Faculty of Engineering

Department of Textile Engineering

REPORT ON

Industrial Attachment

At

Standard Group Ltd.

Course Title: Industrial Attachment, Course Code: TE-431

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 Apparel Manufacturing Technology
Duration: October to December, 2018

Latter of Approval

04th December 2018
To
The Head
Department of Textile Engineering
112, Shukrabad, Mirpur Road Dhaka(1207)

Subject: Approval of Industrial Attachment Report of B.sc in TE Program

Dear Sir,
I am just writing to let you know that this industrial attachment in **‘’Standard Group Ltd.’’**has been prepared by students bearing Md. Foridul islam (152-23-4414) & Md.Sabbir Hossain (152-23-4418) is completed for final evaluation. The whole report is prepared based on the proper investigation and information **‘’Standard Group Ltd’’** the students ware directly involved there industrial report activities.

Therefore it will highly be appreciated if you kindly accept this industrial attachment and consider for final evaluation.

You’re sincerely

…….
Mst. Murshida Khatun
Senior Lecturer
Department of Textile Engineering
Daffodil International University

DECLARETION

We hereby declare that, this report has been done by under the supervision of **Mst. Murshida khatun** Senior Lecturer, Department of Textile Engineering, and Daffodil International University. We also declare that neither this report nor any part of this report has been submitted elsewhere for award of any degree. There is no part of this paper directly copy from other.

Submitted by:

Name:	ID	Signature
Md. Foridul islam	152-23-4414	……..
Md. Habbir Hossain	152-23-4418	...……

ACKNOWLEDGEMENT

First we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete this project successfully.

We fell grateful to and wish our profound indebtedness to**Mst. Murshida khatun**, Senior Lecturer, Department of TE, Daffodil International University, and Dhaka. Deep Knowledge & keen interest of our supervisor in the field of influenced us to carry out this report. His endless patience ,scholarly guidance ,continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this report.

We would also like to express our sincere gratuity to **Abu Yousuf siddiqui**Sir. Employee relations manager (HR)"Standard **Group Ltd.** Locate at CEC, Konabari**, Gazipur."** For all allowing us to complete our Two months industrial training in this factory and also for his useful guidance throughout the course. We also want to think's **Mahbubul Haque**, Professor and Head, Department of Textile Engineering in DIU for his kind help to finish our report and also to other faculty member and the staff of TE department of Daffodil International University.

We have gratitude the Chairman, Managing directors, General Manager, Production manager, merchandising manager, Administration manager who gave us scope for doing industrial attachment in the factory as well as for giving scope to work in their respective section.

We would like to thank our entire course mate in Daffodil International University, who took Part in this discuss while completing the course work.

At last but not the least, we like to acknowledge our parents for their approval, support & love and all our friends for their help & support to complete the report.

DEDICATION

At first we want to dedicate this industrial report to almighty Allah for giving us this opportunity to prove ourselves. Without almighty's help nothing would be possible. Then we want to dedicate our report to our parents. We love them very much, for completing our study they play a vital role to complete. It's a great pleasure for us. Without their help it is quite impossible for us to complete this attachment so we are very grateful to them. Our parents were very helpful to ready this attachment .And we also want to dedicate this report to our honorable parents, give us a very support & guideline to ready this attachment. We dedicate this report to my beloved my parents.

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CHAPTER -1
EXECUTIVE SUMMARY

Executive Summery

Textiles and clothing will always be essential goods for human beings. Spinning and weaving were the main activities that drove the Industrial Revolution in many 18th century. Since then the textile industry has been a leading industry in the initial phase of industrialization in many countries in different periods of time in the world. Bangladesh is an important producer & exporter of knit RMG product. There are about 4500 garments factories running in Bangladesh. Growth of garments factories started in Bangladesh around 1980. But now nearly 80% of our foreign currency is earned from RMG export. At present Bangladesh is producing & exporting more than 60 items of garments. Garments are exported to USA, Canada, Japan, Australia, Middle East and many other countries in the world. Cheapest labor cost is the biggest advantage for Bangladeshi garments producers & exporters.

Education provides important leanings of the modern inventions and the theories and also gives us a combined knowledge over theoretical and practical studies. Literatures provide the right information which we have been learned through our university. On the other hand practical knowledge increases the practice of theoretical perception clear and more efficient.

Internship has made this opportunity. Because we have learned theoretical knowledge last three years but due to lack of proper industrial knowledge on my course, we would not been said a complete engineer. Industrial attachment did work for us. We have taken part in this industrial attachment in Standard Group Ltd. Standard Group Ltd. is one of the renowned 100% export oriented industry in Bangladesh. The factory is concern with the production in knitting, knit dyeing and finishing and knit garments. Due to the change in current scenario, the textile sector is facing a great challenge here.

CHAPTER -2
GENERAL INFORMATION ABOUT FACTORY

Introduction

2.1. Company Profile:

Fig: 2.1 Standard Group Ltd.

Standard Group is a vertically integrated manufacturer and exporter of garments for men, women and Meaning, this group has consolidated all stages of production starting from knitting, dyeing, finishing to cutting, sewing and packing under one roof. Here in Standard Group we have been able to create a dynamic and vibrant working environment with people having national and international exposure. At “standard” our sole aim has always been to satisfy the diverse and specialized requirements of our buyers. Wining the trust and confidence of our clients through proper care and attention has always been our first priority. We pursue an integrated and sustainable development strategy to achieve a long lasting and sustainable market in garments manufacturing industry.

Standard aims at providing security and social accountability to all stakeholders by creating a secure, safe and healthy environment for all employees, following all lawful, humane and ethical industrial practices. We are confident that, as we expand, we will attain our strategic goal of becoming one of the finest vertically integrated garment producers in the region. The vary location of our facility ensures less lead times for our valued customers.

2.1.1. Company Profile Details:

Company Name:	**Standard Group Ltd.**
Company Logo:	
Motto:	Wining the trust and confidence
Company Status:	Private
Owner:	Engr. Mosharraf Hussain (Managing Director) Engr. Atiqur Rahman (Chairman) M.Tofazzal Ali (Executive Director) Hasnat Mosharraf (Director) H.T.M. Quader Newaz (Director)
Year of Establishment:	1991
Factory Location:	CEC. Kona Bari, GaipurBangladesh
Corporate Office:	Standard|Group Civil Engineers Bhaban 69, Mohakhali C/A Dhaka 1212, Bangladesh. Web: info@standard-group.com
Type of Factory:	Knit Composite
Product:	100% Cotton Poplin, Sheeting, Calico, Canvas, Twill
Production Per Month:	Knitting: 15,50,000 Kgs Dyeing: 13,00,000 Kgs Finishing: 13,00,000 Kgs Garments: 5.00 Million Pcs.
Annual Turnover:	Garments: $95 Million Accessories Division: $07 Million Embroidery: $06 Million
Total Employee:	8188

Table:2.1. company profile

2.1.2. Basic Information in Standard Group Ltd:

Factory Name: Standard Group Ltd.

Authority Name

Engr. Md. Atiqur Rahman
Designation
Chairman
Member of
BGMEA
BGMEA Ref #
3955

Address:

Jarun, Konabari, Gazipur
Contract Nb:
29862003
01711560560
Division
Dhaka
Factory Zone
Non-EPZ

Workers

Male
3452
Female
4736
Total number of employees
8188

2.2. Product and Services of Standard Group:

Standard Group produces various garment and apparel related products. These include:

Woven	**Knit**	**Accessories**	**After Affects**	**Services**
Bottom Top Active & Sports Wear Inner Wear Overall Outer Wear Woven Accessories	Sweaters, Pullover, Cardigans Knitted Vest and Tank Tops	Carton Poly bag Rib Belts Elastic Drawstring Elastic Draw cord Gum tape Cello tape Belt tape Twill tape Paper Sticker Label	Washing 1. Dry Process 2. Wet Process Embroidery Printing Dyeing	Testing Laboratory 1. Softening Testing 2. Quality Assurance Training Design House 1. Creative Design Consultation 2. Artwork Development 3. Sample Development

Table: 2.2.Product and Services

2.3. Company Philosophy in Standard Group Ltd:

2.3.1. Mission:

To provide the clothing retail market quality, price competitive and timely ready-made garments (RMG) produced under both socially and environmentally responsible conditions.

2.3.2. Vision:

To become a niche global player in the textile testing business by delivering economic value to customers through quality of work and maintaining safety in work & environment.

2.3.3. Corporate Values:

- Adhere to high ethical standards that exceed compliance standards set by our customers
- Provide equal employment opportunity to all employees
- Encourage innovation and adopt necessary changes
- Ensure a safe & healthy working environment for all our employees
- Abide by all laws and regulations set by both our customers and the government
- Assist all employees and their families in need
- Keep our production environmentally friendly

2.3.4. Compliances:

Standard Group is always welcoming in new international standards and compliances measures set by International Agencies as well as our customers. Standard Group maintains a professional culture that abides by an ethics, employee standards, industry standards, and legal compliances. Our business growth is directly transformed into reality within these compliances.

