items on to a summary sheet
- The summary sheet is a record of all guest names and room numbers whose laundry or dry cleaning has been received for processing
- All the guest bags are placed into a fabric laundry bag ready for collection
- A copy of this summary sheet is given to the laundry driver with all the guests' bags
- The laundry will then process all items to be laundered and dry cleaned
- A copy of the summary sheet will be returned with all guest items later in the day for cross-checking and a list of charges for each guest
- The laundry charge will be added to the guest account either by the linen room or Housekeeping staff via a computer, or a copy of the summary sheet will be given to Reception for posting
- The linen or Housekeeping staff will then return all clean and checked items to the guest room neatly packaged.

Receiving the guest laundry and dry cleaning

When the guest laundry is received at the laundry, the bags are open and the items to be washed or dry cleaned are checked against the docket. Many guests do not complete this task and leave it for the laundry staff to complete. Discrepancies in the count should be noted on the docket e.g. the guest writes that there are three shirts only but four have been received:

- When the laundry is ON site at the hotel. The guest room number and names are recorded on a summary sheet as they are received with a notation as to whether items are to be laundered or dry cleaned. This summary sheet will be used at a later stage for charging to the guest account
- All clothing must always be checked for personal items left in pockets inadvertently by the guest (tissues, coins, pens and brooches on lapels). These must be removed and valuables must be stored safely throughout the day to be returned to the guest later. Pens left in pockets in particular can cause damage to all other garments in the wash load if overlooked
- It is important with shirts and jackets that sleeves be unrolled if necessary before washing

- You should remove the forgotten item, making a note about which guest the item belongs to. Place the item in a secure location for returning to the guest later in the day. Make a note on the guest docket to this effect
- Items must be checked for previous damage and noted on the docket. If this is not noted and witnessed, the guest can potentially make a financial compensation claim against the hotel or laundry. It may be prudent to contact the guest to advise of any items received damaged
- All items of clothing will then need to be identified as to whom they belong. This is a very important process as many different guests' clothes may be washed or dry cleaned in the same machine and will need to be identified to each guest once processed
- Failure to identify all garments will lead to guest complaints and cause items to be mixed up and returned to the wrong guest.

How are garments marked?

Marking can be done in two ways

a) Polymark machine

b) Attaching a written paper label

The polymark machine:

- The polymark machine is a labelling machine which is simple to use
- It is an electrical machine where a combination of letters and numbers can be printed on to a coloured tape. This tape is available in many colours and it is recommended to use a different colour for either each day of the week or for each hotels' guests
- This tape is then both cut and adhered to the garments by the machine. This tape is easily peeled off after the laundering process without damage to the garment
- This tape should be placed in the same place on all same garments for uniformity
- N.B. It should not however be used on silk and delicate fabrics to avoid possible damage:
    - For example, the Regent Hotel sends out 54 bags of guest laundry and dry cleaning and the Marriott Hotel sends out 36 bags to the outside contractor on a Monday
    - The Regent Hotel's guests' items may all be marked with pink tape and the Marriott Hotel's guest items marked with green tape. The different colours will make identification easier
    - Each dry cleaner will have their own system for marking garments and will have a code or legend for staff to use
    - The polymark number on each guests' clothes MUST be noted on the guest's laundry docket for identification after processing.

www.polymark.net

www.polymark.co.uk

Attaching a written paper label:

- This paper is a special moisture proof paper that will withstand the laundering and dry cleaning process.

Most dry cleaners will use both systems alongside each other.

Example

Hotel Name	Colour of polymark tape	Daily code Monday	Daily code Friday
Regent Hotel	Pink	M001-M100	F001 -F100
Marriott Hotel	Green	M001-M100	F001 -F100
Taj Hotel	Blue	M001-M100	F001 -F100
Raffles Hotel	Yellow	M001-M100	F001 -F100
Beaumont Hotel	White	M001-M100	F001 -F100

M001-M100 identifies each guest's items as they are received and this number MUST be noted on the guest's docket. Guest items are numbered in sequence.

For example, all Mr Tan's laundry pieces will be marked M001 and his laundry docket will also be marked with this number.

All Ms Lay's laundry pieces will be marked M002 and her laundry docket will be marked with this number.

Other dry cleaners may choose to use the guest room number instead of the above system e.g. M406, M1308.

Other codes

PO = Press only

H = Shirt on hangers

FS = Fold shirts

SH = Starch shirt on hangers

SF = Starch shirts folded

M = Monday

T= Tuesday

W = Wednesday

TH = Thursday

F = Friday

SA = Saturday

SU = Sunday

X = express service

For example, if a guest from the Regent Hotel on Monday wants 6 shirts returned on coat hangers and has a pair of trousers for express service (two hours) pressing only, using the above code both the shirts would be marked MH 001 on pink tape and his trousers will be marked similarly MPO X001. For Friday they would be marked FH001 and FPOX001 but still on pink tape.

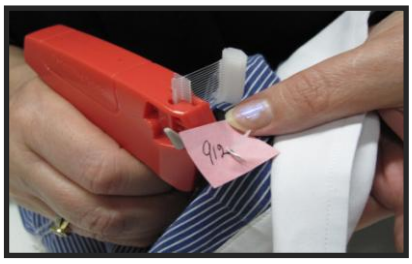
In addition express service garments will also usually have a red coloured moisture proof tag attached to alert the washman or dry cleaner that it is indeed express. Other colours will be used for minor repairs.

The coloured numbered polymark tapes help in tracking lost items should errors occur in packaging or delivery.

