



Daffodil
International
University

Faculty of Engineering

Department of Textile Engineering

Thesis Report On

“Textile Testing and Quality Management”

Course Title: Project (Thesis)

Course Code: TE-4214

Submitted By

Name	ID
Md.Imran Hossain	163-23-253
Md.AbuRasel	171-23-277
Md.Forhadul Islam	162-23-245

Supervised

by Kazi Rezwan

Hossain

Lecturer

Dept. of Textile Engineering

This Report Submitted in partial fulfillment of the requirements for the degree
of Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology.

Duration: December, 2019

© Daffodil International University



Faculty of Engineering

Department of Textile Engineering

Approval Sheet

This exploration entitled “**Textile Testing and Quality management**” at Daffodil International University, December 2019" arranged and put together by **Md.AbuRasel**(ID: 171-23-277), **Md. Imran Hossain** (ID: 163-23-253),**Md.Forhadul Islam** (ID:162-23-245) the necessity for the level of **BACHELOR OF SCIENCE IN TEXTILE ENGINEERING** has been analyzed and therefore prescribed for endorsement and acknowledgment.

Supervisor

Kazi Rezwan Hossain

Lecturer,

Daffodil International University

Oct 20, 2019

To

The Head

Department of Textile Engineering

Datta Para, AshuliaSavar, Dhaka.

Subject: Approval of Project Report of B.Sc. in TE Program.

Dear Sir,

I am just writing to let you know that this project report titled as “Textile Testing and Quality management” has been prepared by the student bearing ID’s 171- 23-277 and 163-23-252 and 162-23-245are completed for final evaluation. The whole report is prepared based on the proper investigation and interruption through critical analysis of empirical data with required belongings. The student were directly involved in their project activities and the report become vital to spark of many valuable information for thereaders.

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

Yours Sincerely

.....

Kazi Rezwan Hossain

Lecturer

Department of Textile Engineering

Daffodil International University

Declaration

We bear witness to that this report is absolutely our very own work, aside from where we have given completely archived references to crafted by others and that the materials contained in this report have not recently been submitted for appraisal in any formal course of study. On the off chance that we do anything, which is going to break the primary revelation, the analyst/administrator has the privilege to drop my report anytime oftime.

.....

Name: Imran Hossain

ID:163-23-252

.....

Name:Md.AbuRasel

ID:171-23-277

.....

Name:Md. Forhadul Islam

ID:162-23-245

Acknowledgement

Toward the start, we might want to thank the Almighty ALLAH for enabling us to finish this report. At that point we might want to accept the open door to offer us thanks to our respectable chief **Kazi Rezwan Hossain**, Lecturer, Department of Textile, Daffodil International University for giving us rules and proposals to finish this Project. His astute exhortation help coherent course and endeavors have made it conceivable to execute the task reliably.

Our appreciative thanks additionally go to Professor **MD. Hosain Reza**, Head of the Department of Textile Engineering, for his help and consistent direction all through our long adventure in Daffodil International University and the mechanical preparing. I have gratitude towards the Chairman, managing directors, General Manager, Production 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.

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

Dedication

From the outset I need to devote this modern report to all-powerful Allah for allowing me this chance to substantiate myself. Without god-like's assistance nothing would be conceivable. At that point I need to devote my report to my folks. I adore them without question, for finishing my examination they assume an indispensable job to finish. It's an extraordinary delight for me. Without their assistance it is very outlandish for me to finish this connection so I'm thankful to them. My folks were useful to prepare this connection. Furthermore, I likewise need to commit this report to my fair educator and scholastic administrator, **Kazi Rezwan Hossain**, Lecturer, Department of Textile, Daffodil International University, give us a very help and rule to prepared this connection. I commit this report to my adoredguardians.

Devoted to the articles of clothing laborer, who works morning to night, contribute running the wheel of nation economy by diligent work. Much thanks to you such a great amount of, go ahead, we are withyou.

