

## DRAFT STUDY MATERIAL



### FINISHER AND PACKER

(Qualification Pack: Ref. Id. AMH/Q2255)

Sector: Apparel, Made-ups & Home Furnishing

(Grade XII)



**PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION**

(A constituent unit of NCERT, under MOE, Government of India)

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## Preface

Vocational Education is a dynamic and evolving field, and ensuring that every student has access to quality learning materials is of paramount importance. The journey of the PSS Central Institute of Vocational Education (PSSCIVE) toward producing comprehensive and inclusive study material is rigorous and time-consuming, requiring thorough research, expert consultation, and publication by the National Council of Educational Research and Training (NCERT). However, the absence of finalized study material should not impede the educational progress of our students. In response to this necessity, we present the draft study material, a provisional yet comprehensive guide, designed to bridge the gap between teaching and learning, until the official version of the study material is made available by the NCERT. The draft study material provides a structured and accessible set of materials for teachers and students to utilize in the interim period. The content is aligned with the prescribed curriculum to ensure that students remain on track with their learning objectives.

The contents of the modules are curated to provide continuity in education and maintain the momentum of teaching-learning in vocational education. It encompasses essential concepts and skills aligned with the curriculum and educational standards. We extend our gratitude to the academicians, vocational educators, subject matter experts, industry experts, academic consultants, and all other people who contributed their expertise and insights to the creation of the draft study material.

Teachers are encouraged to use the draft modules of the study material as a guide and supplement their teaching with additional resources and activities that cater to their students' unique learning styles and needs. Collaboration and feedback are vital; therefore, we welcome suggestions for improvement, especially by the teachers, in improving upon the content of the study material.

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**Module 1****Operation and Handling of  
Machines and Equipments****Module Overview**

Finishing and packing operations in the apparel industry are crucial phases in the production process that transform raw garments into finished products ready for distribution and sale. These operations are the final touchpoints where quality control, aesthetics, and presentation meet, ensuring that the garments meet the desired standards and are prepared for their journey to the market.

The finishing process begins after the garments have been assembled, and it plays a pivotal role in enhancing the overall quality and appearance of the apparel. The primary goal of finishing is to eliminate any imperfections that may have occurred during the sewing and cutting stages. This involves carefully inspecting each garment for loose threads, stitching defects, and other flaws. Skilled workers or automated machines then perform necessary repairs, including re-stitching seams, replacing damaged buttons, or fixing misaligned zippers. This meticulous attention to detail is critical in ensuring that the final product meets the industry's stringent quality standards.

Once the garments have been inspected and any necessary repairs have been made, they undergo a series of finishing treatments to improve their appearance and texture. These treatments can include pressing, steaming, and ironing, which help to eliminate wrinkles and creases, giving the clothing a polished and professional look. In some cases, specialized finishing techniques, such as enzyme washing or sandblasting, may be employed to create unique textures or distressed effects on the fabric, enhancing the garment's aesthetic appeal.

After the finishing process is complete, the garments move on to the packing operation. Packing is the final stage in apparel production before the products are shipped to retailers or customers. This phase involves carefully folding, bundling, and packaging the garments in a manner that preserves their quality and ensures they reach their destination in pristine condition.

Packaging in the apparel industry serves multiple purposes. Firstly, it protects the garments from dust, moisture, and potential damage during transit or storage. Secondly, it facilitates efficient handling and distribution, making it easier for retailers to display the products and for customers to access them. Finally, packaging plays a vital role in branding and marketing, as it often includes labels, tags, and other branding materials that convey essential product information, such as size, care instructions, and branding logos.

The choice of packaging materials is a critical consideration in the packing operation. Environmentally conscious practices have become increasingly important in recent years, leading many apparel companies to opt for sustainable and recyclable packaging materials. This reflects a broader industry trend towards eco-friendly practices and a growing consumer demand for environmentally responsible products.

Efficiency and accuracy are paramount in the packing operation. Apparel manufacturers typically employ assembly line-style processes, where each worker has a specific role in the packing process, from folding and arranging garments to attaching labels and tags. Automated systems may also be used for repetitive tasks, such as barcode scanning and labelling. These streamlined processes not only improve productivity but also reduce the risk of errors in the packing process.

Quality control remains a top priority in packing, with garments undergoing a final inspection to ensure they meet all specifications before being sealed and prepared for shipment. Any discrepancies or defects are identified and rectified before the products leave the facility, minimizing the likelihood of customer returns or complaints.