Hand written paper labels

Moisture proof labels are attached to the garments by the use of plastic tags or safety pins. They are normally attached to the manufacturers' label where it will not damage the garments.

Using a similar code as above, the letters and numbers are written by hand on these tags which are then attached to the garment. Again the same number must be written on the docket as all clothing items belonging to that guest.



Marking small items

- Lingerie (bras and underpants) and socks should not be marked individually. These are placed in small net laundry bags for laundering. The bags are then marked with the relevant labelling
- Pairs of socks are sometimes pinned together with safety pins but this can damage the socks
- The same items in bags from several guests are then all processed together e.g. dark coloured sock bags or white lingerie in separate wash loads.

Handling hotel uniforms

The daily collection, handling and cleaning of staff uniforms varies greatly from hotel to hotel and laundry to laundry.

In a small motel for example where there are very few uniforms, the staff may be responsible for the laundering of their own uniforms. Some motels pay staff a small allowance for doing this.

In medium size hotels, staff may each be issued with several sets of uniforms which are laundered through the hotel in the same way as the guest laundry and dry cleaning is handled i.e. with a staff laundry docket, which is similar to the guest laundry docket. Soiled uniforms will be recorded in a similar manner on a staff summary sheet and checked off on receipt on return from the laundry.

Other hotels may not own any of the staff uniforms and arrange to hire all uniforms through a uniform hire company. With this method all soiled uniforms are usually collected and replaced once a week e.g. a chef who works five shifts per week would have 12 uniforms issued to him to allow a change every day with spare for emergencies. All soiled uniforms will be collected the first week and returned the next. All pieces of these uniforms will all be marked with either a number or a barcode for identification. This system does however require regular updates by hotel staff to the laundry company of staff terminations, otherwise costs may blow out. The disadvantage of this system is the cost is charged per unit leased regardless of whether they are used or not.

Very large hotels usually have a separate uniform room from where all staff uniforms are issued either:

- On a 1 for 1 basis i.e. clean for dirty (size and style)
- By number (each staff member will be issued with a number which is sewn on to each piece of uniform issued to that person). These will be hung on numbered racks by department. The uniform room staff will be responsible for all aspects of uniform management
- By barcode which is linked to a computer and staff identification cards. This enables the uniform staff to control and track uniforms at all stages of use and laundering.

Uniform staff will co-ordinate with the laundry all laundering and dry cleaning processes and necessary repairs and be aware of rewash items and shortages.

Not all industrial laundries will process uniforms. However in the laundering process items are handled in a similar manner to the laundering and dry cleaning of guest clothes in receiving , sorting, processing and finishing but usually on a much larger scale. Uniforms that are processed off site must be identified as to which property they belong to.

2.2 Sort items for dry cleaning/washing

Introduction

Once items have been received, checked and marked they are sorted into categories for processing. It is important that all care labels on all garments be read when doing so.

Categories for sorting

Items are sorted for:

- Washing
- Dry Cleaning
- Press only.

Washing

Items for washing are then sorted into:

- Whites
- Colours

- Dark colours
- Delicate items.

Dry cleaning

Items for dry cleaning are then sorted into:

- Light colours
- Dark colours
- Lighter weight
- Heavier weight.

Fabric care labels

Most garments worldwide have care labels which are sewn into the garment. In some countries, this is mandatory but in other countries the care instructions may be simply written on a paper tag attached to the garment when purchased. This tag is removed when worn never to be seen again.

As many hotel guests are from overseas countries, the origin of garments may never be known. This presents a problem to the dry cleaner to try to establish what type of fabric he is dealing with.

Most developed countries have adopted symbols as per the table below:

Washing guest items

Similarly to the wash room guest items should be weighed before being placed into the washing or dry cleaning machines so that machines can operate at maximum capacity through not under or overloading.

2.3 Complete stain removal process

Introduction

As previously mentioned, a good dry cleaner must have very extensive knowledge of both fibres and fabrics, stain removal techniques and pressing equipment. An unqualified person should NEVER be allowed to work in this part of the operation without full supervision.

Whilst the term dry cleaner is used, many items that guest send will need to be washed. Therefore, as well as having dry cleaning machines, all dry cleaning plants will also need washing machines.

These will vary from 5 kg capacity to 25 kg. To wash delicate items and small amounts of shirts in an 80 kg commercial machine will be more costly and less efficient as well as possibly damaging the guests' clothes through the use of too much chemical or mechanical action.

Fibres and fabrics

The study of fibres and fabrics is a science of its own. It is not possible to identify fibres and fabrics by appearance or touch alone. The chemistry of textile production is constantly evolving and in today's world, there are thousands of man-made fibres and fabrics all with different brand names. With the constant emphasis on the environment and the ever increasing costs to guests for dry cleaning, more washable fibres are being developed.

What is a blend?

A fabric blend is a combination of two or more fibres blended or woven together. The most common blends in hotel use are usually those of polyester and cotton for sheeting and nylon and wool used in carpeting.

Sheets may be a blend of 80% cotton and 20 % polyester. Polyester extends the wear life of a sheet whilst cotton gives it a smooth luxurious feel. Blends can also be of a 70/30 or 50/50 mix.

Many clothes are also blends of fibres.

There are basically four main categories of fibres.

- Protein (Animal)
- Cellulose (Plant)
- Synthetic (Man-made)
- Minor.