ABSTRACT

Quality might be characterized as the degree of acknowledgment of merchandise or administrations. For the material and attire industry, item quality is determined as far as quality and standard of filaments, yarns, texture development, shading speed, plans and the last completed pieces of clothing. In Bangladesh, various articles of clothing manufacturing plants pursue diverse quality control and the executives frameworks particularly unique investigation frameworks for piece of clothing assessment. This article contains the quality control forms just as quality administration methods pursued by various piece of clothing production line of Bangladesh and the attainability of these procedures. Catchphrases: Quality Control, Quality Management, Garment, Garment Defects, Inspection, AQL.

TABLE OF CONTENT

SL NO	CONTENT	PAGE NO
1	Introduction	1
2. THEORY	2	
2.1.1. Sewing abandons	2	
2.1.2. Shading surrenders	2	
2.1.3. Measuring absconds	2	
2.1.4. Completed piece of clothing absconds	2	
2.2. Techniques for quality control	3-7	
2.3.1. TQM (Total Quality Management)	7	
2.3.2. Execution periods of TQM	7-11	
2.3.3. Information ANALYSIS AND FINDINGS	11-13	
2.3.4. MAJOR FINDINGS	14	
2.3.5. RECOMMENDATIONS	15	
3. METHODOLOGY	16	
4 Conclusion	17	
	Reference	

NAME OF THE FIGURE

FIGURE NO	FIGURE NAME	PAGE NO
01	The quality control department of a garments manufacturing unit.	20
02	To checking the fit of a garments.	20

NAME OF THE TABLE

TABLE NO	TABLE NAME	PAGE NO
01	Inspection	18-19

Chapter-1

1.INTRODUCTION

Quality control as far as article of garment fabricating, pre-sales and posts sales

service, conveyance, valuing, and so on are fundamental for any garment

manufacturer, dealer or exporter. Certain quality related issues, ought to never be

over looked. The buyers need to get top notch items in low cost. The products should

arrive at the customers with right quality relies upon the expense.

Quality management is the part of the general management work that determines

and implements the quality policy. Quality assurance covers all the procedure inside

an organization that adds to the generation of value items. The review is done by

delegates of the present generation and the outcome record on control graph. The

point of piece of clothing assessment is to outwardly examine articles

indiscriminately from a conveyance so as to check their general similarity and

appearance with guidance/depiction as well as test got.

Chapter-2 Literature review

2. THEORY

Certain quality related issues, frequently found in article of clothing producing like sewing, shading, estimating, or piece of clothing deformities ought to never be over looked.

2.1.1. Sewing abandons

Open creases, wrong sewing strategies, non-coordinating strings, missing join, ill-advised wrinkling of the article of clothing, inappropriate string pressure and so on are a portion of the sewing abandons.

2.1.2. Shading surrenders

Variety of shading between the example and the last article of clothing, incorrectly shading mixes and confounding colors.

2.1.3. Measuring absconds

Wrong degree of sizes, contrast in estimation of different pieces of an article of clothing like sleeves of XL size for collection of L size piece of clothing can fall apart the pieces of clothing unrecoverable.

2.1.4. Completed piece of clothing absconds

Broken or imperfect catches, snaps, join, various shades inside a similar piece of clothing, dropped lines, uncovered scores, texture deserts, openings, flawed zippers, free or hanging sewing strings, skewed fastens and gaps, missing catches, needle cuts, pulled or free yarn, stains, incomplete buttonhole, short zippers,

unseemly trimmings and so forth all can prompt the finish of a brand name even before its foundation.

2.2. Techniques for quality control:

Fundamentally two techniques are utilized for pieces of clothing quality control –

- a) Testing
- b) Inspection.

Quality Control System is trailed by all worried in the organization from piece products investigation to the last measurable review.