2.3.5.Safety Compliance:

Standard Group follows rigorous safety compliance for the safety of all our employees as well as for the safeguard of company resources. Standard Group prioritizes safety as a major concern. These safety regulations include fire safety, movement, worker health and safety and various others

2.3.6. Legal Compliances:

Standard Group strictly maintains the legal compliances set by the Government of Bangladesh as well as the demanding compliances set by our customers throughout the world.

2.4.Employee Welfare in Standard Group Ltd:

2.4.1.Child Care:

Standard Group provides Child Care facilities for all its employees. Each Child Care center is well illuminated, ventilated and spacious for the children to enjoy. Food, clothing and medical assistance are provided to these kids free of charge.

2.4.2.Medical:

Each production plant has a separate medical section to provide medical service to its employees. Employees are treated with professional care and provided with free medicine at these facilities. Ambulance service is available round the clock to attend any necessary emergency.

2.4.3 Maternity Welfare:

Standard Group offers various Maternity benefits for its female employees. Each pregnant woman is provided with light work during pregnancy, maternity leave, free weekly health checkups by certified doctors and other benefits. Standard Group is among the first companies to provide Maternity Welfare benefits to employees in Bangladesh.

2.4.4.Safety Training:

Standard Group prioritizes safety over all else. Each employee undergoes comprehensive safety training before and after joining the company. These training sessions include fire safety, first aid, machinery safety, chemical and hazardous material handling, manufacturing safety issues, etc.

2.5. Top Management of Standard Group Ltd:

Name	Designation
Engr. Atiqur Rahman	Chairman
Engr. Mosharraf Hussain	Managing Director
Hasnat Mosharraf	Director
H.T.M. Quader Newaz	Director
M. Tofazzal Ali	Executive Director

Table: 2.3.Top Management

2.6. Accessories in Standard Group Ltd:

Standard Group manufactures various accessories in-house. Our accessories range from packaging accessories to garment accessories.

Packaging Accessories

- Carton
- Poly bag
- Gum tape
- Cello tape
- Paper Sticker

Garments Accessories

- Elastic
- Label
- Rib
- Belts
- Drawstring
- Draw cord/Elastic Draw cord
- Twill tape/belt tape

2.7. Main production in Standard Group Ltd:

- T-shirt
- Polo shirt
- Jacket
- Trousers
- Bottom

2.8. Number of machine in Standard Group Ltd:

1. Total number of dyeing machine is 20
2. Total number of machine in sewing section 1150
3. Cutting section 15 sets.

2.9.Supporting Department in Standard Group Ltd:

- Human Resource (HR)
- Marketing
- R&D
- Finance &Accounting
- Work study & planning
- Compliance & Safety

2.10. Production Capacity Information of the factory:

- Garments - 4.5 million Pcs /Month
- Embroidery - 12000 Pcs / day
- Printing - 50000 pcs /day
- Dye Fabric - 45 tons / day
- Washing - 70000 pcs wash / day

2.11. Actual production Information of the factory:

- Garments -3.9 million Pcs/month
- Embroidery -10000 Pcs /day
- Printing -28000 Pcs / day
- Dye Fabric -30 tons /day
- Washing -35000 pcs wash / day

2.12.Map viewof Standard Group Ltd:

Figure: 2.2. Map view

2.13. Satelite view of Standard Group Ltd:

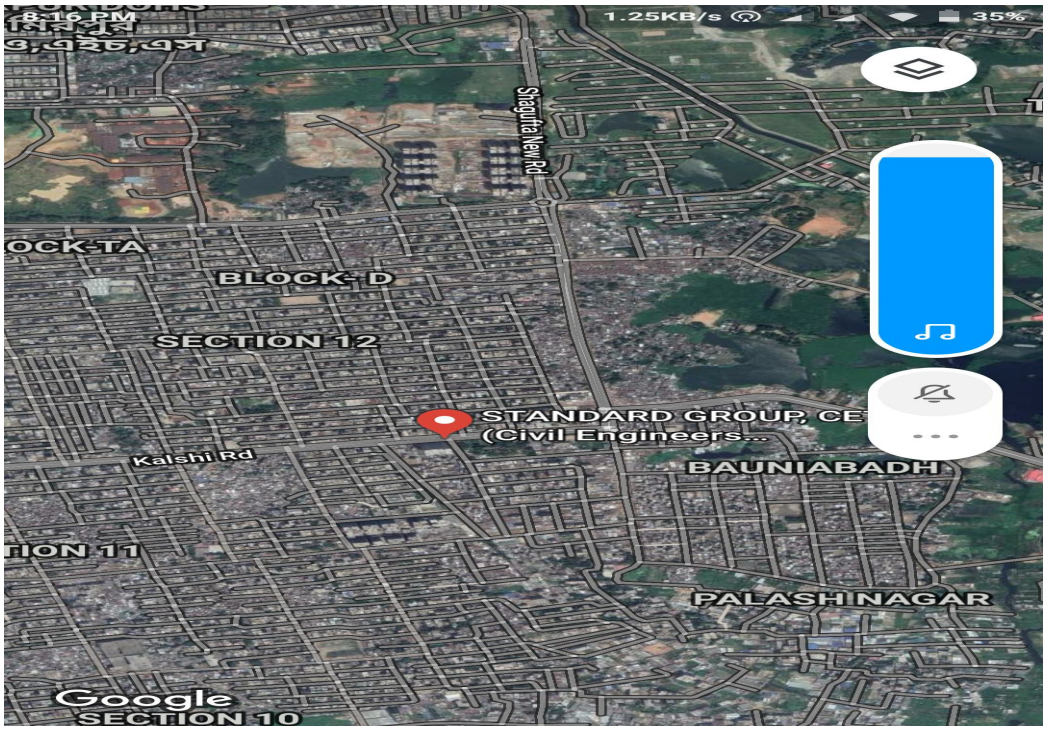


Figure:2.3.Satelite view

2.14.Major Clientin Standard Group Ltd:

CHAPTER-3

DESCRIPTION ABOUT THE ATTACHMENT

3.1.Sample Section in Standard Group Ltd:

Standard Group Ltd. has a sewing section which is located in 3rd floor. Sample section is very important department in apparel manufacturing process. Garment samples are inevitably important and are developed tested before starting the bulk production, because the buyers generally places the order after they are satisfied with the quality of the samples. The samples decide the ability of an exporter. If the samples are of good quality and with reasonable price naturally the buyers will be forced to place the order.