Examples of fibre sources

Protein (Animal hair)	Cellulose (Plant)	Synthetic (Man made)	Minor
Sheep's wool	Cotton	Polyester	Glass
Camel	Linen (Flax plant)	Rayon	Metallic
Angora (rabbit)	Jute	Nylon	
Cashmere (Goat)	Hemp	Acrylic	
Mohair (Angora goat)		Spandex (Lycra)	
Silk (worm)		Acetate	

Types of fabrics	Types of fabrics	Types of fabrics	Types of fabrics
Wool (blankets Uniforms and upholstery fabrics) Silk is used in decorative fabrics and beds	Cotton and Linen used for sheeting, table linen and uniforms Linen is used in upholstery fabrics Jute is used for carpet backing	Usually blended with other fibres. Nylon is used for shower curtains, rayon for upholstery fabrics and clothing	Glass fibre used for curtains and metallic used as a trim.

As well as fibres being blended there are many other factors which affect the performance of a fabric.

These include such factors as:

- Whether the fabric is woven
- Whether the fabric is knitted
- What type of dye is used on the fabric (many dyes are unstable and will transfer their colour on to other garments)
- Whether the garment has been pre-shrunk during manufacture
- Is there a printed pattern on the fabric or is the pattern woven in during manufacture?
- Are there sequins or decorative beads on the garment? These may dissolve in solvent
- Some buttons may melt in the solvent
- How resistant to temperature, moisture and chemicals the fabrics are
- Does the fabric have a pile (velvet or suede)?

All of the above factors and more will influence the type of stain removal that can take place.

Types of stains most commonly found on guests' clothing are:

- Food stains
- Oils and fats
- Ink
- Perspiration
- Blood and body fluids
- Cosmetic stains
- Food colourings and dyes.

The Spotting table

The spotting table is where pre-spotting of all garments takes place prior to being washed or dry cleaned. The spotting table has a hose attached which can produce both dry and wet steam and air by way of foot pedals. There are three foot pedals. The third one drives the vacuum which removes the condensate to the steam trap.

Dry steam is available by pressing the steam pedal lightly and wet steam is when the pedal is full depressed. (Dry steam will be used when spotting silk and rayons to reduce wetting and wet steam is used more on heavily soiled fabrics or heavy duty fabrics such as denim jeans).

Use wet steam sparingly as this can cause damage to garments.

Pre-spotting chemicals used on the spotting table usually include the following:

- Ink remover (for wet and dry ink)
- Protein remover (for blood, faeces egg, milk, perspiration and soil stains on collars)
- Paint, oil and grease remover (for paint, lipsticks, oils and greases)
- Rust remover (for residual blood stains)
- Tannin remover (for coffee, tea, red wine and some fruit juices)

- All purpose spot remover (for general light soiling stains).

Most chemical companies who provide spotting board chemicals will also provide a stain removal guide chart which can be pinned to the wall for easy reference.

Spotting chemicals are all kept in individual small bottles with a pouring spout. These bottles MUST ALWAYS be correctly labelled. To not do so may result in unintentional damage to garments. They are placed on the side of the spotting table along with spatulas and spotting (or tamping) brushes for easy access. The spatula is to break up any solids and the brush is used to loosen stains by tamping. Tamping is the gentle massaging of fibres rather than a vigorous scrubbing motion. If the scrubbing motion is too heavy, this could break some fibres and cause damage to the garments:

- Before using any of the spotting chemicals, it is always wise to see if the steam gun will flush the stain from the fabric first

- Place a white towel (never coloured) under the garment at the edge of the spotting table. The steam gun is held above the fabric at an angle of approximately 90 degrees and steam is applied directly to the stain
- If the stain is removed the garment can then be dried with air
- If the stain is not removed, then spotting chemicals may be used. You must follow the guidelines set down by the dry cleaning manager in conjunction with the chemical supplier. To use the wrong chemicals may cause damage to garments which will then have to be replaced at cost
- The spotting agent is applied to the stain and gentle "tamping" will take place. The stain is then flushed with steam
- Garments must be dried before being placed into the dry cleaning machines. This is done by the application of air through the steam gun.

Identifying stains:

It is important to try and establish what the stain is and treat accordingly. An experienced dry cleaner will be able to recognise many common stains and treat them easily. Some stains may be a combination of products and so may require several treatments. Many stains can be identified by appearance or smell.

Stains can be:

- Water soluble (salt and sugar)
- Solvent soluble (oils and fats)
- Insoluble (clay, carbon, sand)
- **A dye** – Many foods and soft drinks have colorants added and in many cases the dry cleaner is faced with the challenge of removing localised colour from a garment whilst retaining the colour of the body of the fabric
- Chemical (nail polish, paints, inks).

2.4 Operate dry cleaning machine

Introduction

There may be several types of dry cleaning machines in your property. Dry cleaning is a method of cleaning garments which cannot be washed in water. Dry cleaning machines look similar to free standing washing machines and operate similarly but instead of water use a solvent to clean. At the rear of the machine, there is a large filtration unit and still for reclaiming the solvent used.

Machines can vary in size to hold between 12 and 35 kgs.

The most common dry cleaning solvents in use today are:

a) **Perchlorethylene** – This is a non flammable chlorinated solvent. It should be stored in a cool dark place when not in use. It is instrumental in removing solvent soluble soil such as oils and greases etc. It may however also dissolve decorative items on clothing such as sequins, beads, some buttons and synthetic trims. This is the most common dry cleaning solvent in use.

b) White spirit is an original dry cleaning fluid and has been widely used for many years. With the outlawing of fluorocarbons for environmental reasons, it is regaining popularity. It is a paraffin based spirit, has good grease removal properties but is flammable.

c) Hydrocarbon is a petroleum-based solvent which is flammable. It is more suitable for use on delicate garments but needs a longer wash cycle to allow it to work.

