



Faculty of Engineering

Department of Textile Engineering

REPORT ON

Industrial Attachment

At

Fakir Apparels Limited

BSCIC Industrial Area, Enayetnagar, Fatullah, Narayanganj.

Course Title: Industrial Attachment

Course Code: TE-410

Submitted By

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology

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Declaration

We attest that this report is totally our own work, except where we have given fully documented references to the work of others and that the materials contained in this report have not previously been submitted for assessment in any formal course of study. If we do anything, which is going to breach the first declaration, the examiner/supervisor has the right to cancel my report at any point of time.

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Faculty of Engineering

Department of Textile Engineering

Approval Sheet

This report entitled “ **Industrial Attachment at.” Fakir Apparels Limited**” is prepared and submitted by **Md. Shahinujjaman Masum (ID: 151-23-4169) & Md. Amit Hasan (ID: 151-23-4287)** in partial fulfillment of the requirement for the degree of **BACHELOR OF SCIENCE IN TEXTILE ENGINEERING** has been examined and hereby recommended for approval and acceptance.

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At first we would like to express our deep appreciation to Allah for providing the opportunity to complete our Thesis on depth study of Merchandising Procedure.

Firstly, our special thanks go to **Md. Abdullah Al Mamun**, Assistant Professor, Department of textile Engineering, Daffodil International University for his encouragement and valuable suggestions.

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Dedication

We dedicate this report to our beloved **Parents** who give us chance to study in Textile Engineering and support us all time.

Specially Dedicate to this report **Md. Mahadi Al Mahabub**, Sr. Manager (Marketing & Merchandising) Of Fakir Apparels Ltd and all the people who have helped us in the Fakir apparels Ltd to complete this report.

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Chapter 01

EXECUTIVE SUMMERY

From the beginning of this report , I have to work a lot of header. Here I have to approach each and every department. Every people help us of the industry to make our industry program easy. Actually limitation as that time is very much shorter. We tried to conduct my work sequentially. So I began my journey knitting section and ended it at Merchandising Department. I have worked at knitting, Batch, Color lab, Dyeing & dyeing Finishing, Washing, Cutting, Printing, Embroidery, Industrial Engineering, Sewing Merchandising.

In every Sector I have tried to work very sincerely and effectively. It was really a great Practical Knowledge for me to learn.

In this report I mention the overall performance of Fakir Apparels ltd.

1.1 Factory Profile

Al Haj Yousuf Ali Fakir was the first to venture into the textile industry in the early 1960's. His concern of a large yarn trading operation was based in the bustling business district of Narayanganj. In a little time the business grew exponentially in revenue and size and the highly ambitious entrepreneur expanded his trading operations countrywide adding jute, dyes and chemicals.

In 1980 the family saw passing of a model father and a business pioneer of his generation. The stage was set for a new generation to takeover. A rising opportunity in the readymade garment sector in the 1990's was quickly seized by Fakir Moniruzzaman son of Al Haj Yousuf Ali Fakir and after overlooking multiple garment operations in 1998 he founded Fakir Apparels, a vertically integrated organization. Mr. Fakir Moniruzzaman was the founder of this Fakir Apparels. Now it has grown to be one of the leading apparel providers in Bangladesh. Engaged in the marketing, development and manufacturing of apparels, FAKIR has employed around 10,580 people in their companies. FAKIR has become one of the largest manufacturers in Bangladesh. FAKIR Apparel Ltd is one of their major and the oldest factory. Through a wide range of products & services, it has earned the goodwill producing approximately 4.5 million pieces of garments per month. FAKIR has become among the largest vendors in Bangladesh for both C & A, H&M, Primark, Esprit. It has consistently excelled with a strong performance record of 30% annual growth over the last few years. The company is always exploring new markets across the world with an experienced perspective, contemporary professionalism and high-end technology.

1.2 Location & Address: BSCIC Industrial Area, Enayetnagar, Fatullah, Narayanganj.

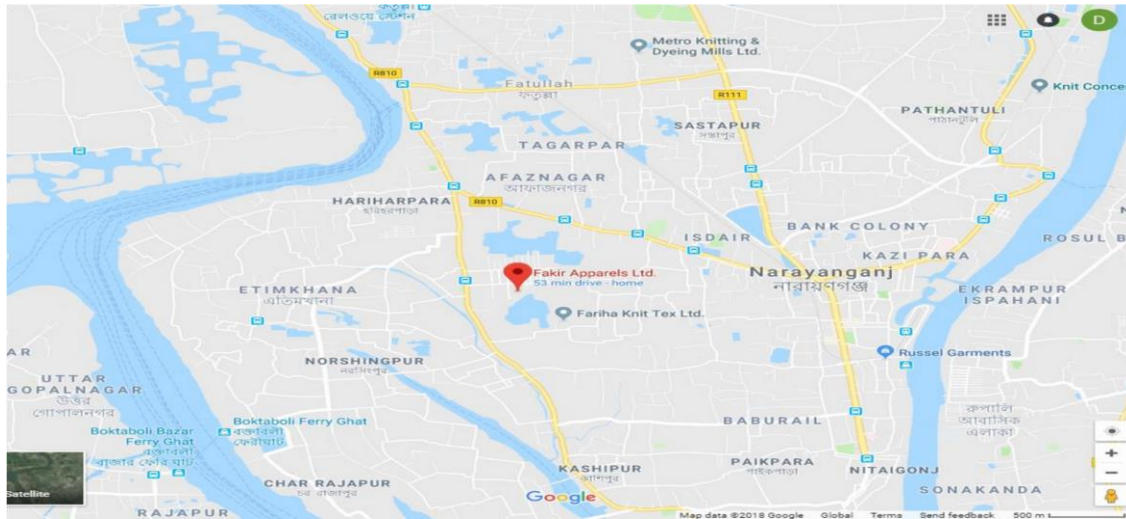


figure1. 1 Google Map View

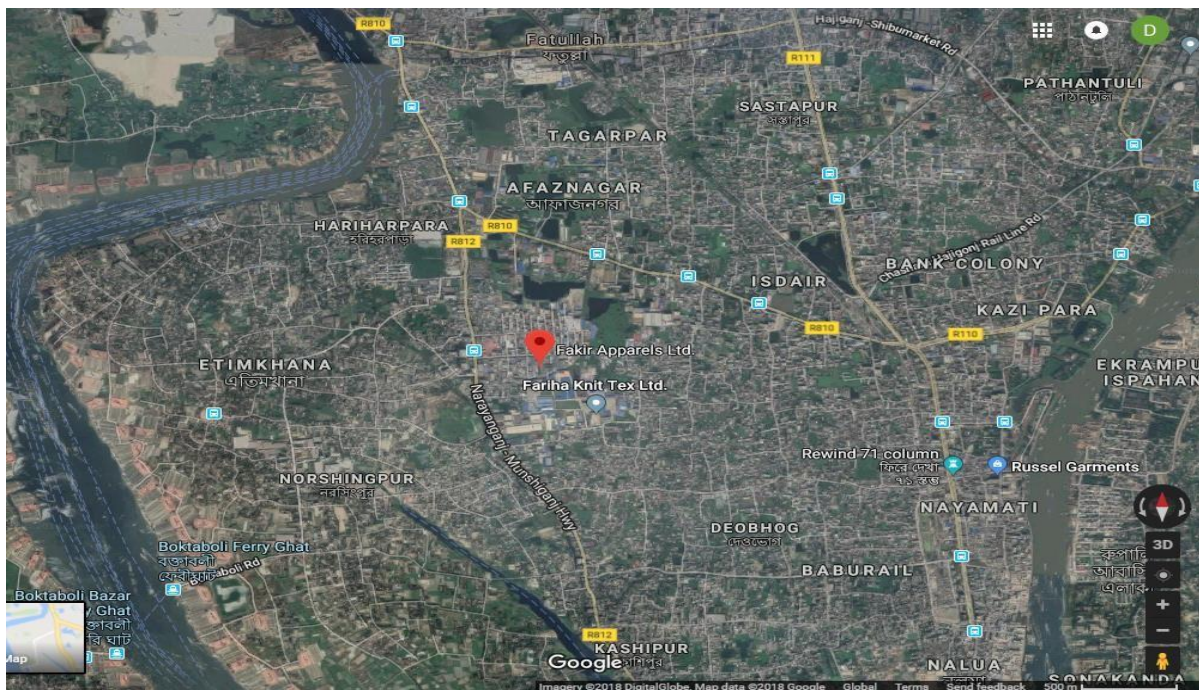


figure1. 2 Satellite view

1.3 Certification:

- ISO 9001:2000 certified.
- SRM (compliance) certified.

- OEKO-TEX certified.

1.4 Awards:

- AWARD for enhancing dialogue, working conditions and productivity in their factory through successful participation In the SUSTAINABLE SUPPLIER PROGRAMME (SSP) to FAKIR APPARELS LIMITED From THE C&A FOUNDATION and DEUTSCHE GESELLSCHAFT FUR INTERNATIONALE ZUSAMMENARBEIT (GIZ) GmbH
- In Appreciation Fakir Apparels for Contributing to National Commitment to Combat HIV/AIDS
- SOCIAL AND ENVIRONMENTAL EXCELLENCE AWARD 2012 Fakir Apparels Ltd.
- Best Factory Award, Special Benefits beyond labor law Category – Social Compliance.
- Award for Best Workers Friendly Knit Wear Industry 2008, Awarded by Ministry of Labor and Employment, GOB & Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA)
- May Day 2009, FAKIR APPARELS LTD – In Recognition of Praiseworthy Contribution for developing BEST Workers friendly knitwear industry □ Frontier Award, presented to Fakir Moniruzzaman, Managing Director, Fakir Apparels Ltd. with the best compliments to the best consumer in Bangladesh Fakir Apparels on behalf white horse.
- Fakir apparels Ltd. is awarded by SPIRIT as the best strategic partner of 2017.

Chapter 2

INFORMATION ABOUT THE FACTORY

2.1 Introduction

Manpower is the major backbone of an organization. The stronger the force is, the higher the growth of the company will be. So, the manpower needs to be trained in order to cope up with the changing environment and techniques. In the easier sense training is a group of organized activities aimed at imparting information's and/or instructions to improve the recipient's performance. The process includes in introducing a new employee or the trainee to the rules and regulations of the organization and to make them familiar with the new environment. The textile sector, more specifically, the 'Apparel manufacturing' includes a huge range of knowledge starting from the yarn to the merchandizing of the final product. The students could only manage to get the theoretical knowledge of the sector which is not enough. As being in the technical line, it is very important to get the practical knowledge too. It is very important for a student in order to survive and do well in their job life. We have accomplished an 8 weeks industrial training in Fakir Apparels Ltd which is a 100% export oriented denim garments industry. It is one of the leading brands of denim garments in Bangladesh. FAKIR works with the objective of maximum customer satisfaction. The company has adopted innovative procedures and practices to meet customer expectations.

2.2 History of the factory

Al Haj Yousuf Ali Fakir was the first to venture into the textile industry in the early 1960's. His concern of a large yarn trading operation was based in the bustling business district of Narayanganj. In a little time the business grew exponentially in revenue and size and the highly ambitious entrepreneur expanded his trading operations countrywide adding jute, dyes and chemicals.

In 1980 the family saw passing of a model father and a business pioneer of his generation. The stage was set for a new generation to takeover. A rising opportunity in the readymade garment

sector in the 1990's was quickly seized by Fakir Moniruzzaman son of Al Haj Yousuf Ali Fakir and after overlooking multiple garment operations in 1998 he founded Fakir Apparels, a vertically integrated organization.

Today Fakir Apparels is an industry leader in the garment sector manufacturing with a wide range of products serving to a diverse portfolio of clients. With customer service being the core driving force of the organization we have also committed ourselves to the future by integrating environmental sustainability to our business philosophy. We believe that an increasingly resource constrained world sustainable business practices are critical to the creation of long term value for all our stakeholders. Mr. Fakir Moniruzzaman was the founder of this Fakir Apparels. Now it has grown to be one of the leading apparel providers in Bangladesh. Engaged in the marketing, development and manufacturing of apparels, FAKIR has employed around 10,580 people in their companies. FAKIR has become one of the largest manufacturers in Bangladesh. FAKIR Apparel Ltd is one of their major and the oldest factory. Through a wide range of products & services, it has earned the goodwill producing approximately 4.5 million pieces of garments per month. FAKIR has become among the largest vendors in Bangladesh for both C & A, H&M, Primark, Esprit. It has consistently excelled with a strong performance record of 30% annual growth over the last few years. The company is always exploring new markets across the world with an experienced perspective, contemporary professionalism and high-end technology.

2.3 Founder & Directors



Fakir Moniruzzaman

Managing Director
Fakir Apparels Ltd.



Saalma Zaman

Chairman
Fakir Apparels Ltd.



Fakir Nafiuzzaman

Deputy Managing Director
Fakir Apparels Ltd.



Monjarin Zaman

Director

Fakir Apparels Ltd.



Debasish Kumar

Executive Director

Fakir Apparels Ltd.

2.4 General information about the factory

- **Name of the factory:** FAKIR Apparels Ltd. (FAL)
- **Product:** KNIT Garments For Men, Women & Babies (generally)
- **Parent Company:** Fakir Group
- **Type :** 100%Export oriented KNIT RMG factory

- **Monthly capacity :** 4.5 million pcs/month
- **Area:** 125,647 square meter
- **Production Area:** 83,613 square meter
- **Total Building+ Shade:** 41
- **Year of establishment :**1998
- **Member of BGMEA**

- **Workers & Staffs:** 10550(Male:6643; Female:3845)

- **Piece Rate:** 24%

- **Factory Address:** A-127-131, 135-138, 142-145, B-501-503 BSCIC Industrial Area, Enayethnagar, Shashangaon, Fatullah, Narayanganj P.O. Box: 1400

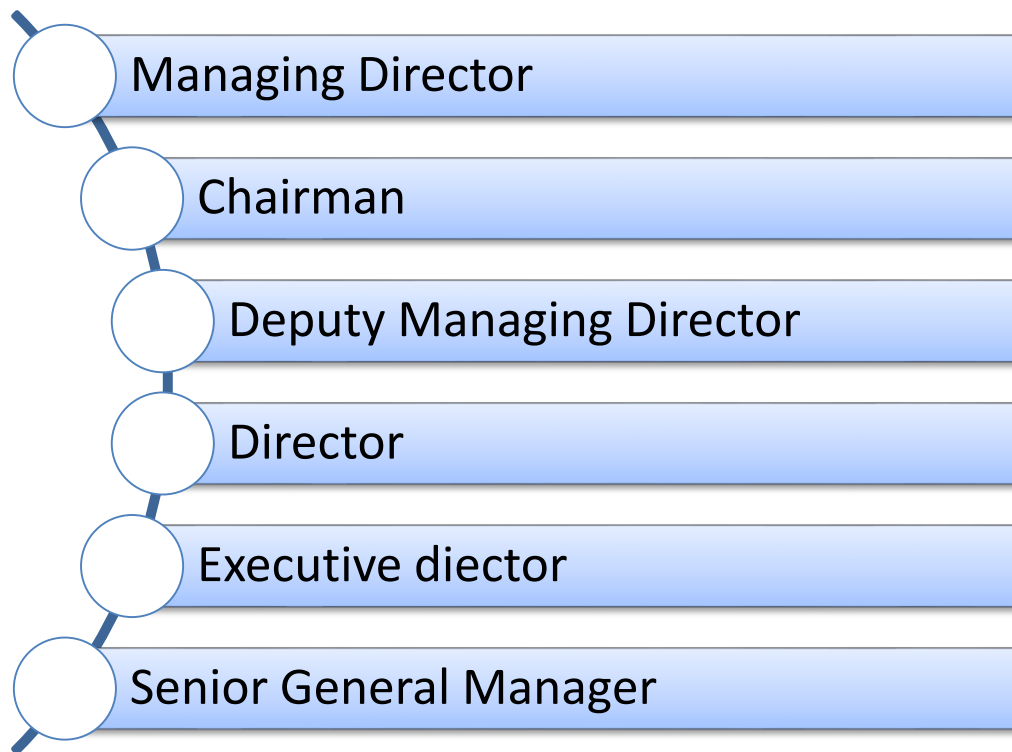
- **Corporate office:** 89 Motijheel, C/A Lucky Chamber (1st Floor), Dhaka-1000, Bangladesh.

- **Website:** www.fakirapparels.com

- **Company logo :**



2.5 Organogram of the factory



2.6. Brief profile

- **Area:** 125,647 square meter
- **Production Area:** 83,613 square meter
- **Total Building+ Shade:** 41
- **Workers & Staffs:** 10550(Male:6643; Female:3845)
- **Machineries:** Knitting m/c=117

Dyeing m/c=21

Sample dyeing m/c= 26

Washing m/c=

Curing m/c= 2

No of dryer

2.7 Major buyers of the company

Table 2. 1 major Byers & their logo

Brand Name	Logo
H & M	
C & A	
ESPIRIT	
PRIMARK	

s. Oliver	 The logo for s.Oliver, featuring the brand name in a white, elegant script font centered within a solid red rectangular background.
TOM TAILOR	 The logo for TOM TAILOR, consisting of a black circular emblem with a stylized 'T' inside, positioned above the brand name 'TOM TAILOR' in a bold, black, sans-serif, all-caps font.
Woolworth	 The logo for Woolworth, featuring the brand name in a large, bold, red, serif font with a slightly distressed or textured appearance.

2.8 Certification

- ISO 9001:2000 certified.
- SRM (compliance) certified.
- OEKO-TEX certified.

2.9 Mission & Vision

Mission

Their purpose is to generate shareholder's value by delivering quality products at the right time in the most cost effective ways. We will realize this mission by setting the highest standards in individual and organization performances in the industry and continuously rewarding achievements.

Vision

Their vision is to be a world class manufacturer in the apparel industry. We will achieve this position through innovations in products and business methods that add value to our customers and by meeting global standards in quality, customer service and human resource management. To sustain in the long run we want to forge long lasting relationship with our employees, customers, suppliers and engage in sustainable business practices.

Chapter 03

DESCRIPTION OF THE ATTACHMENT

3.1 Storage

3.1.1 Stock and Inventory

Stock consists of all the goods and materials which are stored by an organization. It is the store of items which is kept for future use.

An inventory is the list of items held in stock to transform into more valuable state.

3.1.2 Necessity of Keeping Inventories

1. To stabilize production
2. To meet the demand of both production and development
3. To reduce the chance of 'excess stock'
4. To prevent being 'out of stock' or raw material crisis.
5. To give a smooth and uninterrupted production

3.1.3 Type of Stores

1. Fabric store
2. Finishing accessories store
3. Sewing accessories store



Figure 3. 1 Yarn Store Room



Figure 3. 2 Fabric Store Room



3.1.4 Trimmings & Accessories

Trimmings	Accessories
The materials which are attached with the body of garments by sewing are termed as trimmings.	The materials which are not attached with the body of garments by sewing, only used for garment finishing and packing are termed as accessories.
Trimmings are the ultimate materials that are attached with the garments while using by the end users.	Accessories are the ultimate materials that are not attached with the garments while using by the end users.
Trimmings are used as functional purposes.	Accessories are used as decorative purposes.
Example: Sewing Thread, Button, Interlining etc.	Example: Carton, Gum Tape, Poly bag etc.

3.1.5 Flow Chart of Trims /Accessories

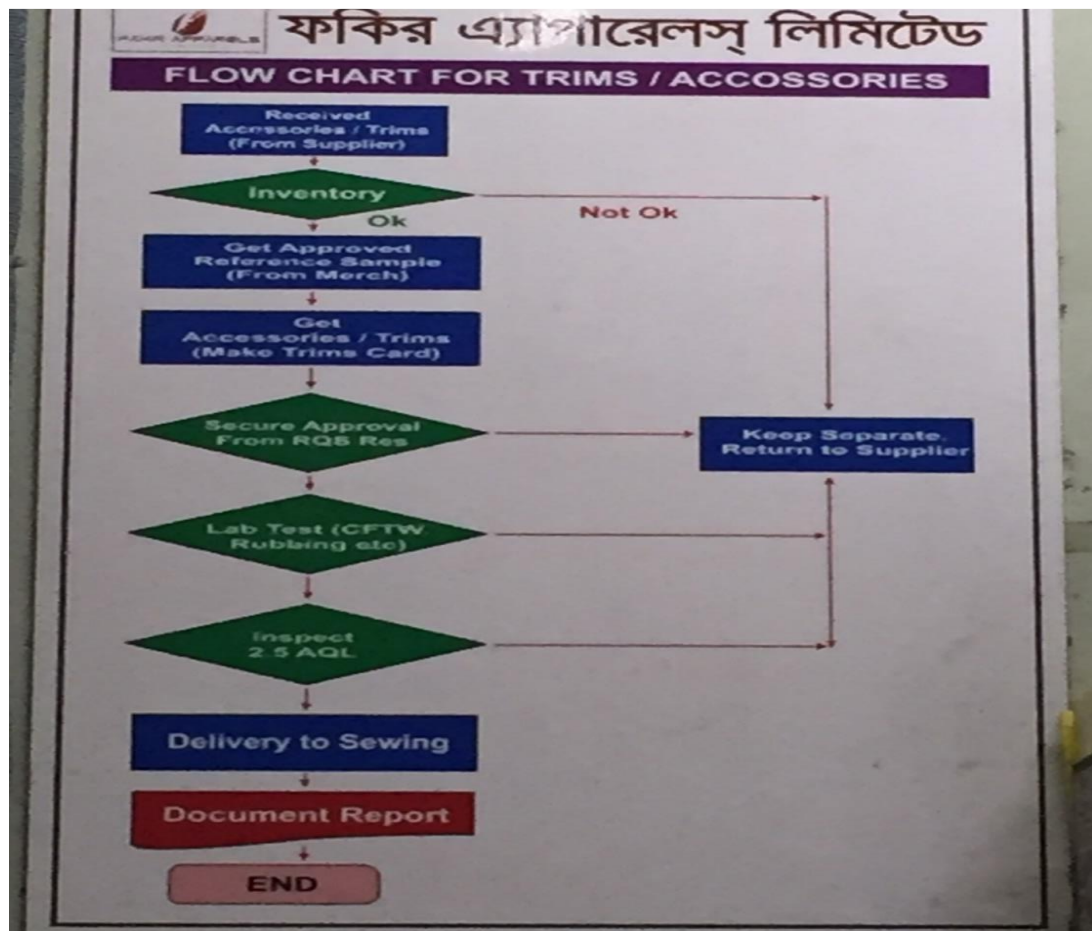


Figure 3. 3 Flow cart of trims & accessories

3.1.6 Buttons

A button is a fastener that can be made of plastic, metal, leather, wood, and many other materials. They can be decorative and useful, a colorful way to close pieces of fabric.