3.1.1. Layout of sample section in Standard Group Ltd:

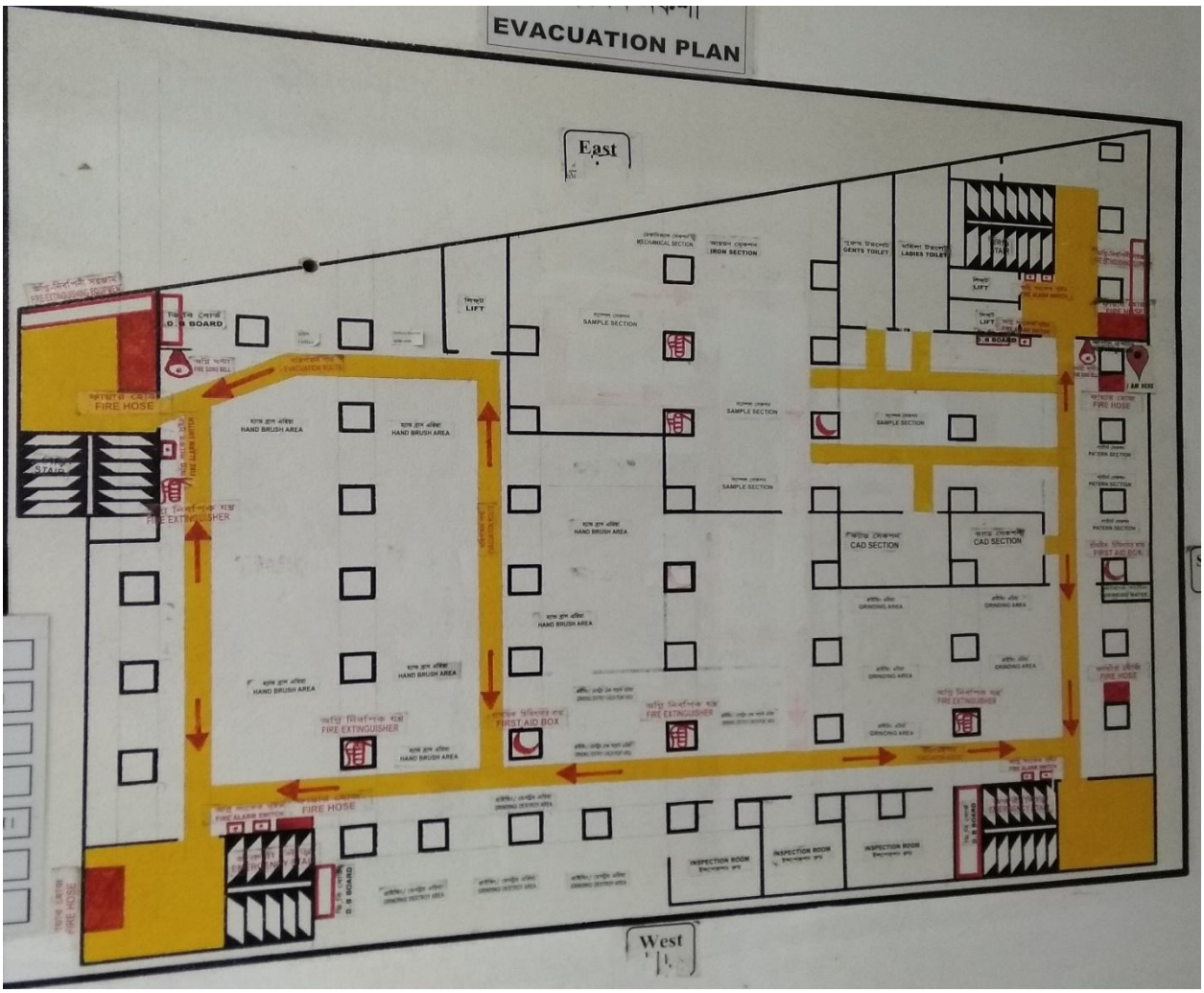
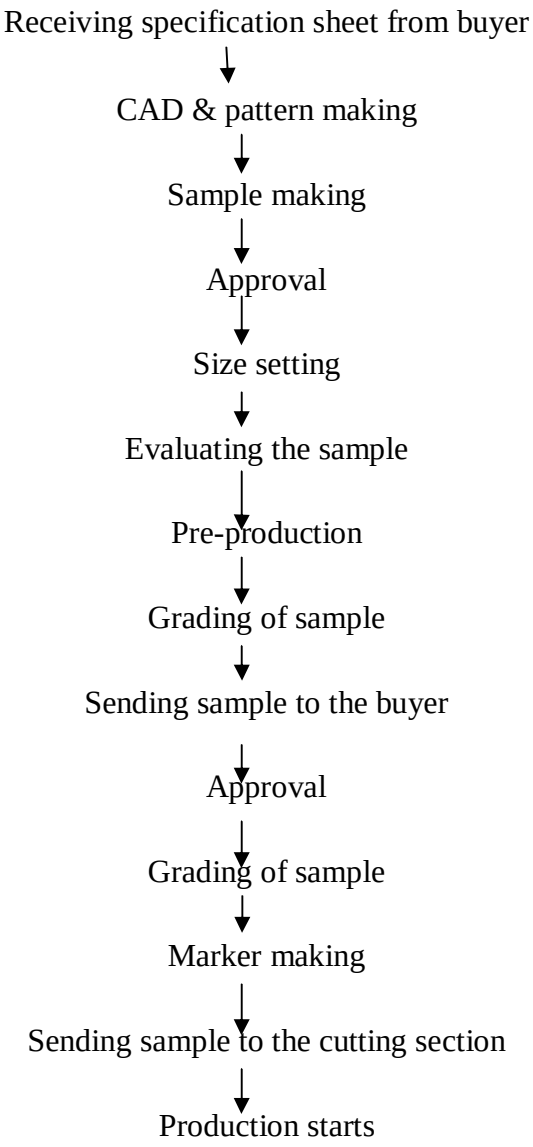


Figure: 3.1.Sample section

3.1.1. Flow Chart of Sample Section in Standard Group Ltd:



3.1.2. Types of sample in Standard Group Ltd:

- Proto sample
- Fit sample
- Size set sample
- Counter Sample
- Salesman sample
- Pre-Production sample
- Top over Production
- Shipment sample

3.1.3. Sample section details in Standard Group Ltd:

Total number of sewing machine-50
Total number of iron table -3
Total number of pattern -3
Total number of line -6
Total number of inspection table -4
Total number of packing table 4
Total number of fault removing table -2

3.1.4. Pattern section in Standard Group Ltd:

Two types of pattern:

- Working pattern
- Production pattern

3.1.5. Pattern grading:

Mainly two methods follow to pattern making.

- ❖ Manual construction of pattern
- ❖ Computer aided construction of pattern

3.1.6. CAD Room in Standard Group Ltd:

CAD software is used by architects, engineers, drafters, artists, and others to create precision drawings or technical illustrations. CAD software can be used to create two-dimensional drawings or three-dimensional models. Software Leuctra used in CAD Room

3.1.7. Machine used In Pattern and CAD Section:

Wanda pattern cutter
Wind plotter

3.1.8. Working Procedure of CAD Section in Standard Group Ltd:

In CAD section at first the pattern put on the digitizer to take clear image of the pattern part inside the CPU. After making all required size patterns using the software pattern parts are aligned in the mini marker. Then it is sent to CPU of CPM section for approval & checking the length & width of marker and pattern parts alignment. After getting approval from CAD section then printer is used to print out the whole real marker then this marker as well as mini marker are provided to the CAD section for cutting the fabric.

3.1.9. Machine used in CAD Room:

Machine Name: Pattern Cutting m/c
Brand: Wanda
Model: WD-FJ1512
Voltage: 220V 50-60Hz
Origin: China

Figure: 3.2 Pattern cutting m/c

Machine Name: Lectra Marker Making m/c
Country of origin: Japan
Voltage: 220V-420V

Figure: 3.3Marker Making m/c

3.2. Cutting Section in Standard Group Ltd:

Cutting department is one of the most essential sections for Standard Group. The fabric cutting is started after completing the fabric spreading. In cutting section, fabrics are cut according to the pattern. Perfect fabric cutting depends on the method of cutting and marker planning. For making quality garments they have to follow a working procedure of cutting department to continue their work. Has a cutting section which is located in 6th floor.

3.2.1. Layout of Cutting Section in Standard Group Ltd:

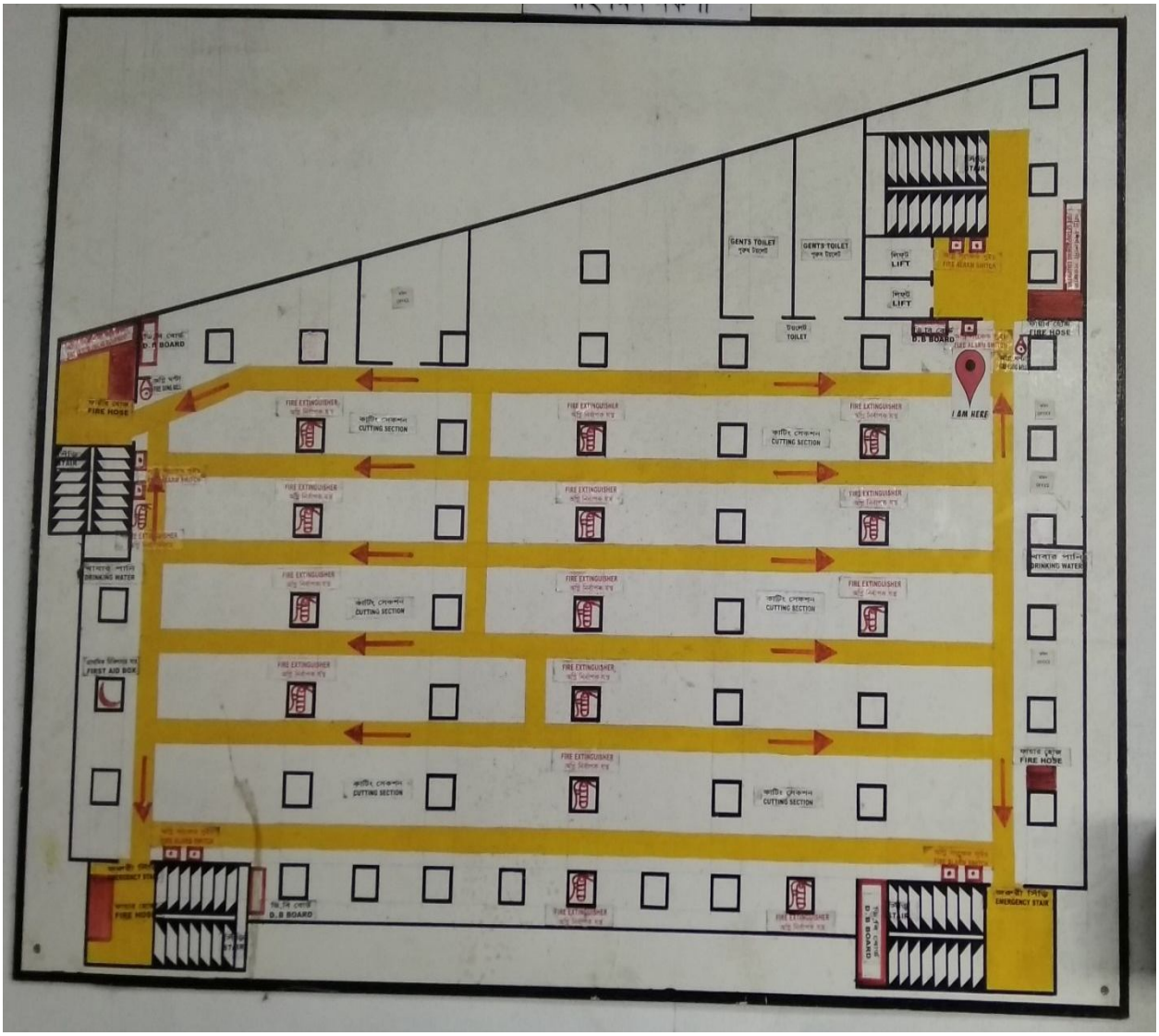


Figure: 3.4.Cutting section

3.2.2. Process Flow Chart of Fabric Cutting Department in Standard Group Ltd:

Pattern received from pattern department
↓
Cutting ratio received from merchandiser
↓
Marker making
↓
Fabric received from the store
↓
Fabric Checking
↓
Fabric Spreading
↓
Marker placing on to the lay
↓
Cutting the fabric
↓
Numbering
↓
Checking
↓
Sorting and Bundling
↓
Send to the sewing department

3.2.3. Fabric place marker:

Marker place is most important of cutting section. When fabric spreading is completed then marker is placing. If the marker placing is not properly fabric cutting is not proper so it is very important.