Follow manufacturer's instructions

All dry cleaning machines can be programmed to perform different cycles depending on load types and degrees of soiling. It is important to follow all instructions, in particular safety instructions when handling the solvents.

How does a dry cleaning machine work?

- A dry cleaning machine works in a similar way to a washing machine except that the clothes are dry-cleaned, rinsed and dried all in the same machine
- Clothes are placed into the drum and the dry cleaning solvent and a dry cleaning detergent are injected into the drum as the cycle progresses
- The dry cleaning solvent is constantly recycled through the machine through the filtration system and back into the machine so that soils are not redeposited on clothes
- The filtration system removes any soils, dyes and lint
- The drum of the machine operates between temperatures of 10C-30C
- Once the washing and rinsing cycles are complete, the machine pushes heated air into the machine at 60C to "dry" the clothes evaporating any remaining solvent
- The final cycle will be a cool down for approximately five to seven minutes
- Items should be removed from the machine as soon as possible when the cycle finishes to aerate and allow any remaining solvent to evaporate
- When items have finished being cleaned, they are then ready for pressing and packaging
- The solvent should be distilled after each machine cycle. There will be manufacturer's instructions on how to do this along with all safety precautions that need to be employed in the process. Care must be exercised at all times
- Safe handling of all solvents is a priority and only trained personnel should handle them
- All dry cleaning machines have a button trap which catches buttons, coins, pins and such which will require cleaning
- The lint filter that will require regular inspection and cleaning.

Handling the solvents

Perchlorethylene needs to be handled very carefully ONLY by a trained operator:

- Protective gloves and overalls should be worn to limit skin contact
- A breathing mask and goggles should be worn when handling perchlorethylene as the vapours can be inhaled. Failure to do this may lead to dizziness and eye irritations
- Drums containing perchlorethylene should be kept tightly closed to prevent evaporation of the solvent
- They should be stored in a cool clean dry area under lock and key
- If is exposed to high temperature, it may decompose and form corrosive gases
- These gases may corrode heating elements in the dry cleaning machine and damage fabrics
- When it is necessary to replace solvent in the dry cleaning machine, this should be done by using correct pumping equipment directly in to the machine
- No open containers should be used to refill the machine
- There should always be good ventilation in the dry cleaning area so that any fumes can be exhausted as quickly as possible
- The dry cleaning machine should be regularly checked for leaks
- There should be a well-practiced documented emergency procedure in place in the event of spillages
- The sludge that accumulates after the distillation is toxic and should be removed by a certified waste handler
- Dirty solvent can cause white items to look grey
- Perchlorethylene is known to be carcinogenic.

2.5 Perform pressing, inspection, minor repairs and finishing activities

Introduction

The final step of the dry cleaning cycle is the pressing and inspection of the finished items. Laundries and dry cleaning plants will have many different styles of presses depending on the type of items processed.

These may include:

- Pants topper
- Pants press sometimes called a hot head press or all purpose press
- Puff irons
- Body former

- Collar and cuffer press
- Shirt Sleever press
- Tunnel presses
- Shoulder press.
- Rotary presses.

How do presses work?

When garments are removed from the washing machines and dry cleaning machines, they are ready to be pressed. This is the final stage before packaging.

Items that have been washed such as shirts, tee shirts, handkerchiefs will be pressed when damp straight from the washing process.

They are placed on to a series of presses which will remove the creases as well as drying the garment.

All presses are operated by steam and air.

Many presses have foot pedals for the operator to control the steam and air whilst others have buttons to push. The buttons are usually in pairs so that there is less chance of the operator inadvertently placing their hands on the press when the head of the press is lowered.

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Type of press	Used for	How is it used	Notes
Pants topper	• Pressing the tops of trousers around the pockets and waistband.	• Trousers are secured by the waist around the topper • Steam is then blown around the trousers removing creases • The operator then removes the trousers and sends to the trouser press.	
Trouser press or hard head press	• Pressing the legs of trousers one at a time. Also used for pressing small items like tee shirts, vests and neckties.	• Trousers are laid flat with the creases at either edge and the head of the press is lowered on to the trousers thereby completing the pressing • Trousers are then placed on to a coat hanger and sent for packaging.	• This press can also be used to press small items such as napkins and tray mats. To do this is very labour intensive but can be of assistance during busy times in the laundry.

Type of press	Used for	How is it used	Notes
Puff iron	• Used to touch up all items that have been pressed if necessary.	• Many different styles Hand operated.	
Body former	• Used to press jackets, coats and dresses.	• Jacket is placed on former and buttoned up • Wooden flexible sleeve formers are placed in the sleeves. Item is secured • The former is then blown up like a balloon removing creases in the garments • The wooden sleeve formers are removed • The jacket is then placed on a hanger and sent for packaging.	
Collar and cuffer	• Designed and used only for pressing the collars and cuffs of shirts • Shirts must be damp.	• The collars and cuffs of shirts are placed neatly on to the specific presses • The operator lowers the heads of the presses simultaneously by pressing two buttons and releases them after several seconds.	• Used as the first press for shirts.
Sleeve former	• Designed and used only for pressing shirt sleeves • Shirts must be damp	• Both sleeves of each shirt are placed over the arms of the machine and secured • The operator pushes two buttons which then draws the sleeves into the steam chamber • It releases automatically.	• Used as a second press after the collar and cuffer.