According to the number of holes button is of two types:

1. 2H (Two holes button)
2. 4H (Four holes button)

According to the materials used buttons may be of following types:

Plastic buttons: These buttons are made of Polyamide, Poly acrylonitrile etc. such as cheap, not glossy and widely used in shirts.

Metal buttons: They are used in Denim and jeans, trousers, etc.

Wooden buttons: They are used for decoration and functional purposes. These buttons are usually have less life time.

Printed buttons: They are only used for decorative purposes.

Horn buttons: They are made up of horns of animals and usually used in shirts, pants, etc. Artificial horns made up of Nylon, Plastic and additives are also used.

Chalk buttons: They are usually used in shirts.

3.1.7 2H (Two holes button)



Figure 3. 4 2H (Two holes button)

3.1.8 4H (Four holes button)



Figure 3. 5 4H (Four holes button)

3.1.9 Snap Button



Figure 3. 6 Snap Button

3.1.10 Eyelets



Figure 3. 7 Eyelets

3.1.11 Sewing Thread

Sewing threads are special kinds of yarns that are engineered and designed to pass through a sewing machine rapidly. They form efficient stitches without breaking or

becoming distorted during the useful life of the product. The basic function of a thread is to deliver aesthetics and performance in stitches and seams.



Figure 3. 8 Sewing Thread



Figure 3. 10 100% combed cotton yarn



Figure 3. 9 Metallic yarn



Figure 3. 11 Lycra

Drawstring:

A drawstring is a string, cord, lace, or rope used to "draw" (gather, or shorten) fabric or other material. The ends of the drawstring may be tied to hold it in place.



Figure 3. 12 Drawstring

3.1.12 Labels

A small piece of fabric attached to an object and giving information about it.



3.1.13 Care Labels

A label attached to a garment or fabric giving the manufacturer's instructions for its care and cleaning.

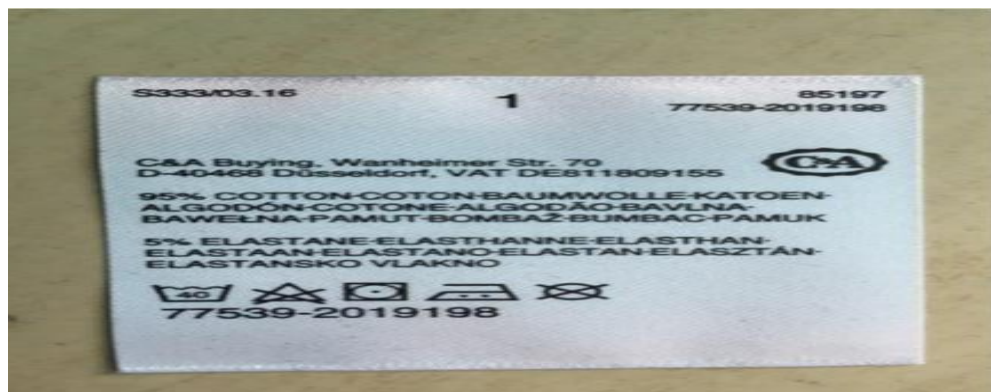


Figure 3. 13 Care Labels

3.1.14 Size labels

A label attached to a garment mentioning the size of garment.

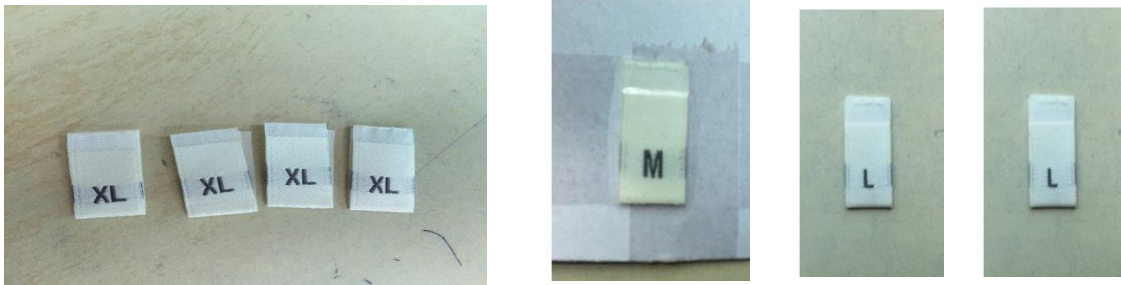


Figure 3. 14 Size Labels

3.1.15 Main Labels



Figure 3. 15 Main Labels

3.1.16 Zipper



Figure 3. 16 Zipper

3.1.17 Elastic Tape





Figure 3. 17 Elastic Tape

3.1.18 Laces



Figure 3. 18 Laces

3.1.19 Hanger loop



Figure 3. 19 Hanger Loop

3.1.20 Price tag



Figure 3. 20 Price Tag

3.1.21 Tape



Figure 3. 21 Tape



3.2 Knitting Section

3.2.1 Knitting machine chart

Table 3.2. 1 knitting m/c, dia, fabric type, gauge, brand

M/C No	M/C Dia	Fabric Type	Gauge	Brand
A-1	40	S/J	24	Jiunnlong
A-2	36	S/J	24	Jiunnlong
A-3	34	S/J	24	Jiunnlong
A-4	32	S/J	24	Jiunnlong
A-5	38	S/J	24	Jiunnlong
A-6	38	S/J	24	Jiunnlong
A-7	36	S/J	24	Jiunnlong
A-8	32	S/J	24	Jiunnlong
A-9	30	S/J	24	Jiunnlong
A-10	44	Rib	24	Jiunnlong
A-11	42	Rib	18	Jiunnlong
A-12	40	Rib	18	Jiunnlong
A-13	38	Rib	18	Jiunnlong
A-14	36	S/J	24	Jiunnlong
A-15	36	S/J	24	Jiunnlong
A-16	36	S/J	24	Jiunnlong

Table 3.2. 2 Knitting m/c, dia, gauge, type, brand

M/C No	M/C Dia	Fabric Type	Gauge	Brand
B-1	26	S/J	24	Jiunnlong
B-2	28	S/J	24	Jiunnlong
B-3	28	S/J	24	Jiunnlong
B-4	30	S/J	24	Jiunnlong
B-5	30	S/J	24	Jiunnlong
B-6	32	S/J	24	Jiunnlong
B-7	32	S/J	24	Jiunnlong
B-8	32	S/J	24	Jiunnlong
B-9	32	S/J	24	Jiunnlong
B-10	34	Fleece	20	Fukuhara
B-11	34	Fleece	20	Fukuhara
B-12	36	Fleece	20	Fukuhara
B-13	36	S/J	18	Jiunnlong
B-14	26	S/J	24	Jiunnlong
B-15	34	S/J	24	Jiunnlong
B-16	36	S/J	24	Jiunnlong
B-17	38	S/J	24	Jiunnlong

B-18	38	S/J	24	Jiunnlong
B-19	38	S/J	24	Jiunnlong
B-20	38	S/J	24	Jiunnlong
B-21	32	S/J	24	Jiunnlong
B-22	32	S/J	24	Jiunnlong
B-23	30	S/J	24	Jiunnlong
B-24	30	S/J	24	Mayer
B-25	30	Fleece	20	Fukuhara
B-26	30	Fleece	20	Fukuhara
B-27	40	S/J	24	Jiunnlong
B-28	40	S/J	24	Jiunnlong
B-29	42	S/J	24	Jiunnlong
B-30	44	S/J	24	Jiunnlong
B-31	34	S/J	24	Jiunnlong
B-32	34	S/J	24	Jiunnlong
B-33	34	S/J	24	Jiunnlong
B-34	34	S/J	24	Jiunnlong
B-35	34	S/J	24	Jiunnlong

Table 3.2. 3 Knitting m/c, dia, gauge, type, brand

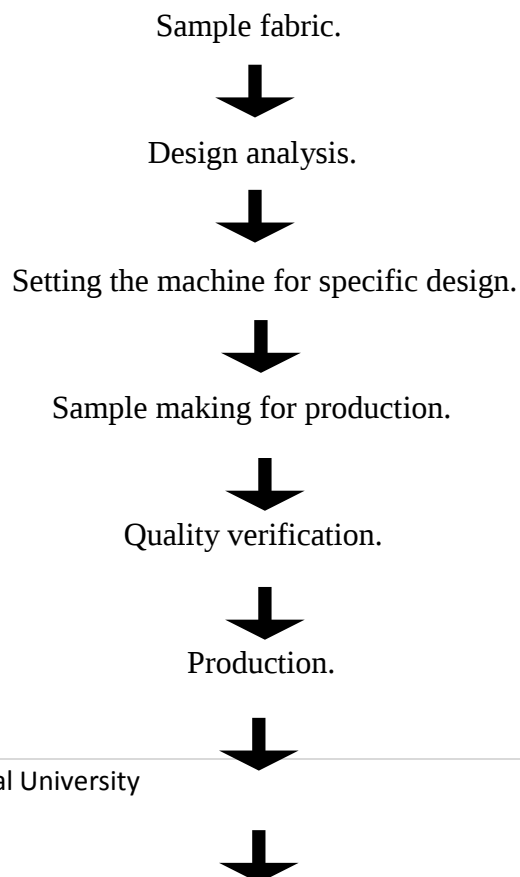
c-3	40	Rib	18	Jiunnlong
-----	----	-----	----	-----------

c-4	42	Rib	18	Jiunnlong
c-5	32	Rib	18	Jiunnlong
c-6	32	Rib	18	Jiunnlong
c-7	36	Rib	18	Jiunnlong
c-8	38	Interlock	24	Jiunnlong
c-9	36	Rib	24	Jiunnlong
c-10	36	Rib	18	Fukuhara

Knitting is the process of creating fabric by the intermeshing of loops of each yarn row of such loops hanging from the one immediately preceding it. There are two types of knitted fabric

1. Warp knitted fabric.
2. Weft knitted fabric.

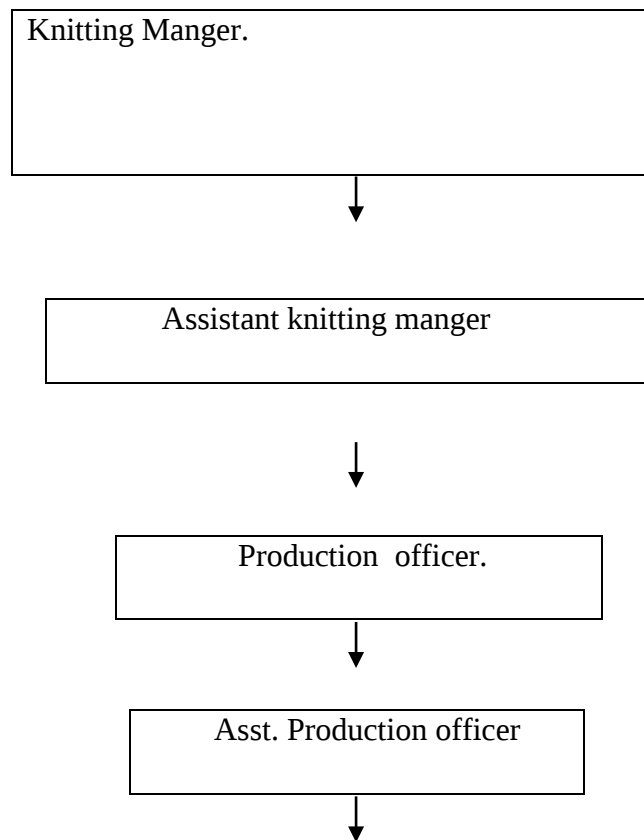
3.2.2 Sequence Operation of Knitting Section

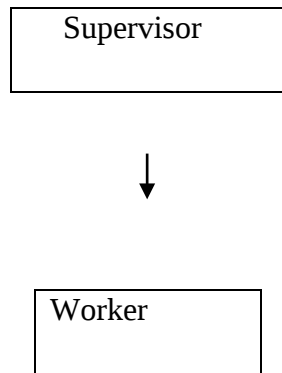


Fabric inspection.

Send to batching section.

3.2.3 Organogram of Knitting Section





3.2.4 Considerable points to produce knitted fabrics

When a buyer orders for fabric then they mention some points related to production & quality.

Before production of knitted fabric, these factors are needed to consider. These are follows

1. Type of fabric.
2. Fabric composition.
3. Finished G.S.M
4. Yarn count.
5. Types of Yarn (combed or carded)
6. Diameter of the fabric.
7. Stitch length.
8. Color depth

3.2.5 Different parameter in knitting machine

Machine pitch: It is defined as the distance between the centers of the two adjacent needle of the same row indicated in mm.

$$\text{Pitch} = \frac{25.4}{\text{Gauge (E)}} \text{ mm}$$

Machine Gauge (E):

Machine gauge denotes the number of needles per inch arranged on the needle carrier & based on the nominal machine diameter.

Gauge (E) = (25.4/ pitch) mm.

Knitting machine production:

$$\text{Single jersey production} = \frac{\pi d g \times \text{no. of feeder} \times \text{stitch length} \times \text{RPM} \times \text{Eff}\% \times \text{Time}}{10 \times 36 \times 2.54 \times 840 \times \text{Count} \times 2.24}$$

$$\text{Double jersey production} = \frac{2\pi d g \times \text{no. of feeder} \times \text{stitch length} \times \text{RPM} \times \text{Eff}\% \times \text{Time}}{10 \times 36 \times 2.54 \times 840 \times \text{Count} \times 2.24}$$

$$\text{Grey GSM} = \left(\frac{\text{Finish G. S. M} \times \text{Machine dia}}{\text{Fabric diameter}} \right) - \text{Shade}\%$$

Loops: It is a basic unit by which fabric produced & meshed at its base with previous one.

Stitch: The smallest dimensionally stable unit of all knitted fabrics is the stitch. It consists of a yarn loop which is held together by being intermeshed with another stitch or other loops.

Stitch length: Stitch length is the length of yarn which includes the needle loop & half the sinker loop on either side of it. Generally the larger the stitch length, the more extensible & lighter the fabric & poorer the cover, opacity & brushing strength.

3.2.6 Basic knitting elements

1. Needle.
2. Sinker.
3. Cam.

Function of needles: Needle is raised to clear the old loop from the hook & to receive the new loop above it on the needle stem. In general there are three types of needles

1. Bearded needle.
2. Latch needle.
3. Compound needle.

Function of Cam:

1. To produce motion of needles.
2. To drive the needles.
3. Formation of loops.

Function of Sinker:

It may one or more of the following functions dependent upon the machines knitting action & consequent sinker shape & movement.

3.2.7 Different parts of knitting machine

Creel: it is used to place the cone.

Feeder: A unite which guides a yarn to the needles. The number of feeder is equal to the number of cam in the machine.

Tensioning device: Tensioning device is used to give proper tension to the yarn.

VDQ pulley: VDQ pulley is used to control the G.S.M by controlling the stitch length by feeding.

Guide: Guide is used to guide the yarn.

Sensor: Sensor is used to understand the cause of machine stop.

Spreader: Spreader is used to spread the knitted fabric before take up roller take it.

Take up roller: Take up roller is used to take up the fabric.

3.2.8 Faults & their causes

1. **Name** : Hole mark

Cause: a. Due to yarn breakage.

- b. Faulty yarn count.
- c. Faulty feeder setting.
- d. Badly knot or splicing.

2. **Name**: Needle mark.

Cause: a. Due to needle breaks during the knitting cycle.

- b. If a needle or needle hook is slightly bends
then the needle mark comes on the fabric.

3. **Name**: Sinker Mark.

Cause: a. when sinker corrodes due to abrasion then sometimes cannot hold a new loop as a result sinker marks comes.

b. If sinker head bend then sinker mark comes.

4. Name: Star mark.

Causes: a. Yarn tension variation due to production.
b. Buckling of the needle latch.
c. Low G.S.M fabric production.

5. Name: Drop stitches

Causes: a. Defective needle.
b. Take down mechanism too loose.
c. Insufficient yarn tension.
d. Improper setting of feeder.

6. Name: Oil stain

Causes: A. When oil lick through the needle trick then it pass on the fabric & make a line.
B. Excess oil pressure in the oil line.

7. Name: Rust stain.

Causes: If any rust on the machine parts.

8. Name: Pin hole.

Causes: Due to break down or bend of latch, pin hole may come in the fabric.

9. **Name:** Lycra patta.

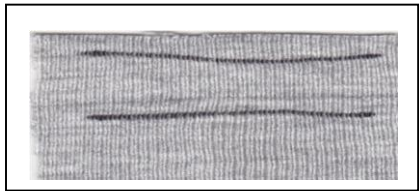
Causes: a. Improper tension. b. Dust deposit in the pulley.

10. **Name:** Yarn contamination

Causes: a. If yarn contains foreign fibre then it remains in the fabric even after finishing.

b. If lot, count mixing occur.

3.2.9 Some faults of knit fabric



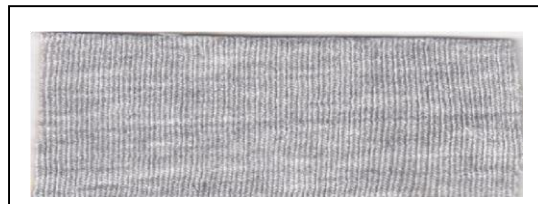
Thick & thin



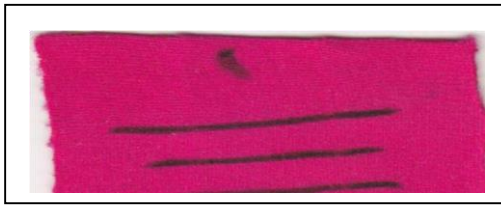
color spot



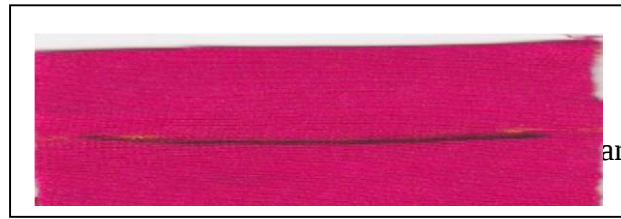
Oil stain



Lycra out



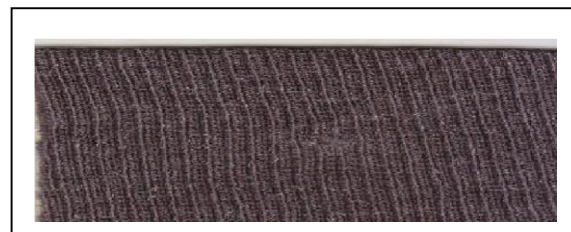
Heat set problem



Star mark



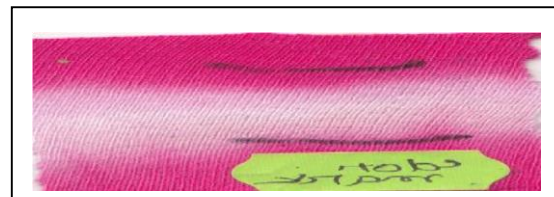
Softener mark



pin hole



Needle drop



color mark

Figure 3.2. 1 Faults of knit fabric

3.2.10 Types of Knit fabric produced by “Fakir Apparels Ltd”

1. Single Lacoste.
2. Double Lacoste.
3. Pique.
4. Double pique.
5. 1*1 rib or 2*2 rib
6. Various stripes.
7. Normal single jersey.
8. Double jersey.