Finishing and packing operations are indispensable components of the apparel industry's production cycle. They are the stages where garments receive their final touches, ensuring they meet quality standards and are aesthetically pleasing. From meticulous inspections and repairs to advanced finishing techniques, the finishing phase enhances the garment's overall quality. Subsequently, the packing phase protects, presents, and prepares the products for distribution. It's in these crucial stages that the apparel industry bridges the gap between manufacturing and the marketplace, delivering garments that are ready to meet the demands and expectations of consumers. Moreover, with a growing emphasis on sustainability and efficiency, these operations are evolving to meet the changing needs of both the industry and the planet, reflecting a commitment to responsible production practices.

In the apparel industry, the operation and handling of machines play a pivotal role in the manufacturing process. These machines are a diverse array of specialized equipment, each designed for specific tasks in garment production. The operation of these machines requires a skilled workforce with a deep understanding of their functions. Sewing machines, for instance, are the backbone of apparel manufacturing, and operators must be adept at stitching, hemming, and attaching various fabric components accurately. In addition to sewing machines, cutting machines are used to precisely cut patterns from fabric rolls, while pressing machines help ensure a polished finish to garments. Automation and computerized control systems have also become integral, enhancing efficiency and precision in handling tasks like embroidery and pattern making.

Proper handling of these machines is crucial to ensure safety, maintain product quality, and meet production deadlines. Apparel industry workers need to be well-trained in machine setup, maintenance, and troubleshooting to minimize downtime and maintain consistent output. Regular machine maintenance schedules, including cleaning and lubrication, are essential to prevent wear and tear. Adequate safety protocols, such as using safety guards and personal protective equipment, must be followed to protect workers from potential accidents and health hazards associated with machinery use.

The operation and handling of machines in the apparel industry require a skilled workforce and a commitment to safety and maintenance. These machines are the lifeline of garment production, and their efficient and accurate operation is essential for meeting consumer demand and maintaining product quality in this dynamic and competitive industry.

<b>Learning Outcomes</b>	
After completing this module, you will be able to:	
<ul style="list-style-type: none"> <li>• Identify activities of finishing and packing department in an apparel industry</li> <li>• Describe and list Packing and Shipping Equipment</li> <li>• Describe different types of cartons, quality control and finishing agents</li> <li>• Identify Document records related to Finishing &amp; Packing</li> </ul>	
<b>Module Structure</b>	
Session1: Activities of Finishing and Packing Department in an Apparel Industry	
Session 2: Packing and Shipping Equipment	
Session 3: Different Types of Cartons & Finishes Used for Garments	
Session 4: Document Records Related to Finishing & Packing	

## **Session: 1      Activities of Finishing and Packing Department in an Apparel Industry**

The finishing and packing department in the apparel industry plays a pivotal role in ensuring that clothing products are prepared to meet the highest quality standards before they are dispatched to customers. This department is responsible for the final stages of the production process,

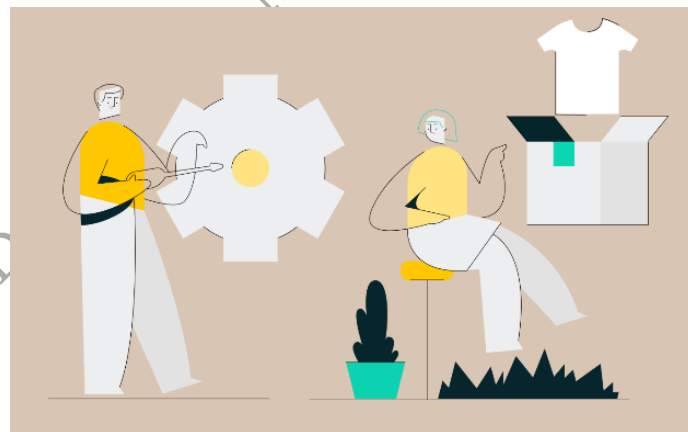
where garments undergo various essential activities to achieve a polished appearance.

Firstly, the finishing department focuses on the critical task of quality control, where garments are meticulously inspected for any defects or imperfections. Any loose threads, stains, or stitching irregularities are carefully addressed to ensure that the final product meets the brand's quality standards. This meticulous attention to detail is crucial to deliver garments that meet customer expectations.

Once the quality check is complete, the garments are subjected to various finishing processes. These may include pressing and ironing to remove wrinkles and creases, as well as steaming to give the fabric a smooth and polished appearance. In some cases, special finishes like garment washing or dyeing may be applied to achieve desired textures or colors.