Fig: 3.5.Place marker m/c

3.2.4. Different Types of Cutting Machine in Standard Group Ltd:

Machine Name: Automatic Garber Cutting m/c
Model: MXL-7000
Voltage: 220V 50-60Hz
Origin: China

Figure: 3.6. Automatic Garber Cutting m/c

This cutting machine provides the most accurate possible cutting at high speed. It is suitable for large scale production. Marker is not necessary to put over the fabric lays during cutting.
This technology has the advantage of being highly accurate and fast, but does cost considerably more than other cutting techniques.

Machine Name: Straight Knife of Cutting Machine
Model: KS-AU1T
Voltage: 220V 50-60Hz
Origin: China

Figure: 3.7 Hand Cutting m/c

Straight knife cutting machine is the most popular and versatile cutting machine. It is widely used in clothing industry. Because it's production speed is very high. Higher lay of height can be cut very easily. Besides, knife is comparatively cheap and can be transferred from one place to another easily.

3.2.5. Cutting tools that mostly used in Standard Group Ltd:

Here is a list of cutting tools and accessories often used on cutting section

1. Scissor
2. Straight Knife.
3. Band Knife
4. Round Knife
5. Die Cutter
6. Computerized Knife Cutter.
7. Computerized Laser Cutter.
8. Drill Machine.

3.3. Sewing Section in Standard Group Ltd:

Standard Group Ltd. has a sewing section which is located in 5rd and 6th floor. Sewing is an important operation in Standard group. Before making a perfect garments, different cutting parts are joined together and make a quality garment for the customer or buyer with the help of various types of sewing machines, threads, needles, tools and equipments. To get a quality products or garments sewing section must be follow all the buyers' specifications and requirements.

3.3.1. Layout of Sewing Section in Standard Group Ltd:

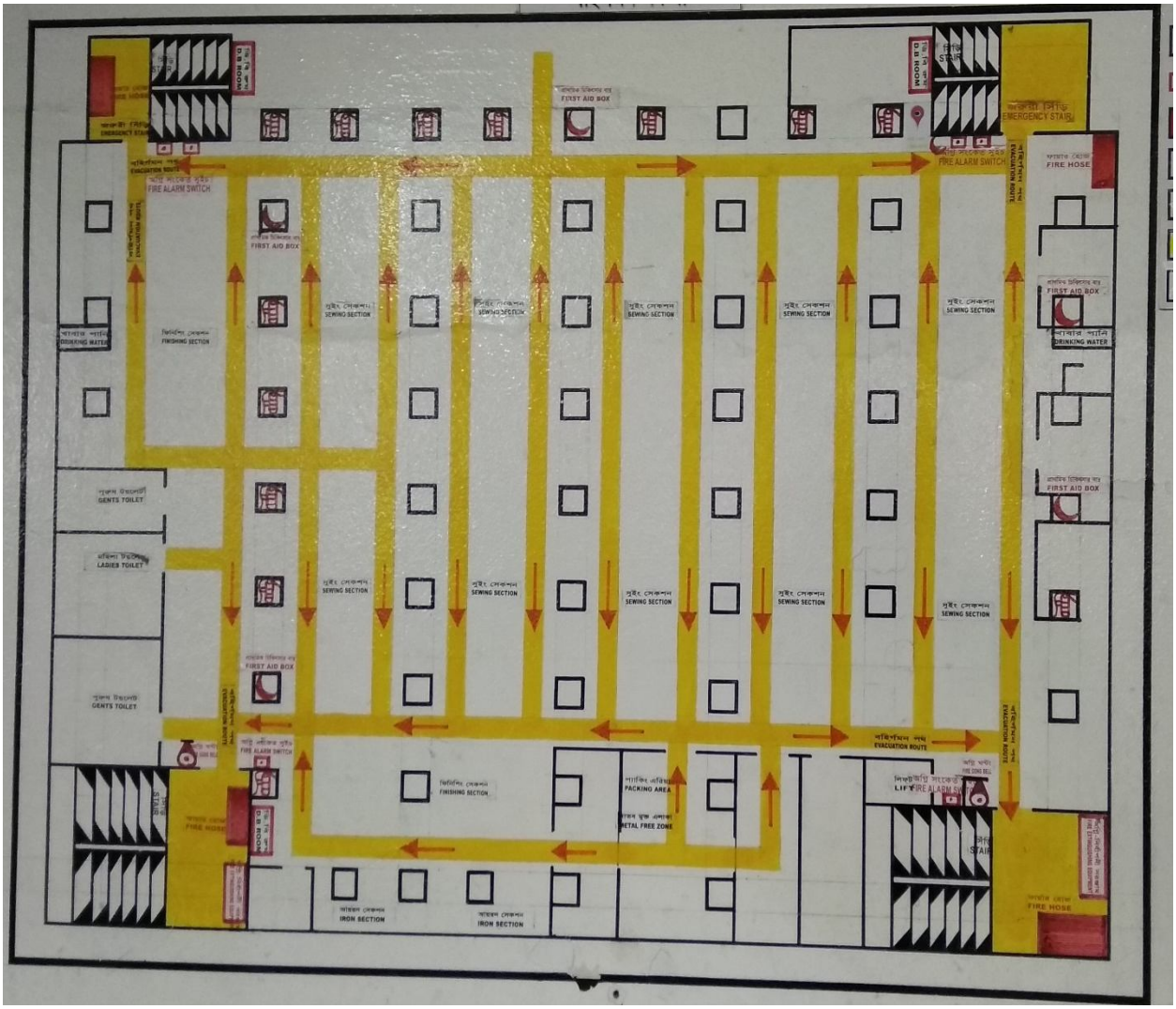
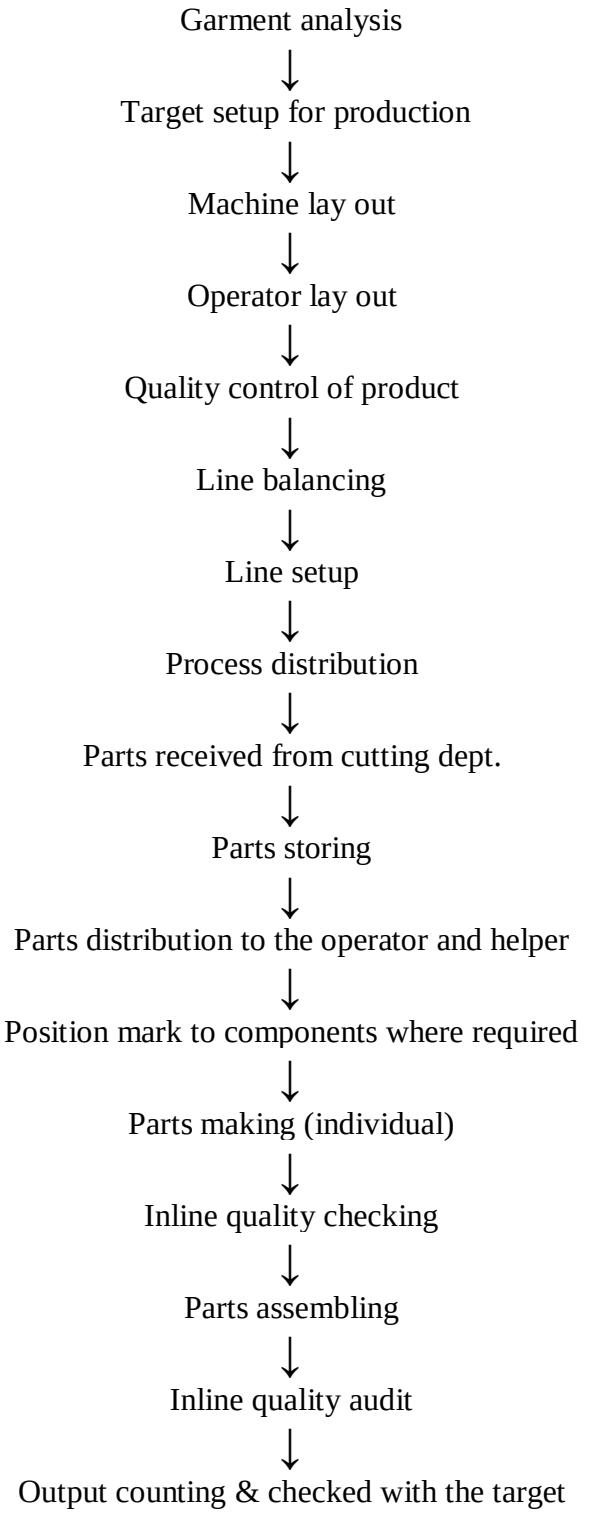