3.3 Dyeing & Printing Section

3.3.1 Dye stuff:

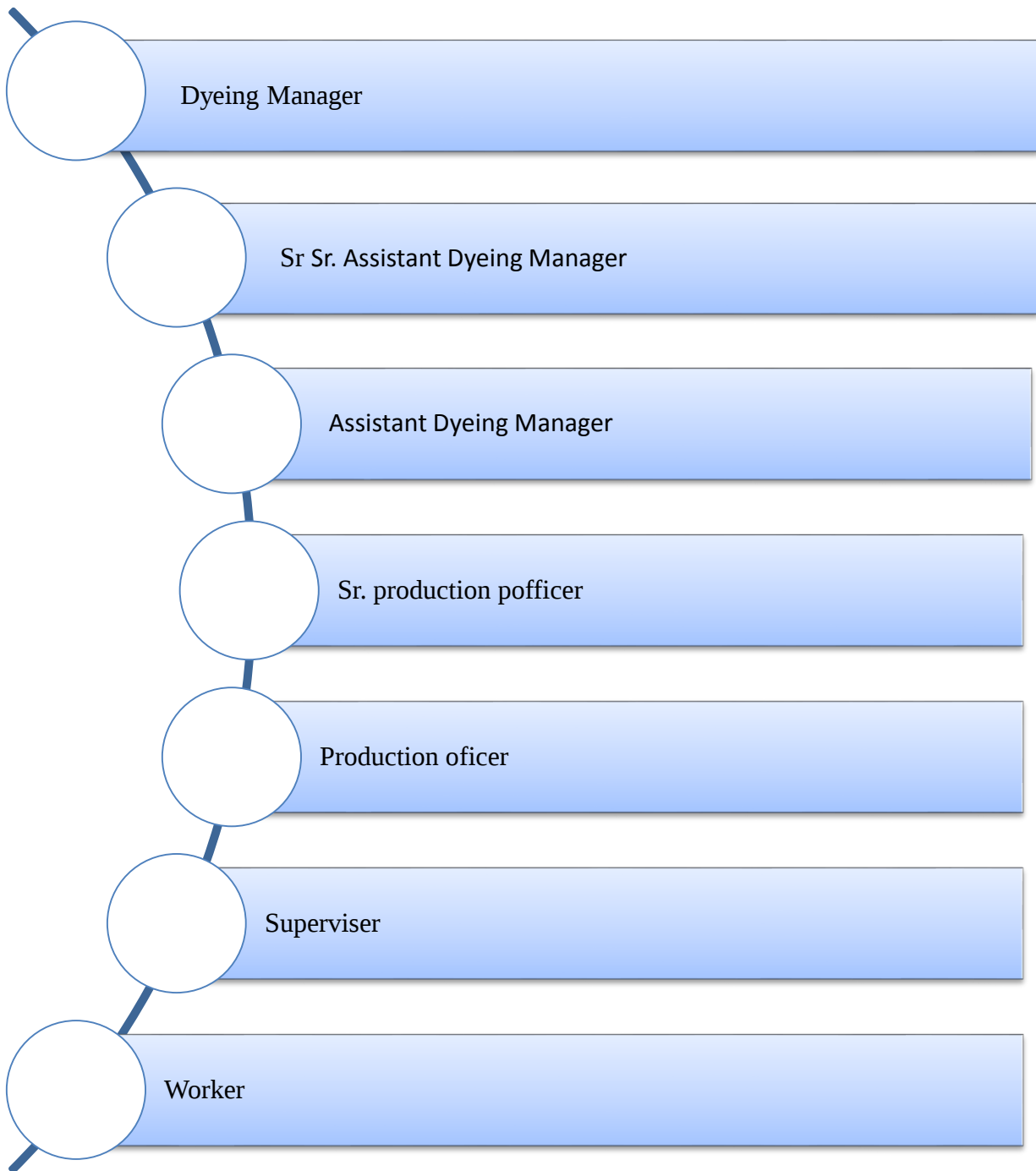
It was noted by Otto.N.Witt in 1876 that color in organic compound is associated with the presence of certain groups in the molecule. He designated the group as that produce color as a chromophore & a molecule containing such a group as chromogen. The most effective chromophores are – Nitroso, Nitro, Azo, Carbonyl etc.

Color substance should become a useful dye, the molecule should contain in addition to chromophore, some auxochrome groups. The most effective auxo chromes are– Hydroxyl, Amino, Carboxyl, Sulphonic, group etc.

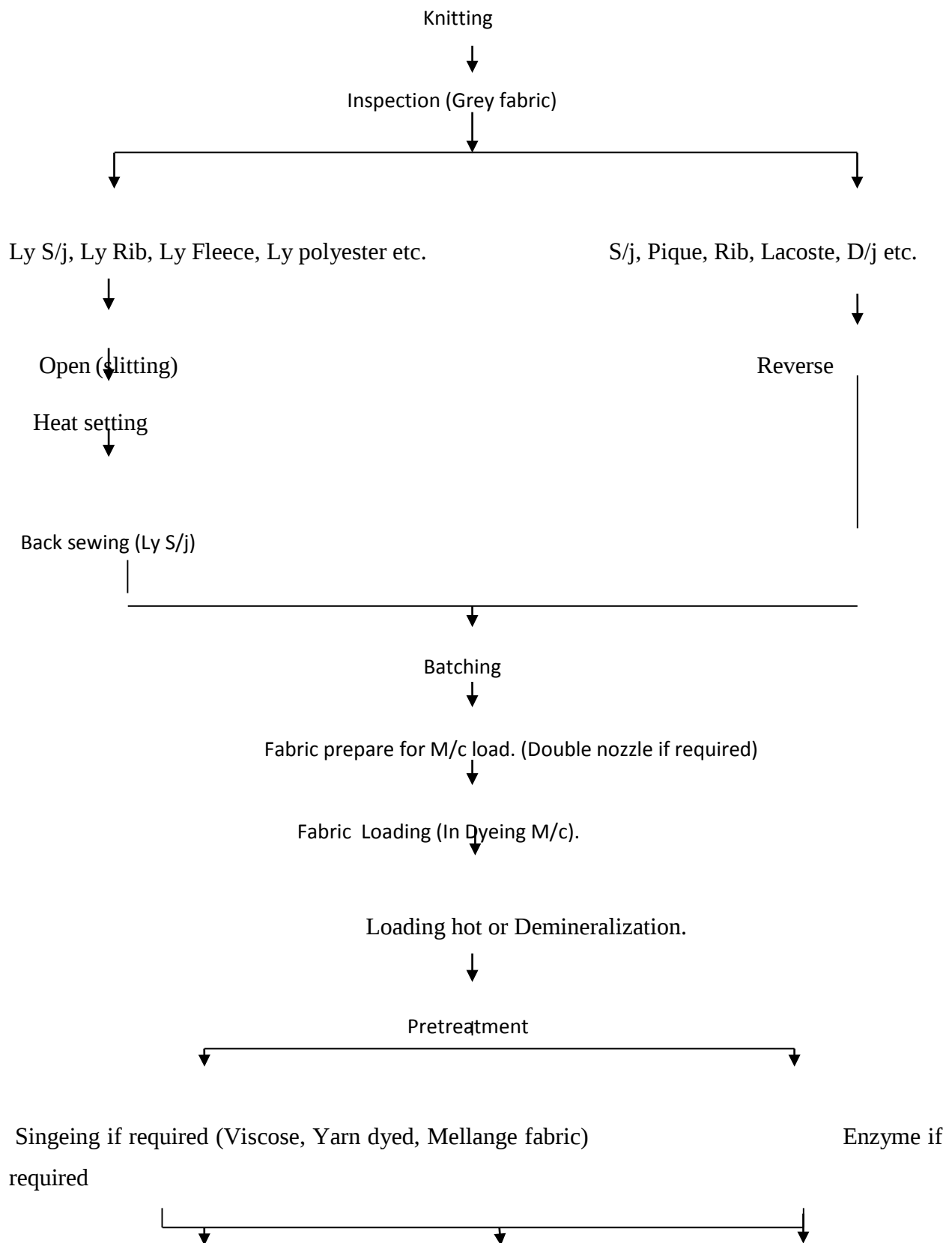
Dyes used in FAL–

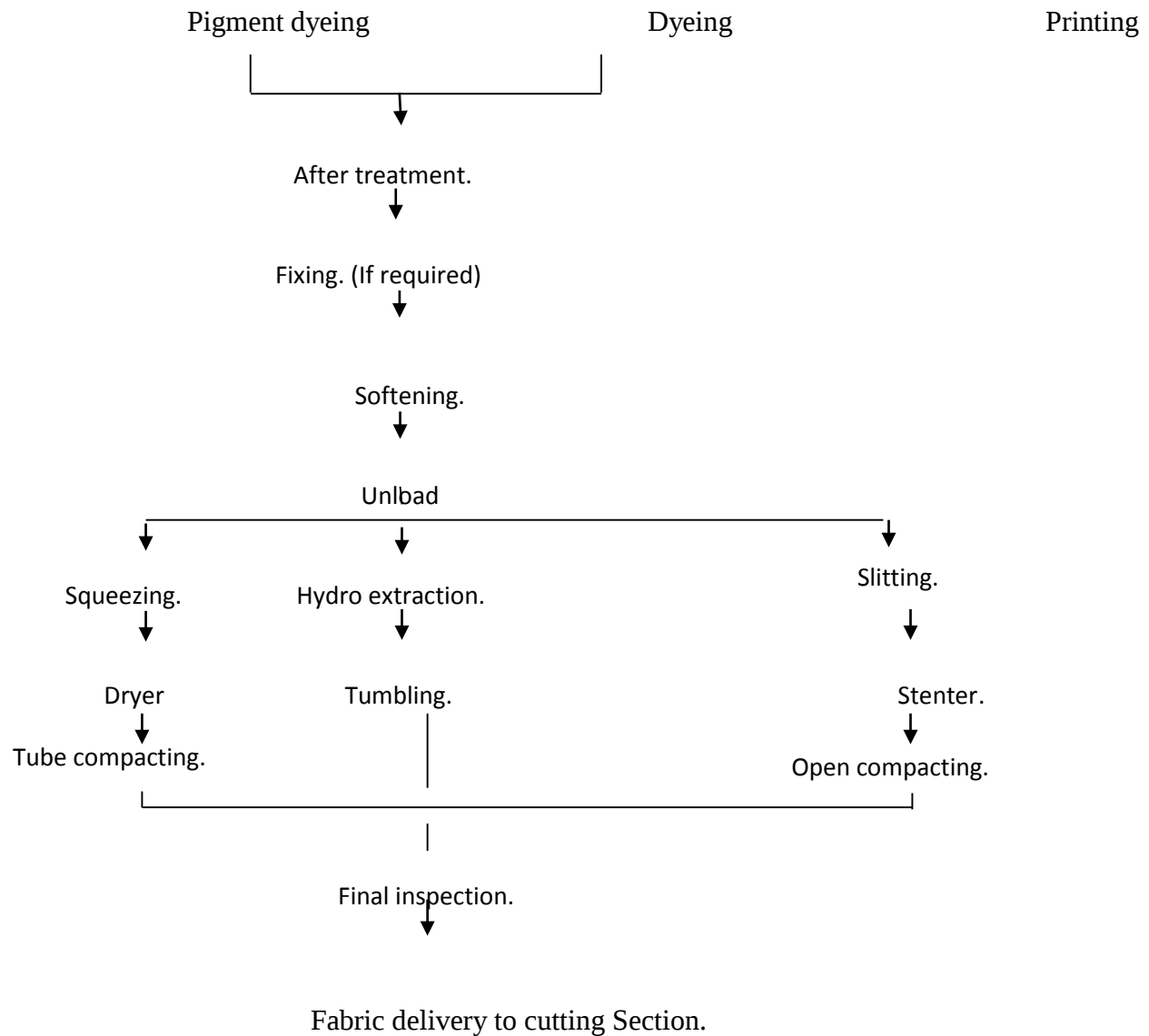
1. Reactive dye (For Cotton).
2. Acid dye (For Nylon).
3. Disperse dye (For polyester).

3.3.2 Organogram of Dyeing Floor



3.3.3 Dyeing Floor Process Flowchart





3.3.4 Common dyeing fault

1. **Name:** Uneven dyeing.

Causes:

- Uneven pretreatment (Uneven scouring & bleaching).
- Improper color dosing.
- Using dyes of high fixation property.
- Uneven heat-setting in case of synthetic fibre.
- Lack of control on dyeing m/c.

2. **Name:** Batch to Batch Shade variation.

Causes:

- a. Fluctuation of temperature.
- b. Improper dosing of dyes and chemicals.
- c. Batch to batch weight variation of dyes and chemical.
- d. Dyes lot variation.
- e. Improper reel speed, pump speed, liquor ratio.
- f. Improper pretreatment.

3. **Name:** Crease mark.

Causes:

- a. Poor opening of the fabric rope.
- b. Sudden cooling of synthetic material.
- c. If pump pressure and reel speed is not equal.
- d. Due to high speed m/c running.

4. **Name:** Dye spot.

Causes:

- a. Improper dosing of dye particle in bath.
- b. Improper dosing of caustic soda particle in bath.

5. **Name:** Wrinkle mark.

Causes:–

- a. Poor opening of the fabric.
- b. Sudden cooling of the synthetic material.
- c. High temperature entanglement of the fabric.

6. **Name:** Softener Mark.

Causes:

- a. Improper mixing of the softener.
- b. Improper running time of the fabric during application of the softener
- c. Entanglement of the fabric during application of the softener.

3.3.5 Printing



Pigment Print



Flock print



Puff print



Foil print



Glitter print



Discharge print

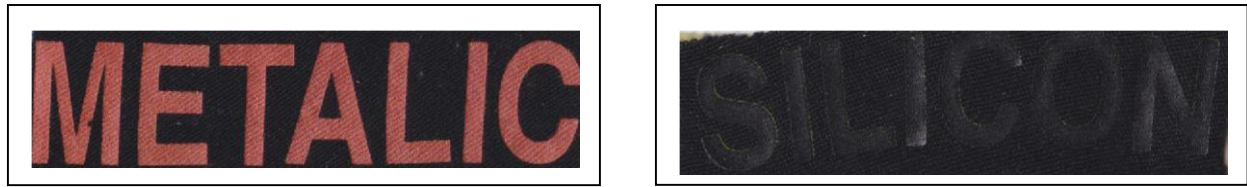
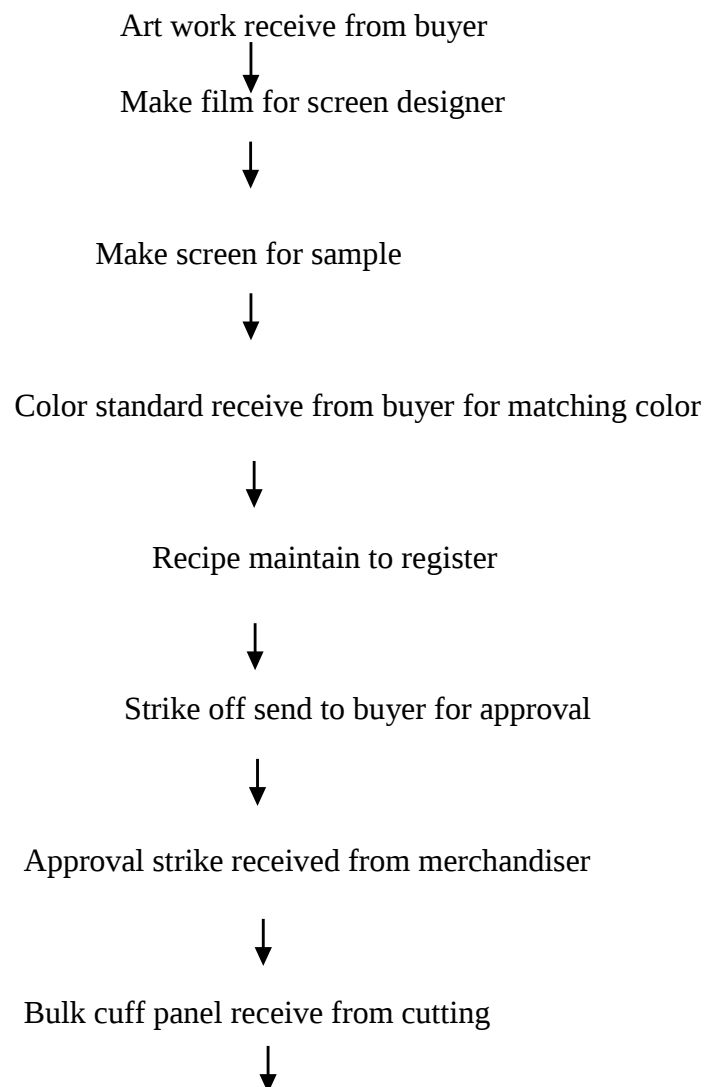
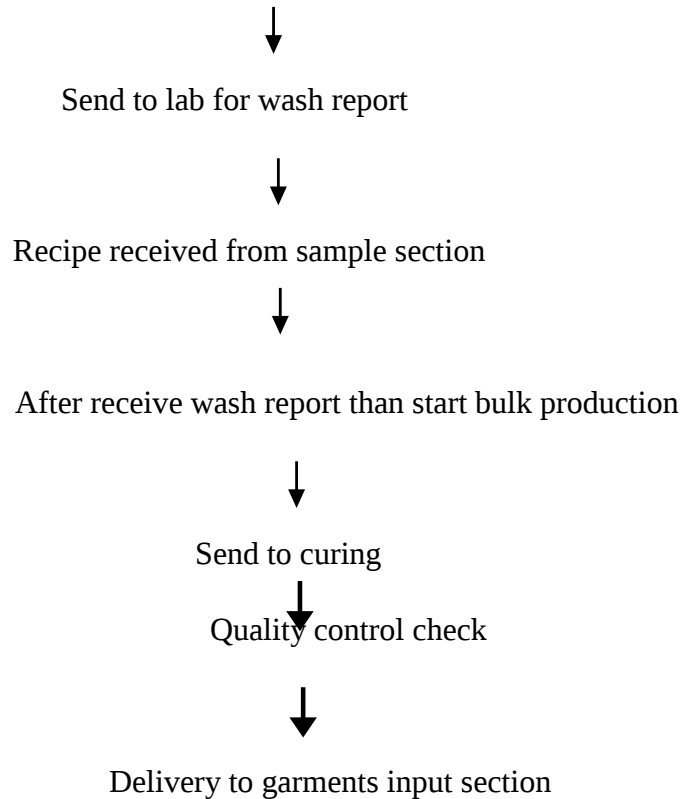


Figure 3. 3. 1 Different types of printing

3.3.6 Flow chart of Printing





3.4 Batch Section

Definition:

“A group of units of products of the same type, structure, color and finish, class and composition, manufactured under essentially the same conditions and essentially at the same time, and submitted at any one time for inspection and testing.”

3.4.1 Types of Batching

1. Solid batch.
2. Assort batch.

3.4.2 M/c used in the batching

1. Back sewing m/c: Used to form tube fabric form from open fabric.
2. Reverse sewing m/c: Used only for single jersey fabric to replace the back part with front part in dyeing of critical shade.

3.4.3 Batch calculation ratio

$$\text{No. of Batch} = \frac{\text{Batch quantity} \times \text{Finished Dia quantity}}{\text{Total quantity}}$$

NB:

1. Batch quantity depends on Machine dyeing capacity.
2. Finished Dia quantity means Fabric finish Dia.
3. Total quantity means Total lot size.

3.4.4 Calculation for Rope Length

$$(\text{Total batch quantity} \times 1000 \times 100)$$

$$\text{Rope Length (L)} = \frac{(\text{Total batch quantity} \times 1000 \times 100)}{(\text{Finished GSM of fabric} \times \text{Fabric finished Dia} \times 2.54)} \text{m.}$$

$$\text{In case of fabric in tube Dia, Rope length (L')} = \frac{L}{2} \text{m}$$

For Lycra = Process lost + 7% only full feeder Lycra.

3.5 Cad Section



Figure 3.4. 1 Cad layout

3.5.1 Machines

The CAD room includes 9 computers, 4 plotters and 1 digitizer.

Plotter:

It is basically a bigger size printer which can work in coordination with the CAD software. The patterns drawn in the software are printed as a hard copy in the exact scale through plotter. By moving a pen like device mechanically, plotter draws the line art on to the paper to produce vector image drawn on a computer. It offers the fastest way to efficiently produce very large drawings or patterns.



Figure 3. 5. 1 Plotter m/c

3.5.2 Specification

Machine name : Digital Box
Plotter

Brand name : GERBER

Country of origin : USA

Model no : MP1804

Machine name : Digital Box Plotter

Brand name : WINDA

Country of origin : China

Model No : WD JET 220

3.5.3 Digitizer

It is the large scanner which is used to convert the analog patterns into a digital form. Digitizer put original patterns into the computer for use and storage. It can be done by defining the XY coordinates of series of selected points around the pattern. The basic patterns can be manipulated with the help of a computer. For example, in case of trousers; darts can be moved, pleats can be created etc. In this way new designs can be created on the screen from a preexisting pattern. It saves a lot of time and makes pattern making easier.