(1) Piece products quality control: On receipt of textures in the product house, at any rate 10% are examination according to "4 Points" framework/10 Points framework/2.5 Point framework/6.0 Point framework. The most regularly utilized 4 Points framework according to beneath -

SIZE OF DEFECT	PENALTY
3 Inches or less	1 Point
More than 3, under 6 Inches	2 Point
More than 6, under 9 Inches	3 Point

More than 9 Inches

4 Point

A limit of 4 points are changed in one direct yard.

(2) Cutting quality control: In cutting segment quality is safeguard in two phases.

a) Spreading quality control: Following the fact of the matter are checked during spreading

I. Table stamping.

II. Finishes

III. Pressure

IV. Inclining

V. Slender Goods

VI. Tallies

VI. Utilize tallness

VII. Remainders

VIII. Texture blemishes

IX. Market setting

b) After cutting quality control: After each cutting squares and packages are keeps an eye on the accompanying focuses.

I. Mis cut

II. Battered cutting

III. Example checks

IV. Coordinating Plies

V. Indents

(3) In process quality control (Sewing):

During the swing "In process quality control" is finished by the line QC's through 7 pcs review

framework. For basic activities 100% procedure assessment are done.

The accompanying parameters are likewise checked in sewing process –

- a) Machine check.
- b) Tension.
- c) SPI checks
- d) Needle check.
- e) Cleanness.
- d) Table review.
- f) Inspection before wash.

(4) Washing area

- a) Garments dealing with
- b) Wash standard.
- c) After wash completely review.

(5) Quality control of completing areas: Following review/review is done to accomplish AQL (1.5/2.5/4.0 and so on).

- a) Process review: Garments are checked procedure insightful in the completing area to recognize imperfections and pass just the passed articles of clothing.
- b) Two hourly review: Every following two-hours review is done on completing parcel to accomplish AQL the required AQL.

c) Days last review: At the day's end collected part of completed pieces of clothing are factually inspected to achieve required AQL.

d) Lot last review: On finishing of pressing of one complete part of piece of clothing, QA chief lead measurable review dependent on required AQL articles of clothing. Articles of clothing are offered for definite investigation by purchaser/customers for shipment just when these are through in this review.

The accompanying parameters are additionally checked in sewing process –

an) After wash pieces of clothing must be keep in the case/table covering.

b) Thread sucking.

c) Iron examination.

d) Measurements examination.

e) Poly examination of top of articles of clothing.

f) Inspection before cartooning.

(6) Testing (Lab test):

a) Shrinkage test

b) Colour speed. test

c) without azo test.

3.3. QMS (Quality Management System)

"A lot of co-ordinated exercises to direct and control an association so as to consistently improve the adequacy and effectiveness of its presentation."

Every Quality administration frameworks (TQM, ISO and so forth) and its components (Statistical procedure control, (SPC), Kaizen, Advance item quality arranging and control (APQP), have an unmistakable pertinence. It is vital that the methodology chose suits present and future needs of the association.

SPC moves in the direction of bringing process affected by normal causes alone by recognizing and dispensing with assignable causes. APQP centres for the most part around new item improvement/venture execution. ISO 9000 as of now incorporates three quality principles (ISO 9000:2005, ISO 9001:2000, and ISO 9004:2000). ISO 9001:2000 presents ISO's new quality administration framework necessities, while ISO 9000:2005 and ISO 9004:2000

Present ISO's new quality administration framework rules. These are procedure measures and not item models and are created by quality specialists from around the globe for use by organizations that either need to actualize their very own in-house quality frameworks or to guarantee that providers have proper quality frameworks set up.

Work serious industry like clothing can accomplish full advantage of QMS just if each person (Operators and Managers the same) contribute in its execution.

2.3.1. TQM (Total Quality Management)

TQM is a way of thinking or way to deal with the executives that can be described by its standards, practices, and procedures. Its three standards are client center, constant improvement, and cooperation. Every standard is executed through a lot of practices, which are just exercises, for example, gathering client data or examining forms. The practices are, thus, upheld by a wide cluster of strategies.

