Quality Control Manual

What is quality control manual? Why is it important?

In every factory, for the smooth running of the production and a grade supply, quality control is necessary on several levels. From the moment the raw material enters to the end stage involving stitching, cutting, embellishments (prints, embroideries, dying) etc.

For quality control, there is a document is known as a quality manual, which is followed by each and every company in the apparel industry. A complete quality control manual of garments factory actually increases the effectiveness of quality control by providing guidelines to the related parties.

Unit 1: Development of a new style

Design

The design when made of at an industrial level, quality of the final design must be kept in mind, which is often affected by the following factors:

- Efficiency
  Efficiency in garment manufacturing is a function of manpower (trained staff at all levels), machinery (both core machines and software), material (availability at right time and quality) and methods (standard systems and processes).
  No design should be such that it takes an unprofitable amount of manpower to be completed which turns out to be non-practical. The design should be efficient in itself and must guarantee no over use or over kill of manpower.

- Functionality
  Any garment when designed must be functional and practical to use. Keeping in mind the season, colour, fabric, trims and other materials.
  Aesthetics of a design must not over shadow the function for which it was first tried to be achieved.

- Viable to the current trends
  In fashion ad garment industries, trends run in and out like day and night. Any mass production unit must understand that their designs should match the need of the season they are catering to. This can include a set of multiple factors like:
  - ✓ Silhouette
  - ✓ Colour
  - ✓ Form
  - ✓ Texture/Material
  - ✓ Pattern
  - ✓ Season
  - ✓ Motifs in prints and weaves
  - ✓ Embroidery techniques

Factory Layout

Factory layout refers to the physical arrangement of the industrial facilities such as sewing machines, storage systems, supporting fixed assets, among others. An effective layout should not only represent optimal physical arrangement for space-saving but should also be well designed for reducing material movement and labour movement. The development of an efficient plant layout results in smooth workflow across the production process, improved production efficiency and ensures 10–12 per cent space-saving. An efficient layout also incorporates the varied compliance requirements such as safety, health and environment (SHE) norms and is a visually appealing factory. Thus, preparing an efficient factory layout that is both compliant and productive at the same time is very critical.

Fabric laying and cutting-

- Here, the workers pile up the layer of clothing to be cut. The essence here is to lay the fabric to maximize the entire cloth yarn usage, thus creating a minimum wastage.

- One way to ensure the maximum use of the fabric is to place the length of the garment along the edge of the fabric and cut the pattern on the right grain.

- Another important step here is to ensure that the fabric is laid on the wrong side. All the marking and cutting must happen on the wrong side of the material. It is turned right only after the stitching process.

- Also, the fabric should be laid in the exact direction of the garment. If not, the finished garment may end up having an upside-down pattern.

- After ensuring all these steps, the fabric is marked. The carefully laid-out fabric is then cut manually or using computer-guided technology.

Stitching

All the pieces of fabric now come together in the stitching process. Here the garment takes the final shape. The stitching process is the most time-consuming in the manufacturing process of garments as workers do it on sewing machines. Therefore it is essential to optimize this process. Most garment manufacturing units have an assembly line for the stitching process. Here workers sit in lines and pass on the fabric to each other for step-by-step stitching. For example, while assembling a women's kurta, one worker may attach the neckline and pass it on to the next worker who attaches the sleeves. This optimizes the time it takes to finish the entire garment.

Finishing and Quality check

After receiving from wash we start finishing the procedure, at the same time we press covering all size & color to see the measurement, wash standard, hand fill & any wash defect by wash factory.

- Trimming is a most important thing of quality issue. For that a trimming section is established, to strictly control the uncut thread, not allowing thread end over 3 mm.

- A large quantity of Q.I recon check 100% garments, process-wise in the side of garments. They ensure that no defect & uncut thread inside of the garments. For every Q.I give their personal Q.C pass number inside of the pocket.

- For removing the loose thread & number sticker garments we use thread shaking machine.100% garments go finishing area through the thread shaking action.

- In finishing section Q.I person check 100% garments, process-wise top side of garments. They ensure that no defect & uncut top side of the garments. For that every Q.I give their personal Q.C pass no inside of the pocket.

- We have a gas steam boiler for clean ironing. We use the iron shoe to avoid the shining mark. For the perfection, we press a garment two time. One is called preliminary pressing & another is called repressing.

- After preliminary pressing Q.I person check topside of whole garments. They ensure that no defect, spot & uncut thread top side of the garments. For that every Q.I give their personal Q.C pass no inside of the pocket.