The digitizer, the CAD room has, doesn't work anymore. And the company seems reluctant in repairing it again.



Figure 3. 5. 2 Pattern table

3.5.4 Supported Software

- Ruizhou
- AutoCAD
- AI
- CorelDraw

- Gerber • Lectra
- Any CAD software with HPGL format.



Figure 3. 5. 3 Pattern Cutting Machine

Software:

The software used here is lectra. Computer application in textile is very wide spread and integrated in all phases of textile engineering.

CAD (computer aided design) is software, which is used by architects, engineers, designers, artists and others to create precision drawings. It is the application of computer and graphics software to aid the product design from conceptualization to documentation. Lectra is one of the renowned CAD softwares. With the help of lectra the patterns are produced according to the given teckpack.

CAM (computer aided manufacturing) is software or strategy, which is used in controlling and managing the manufacturing process. By coordinating the CAM system the pattern is printed on paper through the plotter.

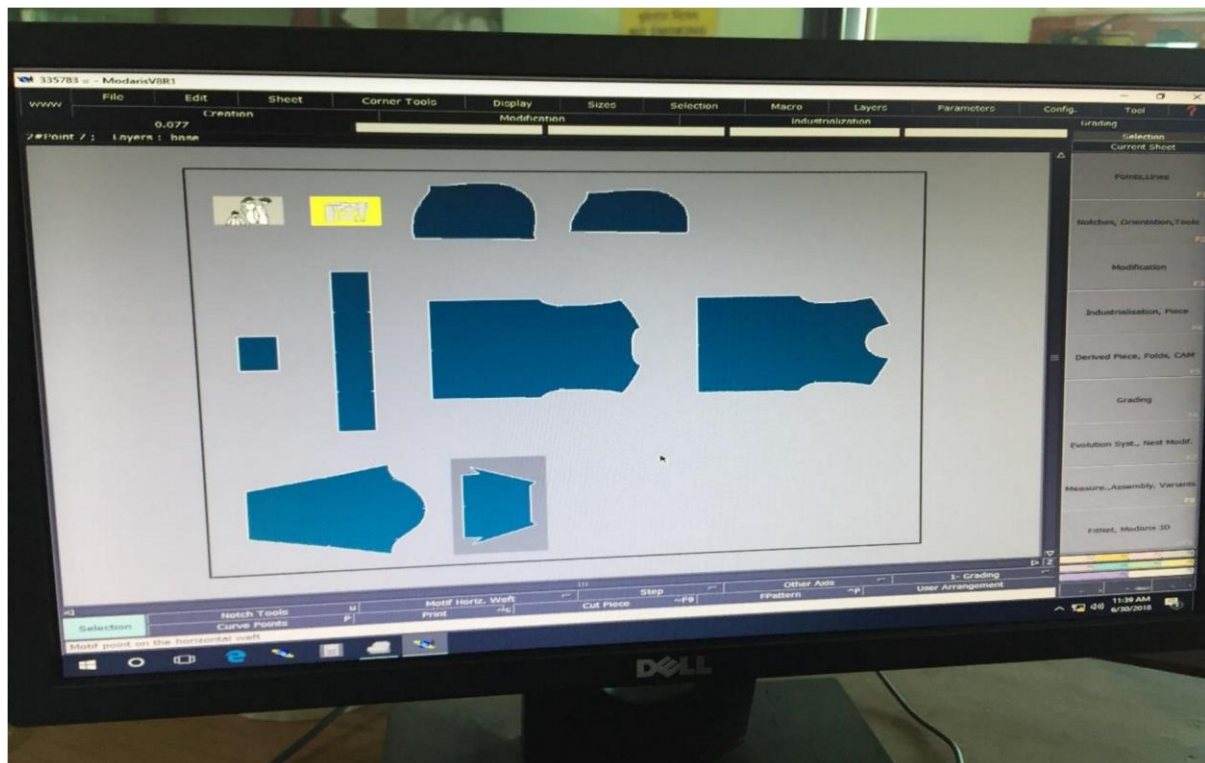


Figure 3. 5. 4 Software image (version: Modaris VBR1)

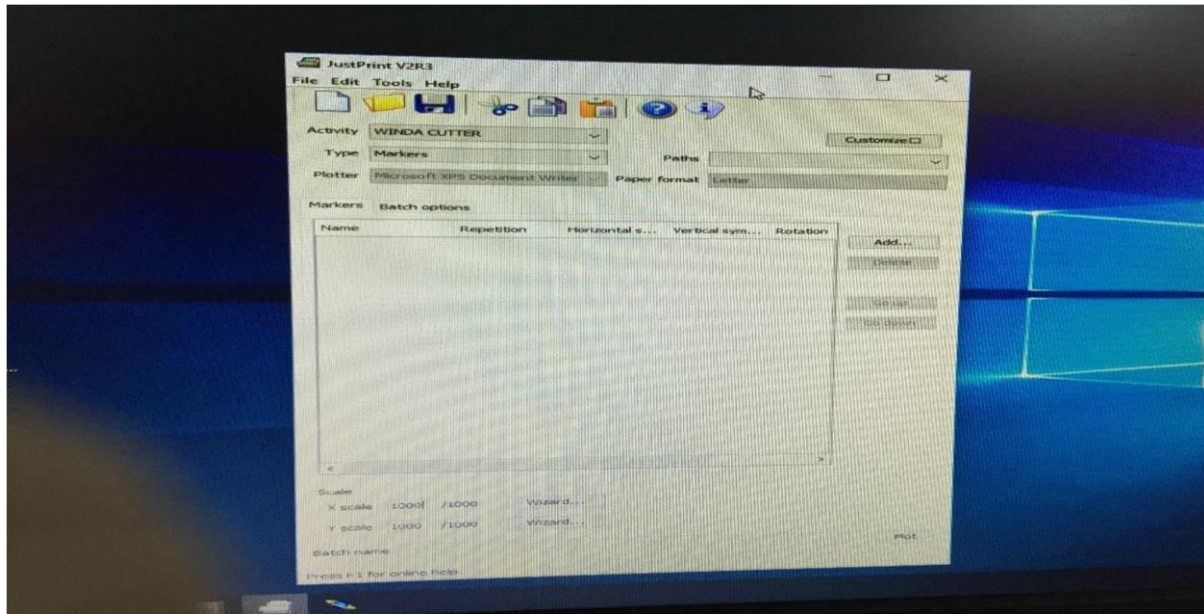


Figure 3. 5. 5 Software image (Just Print V2R3)

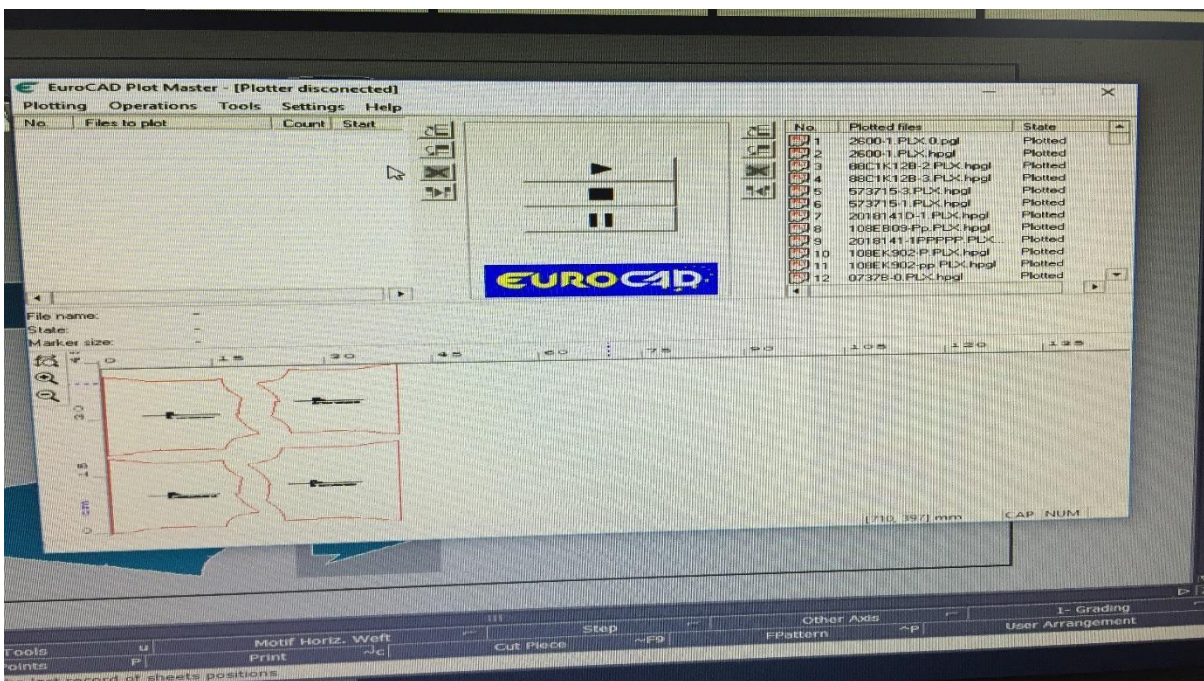


Figure 3. 5. 6 Software image (Euro CAD)

3.6 Cutting Section



Figure 3. 6. 1 Fabric Cutting Section

3.6.1 Organogram of Cutting Department

Cutting Manager

Cutting in charge

Cutting supervisor

Cutting Man

Scissor Man

Worker

Helper

Receive pattern & marker from CAD room

Receive fabric & Fabric storage

Fabric inspection (4-Point system)

Fabric relaxation (minimum 12 hours)

Fabric Spreading

Cutting

Numbering

Cutting Inspection

Replace

Sorting & Bundling

Ready for sewing

3.6.2 Machine used in Cutting Section

- Gerber spreader : 4 pcs
- Kouris spreader : 2 pcs
- TSM spreader : 5 pcs
- Gerber cutter : 3 pcs
- BM Auto Arm Cutter : 9 pcs
- Lay End Cutter : 7 pcs
- Hand Cutter : 50 pcs
- Auto Strip Cutting Machine : 1 pc
- Cutting Table : 20 pcs

3.6.3 Fabric Relaxation

Fabric relaxation is done in order to make the fabric dimensionally stable during cutting. If the fabric is not relaxed properly then difficulties will arise during fabric cutting. Cutting team is responsible in doing fabric relaxation procedure under fabric/cutting quality team



Figure 3. 6. 2 Fabric Relaxation Machine

Name: Fabric Relaxing Machine

Brand Name: WinDa

Model No: WD-RX84

Origin: China

Voltage: 220V; 50-60 Hz

3.6.4 Relaxation time for different types of fabrics

Table 3.6. 1 Relaxation time for different types of fabrics

Types of Fabric	Relaxation Time
100% cotton single jersey	12 hours
Spandex	48 hours
CVC	24 hours
Rib	24 hours
Fleece	36 hours

3.6.5 Fabric Spreading



Figure 3. 6. 3 Automatic fabric spreading m/c

Fabric spreading is one of the most important process in readymade garments sector by which fabric plies are spread in order to getting required length and width as per marker dimension. A proper fabric spreading process in garments may effect on productivity, quality, and cost of the production.

Fabric is laid up to a certain height to avoid cutting quality problem. The number of plies depend on many factors such as equipment available, the skill of the cutter, the thickness and slipperiness of the material, the total number of garments to be cut and standards of quality. Fabric spreading can be done by two ways. They are-

1. Automatic fabric spreading
2. Manual fabric spreading.



Figure 3. 6. 4 Manual Fabric Spreading

3.6.6 Inspection during Spreading

- Ply length should be measured.
- Starting points should be same.
- Ply should be laid properly.
- Ply tension and relaxation before cutting.

3.6.7 Fabric Cutting

After completing the fabric spreading then the fabric cutting is started. In garments industry, making of the garments parts by cutting of fabrics from the spread or lay of fabrics accurately and fairly as per the drawing of the patterns, is called the cutting of fabrics.

Fabric cutting should be done accurately as per exact dimension of the pattern pieces in the marker. Accurate cutting depends on methods of cutting and marker planning. If manual cutting method is used, then cutting accuracy depends on sharpness of knife, skill of operator, and attentiveness of operator.

Fabric cutting can be done by two ways. They are:

1. Automatic fabric cutting
2. Manual fabric cutting.

Automatic Fabric Cutter



Figure 3. 6. 5 Automatic fabric cutter

Name : Gerber Automatic Cutting Machine

Brand : Gerber

Origin : USA

3.6.8 Machine used in manual fabric cutting:



Figure 3. 6. 6 Straight knife cutting m/c



Figure 3. 6. 7 Manual fabric cutting

3.6.9 Factors affecting the cutting process for fabrics

Factors affect the cutting process for fabrics are as follows:

- Nature of fabric.
- Thickness of fabric.
- Design characteristics of finished garment.
- Machines and tables used.

3.6.10 Defects of Cutting

- Miss cut
- Racket cutting
- Mismatching place
- Notches defect

- Pattern check

3.6.11 Measurement Check

In this section the measurement of garment parts are checked.

3.6.12 Fault Check

Different types of faults are checked here-

- Oil spot
- Dirt spot □ Hole
- Shade variation
- Wrong numbering
- Mismatching of the garment parts

3.6.13 Some precautions are followed in the cutting section

- Sharpening the knife properly
- Reducing ply height
- Control the speed of the knife
- Using hand gloves
- Using a heavy table to eliminate vibration

3.6.14 Numbering

Separated garment components are numbered to ensure that all components from same layer are stitched together. It is important to avoid shade variation in a garment. The cut components may be passed through other processes like washing. There is maximum chance of mixing of the components as a result numbering is necessary.



Figure 3. 6. 8 Fabric Numbering

3.6.15 Numbering tag information

- Cut panel number
- Size number
- Lot number

3.6.16 Sorting & Bundling

According to production system cut components are sorted. In sorting all component of a garment placed together. Size wise sorting and in case multiple colors are cut in a single lay, color wise sorting will be required. As per the production line requirement a certain number of pieces with all component are tied together. This process is known as bundling. Each bundle is marked with bundle number, style name, size number and quantity of pieces in that bundle. All the cut panels should be bundled according to layout. Each bundle should be formed by 20 to 25 pieces from cut panel. The record of bundles should be noted down during distribution in sewing



Figure 3. 6. 9 Number matching

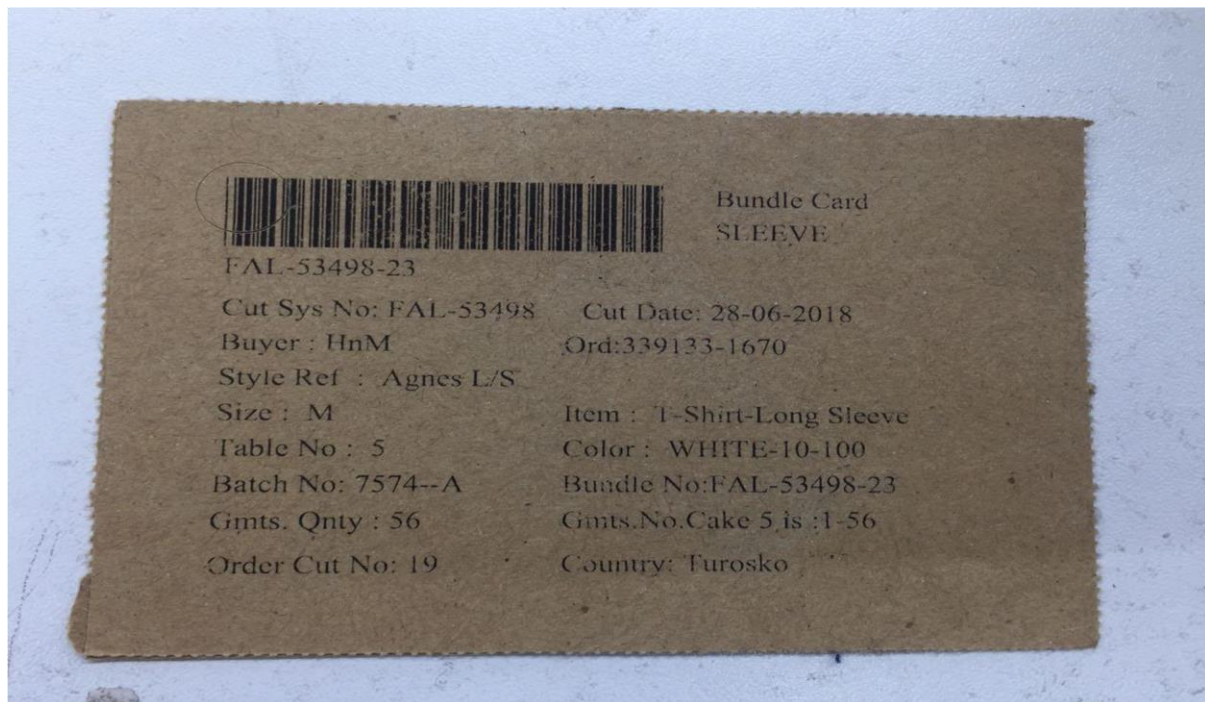


Figure 3. 6. 10 Bundle card

3.6.17 Bundling card information

- Style
- Order number
- Size number
- Bundle number
- Batch number
- Parts name

3.7 Sewing Section



Figure 3. 7. 1 Sewing section

3.7.1 Layout of sewing section

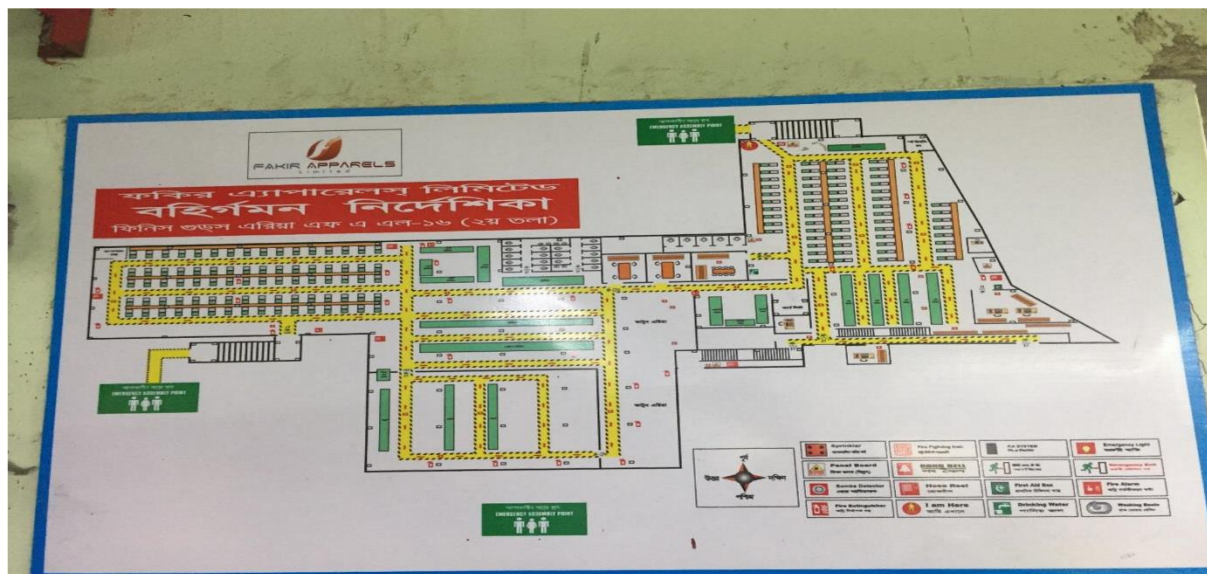


Figure 3. 7. 2 Layout of sewing section

Sewing:

Sewing is a craft which involve stitching fabrics or other materials together by using needle and thread by hand or with a machine.

After receiving the cut garment parts from the cutting section, they are sewn sequentially in order to make a garment. There are some pre required factors which is checked before going to the bulk production. They are,

1. If all the required machines are available
2. If the manpower optimum or not
3. If the line is arranged according to the given layout
4. If the cutting parts are numbered
5. If selection of needle sizes are done or not, etc.