Effective execution of TQM requires duty from top administration. No QMS can bring medium-term enhancements. It is continued exertion towards greatness at each level. Top administration should show others how its done. This can be shown by top administration through dynamic cooperation in TQM related actuates.

2.3.2. Execution periods of TQM

TQM is a Journey not goal. TQM go fur's zero imperfections in each useful regions viz. activities, quality, showcasing, utility, administration, and so forth. As the association advances from 5-Standards (5-S) - Daily Work Management (DWM) -

Six sigma for each utilitarian territory, the probability of imperfection rate is diminished to right around zero.

Following are the periods of TQM execution

1) 5-S-(Sort, set all together, Shine, Standardize, Sustain)

- Foundation Phase
- Sustenance Phase
- Maximize plant up time
- Instrument and framework Calibration
- Break through Improvement

2) DWM (Daily Work Management)

a) Total Productive support (TPM) –

b) Measurement framework Analysis (MSA)

3) Six Sigma-

1) 5-S

5-S Defined-Total work culture that builds up association's capacity to the fullest ability to upgrade imagination and wipe out waste.

Thoughtfully 5-S is planned for building up a work culture where by all representatives including administrators, directors and supervisors take part in critical thinking process.

Sort (1-S) - this is started by distinguishing the variations from the norm at the work zone. Anomalies are featured by special distinguishing proof label otherwise called red tag. This guarantees each worker takes part in distinguishing the anomaly in individual work zone. It is seen that putting red tag improves mindfulness with respect to the variation from the norm; it additionally triggers a

response among workers to think for ways for maintaining a strategic distance from the reoccurrence of anomaly.

Set all together (2-s) - Efforts are then coordinated towards settling the labels. Objective is to discover changeless answer for issue. Everyday quality related issues, for example, mark blending, trims blending (string, name wrongly connected) can be totally disposed of through 5-S. In a perfect world stores should stack trims isolated purchaser savvy, request shrewd and so forth with area stamping accomplished for every capacity zone. This will stay away from the occurrences of wrong trims being given, regardless of whether storekeeping faculty are not accessible

(wiping out human reliance). Furthermore isolation of trims on sewing floor/completing floor size shrewd, shading savvy and sizes astute in exceptionally structured boxes, plate with area set apart for each, will wipe out any plausibility of trim blending. Not just this (actualizing 5-s at stores) decreases the ineffective (time lost in trims looking) at stores level, yet in addition helps in sparing time and improving nature of quick clients (Sewing Floor). At 2-S Stage (Set all together) it is obligatory to characterize the stock level at each stage, this applies to stores, yet in addition to sewing, getting done with, washing and pressing stock. Characterizing and controlling WIP has indicated stamped decrease in stains related dismissals, aside from decrease in through put time. It is seen that one fundamental explanation of higher WIP is more significant level of revise and adjustments. As for WIP the board point ought to be to move towards lean assembling with single piece stream. Recharging of WIP/stock ought to be Pull driven as opposed to push driven.

Sparkle (3-s) – 3-S guarantees improved housekeeping by arranging, cleaning and Inspection plans that incorporate floor (Brooming, wiping, vacuum), over headlamps, racks and so on. The cleaning timetables ought to be structured with the end goal that it should specify how, when, where, in regards to the cleaning action. It should express the individual capable and responsible for executing the calendars.

Institutionalize (4-s)- This alludes to institutionalizing the departmental exercises. Here the cleaning plans, ace record (demonstrating area set apart for hard and delicate duplicates/registers), instrument list (expressing area and amount) are shown on notice board. Thusly human reliance in getting to the records and devices/gear can be wiped out. Aside from this operational standards for every division are created. It incorporates rundown of approaching material for every office, its ideal method of pressing/bundling, pressing subtleties, wanted method of transportation of approaching material, material taking care of gear for in house development and so on. These prerequisites are sent to provider as voice of client. What's more stock level for every approaching thing with capacity areas is arranged.