Type of press	Used for	How is it used	Notes
Shirt former or buck	• Used to press the body of the shirt • Shirts must be damp.	• The shirt is placed on the former and the front placket of the shirt is straightened and secured at the base • The operator pushes two buttons and the shirt is drawn in to the steam chamber • The shirt is blown up like a balloon • It releases automatically once pressed.	• Final press for the shirts • Used after the sleeve former • The shirt is then placed on a hanger and sent to the packaging section • This press is shaped without arms to prevent wrinkles on the shoulders or under the arms.
Steam Tunnels	• Used for pressing garments that have been washed • There are many different types and sizes.	• Items are placed on hangers onto a mobile rail which passes through a steam tunnel which steams and finishes the garments. The steam relaxes the fibres and then the air dries them.	• These can vary enormously in size and are generally used where there are large volumes of polyester/cotton blends of uniforms or shirts to be processed.
Shoulder press	• This press is shaped like a mushroom head and is used for pressing the difficult parts of shoulders on jackets.	• The operator holds the garment on the press and steams it as long as necessary.	
Rotary press	• Used as per the hot head press.	• This is a system where there are two or more press tables but only one head • One garment is being pressed whilst another garment is being laid out for ready for pressing • The operator spins the table around using pedals to press the item • When one garment is being pressed, another one is removed and another one is being laid out.	• Is more productive than a single head press.

Inspection

Before items are pressed, the pressing staff should inspect all items to ensure they are clean and free of stains. Some items may require rewashing or additional stain removal. If necessary this should be done at this time as the heat during pressing may set some stains permanently.

Where all effort has been made and stains cannot be removed, these should be noted on the guest dockets and a tag placed on the garment with a brief explanation.

This will prevent a possible complaint.

Repairs

Any items that have been marked for minor repairs will be sent to the sewing department prior to being pressed. Minor repairs include the sewing of missing buttons and stitching hems and are usually done free of charge.

If the guest requests that hems be shortened or zips replaced, then this may be done but at an additional cost.

It is always wise to keep a stock of sewing threads, zips and buttons of different colours and styles so these requests may be met.

Once all pressing has been complete items are sent to the folding and packaging section.

2.6 Package and transport items

Introduction

As items have been processed by either washing, drying, dry cleaning or pressing, they are returned to the packaging section for folding, wrapping, identification and transportation. A large area is required for this process.

Identification of guest items

- Many laundries have a series of pigeon holes which are each marked according to the guests' polymark number and where a copy of the docket is kept during the cleaning process
- As items are finished, all pressed folded items such as shirts, socks, underwear, ties are identified by the polymark number and placed in to the relevant pigeon hole of each guest
- If there are items that are on hangers, these are hung on to pre-prepared numbered hooks as they are finished. These are called jiffy hooks
- Jackets are usually packaged in plastic wrapping. This is called polytubing which is on a continuous roll. The jacket is hung on the machine and the length of bag required is pulled down. The roll is then cut and the bag is heat sealed at the top
- Five star hotels may have different packaging such as plastic zipper bags or cloth covers

- When all garments for each guest have been processed it is important BEFORE they are packaged to cross-check against the guest dockets that all items are present and correct and have been processed according to the guest's needs (shirts folded or on hangers)
- As items are packaged, they should be given a final inspection for stains, repairs and pressing quality
- If the laundry is ON-SITE, guest laundry and dry cleaning is then ready for transportation back to the guest room
- If the laundry is OFF-SITE, then the laundry staff must check that all packages for each hotel are completed and correct before delivery.

Shirt Folding

- Shirts can be folded on a specially designed machine. This is done by hand using a template
- In many cases, hotels or laundries may use their own promotional packaging on the shirts
- This may include items like a shirt board, a paper bow tie and paper strip around the folded shirt
- Folded shirts may be placed in plastic bags, wrapped in tissue or placed in to cardboard boxes or baskets for delivery back to the guest
- Tee shirts may be folded using a template and again packaged into boxes.

Work Projects

It is a requirement of this Unit that you complete Work Projects as advised by your Trainer. You must submit documentation, suitable evidence or other relevant proof of completion of the project to your Trainer by the agreed date.

Work Project Four (2.1, 2.2):

- Formulate a written policy to be used for training new staff at your workplace on how to receive, sort and mark guest clothing that has been sent for laundering or dry cleaning. You may use photographs and any other relevant documentation.

Work Project Five (2.1, 2.4):

- Your trainer will hand out a copy of a guest summary sheet with an attachment and some props. You should complete the summary sheet with all correct relevant information.

Work Project Six (2.1, 2.2):

- Your trainer will hand out some props and you should sort all items appropriately.

Work Project Seven (2.3 – 2.6):

- Arrange to visit a large dry cleaning plant. Investigate the whole process of receiving, sorting, spotting, washing, dry cleaning, packaging and transportation
- Write a brief essay on why only a well-trained operator should use the spotting board and dry cleaning machine.

Summary

Perform dry cleaning functions

Receive and check items:

- Complete the guest laundry and dry cleaning cycle
- Understand an overview of the process
- Receiving guest laundry bags
- Use a polymark machine
- Use moisture proof paper tags
- Mark small items.

Sort items for dry cleaning/washing:

- Sort items by categories for washing, dry cleaning, press only
- Read care labels
- Weigh items prior to processing.

Complete stain removal process:

- Understand and recognise basic fibres and fabrics
- Identify stains
- Operate the spotting table.

Operate dry cleaning machine:

- Recognise the different types of dry cleaning machine
- Understand how a dry cleaning machine works
- Understand the safe handling of dry cleaning solvents.