3.7.2 Elements of Sewing

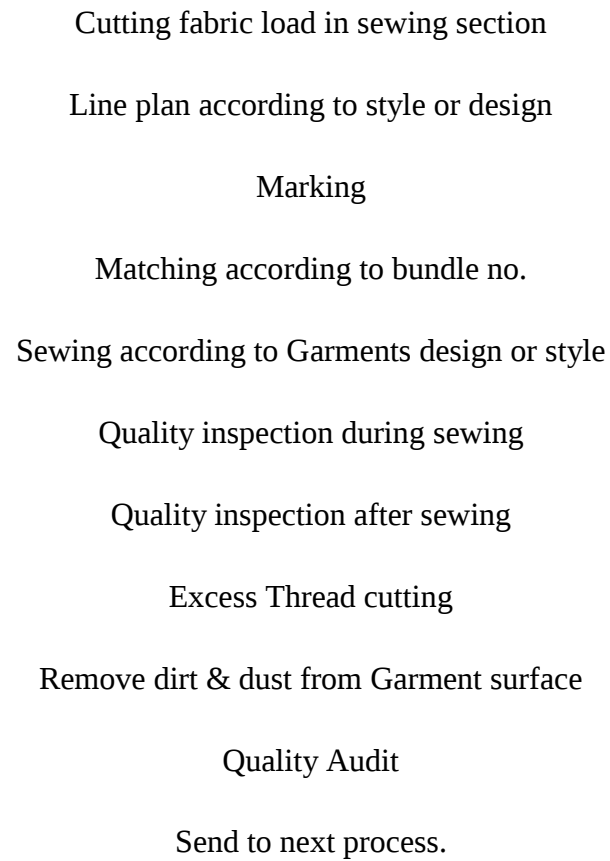
- Sewing Thread,
- Needle &
- Sewing Machine

3.7.3 Conveyor system sewing line



Figure 3. 7. 3 Conveyor sewing line

3.7.4 Process flow chart of sewing section



3.7.5 Machine used

Figure 3.7. 1 List of sewing machine used in sample section

Machine	Specification
	Machine Name : Plain Machine Brand : Brother Origin : Japan Stitch Type : Lock Stitch RPM : 400-4000
	Machine Name :Over Lock Machine Brand : PAGASUS Origin : Japan Stitch Type : Over edge stitch RPM : 400-8000

Figure 3.7. 2 List of sewing m/c in sample section

	Machine Name : Flat Lock Machine Brand : PAGASUS Origin : Japan Stitch Type : Chain stitch RPM : 2600
	Machine Name : Bar Tack Machine Brand : Brother Origin : China SPI : 90-100

Figure 3.7. 3 List of sewing m/c used in sample section

	<table><tr><td>Machine Name:</td><td>Button Hole Machine</td></tr><tr><td>Brand</td><td>: Brother</td></tr><tr><td>Origin</td><td>: China</td></tr><tr><td>RPM</td><td>: 3500</td></tr></table>	Machine Name:	Button Hole Machine	Brand	: Brother	Origin	: China	RPM	: 3500
Machine Name:	Button Hole Machine								
Brand	: Brother								
Origin	: China								
RPM	: 3500								
									



Machine Name : Feed off the Arm
Machine

Brand : Brother

Origin : Japan

RPM : 2860-3450

3.7.6 Sewing Defects

- Knots
- Broken stitch
- Label missing (care label, size label, main label, security label, brand label)
- Oil spot
- Skipped stitch
- Size Mistake

- Row Edge
- Uneven stitch
- Incomplete tack
- Shading
- Overlap
- Uncut thread
- Wrong- S.P.I (stitch per inch)
- Wrong position

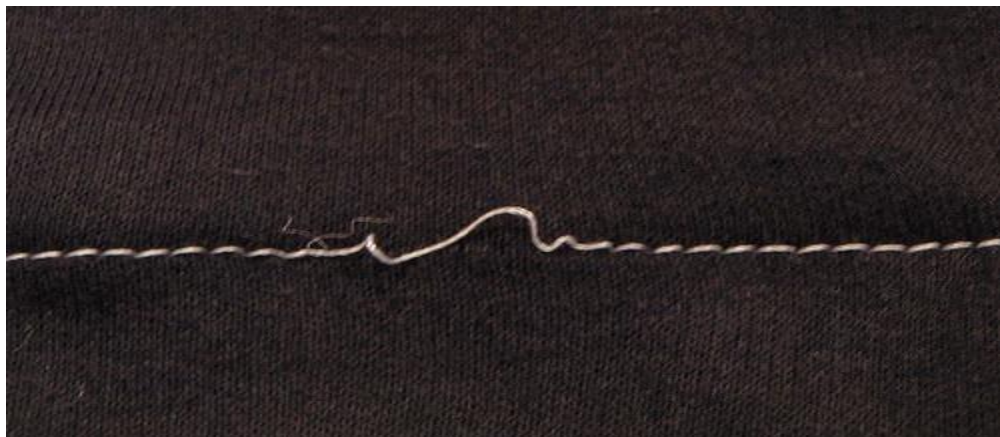


Figure 3. 7. 4 Broken Stitch



Figure 3. 7. 5 Thread Cut



Figure 3. 7. 6 Oil Spot



Figure 3. 7. 7 Seam Puckering



Figure 3. 7. 8 Shading Variation



Figure 3. 7. 9 Uneven Stitch

3.8 Embroidery Section



Figure 3. 8. 1 Embroidery Section

3.8.1 Embroidery section layout & emergency evacuation plan

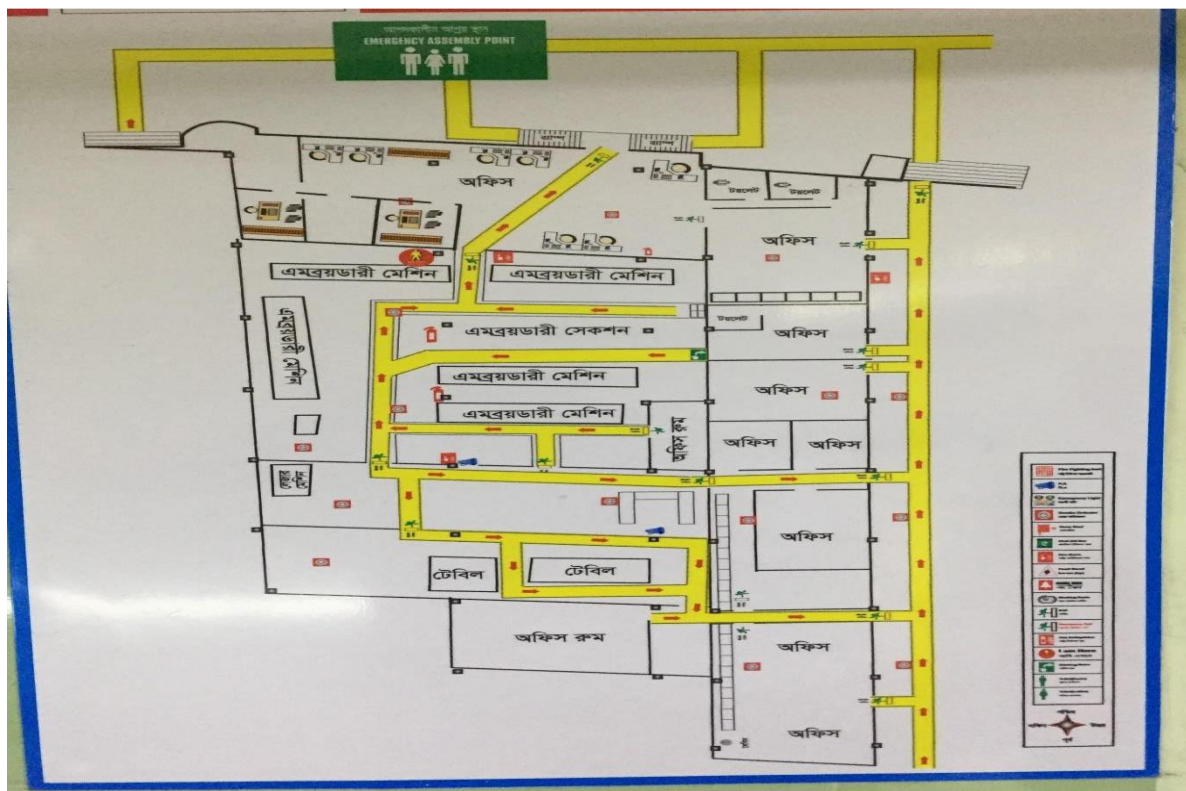


Figure 3. 8. 2 Embroidery section layout & emergency evacuation plan

3.8.2 Embroidery

Embroidery is the craft of decorating fabric or other materials using a needle to apply thread or yarn. Embroidery may also incorporate other materials such as pearls, beads, quills, and sequins. In modern days, embroidery is usually seen on caps, hats, coats, blankets, dress shirts, denim, dresses, stockings, and golf shirts. Embroidery is available with a wide variety of thread or yarn color.

Some of the basic techniques or stitches of the earliest embroidery are chain stitch, buttonhole or blanket stitch, running stitch, satin stitch, cross stitch. Those stitches remain the fundamental techniques of hand embroidery today.

3.8.3 Objective of Embroidery

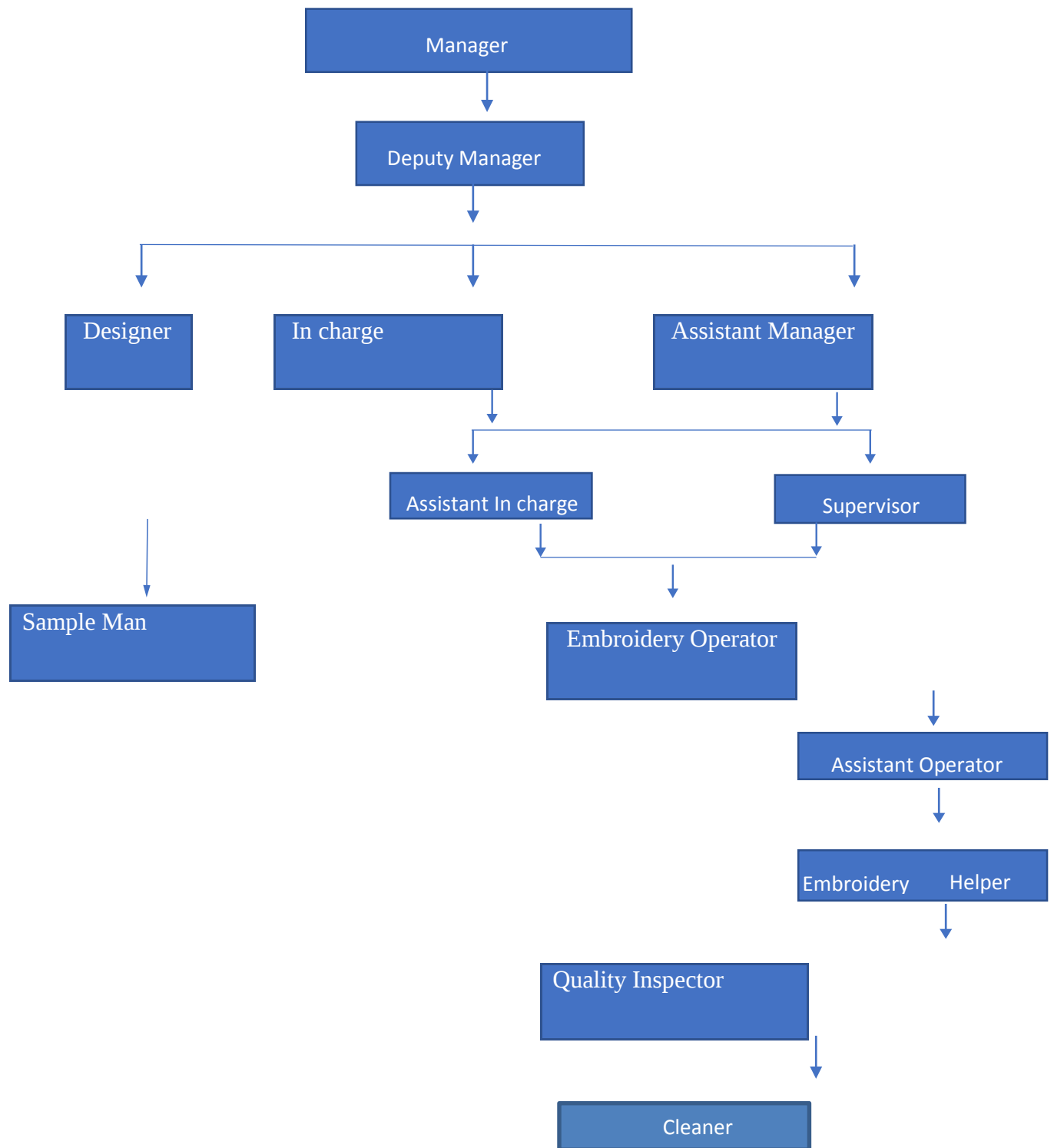
- To identify, describe and discuss existing indigenous stitching techniques used in cloth production.
- To develop new design concepts incorporating alphabets, images and geometric shapes.
- To produce a number of samples and cloth using the design concepts developed.

3.8.4 Manpower in Embroidery Section

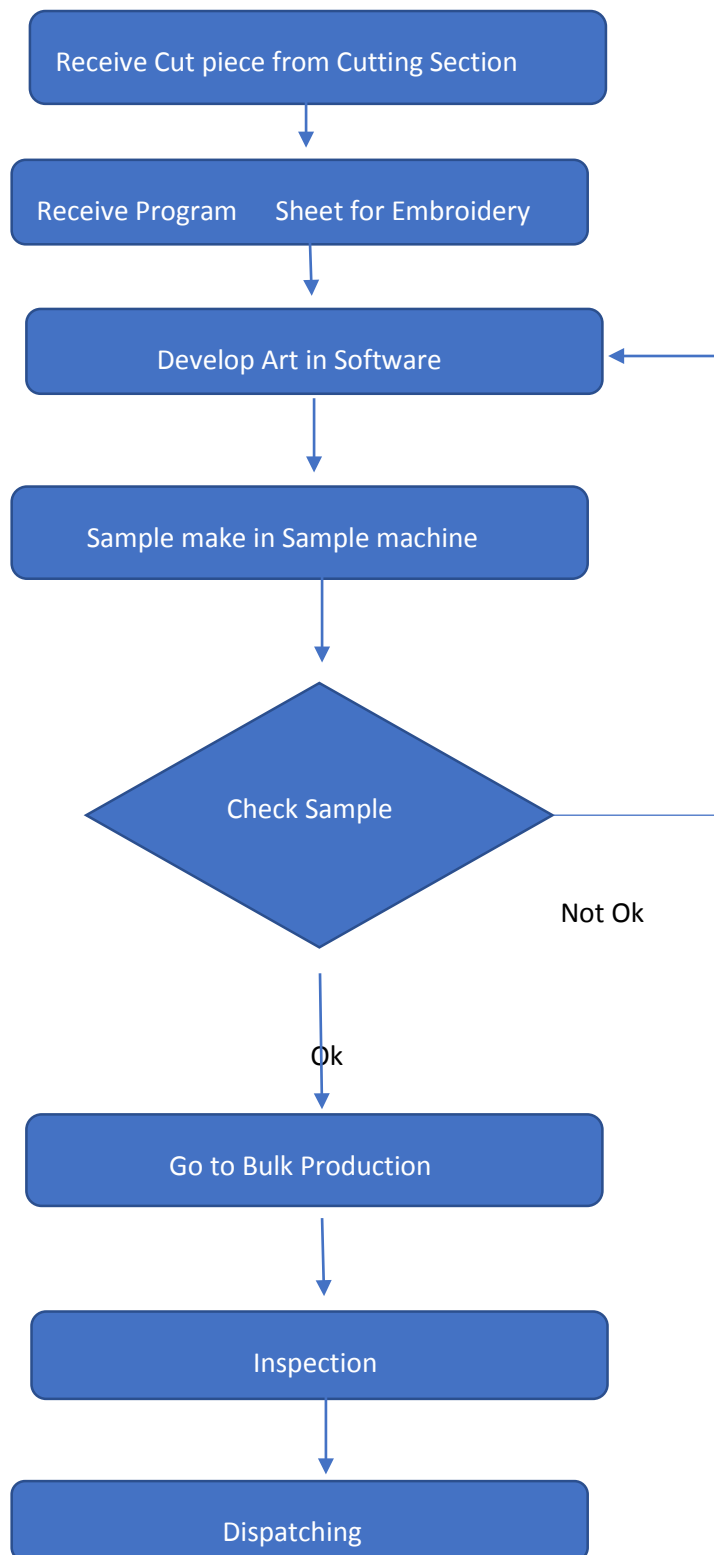
Manager	: 1	Embroidery Operator:	12
Deputy Manager	: 1	Assistant Operator	: 5
In charge	: 1	Embroidery Helper	: 20
Assistant Manager	: 1	Quality Inspector	: 6
Designer	: 1	Cleaner	: 2
Sample Man	: 2		
Assistant in Charge	: 1		
Supervisor			: 4

Total Manpower: 57

3.8.5 Organogram of Embroidery Section



3.8.6 Flow Chart of Embroidery Section



3.8.7 Machine Specification

❖ TAJIMA Embroidery Machine (Total Machine No-5)

Table 3.8. 1 Machine specification (TAJIMA)

Brand Name	: TAJIMA
Model	: TFSN-920
RPM	: 1100 SPM
Needle	: 9
Head	: 20
Color	: 9
Memory	: 2,000,000 Stitches
Power Consumption	: 1.3 KW

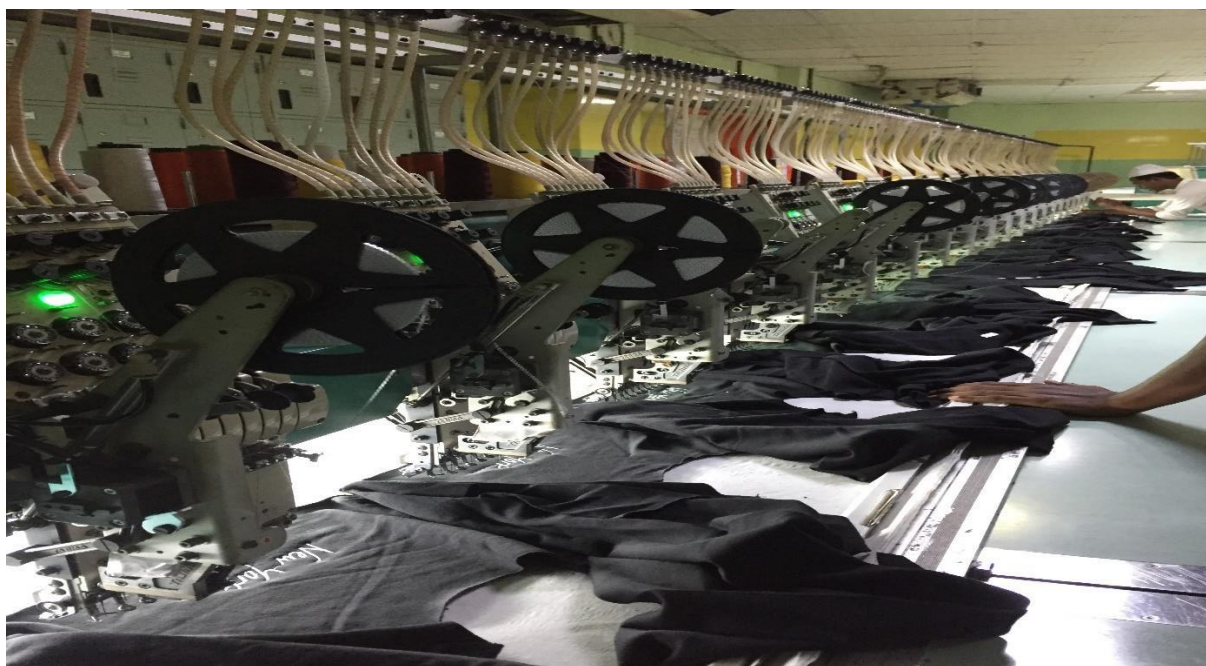


Figure 3. 8. 3 TAJIMA Embroidery Machine

❖ Laser Applique Cutting Machine (Total Machine No-1)

Table 3.8. 2 Machine specification of Laser Applique Cutting Machine

Brand Name	:WinDa
Model	: WD T0906
Processing Area	: 900*600mm
Max. Cutting speed	: 24000mm/min
Gross Power	: 1250W



Figure 3. 8. 4 Laser Applique Cutting Machine

3.8.8 Types of Embroidery Stitch



Figure 3. 8. 5 Types of Embroidery Stitch

3.8.9 Different Types of Trimmings Used

- Applique
- Sewing Thread
- Embroidery Thread
- Interlining Fabric
- High Power Spray Adhesive
- Motif

3.8.10 Different Types of Interlining Fabric

1. Normal Interlining
2. Non-Tear able: For washing purpose
3. Biscuit Interlining: Water soluble type

3.8.11 Different Types of Sewing Thread Used

- I. Metallic Thread
- II. Embroidery Polyester Thread
- III. Sewing Thread: 100% Viscose, Polyester Core Spun, Cotton, 100% Spun Polyester, etc.



Figure 3. 8. 6 Different Types of Threads

3.8.12 Common Faults in Embroidery

1. Stitch Gap
2. Color Missing
3. Fabric Grin/Gapping
4. Poor Stitch Balance
5. Fabric Damage
6. Thick or Thin Embroidery

3.8.13 Quality Control in Embroidery

- ✓ Embroidery Measurement Check
- ✓ Back Side Extra Thread Cut
- ✓ Stitch Check
- ✓ Fabric Damage Check
- ✓ Color Missing Check

3.8.14 Embroidery Costing

- In 12000 Stitch Cost of Make 0.16\$

Assume that, Total Number of Stitch in Fabric: 7000

So,

$$\text{Cost: } 7000 * 12(\text{Dozen}) * 0.16\$ / 12000 = 1.12\$$$

3.9 merchandising Section

Definition:

Merchandiser is the interface between Buyer & Exporter. He is the responsible from order analysis to shipment. Merchandising department is known as the heart of an apparel industry.