Figure: 3.8.Sewing section

3.3.2. Flow chart of Sewing Section in Standard Group Ltd:



3.3.3. Sewing Process in Standard Group Ltd:

The basic process of sewing involves fastening of fabrics, leather, furs or similar other flexible materials with the help of needle and threads. Sewing is mainly used to manufacture clothing and home furnishings. In fact, sewing is one of the important processes in apparel making. Most of such industrial sewing is done by industrial sewing machines. The cut pieces of a garment are generally tacked, or temporarily stitched at the initial stage. The complex parts of the machine then pierces thread through the layers of the cloth and interlocks the thread.

Figure: 3.9.. Sewing Process

3.3.4. Sewing Defects in Standard Group Ltd:

Some of the remarkable and most commonly occurred defects are as below.

- Needle damage
- Skip stitches
- Thread Breakages
- Broken Stitches
- Seam Grin
- Seam Puckering
- Pleated Seam

Wrong stitch density

- Uneven stitch density
- Staggered stitch

➢ Improperly formed stitches

3.3.5. Machine specification of sewing section in Standard Group Ltd:

S/L	Type of Machine	Brand	No of m/c	country of origin
1	Single Needle lock stitch	JUKI	290	JAPAN
2	Single Needle lock stitch	JUKI	170	JAPAN
3	Over lock 4 thread	JUKI	235	JAPAN
4	Over lock 4 thread	JUKI	15	JAPAN
5	Over lock 4 thread Top down	JUKI	5	JAPAN
6	Over lock 4 thread Back latch	JUKI	15	JAPAN
7	Over lock 4 thread Cylinder	JUKI	10	JAPAN
8	Over lock 6 thread	JUKI	10	JAPAN
9	Cylinder Bed Flat lock	PEGASUS	55	JAPAN
10	Cylinder Bed Flat lock	PEGASUS	30	JAPAN
11	Cylinder Bed Flat lock	PEGASUS	10	JAPAN
12	Cylinder Bed Flat lock	PEGASUS	15	JAPAN
13	Flat Bed Flat lock	PEGASUS	25	JAPAN
14	Flat Bed Flat lock	PEGASUS	15	JAPAN
15	Flat Bed Flat lock	PEGASUS	5	JAPAN
16	Feed of the Arm	YAMATO	8	JAPAN
17	Button Hole	JUKI	12	JAPAN
18	Button Stitch	JUKI	15	JAPAN
19	Bar Tack	JUKI	5	JAPAN
20	Picoting	KANSAI	3	JAPAN
21	Needle Detector	CINTEX	5	ENGLAND
22	Fusing Machine	HASHIMA	5	JAPAN
23	Rib Cutter (3 way)	CALIFORNIA	5	USA
24	Rib Cutter (Single)		5	TAIWAN
25	Band Knife	EASTMAN	5	JAPAN
26	Cutting Machine	KM	10	JAPAN
27	Vacuum Table	NAOMOTO	50	JAPAN
28	Heater less Iron	NAOMOTO	50	JAPAN
29	Label Cutter and Folder		5	TAIWAN
30	Snap Button Machine	YKK	10	GERMANY
31	Thread Sucker	NAOMOTO	2	THAILAND
32	3 Needle, 5 Thread Cylinder bed Interlock Machine with Fabric Trimmer	PEGASUS	50	SINGAPORE
	TOTAL=		1150	

Table: 3.3.5.Machine specification of sewing section

3.3.6. Different Types of Cutting Machine:

Machine Name: KANSHA1
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 3.10 Sewing m/c

Machine Name: Jack Chain Stich
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 3.11 Sewing m/c

Machine Name: Jack Lock Stich
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 3.12 Sewing m/c

Machine Name: Pegasus Over Lock m/c
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 1.15 Sewing m/c

Machine Name: Eye Hole Brother m/c
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 3.13. Sewing m/c

Machine Name: Sun Star
Voltage: 220V 50-60Hz
Origin: Japan

Figure: 3.14 Sewing m/c

3.4. Printing Sectionin Standard Group Ltd:

Standard Group Ltd. has a printing section which is located in 8th floor.Printing section is an important section in the total garments manufacturing process. Printing has done both woven fabrics. After printing the material is received by the quality control department.

3.4.1. Different Chemical use in printing section:

- Thickener
- Fixer
- Binder
- Pigment

3.4.2. Different Types of printing:

- Rubber printing
- Pigment printing
- Crack printing
- Flocking printing
- Glitter printing
- Foil printing
- Pub printing

3.4.3. Different Machine specification of printing Section in Standard Group Ltd:

Machine no – 01

Machine name -MHM printing M/C
Brand -Tesoma
Origin - Australia
Capacity -600 pcs/hours

Machine no – 02

Machine name -Heat press M/C
Brand -Metalnox

Machine no – 03

Machine name -Heat press M/C
Brand -Wagen
Origin -Germany

Machine no – 04
Machine name -label Washing M/C
Brand -Shanghai
Origin -China

Machine no – 05
Machine name -Flock M/C
Brand -Germany
Origin -China

Machine no – 06
Machine name -Flock M/C
Brand -Local

Machine no – 07
Machine name -Color Mixing
Brand -H.S.C Kiddzigri
Origin -Thailand
Capacity -
No of machine -1 set

Machine no – 08
Machine name -Spray Gun M/C
Brand -Germany

Machine no – 09
Machine name -Printing Table
Brand -H.S.Z kiddzigri
Origin -Thailand
Capacity -1000 pcs / hrs.

Machine no –10
Machine name -printing Table
Brand -local
Capacity -1600 pcs/hrs.

3.5. Dyeing Section in Standard Group Ltd:

Standard Group Ltd. has a sewing section which is located in 1th to 3rd floor. Dyeing is the process of adding color textile products like fibers, yarns, fabrics or garments. Dyeing is normally done in a special solution containing dyes and particular chemical material. After dyeing, dye molecules have uncut chemical bond with fiber molecules. The temperature and time controlling are two key factors in dyeing