The final step in this department involves packaging the garments for distribution. Apparel is carefully folded, tagged, and packaged in accordance with brand specifications. This packaging not only protects the garments during transit but also serves as a reflection of the brand's image and attention to detail.

In summary, the finishing and packing department in the apparel industry is the last line of defence in ensuring that clothing products are of the highest quality before reaching consumers. Through meticulous quality control, finishing processes, and thoughtful packaging, this department plays a crucial role in maintaining the reputation and success of apparel brands in the market.



*Fig: 1.1 Finishing & Packing Work*

## **Functions of finishing and packing department**

The finishing and packing department is the department which comes after all the department and it plays an equally important role in the final appearance of the garments. Finishing is an area which is generally overstaffed being the last link of the value chain all the problems from the

previous stages have to be sorted out here. Here mainly workers perform pressing, folding and packing of garments. This includes hand stitching (unseen handwork done inside collars and lapels to give them shape) and its automated substitutes. This may also include adding buttons, hooks, eyes or trims as well as clipping loose threads. After completing pressing, the garments are folded with a predetermined area. Garments are folded according to the direction of buyer's requirements or in a standard area.

**Responsibilities of finishing and packing section in apparel/garments**

**factory:** The major responsibilities are performed by the finishing and packing department. It is their duty to confirm the required quality as required by the buyers. For this they performed several action which can only be performed after the garments production.

**They perform**

- Cut the excess threads
- Check the stitch quality
- Suck out the loose thread sticking with the garments
- Check the shade of different parts of the garments
- Check the accessories
- Trimming
- Attachment of button if required
- Hand sewing if needed
- Check all the labels and their position as instructed by the buyer
- Measure the size according to the size label
- Check faulty areas of the garments
- Remove spots if found
- Pressing if required
- Attaching tags
- Folding as guided by the buyers
- Assortment and packing



## The activities of the finishing and packing department of apparel factory:

- 1) **Trimming:** This involves the removal of the extra threads from the garment at the stitched area. This operation is done by scissors. Workers stand around the table and cut extra threads from every part of the garments. They work in groups, different groups cut thread of different area of the garments. After cutting of extra thread the loose threads & other impurities are sucked off by a sucker machine.
- 2) **Buttons attaching:** All buttons must be in accordance with the relevant fabric performance standard and the care instructions selected for the garment. Each button must be securely attached to garments with at least 16 stitches.



*Fig: 1.2 Buttons attaching*

- 3) **Button-holes:** Stitch density of buttonholes must have full edge cover with no fraying. Cleanly cut buttonholes and trim all threads. Tie off and secure stitches, where using a single thread chain-stitch buttonhole. Worker position buttonholes correctly to prevent unfastening, dragging and gaping.
- 4) **Snap button attaching:** Some garments require snap buttons. Garments industry uses manual controlled snap button machine, manual button attaching machine. This process is performed in two stage. At first hole is made and then button is attached.

- 5) **Thread sucking:** Loose threads are sucked by the thread sucker. It's a vacuum machine which suck out all the loose threads adhering with the garments.



*Fig: 1.3 Thread sucking*

- 6) **Semi-pressing:** This action is performed before the getup check to ensure that all the parts are joined exactly where it should be and the out looking of the garments is as required by the buyer.
- 7) **Pressing:** The pressing is done after the garments have been completely inspected and the garments are pressed on the basis of how they will be folded during packing.
- 8) **Getup check:** Getup check is must for all the garments. It is the operation to check the visual appearance of the garments. All the buttons, pockets, flap, cuff, collar etc. Are matched with the recommended garments getup. If the garments do not pass the getup check, it is sent to the alter section. Shade of all the garments parts are matched in this section



*Fig: 1.4 Getup check*

- 9) **Measurement check:** All the garments are measured in this section part by part. This has done with the approved measurement sheet for each and every sizes.

- 10) **Spot removing:** If any spot is found on garments then it is sent to the spot removing section where workers use
- Thinner jet spray to remove dirt
  - Dry spray to remove lubricant
  - Denim pen to darken the strips found in denim fabric/garments
  - Thinner jet spray is used to remove dirt and dry spray to remove lubricant
  - Thinner jet spray is used to remove dirt and dry spray to remove lubricant
- 11) **Ticketing and bar-coding:** Retailers request that manufacturers supply them with –hanger ready garments; in other words, the garments must be pre-ticketed with bar-coded price tags attached and hung on the hangers the retailers will use. A contractor or a distribution warehouse routinely handles the ticketing.