Perform pressing, inspections, minor repairs and finishing activities:

- Know the different types of laundry presses
- Use the presses
- Inspect the final product
- Complete the necessary repairs to garments.

Package and transport items:

- Identify and collate finished guest items
- Use a shirt folder
- Use the correct packaging materials.

Element 3:
Complete and maintain laundry records

3.1 Complete required internal records

Introduction

Whilst the operation of the laundry and dry cleaning plant is very important, one of the vital daily tasks is to record and maintain records for cost control purposes. The documentation programmes for all laundries will be different and will depend on the types of machines that are in use and the type of items processed.

What internal records need to be kept?

The following are examples of the types of records that should be kept:

- Daily production records of all washing machines (How many kilos per day of each item)
- Daily production of all tumbler dryers
- Daily production records of the flatwork ironer folder
- Daily production records of all folding machines (Quantities of all folded items and their type)
- Daily production records of all dry cleaning machines (How many kilos per day)
- Daily and monthly guest laundry and dry cleaning revenues
- Monthly production records of all items processed (record of all items washed and ironed)
- Total monthly chemical cost (based on purchases and consumption)
- Cost of chemical per kilo
- The percentage of rewash items (it is vital to know so that costs can be controlled)
- Preventative maintenance records of all machinery
- Machinery repairs
- Boiler service records
- Water treatment records
- Sewage, water and power costs
- Chemical company's regular report (so action may be taken if necessary)
- Guests' daily summary sheets

- Invoicing
- Staff rosters including sick days and holiday schedules with all relevant administrative paperwork
- Payroll costs
- Truck driver schedule and transport costs (petrol, truck servicing)
- Condemned linen figures
- Purchase orders for all goods purchased
- Replacement stock put in to circulation
- Records of abused linen per customer or per department
- Monthly stock takes of all miscellaneous supplies such as hangers, pins, polymark tape, packaging materials.

Record keeping and proper analysis of all records will assist in determining if production can be improved in certain areas of the operation. It will also assist in calculating profit margins.

Prices charged for dry cleaning and laundry must demonstrate competitiveness whilst maintaining profitability.

3.2 Complete required external records

Introduction

The main external records that need to be kept are for revenue purposes.

Sub-heading

These include:

- **Delivery dockets** (this is a proof of deliveries with quantities of items delivered). This is a precursor to a monthly invoice
- **Invoices** (invoices must be accurate and sent out in a timely fashion so that payment may be received)
- **Summary sheets** (This is a list of guest items that need to be charged to the guests' accounts)
- **Guest dockets** (a copy of all guest dockets should be kept so that if a complaint should arise, the item can be tracked with any specific notations).

Customer complaints

It is important to keep a record of all customer complaints so that investigation of shortcomings on the laundry floor may identify issues that need resolution.

These issues could be related to:

- Linen shortages
- Incorrect goods delivered

- Stained or damaged linen
- Late deliveries
- Lack of deliveries
- Greying of fabrics
- Damage of buttons and zips during washing or dry cleaning
- Shrinkage of garments
- Scorch marks.

It is important to keep all records of complaints so that issues can be dealt with and customer service is improved. Customer complaints always help to identify issues that we may not be aware of.

Work Projects

It is a requirement of this Unit that you complete Work Projects as advised by your Trainer. You must submit documentation, suitable evidence or other relevant proof of completion of the project to your Trainer by the agreed date.

Work Project Eight (3.1):

- Your trainer will hand out a copy of a guest summary sheet with an attachment and some props. You should complete the summary sheet with all correct relevant information.

Work Project Eight (3.2):

- Your trainer will arrange a dry cleaning operator to talk about necessary record keeping and complaints. After the presentation create a policy on handling laundry and dry cleaning complaints. Include a section on compensation.

Summary

Complete and maintain laundry records

Complete required internal records:

- Know what types of internal records are to be kept.

Complete external records:

- Understand the paper cycle
- Understand and complete invoicing.

Element 4:
Undertake maintenance functions

4.1 Understand and follow basic maintenance functions

Introduction

All laundries should have in place a preventative maintenance programme for all machines and equipment. Preventative maintenance is PLANNED.

Failure to have such a programme may result in machine breakdowns or failures. Having machines out of order in a busy laundry will place pressure to maintain delivery schedules and service the customer. It may also result in additional labour costs in order to "catch up".

Maintenance may be carried out by on-site laundry engineers or contractors or both.

Maintenance may include:

- Regular inspections
- Regular lubrication
- Regular cleaning
- Reporting of problems by operational staff (leaks or loose fittings).

Cleaning

Cleaning is one of the most important points when discussing preventative maintenance. Many laundries experience more breakdowns through overheating of machinery because of lint. Lint is the collection of loose fibres from linens and can block exhausts and clog up motor bearings.

Clean machinery will operate much more efficiently than dirty and it is imperative that the laundry manager has a regular scheduled cleaning programme in place for all areas of the plant.

All staff should be responsible for their area on a daily basis and then maybe once a week schedule a major clean of all areas.

Cleanliness is often overlooked in a maintenance programme.

Failure to clean machinery can cause unnecessary lost time due to breakdowns and additional costs for repairs and maintenance.

Reporting of problems

As laundry staff become aware of any problems with laundry equipment these faults should be reported either by completing a written maintenance request for the fault to be fixed.

Written requests are usually made for simple things e.g. loose wheels on trolleys, squeaky hinges on machine doors or leaks. These requests may be made on individual request forms or written in a maintenance record book along with any comments.