Company profit or lose depending on this department. So we can said that, “The merchandiser is the person whose responsibility is to execute the orders perfectly as per the costing and pricing.”

3.9.1 Objective of Merchandising

Merchandising is core of garment industry. There are some objective of merchandising:

- Right product
- Right quality



Figure 3.9. 1 Merchandising Section

3.9.2 Organogram of Merchandising Department:

Therefore the responsibilities in this department are very important. The sequence of job responsibility flows in a merchandising department according to the following diagram.

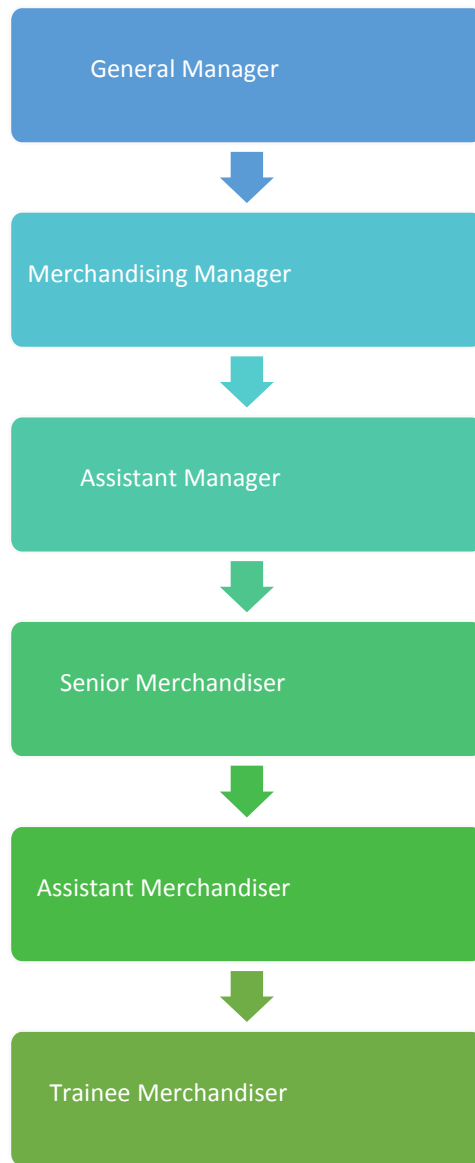
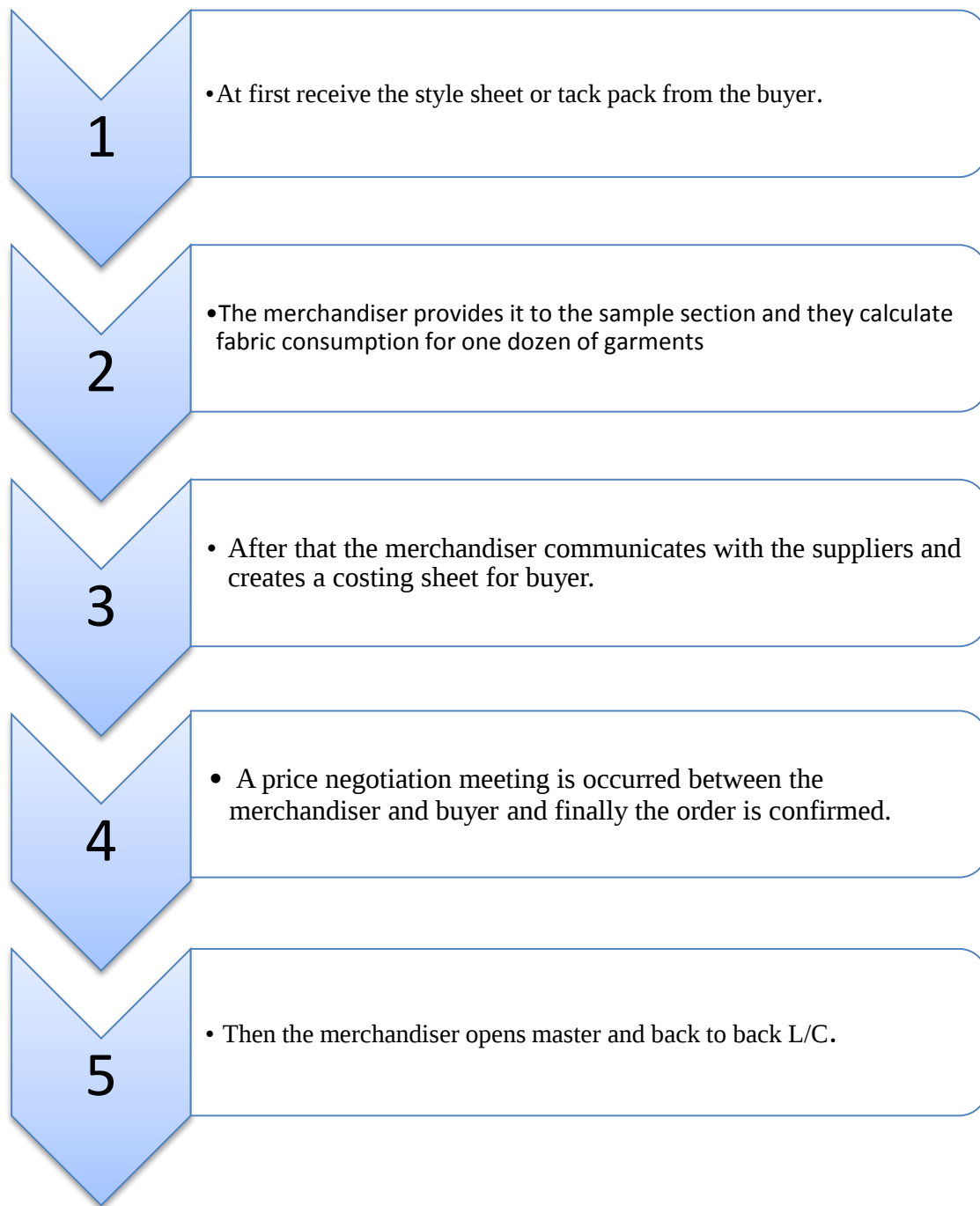


Figure 3.9. 2 The sequence of job responsibility flows in Fakir Apparels Limited

3.9.2 Responsibilities of a Merchandiser:

- ❖ Responsible for monitoring and sourcing for individual order from beginning to shipment.
- ❖ Expert in collecting orders, shipment follow up and communication with buyers.
- ❖ Ensure about timely submission of samples, pricing details and any other specifics requested by buyer.
- ❖ Communicate with suppliers for raw materials, booking and delivery.
- ❖ Maintain fabric, accessories booking and in-house on time.
- ❖ Clear idea about Time & Action plan, pattern, marker, consumption and pricing.
- ❖ Monitor and check production status and inform the buyer.
- ❖ Clear conception about the quality of the products.
- ❖ Maintain all the procedure for shipment.

3.9.3 Activities of a merchandiser in Fakir Apparels Limited



6

- After that they give the order for actual fabrics and accessories to the suppliers.

7

- By following the actual sample which is given by the buyer, the manufacturers making the fit sample. It can be made by using available fabric but the construction and GSM of the fabric need to be the same

8

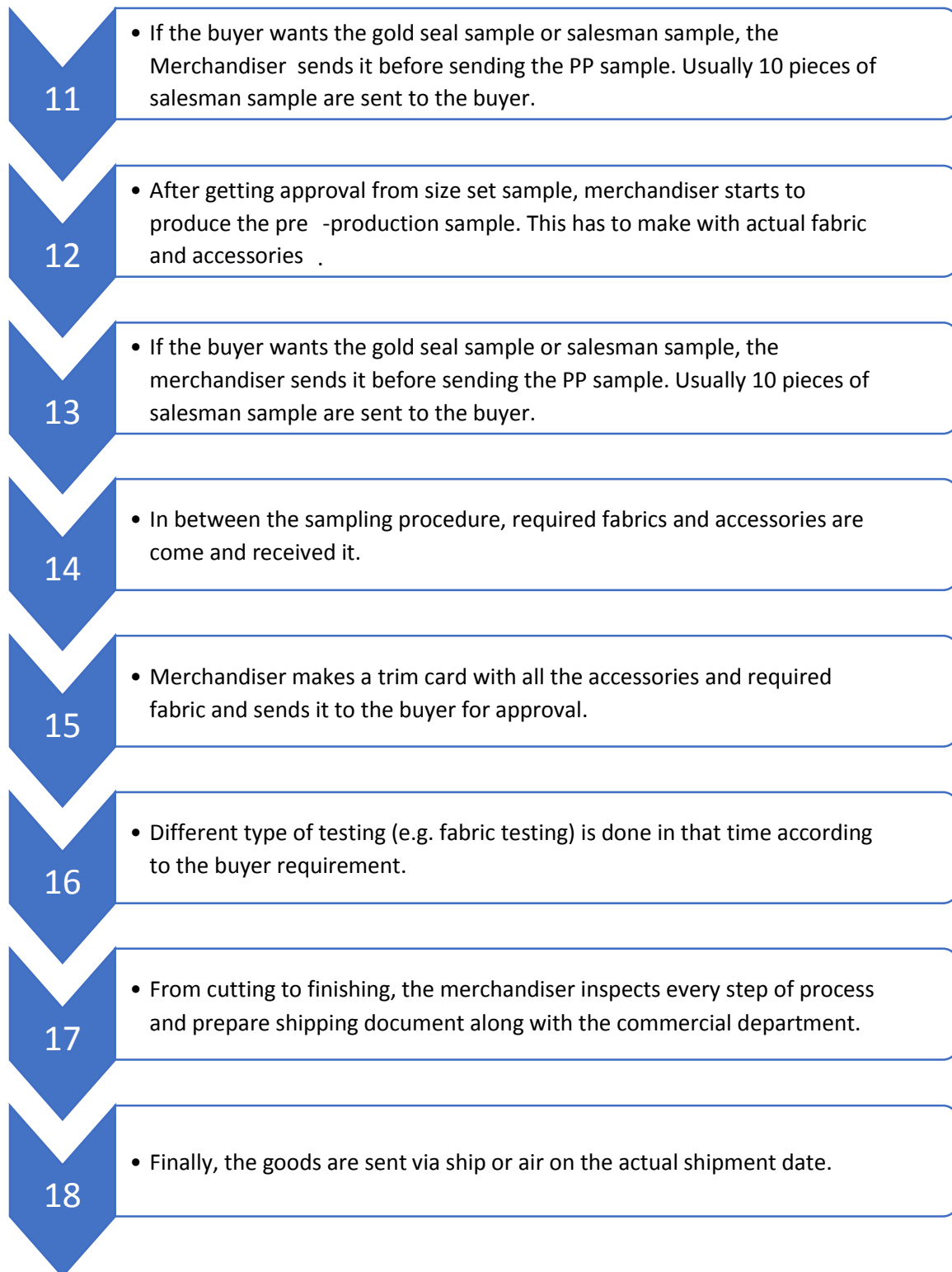
- After sending the fit sample for approval, buyer sends the comments sheet within 8 to 10 days.

9

- If there is any problem found, then the buyer wants the size set sample. merchandiser sends one sample per size.

10

- After getting approval from size set sample, merchandiser starts to produce the pre-production sample. This has to make with actual fabric and accessories.



3.9.4 Cost sheet & consumption sheet preparation

- Garment Costing
- Trimming Price
- CM Calculation
- Other Embellishment Calculation
- Commercial Cost
- Shipping Charges

3.9.5 PI sheet & its items

In foreign trade transaction, a Proforma Invoice is a document that states a commitment from the seller to reserve some goods to be sold to a certain person, the buyer. the buyer places an order and if the seller agrees, it extend a Proforma Invoice and agrees to all the terms specified in it, the goods are send and the Proforma is replaced by a commercial Invoice. The PI sheet depends on the demand of buyer.

The items should be included in this sheet are-

- Top part

Body/middle part □ Bottom part

3.9.10 Master L/C checking procedure & important items should be included in Master L/C

A documentary Master L/C is an orderly payment security instrument offering high quality payment security to a business transaction for both parties the seller and buyer. The seller will receive payment for his goods if he meets all conditions prescribed by the letter of credit.

Without master L/C opening the order won't be confirmed. So its carry more value than other documents in export and import business.

Master L/C Check list items which must be include:

- Types of L/C
- Issue date
- Expiry Date
- Issuing bank details
- Seller name and address
- Total amount of order
- Currency of payment
- Tolerance (2% to 5% plus or minus)
- Port of landing
- Description of goods
- Shipping terms (FOB/C&F list of documents required)

3.9.11 Bill of Landing (B/L)

It is document issued by a merchant (railroad, steamship, or trucking Company) which serves as a receipt for the goods to be delivered to a designed person or to his order.

B/L describes the conditions under which the goods are accepted by the career and details:

- The quality of goods
- Name of vessel
- Identification marks and numbers
- Destination

3.9.12 Invoice

Below point are including in the invoice:

- Names and address of the buyers and sellers
- The date and term of the sale
- A description of the goods
- The price of the goods
- The mood of transportation

3.9.13 Payment release

After preparing invoice, bill of landing and other required documentation they send it to buyer's nominated bank for payment release.

3.9.14 Fabric consumption (Basic T-shirt, Trouser) and Thread consumption

It is very important for calculating the fabric consumption because the booking of fabrics is dependent on consumption. Mentioned that the accuracy of fabric and thread consumption can reduce the excess fabric which helps to reduce cost of fabric.

3.9.15 Formula of Fabric consumption for Basic T-Shirt

(Measurement in CM)

$(B.L + S.L. + Allowance) \times 1/2 \text{ Chest} \times 2 \times GSM \times 12 \div (10000 \times 1000) \text{ kg/dz}$

(Measurement in INCH)

$(B.L + S.L. + Allowance) \times 1/2 \text{ Chest} \times 2 \times GSM \times 12 \div (1550 \times 1000) \text{ kg/dz}$

Fabric consumption for **Basic T-Shirt:**

(Measurement in CM)

$(Inseam + B.R + W.B + Allowances) \times (1/2 \text{ Thai Circular} +$

Allowances) X 4 X GSM X 12 ÷ (10000X1000) kg/dz

(Measurement In CM)

**(Inseam + B.R + W.B + Allowances) X (1/2 Thai Circular + Allowances) X 4 X
GSM X 12 ÷ (1550X1000) kg/dz**

Basically

American Buyers Follow Measurement in Inch

European Buyers Follow Measurement in CM

3.9.16 Fabric consumption for Basic T-shirt

Calculation – 01: Formula in Centimeter: Suppose one of T-shirt's Body length (72+4) cm, Sleeve length (23+2) cm, Chest length (Diameter) (53+2) cm and G.S.M 180. Determine the fabric consumption for the basic T-Shirt.

Solution:

Here, Body Length = 76 cm

Sleeve Length = 25 cm

Chest Length = 55×2=110 cm (For both side)

= (½ chest*(B.L+ S.L) *2*12* GSM) / (10000*1000) Kg / Dz

= (55*(76+25)*2*12*180) / (10000*1000) kg / Dz

= 2.39 kg / Dz

= 2.39 + 12 % (process loss for knitting & dyeing)

= 2.39 + .28 kg / Dz

= 2.67 kg / Dz

=2.67 + 15 % (loss for cutting & other)

= 3.67 + .55 kg / Dz

=4.22 kg / Dz

3.10 Sample Section



Figure 3.10. 1 Sample Section

3.10.1 Sampling

Garment sampling is given great emphasis in the garment manufacturing process. It is the model of what the bulk production is going to be done. It actually determines the approval of the future orders from buyer and fetches business for the company. The buyer places order after they are satisfied with the samples. Sampling is one of the key elements of the pre-production processes in a garment industry.

3.10.2 Purpose of Sampling

1. To allow the buyer to judge the production capabilities of the manufacturer
2. To provide a means for making revisions in the bulk production process
3. To let the manufacturer estimate the fabric, thread and accessories consumption and 4. To develop cost quotations for the product

On the basis of the Tec pack given by the buyer, sample is being produced in order to get the bulk order of the product from the buyer.

3.10.3 Flow Chart of sample section

3.10.4 Product Development

Product development is the section in which garments are produced in small quantities to attract the buyers. Some modifications (not major changes) can be done on the product based on the tech pack of the buyer. The designer has the flexibility to add his or her thoughts to the product in terms of quality and design. Buyer wants fabric and design options from the development department. Maximum 4 to 5 sample garments are produced for each style and sent to the buyer for comments. The development merchandiser communicates with the buyer through mails.

Fabric sourcing is done in the first place. After the garments have produced they are sent to the buyer for approval. Sometimes the buyer puts those sample garments in the store just for test run to create or measure the market demand. Then buyer decides whether to give the bulk order to the company.

3.10.5 Capacity of Sample Section

Table 3.10. 1 Capacity of Sample Section

Manpower	15
Total Machine	20

3.10.6 Manpower according to denomination

Table 3.10. 2 Manpower according to denomination

Denomination	Manpower
Sample In charge	1
Assistant Pattern master	1
CAD officer	1
Sample cutting man	2
Sample Makers	10

3.10.6 Total equipment

Table 3.10. 3 Total equipment

Name of equipment	No of equipment
Chain Stitch Sewing Machine	1
Single needle lockstitch machine (Plain machine)	6
High speed single needle straight Lockstitch industrial sewing machine	2
Five thread Overlock sewing machine	1
Feed off the arm sewing machine	1
Button holing machine	1
Button attaching machine	1
Snap button attaching machine	1
Hand Iron	4
Steam iron with Vacuum ironing table	1

WINDA Flat Bed Automatic Pattern Cutting Machine	1
---	---



Figure 3.10. 2 Different fabric lot in sample section

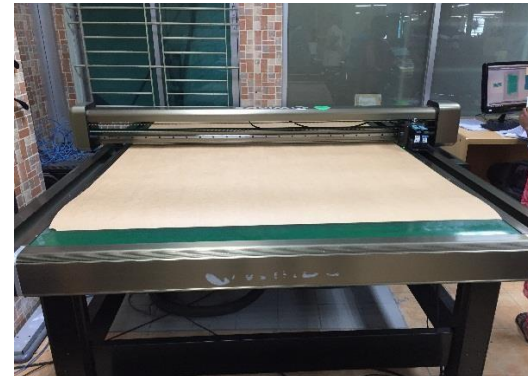


Figure 3.10. 3 CAD room in sample



Figure 3.10. 4 cutting table in sample section



Figure 3.10. 5 Sewing line in sample section

3.10.7 Different types of sample

3.10.8 Development Sample

It is the very first sample which is prepared according to the buyer's Specification. Buyers want to see that how its look likes after applying new design on it. Any types of fabric and color can be used here. Here 2 sample garments are made where one piece is for the manufacturer and another on is for the buyer.

3.10.9 Fit Sample

After approving development sample, fit samples are made by following the measurement chart which is provided by the buyer. In fit sample, stitching and measurement must be 100% accurate. The type, structure and GSM of the fabric need to be the same according to the buyer's spec sheet. The sample is send to the buyer to check if the fittings of the garments are okay or not as per his requirement. To evaluate the sample's exact measurement and fit, this sample is worn by the dummy or the models.

3.10.10 Size Set Sample

Normally fit sample is made of one size. Once the fit sample is approved, all the other sizes sample are graded as per the purchase order. The basic purpose of size set sample is to ensure that grading between sizes is correct. Before bulk cutting the size set sample must be approved by the buyer.

3.10.11 Salesman Sample

Buyer sends the salesman sample by salesman to the market to receive the market feedback from the customers. The main concept of SMS is to check the feedback of the customers. From this, buyer decides the order quantity of the garments.

3.10.12 Pre- Production Sample (PPS)

After approving fit and size set sample this PPS is made with the actual fabric, trims & accessories and send it to the buyer for final approval. Once approved becomes the final sample on the basis of which entire production is made and audited. If the PPS will approve then these can go for the rest of the processes but if rejected then the previous processes needed to be revised.

3.10.13 Production Sample or TOP sample

During production some sample from the production floor is sent to the buyer. These are called production sample or TOP sample. From production sample buyer make sure all the specifications are maintained as per requirement. If TOP sample failed to approve its required quality then whole order will be resumed.

3.10.14 Shipment Sample

When the goods are ready for shipment, these samples are needed to send after final inspection. Sometimes shipment sample may send during the time of shipping depends on the buyer requirement.



Figure 3.10. 6 Different types of sample

3.11 Utility Section

3.11.1 Utility

Any garment manufacturing industry needs electricity, gas & water supply in order to operate smoothly. Any irregularity or lack in the required utility services can cause immediately unexpected loss of the production process. Success of any industry largely depends on this factor.

3.11.2 Utilities in Fakir Apparel LTD.

- Electricity
- Compressed Air
- Steam
- Gas
- Effluent Treatment Plant (ETP)

3.11.3 Sources of Utility

Utility	Sources
Electricity	Gas generator, Diesel generator
Compressed Air	Compressor
Steam	Gas Boiler Oil Boiler

Table 3.10. 4 Sources of Utility

Steam	Gas Boiler Oil Boiler
Water	Under ground water

Gas	Titas Gas
-----	-----------

3.11.4 Generator Section Layout & Emergency Evacuation Plan



Figure 3.11. 1 Generator Section Layout & Emergency Evacuation Plan

Electricity:

In Fakir Apparel LTD. five gas generator are used for supplying electricity all over the industry.