*Fig: 1.5 Ticketing and bar-coding*

- 12) **Packing:** At the garments industry packing is done manually according to the packing list. This packing list prepared by the merchandiser according to the requirement of buyer.



*Fig: 1.6 Packing*

## 1. Finishing and packing flow chart



*Fig: 1.7 Finishing and packing flow chart*

## 2. Types of poly and carton packing

Poly packing, also known as polybagging, plays a crucial role in the apparel industry by protecting garments during storage, transportation, and display. There are several types of poly packing used in the apparel industry, each designed to serve specific purposes and meet various requirements. Here are some common types of poly packing used in the apparel industry:

### 1) Clear poly bags:

- These are the most basic and commonly used poly packing materials in the apparel industry.
- Clear poly bags are transparent and allow for easy visibility of the garment inside, making them suitable for displaying clothes.
- They protect garments from dust, moisture, and minor handling damage.



*Fig: 1.8 Clear poly bag*

### 2) Ziplock poly bags:

- Ziplock bags have a resalable closure mechanism, which makes them ideal for garments that need to be accessed and resealed, such as swimwear or undergarments.
- They provide an extra level of protection against moisture and contaminants.



*Fig: 1.9 Ziplock poly bag*

**3) Anti-static poly bags:**

- These bags are designed to prevent the buildup of static electricity, which can be damaging to sensitive fabrics like silk or electronic components in clothing.
- Anti-static poly bags are commonly used for clothing made of delicate materials.

**4) Poly mailers:**

- Poly mailers are lightweight, waterproof, and self-sealing bags.
- They are commonly used for shipping apparel items ordered online.
- Some poly mailers come with adhesive strips and bubble wrap lining for added protection.

**5) Garment covers:**

- Garment covers, also known as garment bags, are larger poly bags designed to protect clothing from dust, wrinkles, and minor damage during storage and transportation.
- They are often used for formalwear, suits, dresses, and other high-end apparel items.

**6) Custom printed poly bags:**

- Customization is a common practice in the apparel industry, and custom printed poly bags can be branded with a company's logo, product information, or marketing messages.
- These bags not only serve a practical purpose but also act as a promotional tool.

**7) Biodegradable poly bags:**

- As environmental concerns grow, many apparel companies are switching to biodegradable or compostable poly bags.
- These bags are made from materials that break down more easily in the environment, reducing their long-term impact.



*Fig: 1.10 Biodegradable poly bag*



**8) Poly bags with hang holes:**

- Garments often need to be displayed on racks in stores, and poly bags with hang holes make it easy to do so without removing the items from the packaging.
- These bags are commonly used for t-shirts, blouses, and other hanging apparel.

**9) Tamper-evident poly bags:**

- For security reasons, some apparel items, especially high-value products, may be packed in tamper-evident poly bags.
- These bags are designed to show clear signs of tampering, making it easier to detect and prevent theft or unauthorized access.

**10) Vacuum-sealed poly bags:**

- Vacuum-sealed poly bags are used for compressing garments, reducing storage space, and minimizing wrinkling.
- They are particularly useful for storing seasonal clothing or bulky items like winter coats.

In the apparel industry, the choice of poly packing depends on various factors, including the type of clothing, storage conditions, transportation methods, branding requirements, and environmental considerations. Selecting the right type of poly packing is essential to ensure that garments reach customers in excellent condition while also aligning with sustainability goals.

Carton packing in the apparel industry is a critical aspect of ensuring that garments are transported, stored, and presented to consumers in an organized and appealing manner. Different types of carton packing methods are used to accommodate various clothing items, protect them during transit, and facilitate efficient inventory management.

**Here are some common types of carton packing in the apparel industry:**

**1) Standard cartons:**

- These are the most basic type of cartons used for packing apparel.
- Standard sizes are often used for different types of clothing, such as small, medium, and large.
- They are easy to stack and store, making them ideal for warehouses and retail outlets.



**2) Custom cartons:**

- Custom cartons are tailored to the specific dimensions of the apparel being packed.
- They minimize excess space, reducing the risk of garments getting wrinkled or damaged during transit.
- Custom cartons can be especially useful for high-end clothing items.

**3) Hanging garment boxes:**

- These cartons have a metal or plastic rod inside, allowing garments like suits, dresses, and coats to be hung inside the box.
- This method keeps the clothing item in its original shape and minimizes creases or wrinkles.