By and large waste (Shaping waste, Empty cones, Threads, Spring cones, polythene, Paper, bamboo and so forth) is isolated at brought together piece yard. Anyway perfect strategy is to isolate the loss at wellspring of age. To begin with, waste can be arranged into natural (Thread, Fabric) and inorganic waste (Polybags, plastic cones and so on). Shading coding for

dustbins ought to be done and preparing granted to workers to arrange the loss in right dustbin. Contingent upon the idea of waste produced by the movement, shading coded dustbin is given at helpful area. Assortment of waste from dustbin and transfer of waste to scrap yard ought to be finished by methods for correspondingly hued trucks. Technique for recuperating recyclable waste ought to likewise be structured.

Support (5-s): customary inward and outer reviews are booked to beat the deficiency. Time based activity plan with duty regarding settling the irregularity is made.

As the departmental group develops in the critical thinking procedure, it is raised to frame Quality circles. Accentuation is to discover lasting answer for issue at the work level itself, without hoisting the issue to more elevated level. Sooner the day today issues are settled at Work zone level and supervisors are allowed to think with respect to enhancements. Generally speaking Managers ought to invest 80% of his energy in upgrades. Despite the fact that the

2) Daily work the board (DWM)

Deliberately and reliably carryout all exercises which must be performed every day (or routinely) to productively accomplish the points of every office. On a fundamental level, these exercises mean to keep up the present status, despite the fact that exercises to improve the circumstance are likewise included.

3) Six Sigma

Six Sigma is a business the board methodology initially created by Motorola, USA in 1981. Starting at 2010, it appreciates across the board application in numerous segments of industry, despite the fact that its application isn't without debate.

Six Sigma tries to improve the nature of procedure yields by recognizing and expelling the reasons for surrenders (mistakes) and limiting fluctuation in assembling and business forms. It utilizes a lot of value the executives strategies, including measurable techniques, and makes a unique foundation of individuals inside the association („Black Belts", „Green Belts", and so forth.) who are specialists in these strategies. Every Six Sigma venture did inside an association pursues a characterized succession of steps and has evaluated targets. These objectives can be money related (cost decrease or benefit increment) or anything that is basic to the client of that procedure (process duration, wellbeing, conveyance, and so on.).

The term six sigma started from phrasing related with assembling, explicitly terms related with factual demonstrating of assembling forms. The development of an assembling procedure can be depicted by a sigma rating showing its yield, or the level of imperfection free items it makes. A six-sigma process is one in which 99.99966% of the items made are free of deformities, contrasted with an onesigma procedure wherein just 31% are free of imperfections.

2.3.3 Information ANALYSIS AND FINDINGS

Quality control procedures of some chose Bangladeshi articles of clothing organization are according to beneath –

Sl. No.	Name of Apparel Manufacturing Unit	Piece goods quality control	Cutting quality control	In process quality control (Sewing)	Quality control of finishing sections	Process inspection	Two hourly audit	Day's final audit	Lot final audit
1	Opex Sinha	4-point system	Done	7 Pcs inspection randomly	AQL 2.5	Visual, Pass only the defect- free garment	Done to attain AQL 2.5	Yes	Done in presence of buyers' representatives
2	Fakir Apparels Ltd.	4-point system	Done	7 Pcs inspection randomly	AQL 2.5	Visual, Pass only the defect- free garment	Done to attain AQL 2.5	Yes	Done in presence of buyers' representatives
3	Mithela Textile Ltd.	4-point system	Done	7 Pcs inspection randomly	AQL 2.5	Visual, Pass only the defect- free garment	Done to attain AQL 2.5	Yes	Done in presence of buyers' representatives
4	Standard Group	4-point system	Done	7 Pcs inspection randomly	AQL 2.5	Visual, Pass only the defect- free garment	Done to attain AQL 2.5	Yes	Done in presence of buyers' representatives

Table 1. Inspection



Fig - 01: The quality control department of a garments manufacturing unit.