3.11.5 Machine Specification (Gas Generator)

Name : Gas Generator

Brand : Waukesha

Model : VHP59041GSI

Origin : USA

Capacity : 1600 KW

1416 KW

No of machine : 5



Figure 3.11. 2 Gas Generator

3.11.6 Machine Specification (Diesel Generator)

Name : Diesel Generator

Brand : Power Co

Model : PSC500PM

Origin : UK

Capacity : 400KW

No of machine : 3



Figure 3.11. 3 Diesel Engine

3.11.7 Steam

Boiler is mainly used to produce & deliver steam to different sections as required. In Fakir Apparel LTD. Six gas boilers and one exhaust gas boiler are used to produce & deliver steam to different sections.

Boiler Specification

Name : Natural Gas Boiler

Brand : Fulton

Model : F10

Origin : USA

Capacity : 2.5 ton

No of machine : 1

Name : Natural Gas Boiler

Brand : COCHRAN

Model - 35/4243

Origin : USA

Capacity : 8 ton

No of machine : 2

Name : Hot Oil Boiler

Brand : DLREnP

Model : DL-H

Origin : Korea

Capacity : 20,000,000 Kcal/hr

No of machine : 2

Name : Natural Gas Boiler

Brand : LOOS

Model : G70/2-A

Origin : Germany

Capacity : 10 ton

No of machine : 1

Name : Exhaust Gas Boiler

Brand : RAKHOH

Origin : Pune-India

Capacity : 3.5ton

No of machine : 1



Figure 3.11. 4 Natural Gas Boiler



Figure 3.11. 5 Hot Oil Boiler



Figure 3.11. 6 Exhaust Gas Boiler



Figure 3.11. 7 Air Compressor

3.12 Effluent Treatment Plant (ETP)

Effluent treatment plant is a process to convert wastewater - which is water no longer needed or suitable for its most recent use into an effluent that can be either returned to the water cycle with minimal environmental issues or reused.

3.12.1 Layout of ETP

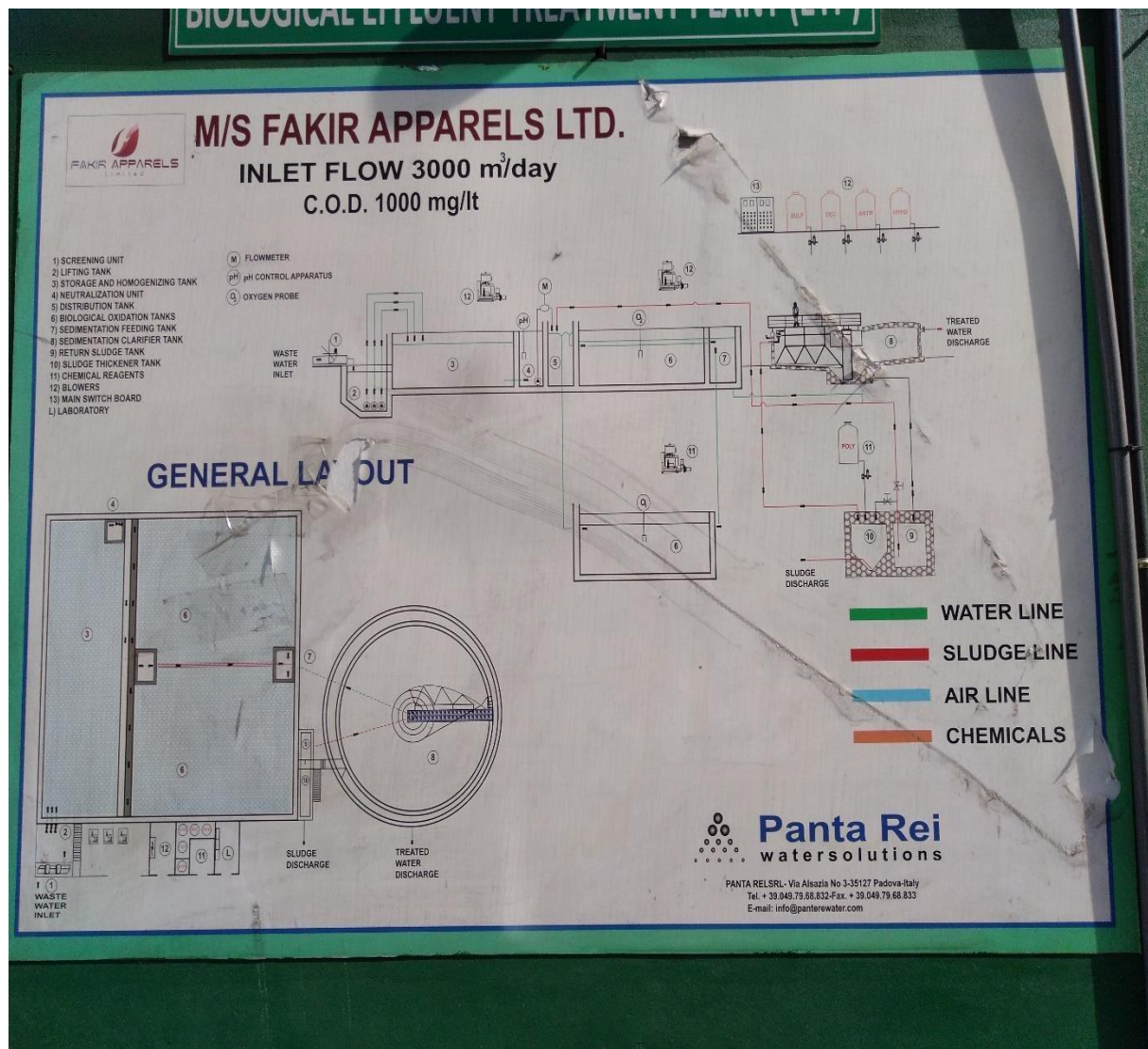


Figure 3.12. 1 Layout of ETP

3.12.2 Flow Chart of ETP

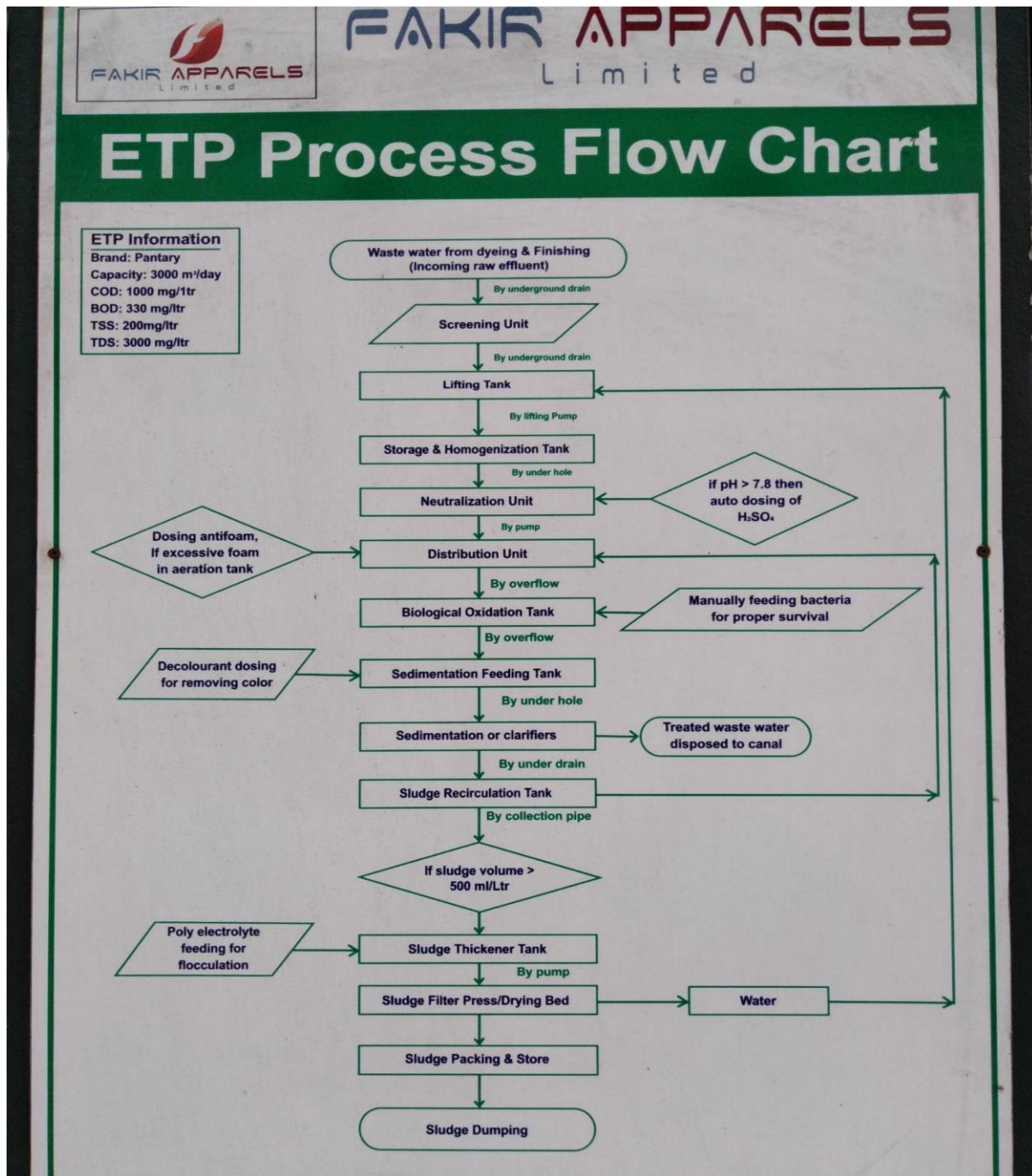


Figure 3.12. 2 Flow Chart of ETP



Figure 3.12. 3 Effluent Treatment Plant

3.13 Compliance



Figure 3.13. 1 Compliance Department

3.13.1 Compliance

Compliance means conformity of certain standard according to buyer code of conduct. Every textile industries should maintain a moderate working condition for their employees.

Compliance is used to maintain strictly the labor law.

Compliance is mainly 4 types:

- Social Compliance
- Technical Compliance
- Custom Compliance
- Security Compliance

Compliance is prime issue of global RMG sector due to Rana plaza and Tajrin fashion occurrence global buyer are more concern about compliance. Bangladesh has emerged as a key player in RMG (Ready Made Garment) sector since 1978. Textiles and clothing account for about 85% of total export earnings of Bangladesh. Out of which, 76% comes from the apparel sector which covers the major products of knit and woven shirts, blouses, trousers, skirts, shorts, jackets, sweaters, sports wears and many more casual and fashion items. The sector currently employs approximately 1.5 million workers, mostly females from underprivileged social classes .Fakir apparels try to follow the compliance issue .

3.13.2 Activities in Compliance Department

The activities in Compliance and Human Resource department under categorized and monitored by some issues which have also sub issues. These are-

1. Worker Awareness
2. House Keeping
3. Documentation
4. Floor Monitoring

5. MSDS (Material Safety Data Sheet)
6. Hiring Wages
7. Insurance
8. Fair and Equal Policy
9. Freedom of association and collective bargaining
10. Worker Training Purpose
- 11.

3.13.3 Worker Awareness

3.13.4 Health and Safety

All workers are entitled to work in environments where risks to their health and safety are properly controlled. Under health and safety law, the primary responsibility for this is down to employers. In FAKIR APPARELS LTD. They have physical monitor about their employees and worker in health and safety purpose.



Figure 3.13. 2 Safety committee



Figure 3.13. 3 First Aid box

3.13.5 Physical Hazards and Risk

A physical hazard is a type of occupational hazard that involves environmental hazards that can cause harm with or without contact. Physical hazards include ergonomic hazards, radiation, heat and cold stress, vibration hazards, and noise hazards.



Figure 3.13. 4 Risk assessment board



Figure 3.13. 5 Personal protective equipment

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Maternity: Maternity leave, now often called parental or family leave, is the time a mother takes off from work for the birth or adoption of a child. In FAKIR APPARELS LTD. have concern about Maternity issue. During this issue they provide health checkup, monthly checkup, periodical checkup and proper training to the workers.



Figure 3.13. 7 Child care center

3.13.6 House Keeping

Floor Cleaning: To prevent injuries, remove dust, make the environment clean; these are of basic principal of floor cleaning. In FAKIR APPARELS LTD. have scheduled this work in daily basis to their worker.

Machine Cleaning: To keep the workplace clean and its duty to clean their own machine. In FAKIR APPARELS LTD. need proper steps for that. When hired the operator, they informed about that must have to clean their own machine. And also

announced 3 times in a day from speaker for alarming them to clean the machine.
The operator must have to do this.

Toilet Clean: To maintain the environment hygienic in workplace must have follow the toilet as it proper clean or not. The Factory have scheduled and maintain by their worker to keep clean

3.13.7 Documentation

FAKIR APPARELS LTD. recorded all of document for further inquiry purpose. There have some title to record in factory-

- a) Training Record
- b) Worker Health Checkup
- c) Maternity Record
- d) First Aid Record
- e) Policy Awareness
- f) Incrimination Record



Figure 3.13. 8 Policy board

3.13.8 Floor Monitoring

In Floor monitoring segment are concern about safety ensuring for workers in their work place. Their concern about-

- a) Fire Extinguisher Monitor
- b) Electric Line Monitor
- c) First Aid Box Monitor



Figure 3.13. 9 Fire Alarm Switch



Figure 3.13. 10 Fire Safety Tools

3.13.9 Material Safety Data Sheet (MSDS)

A Material Safety Data Sheet (MSDS) is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It is an essential starting point for the development of a complete health and safety program.

3.13.10 Hiring Wages

In FAKIR APPARELS LTD. follow the law of salary scale and distributed properly to Officers, Employees, Workers within 7 working days of new month. Company set the increment policy, overtime wages and the duration of work in overtime period.

Overtime Calculation

Working Hour = 8 hours in a day

Working Days = 26 days in a month

So, Working Hour in a month = 208 hours

$OT = (Basic\ Salary / 208) * 2$

Increment:

In FAKIR APPARELS LTD. set their increment policy is 5-10% depends on Employee's performance in annum.

3.13.11 Insurance

FAKIR APPARELS LTD. have insurance policy and provide their workers.

- a) If worker die in workplace then the Company provide to the victim family 2, 00,000 BDT just for help.
- b) If worker injured then provide his/her benefit to workers.
- c) Other policy in BGMEA, follows by the Company.

3.13.12 Fair and Equal Policy

Equal opportunity arises from the similar treatment of all people, unhampered by artificial barriers or prejudices or preferences, except when particular distinctions

can be explicitly justified. In FAKIR APPARELS LTD. not go to persons for arbitrary or irrelevant reasons such as circumstances of birth, religion, sex, ethnicity, cast.



Figure 3.13. 11 Place for having meal



Figure 3.13. 12 Prayer room

3.13.13 Freedom

FAKIR APPARELS LTD. provide freedom in workplace. They include freely movement, work in free mind, share their opinion to their colleagues all of freedom they give to their Employees and Workers but it can't hamper the production.

3.13.14 Workers Training

For a fresh worker, FAKIR APPARELS LTD. provide their proper training to fit into the work environment. The Factory also provide Fire Rescue Training. First the factory select 18% of Employees and Workers for training purpose, the duration of training is 2-3 days and it turns for another after 6 months.



ফকির এ্যাপারেলস্ লিঃ

ভূমিকম্পের সময় আপনার করণীয়



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- * রান্না ঘরে থাকলে গ্যাসের সূতা বন্ধ করে দ্রুত বেরিয়ে আসুন।
- * বীম, কলাম ও পিলার ঘেঁষে আশ্রয় নিন।
- * শিক্ষা প্রতিষ্ঠানে অবস্থানকালে স্কুল ব্যাগ মাথায় দিয়ে শক্ত বেঞ্চ অথবা শক্ত টেবিলের নিচে আশ্রয় নিন।
- * ঘরের বাইরে থাকলে গাছ, ট্রু বা ড্রি, বৈদ্যুতিক খুঁটি থেকে দূরে বোলাছান আশ্রয় নিন।
- * গ্যাসের সিলিন্ডার, হাঙ্গার, মার্বেল ও সিনেমা হল থাকলে বের হওয়ার জন্য দরজার সামনে ভিড়
কিংবা ধাক্কাধাক্কি না করে দ্রুত মাথা ঢেকে বসে পড়ুন।
- * জাগা সোপানের নিচে চাপা পড়লে বেশি নড়া চড়াই চেষ্টা করবেন না। কাপড় দিয়ে মুখ ঢেকে রাখুন যাতে ধূলা যদি খান
নালিতে না ঢেকে।
- * একবার কম্পন হওয়ার পর আবারও কম্পন হতে পারে। তাই সুযোগ বুকে বেশি দূরে খালি জায়গায় আশ্রয় নিন।
- * উপর তলায় থাকলে কম্পন বা ঝাঁকুনি না থামা পর্যন্ত অপেক্ষা করতে হবে, তাড়াতাড়ি করে লাফ দিয়ে
বা লিফট ব্যবহার করে নামা থেকে বিরত থাকুন।
- * কম্পন বা ঝাঁকুনি থামলে সিঁড়ি দিয়ে দ্রুত বেরিয়ে পড়ুন এবং খোলা আকাশের নিচে অবস্থান নিন।
- * গাড়ীতে থাকলে ওজর খ্রীক, ট্রাই ওজর, গাছ ও বৈদ্যুতিক খুঁটি থেকে দূরে গাড়ী থামান। ভূকম্পন না থামা পর্যন্ত
গাড়ীর ভিতরে থাকুন।
- * ব্যক্তিগত জিনিসপত্র, রেডিও, টেলিফোন, পানি এবং প্রাথমিক চিকিৎসার সরঞ্জাম বাড়িতে মজুদ রাখুন।
- * বিকল্প কোড যেনে ভবন নির্মাণ করুন।

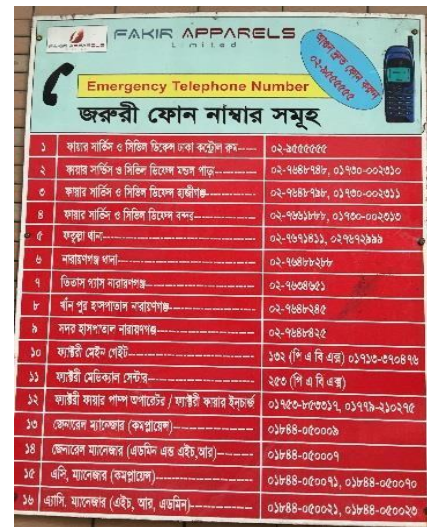


Figure 3.13. 13 Emergency action plan

Fakir Apparels Ltd. has BSCI, WRAP, GOTS, OCS certificate. Already in a process to get the OEKO-TEX, ISO 14001:2015 & 18001: 2007. Also aims at implementing SA 8000.



3.13.15 Worldwide Responsible Apparel Production (WRAP)

WRAP is an independent, objective, non-profit team of global social compliance experts dedicated to promoting safe, lawful, humane and ethical manufacturing around the world through certification and education. The WRAP Certification Program is based on 12

Principles focusing on compliance with local laws, workplace regulations, universal workers' rights, the environment, customs compliance and security. WRAP is also an IRCA (International Register of Certified Auditors) accredited training

organization and runs social systems and internal auditor training courses and related seminars around the world.



3.13.16 Code of Conduct (COC) of WRAP

1. Compliance with Laws and Workplace Regulations

Facilities will comply with laws and regulations in all locations where they conduct business.

2. Prohibition of Forced Labor

Facilities will not use involuntary, forced or trafficked labor.

3. Prohibition of Child Labor

Facilities will not hire any employee under the age of 14 or under the minimum age established by law for employment, whichever is greater, or any employee whose employment would interfere with compulsory schooling.

4. Prohibition of Harassment or Abuse

Facilities will provide a work environment free of supervisory or co-worker harassment or abuse, and free of corporal punishment in any form.

5. Compensation and Benefits

Facilities will pay at least the minimum total compensation required by local law, including all mandated wages, allowances & benefits.

6. Hours of Work

Hours worked each day, and days worked each week, shall not exceed the limitations of the country's law. Facilities will provide at least one day off in every seven-day period, except as required to meet urgent business needs.

7. Prohibition of Discrimination

Facilities will employ, pay, promote, and terminate workers on the basis of their ability to do the job, rather than on the basis of personal characteristics or beliefs.

8. Health and Safety

Facilities will provide a safe and healthy work environment. Where residential housing is provided for workers, facilities will provide safe and healthy housing.