*Fig: 1.11 Hanging garment box*

**4) Flat-pack cartons:**

- These cartons are designed for flat-folded clothing items like jeans, shorts, and shirts.
- They help conserve space during shipping and storage and are easily stackable.

**5) Multi-packs:**

- Multi-packs involve bundling several items of clothing together in a single carton.
- Common for items like socks, underwear, or bundled sales promotions.

**6) Window boxes:**

- These cartons have a transparent window that allows customers to see the product without opening the box.

- Often used for premium or designer clothing items to showcase their quality and design.



*Fig: 1.12 Windows box*

#### **7) Shoe boxes:**

- Designed specifically for footwear, these cartons are sturdy and protect shoes from damage.
- Shoe boxes can be customized to fit different shoe sizes and styles.



*Fig: 1.13 Shoe box*

#### **8) Printed cartons:**

- Cartons can be printed with branding, product information, and attractive designs to enhance the overall presentation.
- This type of packaging is commonly used for retail displays.

#### **9) Eco-friendly cartons:**

- In response to growing environmental concerns, many apparel companies are using eco-friendly carton packing materials.
- These cartons are often made from recycled or sustainable materials and may be biodegradable or recyclable.

#### **10) Specialty cartons:**

- For unique or fragile clothing items, specialty cartons with extra padding, compartments, or insulation may be used.

- Examples include wedding dress boxes with acid-free tissue paper for preservation.



*Fig: 1.14 Specialty cartons*

In the apparel industry, choosing the right type of carton packing is crucial for maintaining the quality and appearance of clothing items, reducing shipping costs, and creating a positive customer experience. The choice of packing may vary depending on the type of apparel, the brand's image, and sustainability considerations.

## Activities

### Activity 1:

Visit a garment industry and observe the materials and accessories required to do the task of packing.

### Materials required:

- A4 size papers
- File
- Pen, pencil, eraser
- Colour pens/pencils/crayons

### Procedure:

- Visit a garment factory and observe the process of packing.
- With permission click pictures or prepare videos to support your report.

- Ask the packer in charge about the various materials and accessories used while packing a formal shirt.
- Make a report, collect samples if allowed.
- Present the report in class.

### Check Your Progress

#### Fill in the blanks

1. The two functions of packing are.....&.....
2. Packing is the final step of building a product ready for.....
3. Finishing and packing operations in the apparel industry are crucial phases in the.....
4. Quality aims to meet customer.....
5. If any spot is found on garments then it is sent to the .....

#### Answer the following questions:

1. Explain responsibilities of finishing and packing section in apparel/garments factory.
2. How does packing help to promote the product and brand? Explain it in your own words?
3. Describe poly and carton packing.

## **Session: 2 Packing and Shipping Equipment**

In the apparel industry, the process of packing and shipping equipment plays a pivotal role in ensuring the efficient distribution of clothing and related products to customers worldwide. The meticulous art of packing begins with the careful selection of packaging materials that not only protect the garments but also showcase the brand's commitment to quality. Apparel companies often use a combination of cardboard boxes, polybags, tissue paper, and custom-designed packaging to enhance the overall customer experience. Garments are folded or hung neatly, and accessories such as tags, labels, and promotional materials are added before sealing the package.

Once the packing process is complete, the next critical step is shipping. Apparel companies must coordinate with reliable logistics partners to ensure timely and cost-effective delivery to various destinations. Efficient warehouse management and order fulfilment systems are employed to streamline the process, allowing for real-time tracking and monitoring of shipments. Additionally, sustainability is becoming increasingly important in the industry, prompting apparel companies to explore eco-friendly packaging options and optimize shipping routes to reduce their carbon footprint. Overall, the careful execution of packing and shipping operations is vital for maintaining customer satisfaction and facilitating the growth of the apparel industry in today's global market.

### **Machines used in packing process are:**

- Accumulating and collating machines
- Vacuum packing machines
- Box, case, tray, carrier forming, packing, unpacking, closing, and sealing machines
- Coding, printing, marking, stamping, and imprinting machines
- Feeding, orienting, placing machines
- Inspecting: visual, sound, metal detecting, etc.
- Product identification: labeling, marking, etc.
- Folding machines
- Sealing machines
- Weighing machines
- Wrapping machines

- Cartooning Machines
- Conveyor Belts

## 2.1 Product folding equipment

**I. Fabric folder:** Fabric folder machine is mainly used for folding fabrics used in garment industry. They are user friendly, easy to operate, perform smoothly, are sound proof, have robust construction, low maintenance, durable and reliable and serve a long service life. Packing for dispatch able material is done in continuous by machine of LDPE (Low Density Polyethylene Film) sheet which is used for protecting the material from moisture and damage. After pressing, the fabric is folded with a pre-specified style with very less downtime and maintenance cost.