SAMPLE REQUEST FORM FOR MAINTENANCE						
DATE	**TIME**	**REPORTED BY**	**LOCATION**	**PROBLEM**	**FIXED BY**	**TIME**
27/11	9.25am	George (washman)	Washer no 8	Door seal is broken	Fred	11.45a.m
29/11	3.15pm	Nilanka	Towel Folder 2	Emergency button-red top broken	Inspected by Tom 4.20 p.m (need to order new one but safe to use)	
30/11	8.50am	Russell (Manager)	Washer no 6	Water flooding over floor on drain cycle. Machine placed out of service as HAZARDOUS	Drain valve replaced by Michael 2.30pm	

If the problem is potentially hazardous (e.g. it has the potential to cause injury to staff) then an urgent verbal request by telephone should be made followed by a written incident report.

If a piece of equipment is potentially hazardous, the machine should be switched off and a bright coloured sticker indicating that the machine should not be used should be placed on to the machine to alert all staff.

Hazards in the laundry will include electrical problems, leaking pipes or steam valves and overheating of equipment.

How do I know what kind of maintenance is needed?

Each piece of machinery (washing machines, dryers, flatwork ironers, folders, presses et al) will have both an operational manual and a maintenance manual.

The operational manual

This is a set of instructions on how to operate and install each machine. There may also be some instructions on how to troubleshoot small problems (solutions to small problems).

The maintenance manual

This is a very important document and should be kept in easy reach for reference.

The information it contains will tell you:

- Which pieces to clean daily, weekly or monthly
- The frequency of inspections and what parts of each machine to inspect weekly and monthly
- What to look for in these inspections

- What type of lubricants to use, where and frequency
- Spare part numbers (this number will assist when re-ordering)
- What spare parts should be kept onsite (belts, switches, valves)
- Recommendations on how often certain pieces will need to be replaced (belts and motors)
- Possible problems with that particular machine.

Spare Parts

- It is important to carry some spare parts for each type of machine. The maintenance manual will recommend which spare parts should be kept on site. The more common items are drive belts, valves, washers, timers and electrical contacts
- Whilst it is important to carry some stock, it would be foolish to carry all spare parts as this would amount to a large amount of capital being tied up in spare parts that may never be used
- Always check the manufacturer's recommended schedule for replacement parts so that you will have enough on hand e.g. if you had three of the same type of washing machine installed at the same time, the manufacturer may recommend that all drive belts be replaced after 1000 hours of operation. If this is the case, then you will need three belts in stock. Once these have been replaced on the machines, then a new order should be placed for the next three so they are on hand for the next recommended replacement schedule
- It must be remembered that commercial laundry equipment is made all over the world and if the manufacturer is based in Germany and your machine is in Singapore, you may have to wait six weeks or more for large pieces to be shipped to you
- To air freight a heavy replacement piece such as a machine motor, will add to operational costs. The cost should be balanced against the inconvenience and cost of having a machine out of order.

Machine record cards

It is very important that there is a machine record card for each piece of laundry equipment. This should be record of:

- The model number of the machine
- The serial number of the machine
- The date of purchase and warranty details
- Manufacturer's name and contact details (who to call in case of problems or service needed)
- Spare parts held on site for that machine
- All completed maintenance including inspections and lubrication, including when the maintenance was done and by whom
- This will show compliance to the manufacturer in case of breakdowns and warranties.

When will maintenance take place?

Most small maintenance issues can be done throughout the day but on occasions, maintenance may need to be done overnight or when the laundry is closed down. This is because some maintenance will require the machines to be switched off and cold. Other issues may require an area to be screened off for safety reasons.

An annual inspection of boilers will be scheduled on a quiet weekend for example.

Lubrication (oiling)

All machines will have lubrication points and many will have several points. Lubrication is a very important part of the maintenance schedule.

There are many different lubricants for this purpose. It is common practice that the different lubricant cans are colour-coded and all points for lubrication by each oil on each machine will be marked with the same colour paint. This makes it easier to complete the lubrication schedule much more quickly than constantly referring to the manual.

Inspection check lists

It is recommended you formulate your own check list for each type of machine showing all the items that need checking (based on the manufacturer's maintenance manual) and their frequency. Once designed, this check list can then be photocopied and used for all the same type of machinery.

For example, all washing machines of the same type are then checked using the same checklist.

As the maintenance person makes his inspections, minor adjustments can be done along the way and more serious concerns should be noted so that they may be repaired at a later stage.

The severity of the problem will determine how urgently it would need to be fixed.

Who will conduct the maintenance?

There may be one or several specialised maintenance staff assigned to the laundry depending on the size. These may be electricians or plumbers or engineers.

Some laundries may contract out all maintenance functions. If it is a large laundry this may be inconvenient and impractical.

What type of maintenance does each machine need?

Below is a sample of what may need to be checked on each machine. Each machine will be different.

SAMPLE CHECKLIST

Flatwork ironer	Comments	Presses	Comments
Steam pressure		Steam traps	
Temperature of bed		Temperature of the pressing head	
Feed ribbons		Steam pressure	
Ironer tapes		Clean pads	
Roller pads		Timers	
Finger guard		Steam connections	

Flatwork ironer	Comments	Presses	Comments
Steam traps		Oil checks	
Vacuum pumps			
Speed controls			
Reject button			
Emergency button			
Bearings			
Oil checks			

4.2 Arrange for professional maintenance

Introduction

No matter how good a maintenance programme is, there will always be times when you will need the assistance of the manufacturer or their maintenance staff for certain issues that arise.