Fig - 02: To checking the fit of a garment

As indicated by hypothesis, there are various parameters to check or examine for keeping up quality control and quality administration of pieces of clothing. Other than these, there are likewise some testing techniques are accomplished for keeping the correct nature of the articles of clothing. From gathered information the accompanying things are found –

This investigation has 07 examples where every one of the organizations pursue the 4 point framework for assessing the texture of articles of clothing. These additionally keep up cutting quality, two hourly review, and Lot last review (at nearness of purchasers' agents). Among them 05 (five) organizations keep up in process quality control (sewing) by 7 Pcs investigation arbitrarily. All these 07 (seven) industrial facilities done process review outwardly and 05 (five) among them keep up days last review.

Testing, for example, shrinkage test, shading quickness test, azo free test are finished by all these 07 (seven) industrial facilities. From the examination of above

information it is seen that each piece of clothing industrial facility is keeping up AQL 2.5.

Quality administration framework (QMS) 5'S is utilized in just 03 (three) production lines out of 07 (seven) manufacturing plants. Six Sigma is utilized none of the 07 (seven) processing plants. Day by day work the board (DWM) is utilized in all these 07 (seven) manufacturing plants.

2.3.4. MAJOR FINDINGS

- In Bangladesh the greater part of the piece of clothing processing plants utilize various instruments for quality administration yet not in composed manner. At the point when needs, they utilize these devices heedlessly.
- In Bangladesh the greater part of the articles of clothing plants utilize 4-point framework for examining textures of pieces of clothing.
- Most of the purchasers are bringing in articles of clothing from Bangladesh with AQL (adequate level) 2.5.
- Most of the articles of clothing producers are doing investigation during the assembling procedure of pieces of clothing.
- Other tests, for example, shrinkage tests, shading speed tests, azo free tests are finished by the purchasers' prerequisite.

2.3.5. RECOMMENDATIONS

- Every article of clothing manufacturing plant should execute various devices like 5'S, 6 Sigma and so forth for impeccable quality administration.
- As investigation is constantly visual, at times machine can be utilized for examination of articles of clothing.
- The 4-point framework has a few confinements so this framework ought to be utilized with appropriate consideration.
- Every test ought to be done according to worldwide standard just as purchaser's necessity.
- Day last review is vital for any generation procedure with the goal that it is expected to execute in each piece of clothing fabricating unit.
- The best possible preparing ought to be accommodated quality related individuals.

Chapter -3 METHODOLOGY

3.1 METHODOLOGY

From the start every one of the information are gathered from various reports and documents of various garment factories. At the point when these information become not sufficient, some other information are gathered by close perception and over phone. This is an illustrative and diagnostic examination. The example size is 07 (seven). The gathered information are handled with MS Excel and all one-sided and inadequate information erased from the information bank.

Chapter-4

CONCLUSIONS

Conclusion: Quality is a significant factor in Garments Business. There are hundreds and thousands of occurrences that the garments has been rejected, cancelled, discounted, delayed, short-shipped only for quality explanation in that producing Quality Garments is an essential for garment manufacturer.

The garments sector in Bangladesh should concentrate more on quality management instead of taking advantages from the cheapest labours.

The point of this study was to test the effect of quality management practices on sustainable competitive advantage at garments sectors in Bangladesh.

The achievement and development growth of garments sector are reduced. Current research shows different problems related with the quality issues. Howsoever , the performances of garments sectors are largely influenced by the international quality standard and regulations.

REFERENCES

1. Garments & Technology; Prof.M. A. Kashem2009
2. Garments Merchandising, Prof. M. A. Kashem2009
3. Garment Technology for Fashion Designers, Gerry Cooklin.
4. TQM: Towards Zero Defects By: C. K. Karekatti
http://en.wikipedia.org/wiki/Six_Sigma