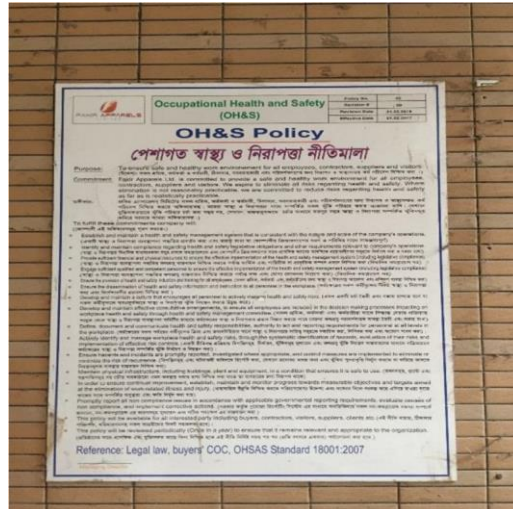


Figure 3.13. 14 Occupational health & safety policy

9. Freedom of Association and Collective Bargaining

Facilities will recognize and respect the right of employees to exercise their lawful rights of free association and collective bargaining.

10. Environment

Facilities will comply with environmental rules, regulations and standards applicable to their operations, and will observe environmentally conscious practices in all locations where they operate.

11. Customs Compliance

Facilities will comply with applicable customs laws, and in particular, will establish and maintain programs to comply with customs laws regarding illegal transshipment of finished products.

12. Security

Facilities will maintain facility security procedures to guard against the introduction of non manifested cargo into outbound shipments (i.e. drugs, explosives biohazards and or other contraband).



Figure 3.13. 15 WRAP's 12 Principles.

3.13.17 WRAP's goal

WRAP's goal is to make sure that manufacturing facilities operate in a safe, responsible, and ethical way. Through our 12 Principles we promote lawful, humane manufacturing in facilities throughout the world via our Certification and Training programs. What sets us apart from other similar social compliance programs is that we focus on the ground level of a supply chain. WRAP only certifies individual facilities, not brands or ownership groups, which means that each WRAP certified facility has undergone a thorough inspection by a WRAP auditor and is subject to un-announced follow-up inspections. The most notable of these is our Fire Safety Awareness Course which was launched in 2011 in Bangladesh and has since expanded to several other countries around the world.

3.13.18 Principal of BSCI

The ultimate goal of BSCI is to improve the working conditions in the global supply chain worldwide. This goal can only be achieved through a strong commitment from participants to implement the system. BSCI operates on the following principles:

1. **Legal Compliance:** Compliance with all applicable national laws and regulations, industry minimum standards, ILO and UN Conventions, and any other relevant statutory requirements whichever requirements are more stringent.
2. **Freedom of Association and the Right to Collective Bargaining:** In situations or countries in which the rights regarding freedom of association and collective bargaining are restricted by law, parallel means of independent and free organization and bargaining shall be facilitated. In accordance with ILO conventions 87, 98 and 135;
3. **Prohibition of Discrimination:** No discrimination shall be tolerated on the basis of gender, age, religion, race, caste, social background, disability, ethnic and national origin, nationality, membership in workers organizations including unions, political affiliation, sexual orientation, or any other personal characteristics. In accordance with ILO conventions 100 and 111;
1. **Compensation:** Wages paid for regular working hours, overtime hours and overtime differentials shall meet or exceed legal minimums and/or industry standards. Illegal or unauthorized deductions from wages shall not be made. In situations in which the legal minimum wage does not cover living expenses and provide some additional disposable income, companies shall strive to provide employees with adequate compensation to meet these needs. In accordance with ILO conventions 26 and 131;

2. **Working Hours:** Overtime hours are to be worked solely on a voluntary basis. The maximum allowable working hours in a week are 48 and the maximum allowable overtime hours in a week are 12. An employee is entitled to at least one free day following six consecutive days worked. In accordance with ILO conventions 1 and 14;
3. **Workplace Safety:** A clear set of regulations and procedures must be established and followed regarding occupational health and safety. Workplace practice and conditions, which violate basic human rights, are forbidden. In accordance with ILO convention 155 and ILO recommendation 164;
4. **Prohibition of Child Labor:** Child labor is forbidden as defined by ILO and United Nations conventions and/or by national law. Of these various standards, the one that is the most stringent shall be followed. Any forms of exploitation of children are forbidden. Working conditions resembling slavery or harmful to children's health are forbidden. The rights of young workers must be protected. In accordance with ILO conventions 79, 138, 142 and 182;
5. **Prohibition of Forced Labor:** All forms of forced labor are forbidden, as is prisoner labor that violates basic human rights. In accordance with ILO Conventions 29 and 105;
1. **Environment and Safety Issues:** Procedures and standards for waste management, handling and disposal of chemicals and other dangerous materials, emissions and effluent treatment must meet or exceed minimum legal requirements.

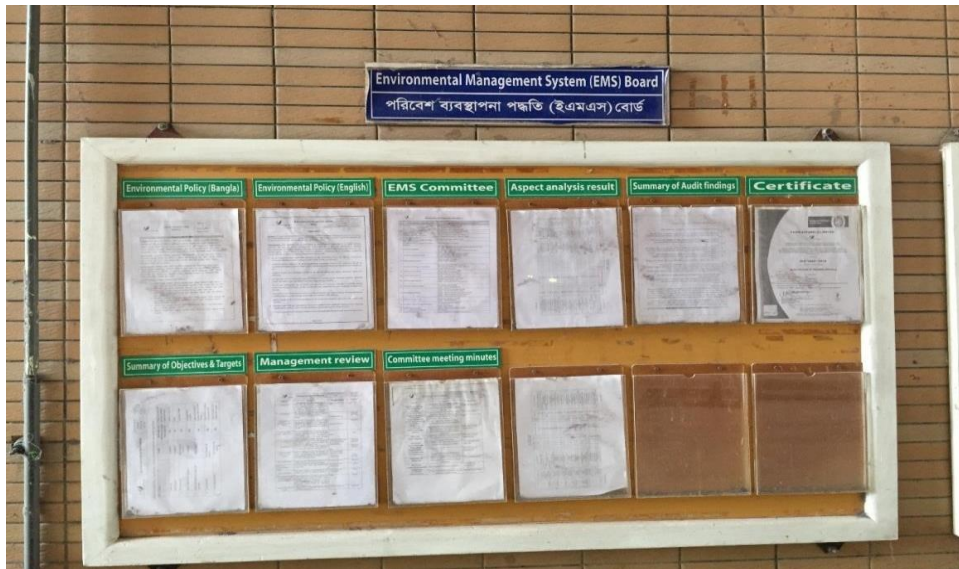


Figure 3.13. 16 Environmental Management System Board

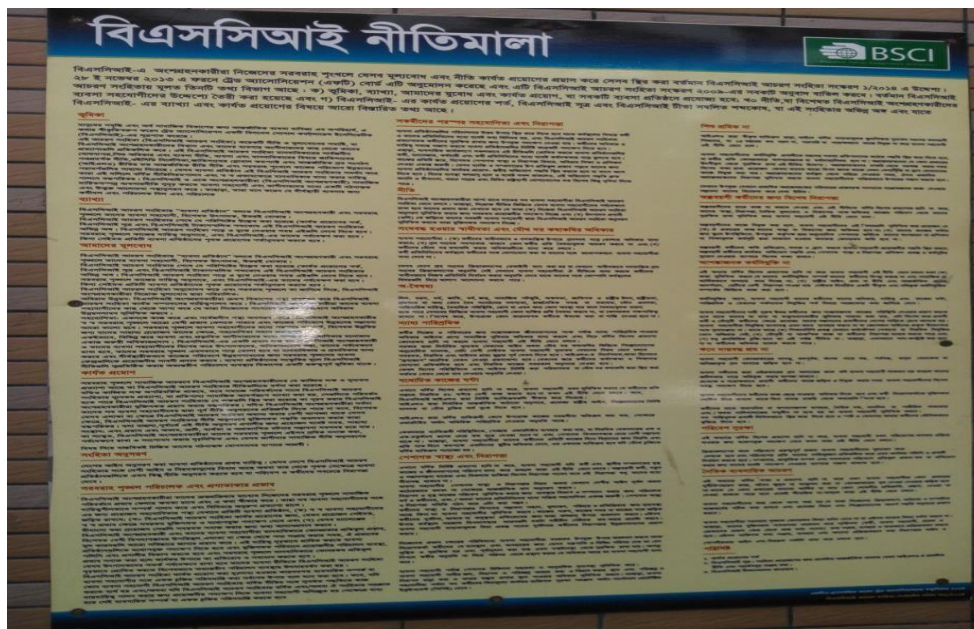


Figure 3.13. 17 BSCI Principles.

Fakir Apparels Ltd. Also have to maintain the buyer's requirement in compliance. Like some of their main buyers – H&M, PRIMARK, C&A , Esprit etc. have their own requirements.

3.13.19 Legal Requirements of H&M

Our general rule is that all our suppliers and other business partners must, in all their activities, follow the national laws in the countries in which they operate. Should any requirement in this Code conflict with the national law in any country or territory, the law must always be followed.

In such cases the supplier must notify H&M immediately, before signing this Code

1. Child labor are not accepted
2. Health and safety
3. Workers right
4. Housing condition
5. Environment
6. System approach
7. Monitoring and Enforcement



3.13.20 Legal Requirements of Primark

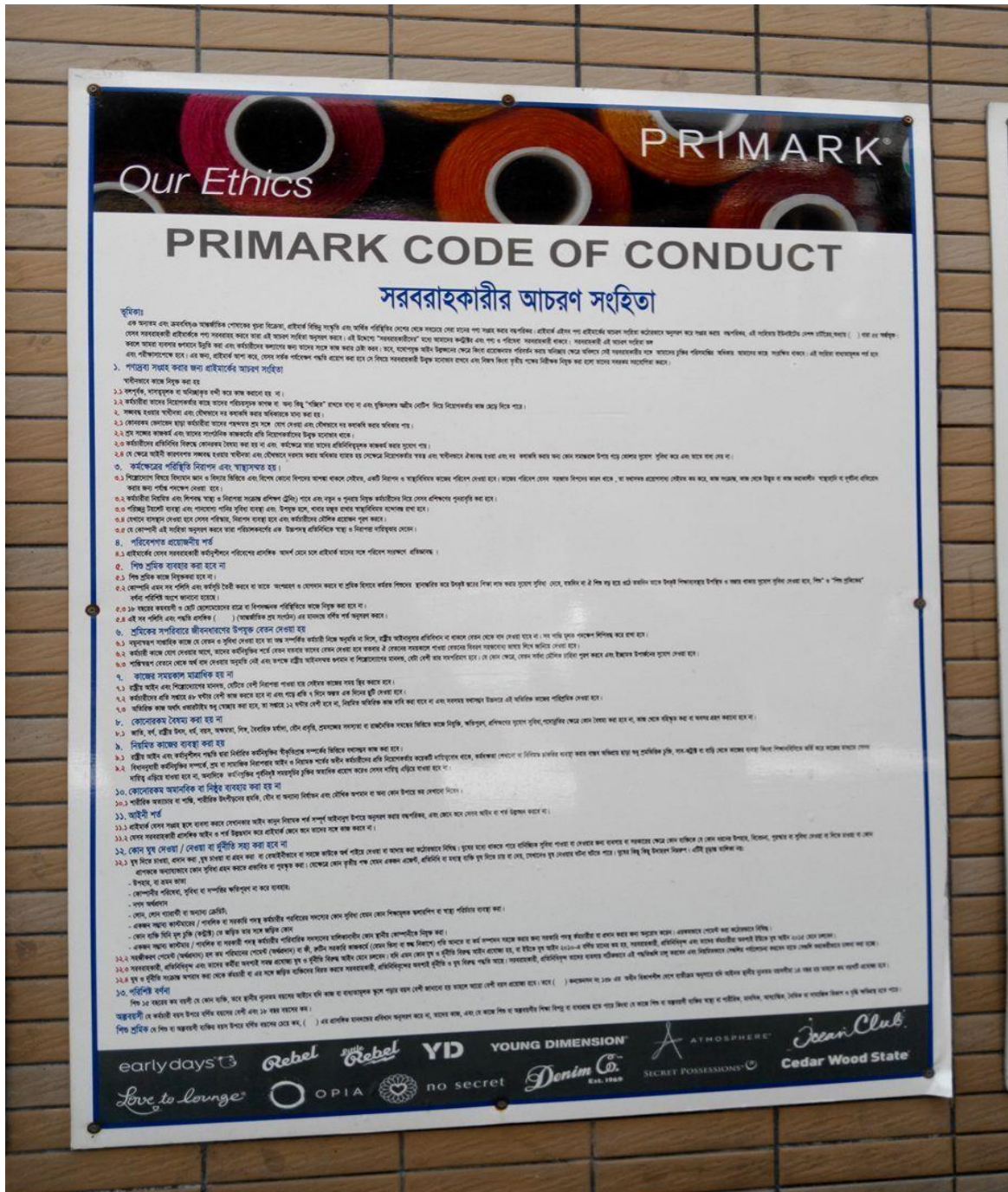


Figure 3.13. 19 PRIMARK code of conduct

3.13.21 Employment Policy in Fakir Apparels Ltd

Fakir Apparels Ltd. complies with the minimum legal requirement to make applicable in case of employment and other related activities those are as follows:

- a) The Company shall employ adult workers' only (Equal or above 18 years old as defined by the law of the land)
- b) The Company shall not use forced labor and shall not extract work from any person under any intimidation or for which the worker has not offered voluntarily.
- c) The Company will be an equal opportunity employer and shall follow a nondiscriminatory policy in employment and related activities.
- d) Employment will be provided based on education and experience, demonstrated skills and abilities (Mandatory testing during hiring), supported proof of age certification and all identification papers, with the soundness of physical and mental growth.
- e) The Company shall actively pursue to hire the best human resource available in the country for employment.

3.14 Maintenance

Maintenance:

Maintenance is the chronological activities or as the process of systematic activities which is done to keep the factory equipment, tools, machine etc. in an optimum working condition. It also minimizes the breakdown of machines to improve the productivity of existing machine tools and avoid sinking of of additional capacity and to prolong the useful life of factory plant and machinery.

3.14.1 Objective of Maintenance

- To ensure machine in working condition to keep production continuously running.
- To keep the downtime of machine to the minimum thus to have control over the production program.
- To keep the factory plants, equipment, machine tools in an optimum working condition.
- To ensure specified accuracy to product and time schedule of delivery to customer.
- To modify the machine tools to meet the need for production.

3.14.2 Types of Maintenance

Three types of maintenance are performed in TEXEUROP (BD) LTD.

1. Preventive maintenance
2. Predictive maintenance
3. Breakdown maintenance

3.14.3 Preventive maintenance

In this maintenance system, maintenance is done before breakdown of the equipment. These actions are performed to prevent or reduce consequences of failures. This type of maintenance is done in monthly and yearly. Normally full machine checkup, looper and folder maintenance and oil circulation is checked in this maintenance system.

3.14.4 Predictive maintenance

It is time based maintenance and pre-planned 3.14.5to perform on machine and equipment. This plan usually made on daily, weekly and monthly basis. In this maintenance system clearing of the machine, all moving parts checking, oil checking and feed dog checking is done.

3.14.5 Breakdown maintenance

In this type of maintenance, when the breakdown occurs and machine remains stop that time the maintenance is done. This maintenance is often most expensive because worn equipment can damage other parts and cause multiple damages and accident.

3.14.6 Maintenance Tools

Maintenance tools are that tools used in maintenance of a machine. Several types of maintenance tools are used in apparels section for different machines every day. Names are given below:

- Screw driver (Flat)
- Screw driver (Star)
- L key
- Nut tighter
- Hammer
- Measuring tape
- Drill machine
- Grinding machine
- Hacksaw frame
- Allen key
- Spanner

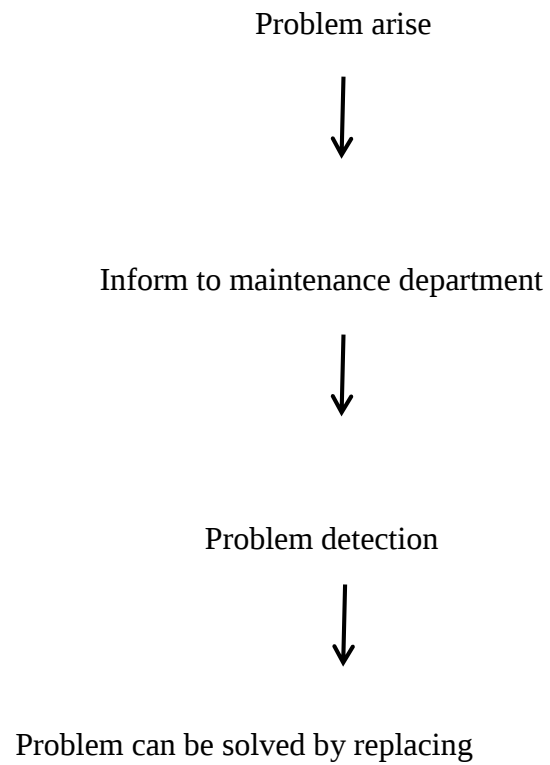


Figure 3.14.1 1 Maintenance tools

3.14.7 Maintenance Schedule

- Machine servicing is done per month.
- Lubricating oil is changed per 2/3 months.
- If needle breaks needle is changed. In case of new style/order needle is changed according to requirement.
- Service card is maintained to keep the record of machine servicing.
- Bobbin is changed if needed.

3.14.8 Maintenance Procedure (Breakdown)



Chapter 4

IMPACT OF INTERNSHIP

4.1 Impact of knitting section

- Learned about different types of knitting m/c
- Learned the different process of fabric knitting
- Observed the process of fabric knitting according to the machine specification.
- Realized the use and importance of metal gloves for fabric knitting process
- Through different knitting machines
- Observed the process for different type of fabric of different style & design.
- Understood how to find knitting faults are indicated & then make a solution.
- Understood the role of input man in the industry.

4.2 Impact of batch section

- Learn about the Batch section.
- Learn about how store is maintain
- Learn about what types of fabric are stored.

4.3 Impact of color lab

- Learn about the color lab.
- Learn about its working procedure
- Learn about the finish fabric quality like color fastness washing fastness.

4.4 Impact of dyeing section

- Learned about different type of dyeing machines.
- Learned the different process of fabric dyeing
- Observed the process of fabric dyeing according to the machine specification & fabric quality.
- Realized the use and importance of metal gloves for fabric dyeing process
- Through different dyeing machines
- Observed the process for different type of fabric of different style & design.
- Understood how to find dyeing faults are indicated & then make a solution.
- Understood the role of input man in the industry

4.5 Impact of finishing section

- Observed various type of finishing process after sewing and washing
- Observed different type of machine s used in finishing section
- Learned about different type of iron machine
- Learned about various types of accessories used to attach to the garment
- Finally realized why finishing section is unavoidable in garments industry for making the garments attractive and decorative for selling purpose.

4.6 Impact of finishing section

- Learned about different type of cutting machines (i.e. Straight knife cutting
- Machine, Band knife cutting machine etc.)
- Learned the process of fabric spreading
- Observed the process of fabric cutting according to the marker
- Realized the use and importance of metal gloves for fabric cutting process
- Through different cutting machines.
- Observed the panel check process for different type of fabric of different
- Style and design
- Understood how numbering and bundling is done
- Understood the role of input man in the industry.

4.7 Impact of printing section

- Learned about the printing process
- Learned about the working flow chart
- Learned about different types of machine and parts used in printing process
- Learned about different types of printing

4.8 Impact of industrial engineering (IE)

- Learn about IE section & also learn about its working procedure
- Know the maximum use of Man Machine Material
- And learned how to increase the production of a line or factory
- How to decrease the production

4.8 impact of sewing section

- Learn about the working flow process of sewing floor
- Learn about different types of sewing machine
- Also learn about different types of sewing.
- Learn about the worker Rating Efficiency
- Learn about how to Calculate the Production Capacity, Target etc.

4.9 Important of merchandising section

- Learned about what is Merchandising
- Learn about the responsibilities of a merchandiser
- Learn about the working flow process
- Understood the work of different section
- Understood how merchandiser deals with Buyer
- Learn about how to execute and finish an order.

Chapter 5

CONCLUSION

5.1 Conclusion

Conclusion:

Industrial training sends us to the expected destiny of practical life. We have gathered a vast knowledge about overall garment manufacturing process in our 8 weeks internship in Fakir Apparels Ltd. We are very fortunate that we have got a chance to carry our industrial visit at such an industry. During this internship period, we have gained practical knowledge which has enabled us to compare with our theoretical knowledge in our academic period.

In our training period, we have learned many things, such as different types of machines and their functions, techniques of productions and management system. Besides, we got an idea about the responsibility of different department of the factory.

During our industrial training we have almost covered most of the section of the industry. Due to some restriction it was not possible to visit some sections. However, highest effort has been given to achieve the objectives of the industrial training program. This industrial training will be very effective and blissful in our professional life.

The management system of Fakir Apparels Ltd. is very organized and the authority, officers and workers of the industry were very helpful so it was much easier for us to carry on our training successfully. We are showing our ultimate gratitude to Fakir Apparels Ltd. and our respective teachers for giving us such a wonderful opportunity.