- 100% garments should a measurement check before packing. Measurement defects garments should not advance for packing. Defect means out of tolerance, if it can rectify,it will be pack otherwise it will be count as a reject.

- Q.I check there is something odd looking at a glance in whole garments, like out of shape, spot, poor pressing and mainly checks any missing of a hand tag price tag, and size tag. And match the barcode number, bar, wording everything with the approval trim card.

- Re-pressing is needed to recovering the damage by Q.C handling. We do this for anattractive outlook.

- There is no perfection to enter any okay garments without metal detector machine checking. All okay garments to packing section through metal detector machine. Packing section is isolated by gatekeeper system. Our detection standard is 1.0mm diameter sphere of ferrous metal. We keep 100% record of metal detection.

- Before seal, the carton Q.C check the ratio & garments shade that, the ratio & garmentsshade is as per buyer requirement & same shade in one carton. If both things are okay.

Unit II: Quality specs and standards in Raw Material

Before starting the production process, the raw materials, especially the fabric, are checked for quality. Things like, Color fastness, thickness, GSM are checked.

The fabric is also checked for any defects.

Purchasing by specification
The properties of raw material affect not only its handling characteristics during production, but also the quality of final product.

Once specification has been established, there is no reason to restrict their use to vendor and purchaser. They can also enhance the communications between the designer and the selector, between local management and quality inspectors, and between fabric producer and fabric finisher, trims suppliers.

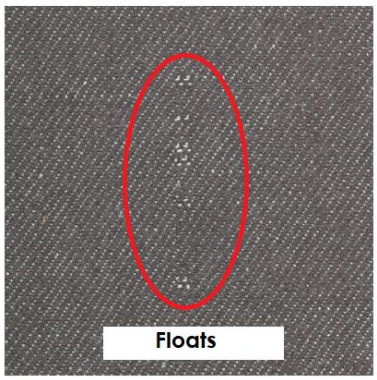
The four ingredients of a fabric specification:
1. **Physical characteristics:** Details should be stated about fibres, yarns, material construction, finishing treatment, finished width and acceptable tolerances.

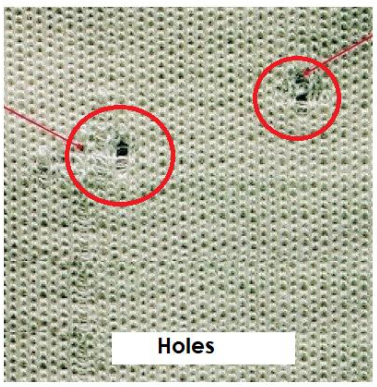
2. **Performance characteristics:** All important characteristics need to be specified, together with tolerances. Typical areas are shrinkage, color fastness to light, washing, laundering, rubbing etc., strength, care characteristics, flame retardants features.

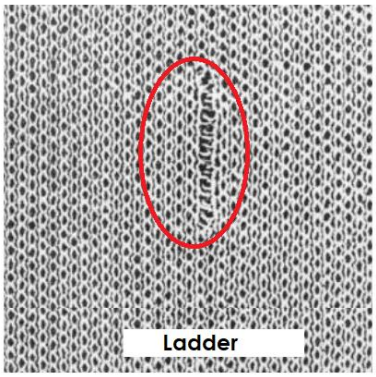
3. **Visual defects:** The grading system to be used should be specified, together with the level of acceptance.
Ex: 4-Point system, 10-Point system.

4. **Shade specification:** The colors of the purchased materials should be specified, together with tolerances between batches and pieces and within pieces.

The raw material specification sheet provides an effective means of communication; it should never be made the exclusive channel of information flow. Companies who are implementing a policy of continual improvement are seeking to promote long term relationships with reliable suppliers, and are recognizing the need for direct communication at managerial level. This suggests the need for vendor rating and for clear policies on communication in the context of quality assurance. However, the fashion business is dynamic and every season sees new combination of cloth and trims. The selection, inspection and testing of materials has to be done very carefully.







Unit III Quality control in Spreading

Spreading:
The Quality Control inspector should check the work of each spreader for the following

- Check that the marker is placed on the spread with the edge parallel to the selvedge of the piece goods. Verify that all cut pieces will be complete
- Check for shading. It is essential to have a system to control shading.
- Check for table marks as the table is marked. Allow no minus tolerance forthe splices.
- After completion of the spread, check splice laps to see that both plies extend past the marked splice by on less than 1/2 inch and no more than 1 inch.
- Check tension during spreading. This is very important on knit fabrics, even woven like crepe
- Check the count after completion of spreading, and before cutting. Count all plies at both ends. There is no tolerance.
- Check carefully to ensure that one edge of the fabric is square to the tabletop. Visually inspect the alignment of the edge with the table top.
- Record spreading defects by the number of defects found for each checkpoint. For fabric utilization purposes, the sample form includes columns for edging end and remnants.
- Calculate the defect rate for the spreader by dividing the number of defects found by the height.