3.5.1. Layout of Chemical Section in Standard Group Ltd:

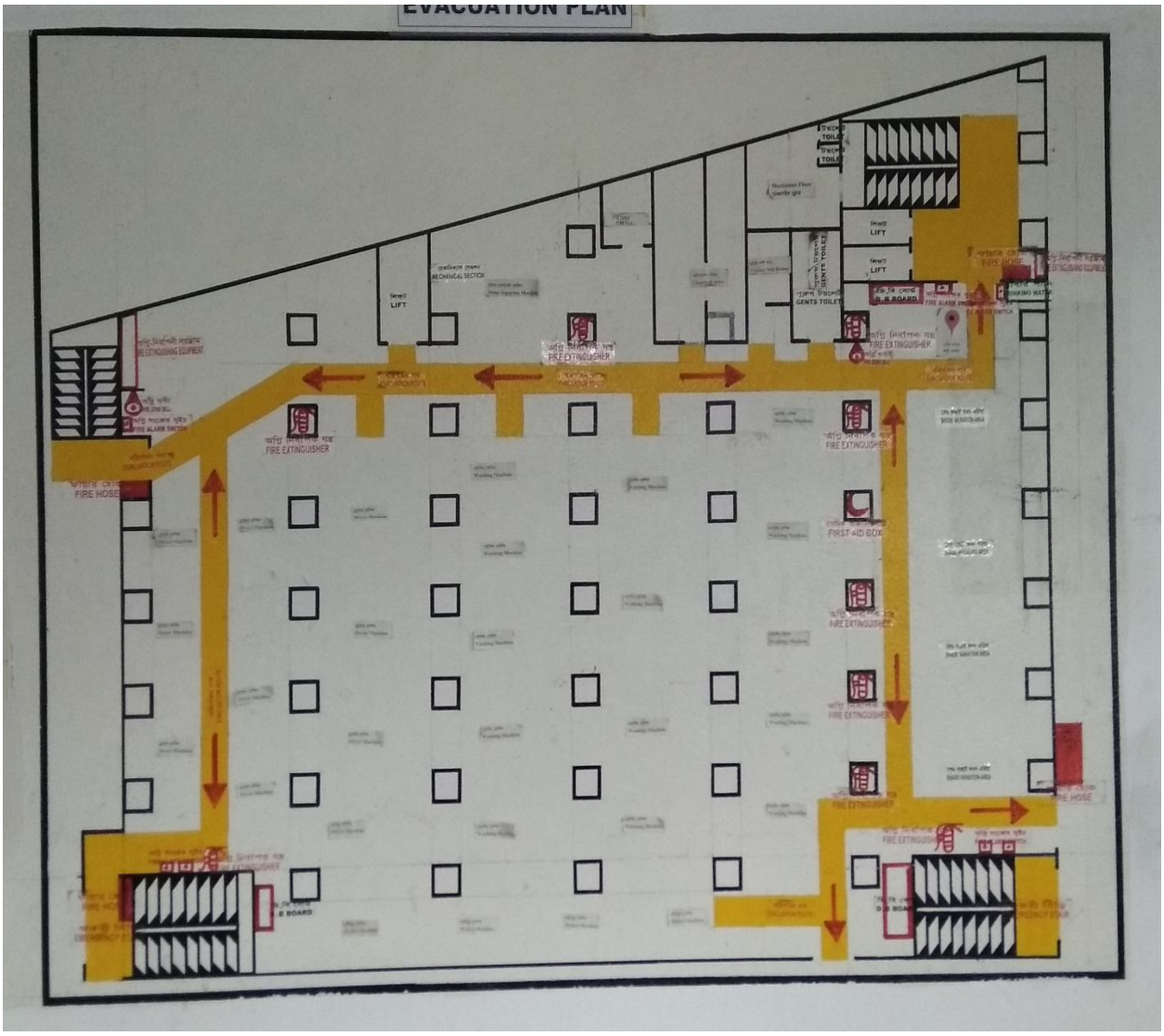


Figure: 3.15 chemical section

3.5.2. Dyeing and Washing Section in Standard Group Ltd:

Leave dyed fabric in the washing machine. Fill machine with warm water and wash as you normally would a load of laundry. Do not use soap on the first washing. Fill again with warm and wash fabric again, this time adding fabric detergent to the wash cycle

3.5.3.Types of dyeing Section in Standard Group:

1. Reactive dye
2. Direct dye
3. Pigment dye

3.5.4 Flow Chart of Dyeing Section in Standard Group:

Batching
↓
Pre-treatment
↓
Dyeing
↓
Sample check
↓
Hydro Extraction
↓
drying
↓
Quality Control
↓
Storage

3.5.5. Denim Washing:

Fashion is today incomplete without denim. Denim comes in all forms, looks and washes to match with every dress. In denims, garment Washing is done to produce effects like color fading with or without patchiness, crinkles, seam puckering, hairiness, De-piling, softened-hand feel, stabilized dimensions etc.

3.5.6. Different types of Dye and Wash in Standard Group:

- Bleach Wash
- Enzyme Wash
- Stone Wash
- Enzyme Bleach Wash
- Silicon Wash
- MED Stone Wash
- Dark Stone Wash
- Light Stone Wash
- Stone Enzyme Wash
- Over dying Wash
- Rinse Wash
- Pigment Wash
- Acid Wash
- Grinding
- PP Spray (Potassium Permanganate)
- Destroy
- Ti-dye
- Deep Dye
- Tint Wash
- All kinds of Whisker
- Tagging
- Hand Brush
- Normal Garments Wash

3.6. Dry process/Mechanical process:

3.6.1 Whiskering:

Whiskers are one of the most important designs of a used look garment. The idea of whiskers is taken from the worn out lines and impression patterns generated by natural wearing on hips and front thigh area. On old jeans, a number of patterns can be finding consequential to fabric, body shape of user or sitting posture. It is also known as Cat's Whisker

Before whishkering

After whishkering

3.6.2. Hand scraping:

Hand sand is step which is generally being done in rigid form of garments to get distress look. Locations can be front thigh & back seat or it can be overall / global application as per Standard. Emery paper is being used to scrape the garments in particular placement & design. Emery paper comes in different number generally starts from 40 till 600 and above, higher the number finer the emery paper, lower the coarseness of the paper. In garment industry from 220, 320& 400 number papers are most popular & widely used. Purpose of doing this process is make used worn out look to the garments. The most important factor is to select right number of paper according to the fabric strength &intensity need. Feathering / merging white sanded part to dark blue area in such way that it should look natural & not artificial. Scraping can be done on inflated rubber balloons for better effect (horizontal or vertical its up too operators convenience) , even it can done plain wooden board of garment size & hand pressure should be uniform in order to get better results. Hand sanding must be started from intense part & feathering out on less intense part gradually. One garment must be done by one operator only to have balance intensity on both the legs.

Before Hand scraping

After Hand scraping

3.6.3. Wrinkle process:

There are two types of wrinkle process.

1. Overall wrinkle process.

2. Permanent wrinkle process.

Overall Wrinkle Process:

 generally overall wrinkle is doing on garments after all types of wet process & dryprocess.

- Overall wrinkle is done on the garment made from all types of fabrics like, Denim, Twill,
- Canvas, Poplin, Corduroy, Knit, Polyester, Viscose & Nylon etc.
- Now tie the whole garment in tight position by thread.
- For overall wrinkle, we are used resin in washing machine with water and run tied garments for 5 to 10 minutes at 50°c temperature. Then unload the garments from washing machine to trolley for hydro extractor to remove the excess water.
- Open the tie or cut the thread.
- Now hanger the garments into the hanger trolley. Trolley capacity appreciates 80-100 pcs garments.
- Then trolley with resin treatment garments put inside the Industrial oven.
- Set temperature 140°c to 160°c, Time 50-70 minutes.
- Start the machine.
- When setting time is over, machines are automatically off.
- After heating time over garments with hanger will stay 10 minutes for cold in oven.

- Now open the door and trolley with garments out from oven and go to quality section, checking& delivery.

Permanent Wrinkle Process:

- Generally permanent wrinkle is doing on garments after all types of wet process wash in dry position.
- Permanent wrinkle is done on the garments made from all types of fabrics like, Denim,Twill,
- Canvas, Poplin, Corduroy, Knit & Polyester etc.Resin is diluted with water which is recommended by chemical supplier, generally 20% resin& 80% water.
- After resin spray on respective area, then fold by buyer demand and clip attached upon the folding area.
- Now hangers the garment in to the hanger trolley, Trolley capacity approx. 80-100 pcs garments.
- Then trolley with resin treatment garments put inside the Industrial oven.
- Set temperature 140°c to 160°c, Time 20-40 minutes (if folding layer is less,
- Less time required, if folding Layer is more, more time is required).
- Start the machine.
- When setting time is over, machines are automatically off.
- After heating time over garments with hanger will stay 10 minutes for cold in oven.
- Now open the door and trolley with garment out from oven.
- Open the clip from garment and go to quality section for quality checking & delivery.

Before Wrinkle Process

After Wrinkle Process

3.6.4. Tagging& Grinding

Tacking or more commonly tag pinning is a very in fashion style in denim garment in these days. Usually tag pin machines are used to attach tag pins to garment. The procedure is very simple and proceeds as, garment is folded on required area and tacked through folds. Garment is folded on specified areas and the fold is locked by tag pins. Now the garment is processed in washer and a permanent fold appears after removal of tag pin. This is important that tag pin is removed when the garment is dried completely. The inner of the fold is dark in shade due to less exposure to mechanical rubbing and chemicals.

Before Tagging

After Tagging

Grinding: is being done on pocket edges & bottom hems edges by running against abrasion surface or stone to achieve worn out effect. Many different make of machines & pen grinding tools are available in the market which runs with pneumatic system.

3.6.5. Destroy:

One of the most popular distressing effects currently, ‘Destruction’ is an art which make denim look unique & used. To make destruction pen type of stone tools being used in mid of wash process to apply on desired area. It can also be achieved by cutting it thru knife the warp yarns &keep the weft yarn as is to show white thread. Holes also can be made by cutting weft & warp yarns. These are all manual processes & every garment will look unique & different than others

Before Destroy

After Destroy

3.6.6. Potassium Permanganate Sponging/ Brushing:

PP Spray is being done on denim garments to achieve local abraded area to appear whiter than back ground indigo color shade. This can be applied by sponges dipped in to PP Solution &rubbed on desired area followed by neutralization in wet process. This process can be done in rigid after doing hand scrape or in the middle of the wash. Doing after enzyme or bleach cycle will give more natural & white effect that doing in rigid. There are many additives can be added in order to achieve desired intensity and look. In usual, it is done with regular paint brushes or the brushes are modified by cutting hairs I different shapes to produce new styles. Rather towels, sponges, straw bunches or other objects are also used to create effects. What it is seen, is that most merging and beautiful effects are created with to well. Towel dipped in solution are drawn over the garment very lightly. This produces random effect and looks great with dark washes in contrast. This process is very complicated & needs highly skilled operators to execute it followed by immediate neutralization.

Before pp spray **after pp spray**

3.6.7. Sand Blasting

This process is used to obtain localized abrasion effect. Usually, aluminum oxide granules are blasted onto the garment surface at a very high speed. The abrasion force rubs off the indigo-dyed fibers.