Depending on what qualifications any on-site personnel have, you may need only limited support. If, for example, your technician is a qualified electrician, then you may need to sub-contract any plumbing works or vice versa.

All specialised technicians must have qualifications in their particular field. If a plumber fixes an electrical problem and then a staff member receives an electric shock, you may be sued or at the least be investigated for improper practices.

Health and safety in the workplace is extremely important and correct reporting and repairing of maintenance issues assists in making the workplace safe for all staff.

When should I call for professional maintenance?

If on-site staff cannot resolve a problem with a piece of equipment, then it is the time to call for professional maintenance. There are some companies that only service laundry equipment.

It is always better to contact the manufacturer directly for assistance but as many laundry machines are made overseas, they may have their designated trained service agents locally.

Professional maintenance personnel must always be fully qualified in their field

Training

The manufacturer's agent should assist in training and be able to advise on-site laundry maintenance staff at all times.

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Work Projects

It is a requirement of this Unit that you complete Work Projects as advised by your Trainer. You must submit documentation, suitable evidence or other relevant proof of completion of the project to your Trainer by the agreed date.

Work Project Nine (4.1 – 4.2):

- Design a machine record card for a specific piece of machinery in your workplace.

Summary

Undertake maintenance functions

Understand and follow basic maintenance functions:

- Complete cleaning of the laundry plant
- Read the operational manuals for all machines
- Read the maintenance manual for all the machines
- Refer to the machine record card
- Request and arrange minor repairs
- Know who will conduct the maintenance functions.

Arrange for professional maintenance:

- Know who to call.
- Schedule planned maintenance.

Presentation of written work

1. Introduction

It is important for students to present carefully prepared written work. Written presentation in industry must be professional in appearance and accurate in content. If students develop good writing skills whilst studying, they are able to easily transfer those skills to the workplace.

2. Style

Students should write in a style that is simple and concise. Short sentences and paragraphs are easier to read and understand. It helps to write a plan and at least one draft of the written work so that the final product will be well organized. The points presented will then follow a logical sequence and be relevant. Students should frequently refer to the question asked, to keep 'on track'. Teachers recognize and are critical of work that does not answer the question, or is 'padded' with irrelevant material. In summary, remember to:

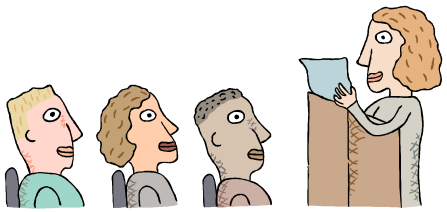
- Plan ahead
- Be clear and concise
- Answer the question
- Proofread the final draft.

3. Presenting Written Work

Types of written work

Students may be asked to write:

- Short and long reports
- Essays
- Records of interviews
- Questionnaires
- Business letters
- Resumes.



Format

All written work should be presented on A4 paper, single-sided with a left-hand margin. If work is word-processed, one-and-a-half or double spacing should be used. Handwritten work must be legible and should also be well spaced to allow for ease of reading. New paragraphs should not be indented but should be separated by a space. Pages must be numbered. If headings are also to be numbered, students should use a logical and sequential system of numbering.

Cover Sheet

All written work should be submitted with a cover sheet stapled to the front that contains:

- The student's name and student number
- The name of the class/unit
- The due date of the work
- The title of the work
- The teacher's name
- A signed declaration that the work does not involve plagiarism.

Keeping a Copy

Students must keep a copy of the written work in case it is lost. This rarely happens but it can be disastrous if a copy has not been kept.

Inclusive language

This means language that includes every section of the population. For instance, if a student were to write 'A nurse is responsible for the patients in her care at all times' it would be implying that all nurses are female and would be excluding male nurses.

Examples of appropriate language are shown on the right:

Mankind	*Humankind*
Barman/maid	*Bar attendant*
Host/hostess	*Host*
Waiter/waitress	*Waiter or waiting staff*

Recommended reading

Robert J Martin & Thomas Jones, *Professional Management of Housekeeping Operations*, Wiley

Tucker & Schneider, *The Professional Housekeeper*, Cahners (USA)

Doris Hatfield & Christine Winter, *Professional Housekeeping*, Hutchinson(UK)

David M Allen, *Accommodation & Cleaning Services/ Operations*, Hutchinson(UK)

Trainee evaluation sheet

Maintain and Operate an Industrial Laundry

The following statements are about the competency you have just completed.

Please tick the appropriate box	Agree	Don't Know	Do Not Agree	Does Not Apply
There was too much in this competency to cover without rushing.	☐	☐	☐	☐
Most of the competency seemed relevant to me.	☐	☐	☐	☐
The competency was at the right level for me.	☐	☐	☐	☐
I got enough help from my trainer.	☐	☐	☐	☐
The amount of activities was sufficient.	☐	☐	☐	☐
The competency allowed me to use my own initiative.	☐	☐	☐	☐
My training was well-organized.	☐	☐	☐	☐
My trainer had time to answer my questions.	☐	☐	☐	☐
I understood how I was going to be assessed.	☐	☐	☐	☐
I was given enough time to practice.	☐	☐	☐	☐
My trainer feedback was useful.	☐	☐	☐	☐
Enough equipment was available and it worked well.	☐	☐	☐	☐
The activities were too hard for me.	☐	☐	☐	☐

The best things about this unit were:

The worst things about this unit were:

The things you should change in this unit are:


William
Angliss
Institute
Specialist centre
for foods, tourism
& hospitality
asean
Australian
AID