Fabric for Cutting
The Quality control inspector should check for

- **Miscut**: Check for miscut or the failure of the cutter to "split the line "Tolerance is 1/16"Report all defects for miscut to the cutting foreman (Supervisor)

- **Matching**: Plies check the top ply with the bottom ply. Compare both to a hard pattern or the paper marker Comparison to a hard pattern is best. Tolerance is +- 1/8”. Report eachdefect found to the cutting foreman(supervisor).
- **Rugged Cutting**: Check for rugged cutting according to the standards for your product. This a judgment defect. It is more important on critical parts if the part has to be recut, itis a defect.

- **Notches**: Check the notch location by placing the pattern over the top ply. Tolerance is
  +- 1/8" If the botch is more than 1/8" off. Contact the cutting foreman (supervisor).
- **Pattern Check**: Compare the pattern to paper to ensure that the maker was correct.
- Grainline is essentially the weave of the fabric and the direction in which it is cut predicts how the final product would look. Essentially it is cut cross grain which is perpendicular to the selvedge.

Record cutting defects on a cutting quality control form along with the number of bundles examined. To calculate the defect rate for cutting, divide the total defects found by the number of bundles checked.

Unit IV: Quality factors in Sewing department

100% in Line Q.I Audit

A root canal system is followed in sewing. For that, we analyze the source & reason of defects and take preventive action as per the root cause. Q.I checks 100% incomplete garments of quality control manual. Q.I writes the operator's name & I.D in the format and make that, how many defects she has done in one hour and then one day. And this daily total result is added for monthly summarization for the quality evaluation process. The hourly defects record is very important for root cause analysis

1 100% END LINE AUDIT

End line Q.I checks 100% garments. Q.I writes down the name & ID no of operators & keeps an hourly record of defects. So that one can easily identify the most defective operation and take preventive immediate action. We compare both reports of inline & end line to see the efficiency of Q.C, either he is doing proper work or doing homework.

2 IN-HOUSE Q.C CHECK

An in-house audit is another station audit done by line Q.C we do that for the more safety. When comes first output, Q.C check the styling & the statistical audit to find out any mistake which has done in sewing. In finishing a section, finishing Q.C will again do the statistical audit for find out any error, which has done in finishing section. For that, we can solve any problem from the very beginning.

Unit V: Quality Parameters in Garment packaging

Verifying proper packaging and labeling of garments is an essential part of most final inspections. Proper packaging ensures your garments arrive at their final destination in the same condition they left your supplier's facility. Aside from inspecting packaging, your QC team should also check the labeling of garments to ensure compliance to legal requirements.

The United States government requires all garments sold in the country to have labels that include the following information:

- **Fibre content of clothing** compliant with the Textile Fibre Products Identification Act.
- **Country of origin**: where the item was manufactured or where the most significant manufacturing process occurred
- **Manufacturer identity**: either the company name or the Registered Identification Number (RN) of the manufacturer, importer or another firm marketing, distributing or otherwise handling the product
- **Care instructions** compliant with the Care Labelling Rule In addition, items that are produced using wool, leather, or fur must follow other labelling requirements. Garment importers who fail to meet any of the above requirements can face fines, delays or refusal of goods at customs.

2.1.1 Packaging inspection for garments

Most garments are sealed in polybags by factory staff before being packaged in retailer and shipping cartons for transit. Incorrectly packaging and sealing your garments can lead to dust and moisture permeating and soiling your products. And failing to comply with legal requirements for suffocation warnings on polybags could lead to fines.

Inspecting packaging for potential quality issues in transit and distribution includes verifying:

- Polybag sealing method
- Polybag size
- Appropriate labelling, barcodes and price tags
- Retail artwork and printing
- Carton assortment

When ordering a number of different sizes of garments be sure to consider how to sort these garments among shipping cartons.

For example, how many women's dresses of each size—small, medium, large and extra-large—should each carton contain.

Visual inspection for quality defects is a critical step to any professional QC inspection for garments Like those found in other types of products, different quality defects found in garments often differ in severity. Some defects may be easily overlooked by customers, while others are likely to result in product returns. That's why QC professionals typically classify defects into one of three categories: minor, major and critical

Some common defects garment importers might face include:

- An untrimmed thread
- Shading variance between different pieces of the same style or different parts of the same piece
- A loose needle left in the garment