3.7. WET PROCESS

3.7.1. Enzyme Washing:

Enzyme is kind of protein that is obtained from fermentation method from naturally existing bacteria & fungi. The structure of Enzyme is a biological polymer and it can be found in every cell. Generally called as Cellulose & it works on cotton (Cellulose fiber) only. Enzymes are living organisms which will attack a specific molecular group.

There are mainly three kind of Cellulose being used for Denim washing, Neutral, Acid and Bio polishing Enzyme. Enzymes are very sensitive with parameters in washing cycle i.e., pH, Temperature & time. If any of these parameters are not up to the mark, result will not be accurate. The reaction of enzyme can be easily controlled, its biodegradable products, so they Eco friendly. Bio Polishing Cellulose are being used to have protruded fiber removal from denim & oven fabric. This is also widely known as Anti piling enzyme.

First Step (DE sizing):

- Water add @ L: R = 1: 5
- Run the machine.
- DE sizing agent add @ 0.5 to 2 mg / liter.
- Wetting agent add @ 0.2 to 0.5 mg / liter.
- Temperature: 50°c to 70°c.
- Time: 10 to 15 minute.
- Drop the liquor.
- Cold Wash.

Second Step (Bio-abrasion):

- Water add @ L: R = 1: 5
- Run the machine
- Anti-back staining add @ 0.2 to 2 mg / liter.
- Acid Enzyme add @ 0.6 to 2%
- pH for acid enzyme" 4.5 to 5.5
- Temperature: 45°c to 55°c.
- Time: 40 to 95 minute.
- Drop the liquor.
- Cold Wash.

Third Steps (Back Wash):

- Water add @ L: R = 1: 5
- Run the machine
- Anti-back staining add @ 1 to 3 mg / liter.
- Soda ash add @ 0.3 mg / liter.
- Temperature: 70°c to 80°c.
- Time: 5 to 10 minute.
- Drop the liquor.

Forth Step (Additional Bleaching):

- Water add @ L: R = 1: 5
- Run the machine.
- Sodium Meta bi-sulphite add @ 1 to 2 mg / liter.
- Sodium hypochlorite add @ 0.5 to 5 mg / liter.
- Temperature: 40°c to 50°c.
- Time: 10 to 20 minute.
- Drop the liquor.
- Normal Wash

3.7.2. Stone Enzyme Wash Process:

I have also written article on Enzyme Wash in medium shade. The enzyme washing process of Batch of 60 KGS denim men's long pants (Trouser) are described below:-

First Step: DE sizing

1. Lot weight (80 pes) ..... 60 kg denim long pant.
2. Add water @ L: R = 1:9..... 540 Liter
3. Machine Running.
4. Temperature..... 60°c.
5. Add DE sizing agent @ 0.6 gm. / liter ..... 324 gm.
6. Add Detergent @ 0.8 gm. / liter..... 432 gm.
7. Time.....10--20 MST
8. Drop the liquor.
9. Wash 1 time by cold water.

Second Step: Enzyme

1. Add water @ L: R = 1 : 8 ..... 450 Liter
2. Temperature..... 45°c.
3. Add Acetic Acid @ 0.6 gm. / liter ..... 270 gm.
4. Add Anti back staining @ 0.6 gm. / liter..... 270 gm.

5. Add Acid Enzyme @ 2.00 gm. / liter ..... 900 gm.
6. Time..... (Depend upon the shade)...40--60 MTS
7. Increase temperature to 90°c and run 1 minute (enzyme killing).
8. Drain the bath.
9. Rinse Twice, each 3 minutes.

Third Step: Softening

1. Add water @ L : R = 1 : 8 ..... 450 Liter.
2. Add Acetic Acid @ 0.6 gm. / liter ..... 270 gm.
3. Cationic Softener @ 1 gm. / liter..... 450 gm.
4. Temperature..... Cold.
5. Time ..... 15 to 20 MST.
6. Drain the bath.
7. Then unload the garments on trolley.

Fourth Step: Hydro extractor Machine

After unloading garments from the washing machine then they are sent to hydro extractor

Fifth Step: Drying Machine

1. Load 60 kg garments to gas dryer.
2. Temperature set -75°c to 85°c.
3. Run about 40 MTS.
4. After then run 10 MTS in cold dryer.

Sixth Step: Delivery

After dryer, garment goes to quality section for quality checking and good one delivery

3.7.2. Bleach Wash:

First Step: - Pre treatment

•Batch size..... 60 kg Denim Long Pant.
•Add water @ L: R = 1: 9..... 540 liters.
•Start the machine.
•Temperature..... 60°c
•Add DE sizing agent @ 0.6 gm. / liter ..... 324 gm.
•Add Detergent / Ant stain @ 1 gm. / liter..... 540 gm.
•Time..... 15 to 25 Mts.
•Drop the liquor.

Second Step:-Hot wash

•Add water @ L: R = 1: 9..... 540 liters.
•Temperature..... 60°c.
•Time..... 5 Mts.

Third Step: -Bleaching

•Add water @ L: R = 1: 8..... 480 liters.
•Machine running.
•Add bleaching powder (k.c.i) @ 10 gm./litre..4800 GMS.
•Add soda ash @ 5 gm./liter ..... 2400 GMS.
•Temperature..... 60°c.
•Time (Depend upon the shade)..... 12 to 15 MTS.
•Drop the liquor.
•Rinse twice, each 3 minutes.

Fourth Step: - Neutral wash

•Add water @ L: R = 1: 9..... 540 liters.
•Add sodium hyposulphite @ 3 gm./liter ..... 1620 GMS.
•Temperature ..... 40°c.
•Time (Depend upon the shade)..... 10 to 12 MTS.
•Drop the liquor.
•Rinse one.

Fifth Step: - Soft wash

•Add water @ L: R = 1: 8..... 480 liters.
•Add Acetic Acid @ 0.6 gm. /liter ..... 288GMS.
•Cationic softener @ 1 gm. /liter..... 480 GMS.
•Time..... 5 MTS.
•Drop the liquor.
•Unload the garments to trolley.

Sixth Step:-Hydro extractor Machine

•Hydro extraction the garment to remove excess water from the washed garments.

Seventh Step: - Drying Machine:-

–Load 40 kg garments
–Set temperature ..... 75°c to 85°c.
–Time ..... 35 to 40 Mts.

–Time ..... 10 minutes in cold dry.

Eighth Step: - Delivery

After quality checking garment will be delivery

3.7.3. Tinting

Tinting is a process where very less amount of tint is involved & mainly direct dye is being used to do this process. This is being done to change hue/cast/tone of indigo. As soon as quantity of tint color increases & it cover up indigo, reaches the level of dyeing. Tinting being used to give garments a used / vintage & muddy look. These processes takes from 5 minutes to 25 minutes time for better results followed by dye fixing &cleanup of superficial dye.

3.7.4. Acid wash:

During Acid wash, pumice stones are used. By the action of pumice stones, irregular fading affect Is developed on the heavy garments like denims, thick canvas/twill, and sweater. The pumice Stones act a brushing action on the garment fabric surface. The area where more brushing Action Takes place there more discolor or fading affect is developed and the area where less brushing Action takes place less brushing action and takes place less fading affect will be developed. The Multi-layer fabric areas like –collar, calf, pocket, placket, and side seam etc. area will be brushed More than the single layer areas. As a result irregular fading affect will be developed on the Garments fabric surface. Thus in this way fading affect may be developed on the garment by acid Wash technique.

3.7.5. Acid Wash Process:

A processor Acid wash of 60 kg batch of Denim Trouser as mentioned below:-

First Step: Pretreatment/DE sizing.

1. Add water @ L : R = 1 : 10 ..... 600 liters.
2. Start Machine.
3. Add desizing agent @ 1 gm./liter .....600 GMS.
4. Add detergent @ 1 gm./liter..... 600 GMS.

5. Temperature..... 60°c.
6. Time..... 20 MTS.
7. Drop the liquor.
8. Rinse one for 3 minutes (cold).

Second Step: Hot wash

1. Add water @ L: R = 1: 10..... 600 liters.
2. Temperature..... 60°c.
3. Time..... 5 MTS.
4. Drop the liquor.
5. Here hot wash is used to remove the adhering materials from the garment surface.
6. Unload the garments from the washing m/c in the trolley.
7. Load the pre-treated garments in the dryer m/c.
8. Dry the garment completely & unload the garments.
9. The pumice stones used for acid wash need to pre-treat in the following chemical solution:
10. Water ..... 100 L
11. Potassium per manganite..... 1000 GMS.
12. Phosphoric Acid..... 250 GMS.
13. Stare the solution in a stainless steel tub with dry pumice stone.
14. Soak the stones with the chemical solution ..... 10 –15 minutes.
15. The stones will pick up the solution. Then the soaked stones are dried in the open air For..... 2 to 3 hrs.
16. Then pre-treated garment 30 –40 kg per batch load in the dry washing machine.
17. Load the per-treated stones (about 50 kg) in washing machine.
18. Start machine running for each batch ..... 7 to 10 MTS.
19. Stop machine running.
20. Unload the treated garment separately. Pumice stones with P.P. solution hit on garment Surface as a result fading will be developed.
21. Then load the stones treated garment in another washing machine.

Third Step: Wash for Cleaning

1. Batch wt..... 70 kg.
2. Add water @ L: R = 1: 8..... 560 liters.
3. Add detergent @ 1 gm./liter .....560 GMS.
4. Temperature..... 40°c -50°c.
5. Time .....10 MTS.
6. Drop the liquor.
7. Here detergent is used to remove the breaking stone dust and chemicals from the garment Surface.

Fourth Step: Whitening/Neutralization

1. Add water @ L: R = 1: 8..... 560 liters.
2. Machine running.
3. Add Meta bisulphite @ 5 gm./liter..... 2800 GMS.
4. Cold temperature.
5. Time 5 MTS.
6. Drop the liquor.

Fifth Step: Soft Wash

1. Add water @ L: R = 1: 7..... 490 liters.
2. Machine running.
3. Add Acetic acid @ 0.6 gm./liter ..... 294 GMS.
4. Add softener @ 1 gm. /liter ..... 490 GMS.
5. Then unload the garments.

Sixth Step: Hydro Extractor Machine

- **Hydro extractor machine to remove excess water from the garments.**
-

Seventh Step: Dryer Machine.

- **After hydro extraction the garments are sent to drying m/c for complete drying.**

Eighth Step: Quality& Delivery.

- **after drying the garments go to quality checking & rectify washing fault and then good**

One delivery.

3.7.6. Process flow chart of direct dyeing in Standard Group:

Raw garments loading
↓
Water added
↓
DE sizing
↓
Rinse
↓
Acid Enzyme wash
↓
Acetic acid
↓
Rinse
↓
Adding Direct dye
↓
Adding Global salt
↓
Rinse
↓
Adding Fixing agent
↓
Drain
↓
Softening
↓
Hydro-extraction
↓
Drying

3.7.7. Process flow chart of Reactive dyeing in Standard Group:

Raw garments loading
↓
Water added
↓
DE sizing
↓
Rinse
↓
Adding sequestering agent
↓
Adding leveling agent
↓
Adding global salt
↓
Adding Reactive dye
↓
Adding soda ash
↓
Adding caustic soda
↓
Rinse
↓
Rinse
↓
Adding Fixing agent
↓
Drain
↓
Acid Enzyme wash
↓
Acetic acid
↓
Rinse
↓
Softening
↓
Hydro extraction
↓
Drying

3.7.9. Different Types of Washing Machine:

Machine Name: Industrial Washer
Origin: China
Brand Name: Tong Yang
Heating: Electric, Steam, Electric & Steam
Motor power: 0.55 to 7.5KW
Material: Stainless steel
Capacity: 10-15kg
Usage: factory

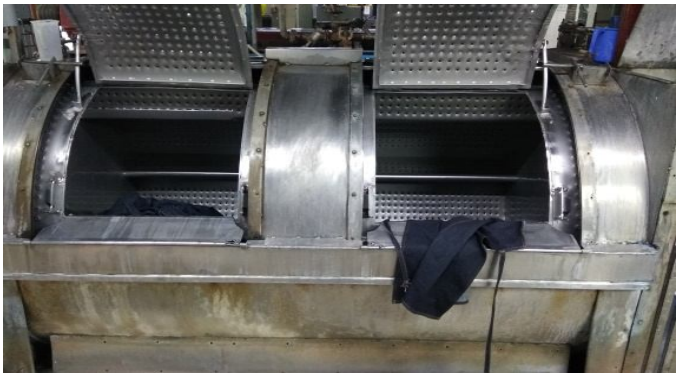


Figure: 3.16. Industrial Washer

Machine Name: Yilmak Washing m/c
Model Name: HNS 3000
Origin: Japan

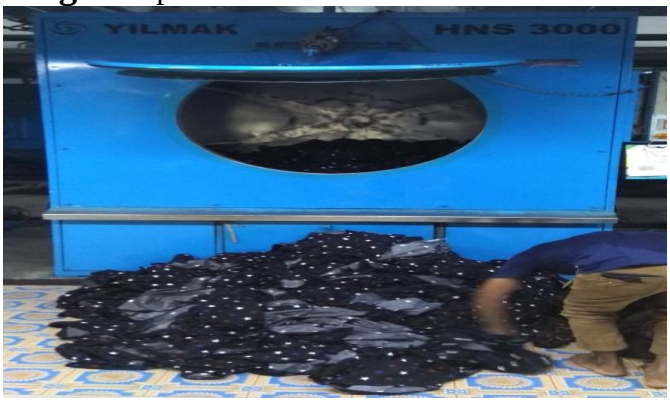


Figure: 3.17. Yilmak Washing m/c

Machine Name: Tonello Washing m/c
Model Name: 400
Origin: Japan

Figure: 3.18. Tonello Washing m/c

Machine Name: Triveneta Granoi Impainti drayer Machine
Model Name: E/250 R.V
Origin: Japan

Figure: 3.19. Triveneta Granoi Impainti dryer Machine

3.8. Precautions to be taken before dyeing:

1. Design should be made engineering point of view
2. Dyeing should be done after pre-treatment to reduce problems
3. Grey fabric should be made from same lots or sources
4. Seams should not be too tight or loose
5. For mixed fibers, dye should be taken carefully
6. Poor quality metal shouldn't be used
7. Proper interlining should be used

8. Sewing threads from same fibers as garments

3.9. Finishing Section in Standard Group Ltd:

Standard Group Ltd. has a sewing section which is located in 5th and 6rd floor.Garment finishing through wet processing is responsible for adding beauty to the garment. Proper finishing could provide better look to the garment, change the feel of the fabric and bring about a change to the texture of the fabric. There are various types of finishes like peach finish, anti-microbial finish, wrinkle free finish, aroma finish, UV guard finish, acid wash, enzyme wash, etc.

3.9.1. Flow Chart of Finishing Section in Standard Group Ltd:

Thread cutting
↓
Repeat button
↓
Pocket cleaning
↓
Inside pre-final
↓
Top side pre-final
↓
Thread sucker
↓
Ironing
↓
Final check
↓
Measurement check
↓
Get up
↓
Hand tag
↓
Hand tag level check
↓
Folding
↓
Packing

3.9.2. Materials used in garment finishing:

- Inner box
- Muster cartoon box
- Belt Neck
- Board Blister
- Back board
- Collar stand
- Butterfly
- Tie placket support
- Fit label
- M-clip
- T-clip
- Metal clip
- Cuff link
- Droop loop
- Cable tie
- Boa tie
- Full board
- Hand tag
- Tag pin
- Tissue paper
- Al pin
- Ball pin
- Elastic clip
- Hanger
- Poly bag
- Size sticker
- Gun tap

3.9.3. Ironing:

Ironing is the use of a heated tool (an iron) to remove wrinkles from fabric. The heating is commonly done to a temperature of 180–220 °Celsius, depending on the fabric

3.9.4. Carton:

Cartons are made according to buyer instruction and length wise it contains the buyer name, widthwise it contain the measurement, net & gross weight. Carton contain the information are printed by screen print style.

3.9.5. Packing:

Different types of packing accessories are available in store room in such as polybag, packing board, tissue paper, hanger, scotch tape, gum tape, carton etc.

Chapter-4
IMPACT OF INTERNSHIP

4.1. Sample Section:

- We know about sample section
- We also know how to work in sample section.
- We showed work of CAD.
- We know how to make pattern.
- We know marker grading.

4.2. Cutting Section:

- We know about cutting machine.
- We observed about fabric spreading.
- We observed different type of fabric lay.
- We observed the process of fabric cutting.

4.3. Sewing section:

- We showed the all kind of sewing machine
- We observed how to workers work in sewing section.
- We showed sequence of sewing line in sewing section.
- We observed of different type of sewing faults.

4.4. Printing Section:

- We know about printing process
- We know about chemicals.
- We learned about different type of printing machine.

4.5. Dyeing and Washing Section:

- We know about the different machine specification of dyeing section Standard garments ltd.
- We know recipe of dyeing.
- We observed how to work in dyeing section.
- We know about of dyeing chemicals.
- We showed different types of dyeing fabric.

4.6. Finishing Section:

- We know how to work done by finishing section.
- We showed all type of packing.
- We learned how to make a fabric cartooning.
- We learned Different various types of accessories used to attach to the garments.
- We observed different type of iron machines. .

CHAPTER -5
CONCLUSION

5.1. Conclusion:

We have completed my industrial attachment successfully by the grace of Almighty God. Industrial attachment sends me to the expected destiny of practical life.

During my training period, talking with the clients of this mill I knew that the mill is fulfilling the country's best export oriented finished fabric as well as very good quality fabric due to its modern machinery & good management system.

Standard group Ltd. is settled with utility to give all convenient supports to the productions for twenty-four hours.

We are enough fortunate that we have got an opportunity of having a trainingin this mill. During the training period I have received co-operation and association from the authority full & found all man, machines & materials on appreciable working condition. All stuffs & officers were very sincere & devoted their duties to achieve their goal.