### A. Features

1. Doubling, lapping, measuring the fabrics
2. Foot switch is used to withdraw the folded fabrics.
3. Hard or loose folding feature, with torque controlled by machine.
4. The fabric is detected by light sensors on the board, and the movement of human hands and arms is detected by a passive infrared sensor. The state of the folding process is shown by the light-emitting led on the folding board.



*Fig: 1.15 Fabric folder machine*

**II. Garment folder:** A garment folder is a device used to fold garments, usually for bulk packing. By taking much of the manual labor out of the process, a folding machine can fold garments for a bulk shipment in minutes rather than hours. There are various kinds of garment folders. Smaller folding machines work slowly, but they're ideal for small orders of 10 or 20 shirts or sweaters. These are ideal for modest businesses that just need to process a few orders per day. However, if thousands of orders are needed to be processed per day, then there is a need to

increase the speed and that's where high-powered machines come. These are expensive but will save a considerable amount of time as opposed to manually folding or using a smaller machine designed for startups and smaller operations.

### A. Features

1. Different types of garment folders are available in the market. Usually fivetypes of folding can be done under the control of a computer system.
2. The number of types and the directions of garment folding can be programmed in the computer system according to the type, range and thickness of fabrics.



*Fig: 1.16 Garment folder machine*

### Types of garment folder are:

- I. Photovoltaic powered t-shirt folding machine:** It's an easy t-shirt folding machine which is an automatic motor controlled powered by a photovoltaic system. It can be operated to fold t-shirts merely by pressing a button. In this folding machine, one has to place the t-shirt on the folding tray and press the button. It will then fold the t-shirt by itself. He folding section of this machine is controlled by four dc motors. DC motors are connected to the folding motion and spin according to a microcontroller software. The total action of the folding is controlled by the microprocessor. A photovoltaic system powers the entire process. The results reveal that with this system, the time it takes a human to fold clothes can be cut in half when compared to the conventional way.
- II. Automatic folding machine:** This machine folds clothing efficiently, quietly, and precisely. It is mainly made to fold t-shirts, shirts, sweaters, trousers, and pants. To achieve desired folding, it may be readily modified for various sizes and types of garments. All we have to



do with this machine is feed the clothing into the slot, and it will fold a bundle of clothes in as little as 4-5 minutes. This machine will even adjust its folding pattern based on the type of clothes that is inserted and fold it appropriately. It takes just seconds per piece of clothing.



*Fig:1.17 automatic folding machine*

The programs of the automatic folding machine are:

- Single or double folding with a set length of the end folding
- Double folding with a set length of the end folding for extra-large garments.

## **2.2 Container shapers**

Container units are the most integral part of the entire shipping industry, trade, and transport. These are the structures that store various kinds of products that need to be shipped from one part of the location to another.

Containers are required during garment manufacturing applications such as packing, protective dunnage's (a protective padding material used to wrap a product to prevent damage), gathering materials that hold several items together to form a complete load, and pallets that provide a stable platform for transport. Variety of packing containers are available in varying sizes, shapes and materials to protect products and materials during transport, distribution and storage. Containers are standard dry containers that are outfitted to carry the garments safely and conveniently.

### **2.2.1 Types of container units and designs**

Moving containers keep things safe and intact during travel. Depending on the type of items or unique services requested from the buyer, container units may vary in size, structure, materials, and construction.

**Some of the most common types of shipping containers are:**

- I. **Dry storage container:** Dry storage containers are some of the most prevalent types of containers used in the shipping business. They come in lengths of 10, 20, and 40 feet. They are used for transporting textile products but one disadvantage with these containers is that they lack temperature control. These basic dry cargo containers are watertight and totally sealed.



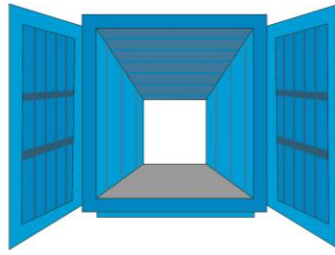
*Fig: 1.18 Dry storage container*

- II. **Open top container:** Products of any height can be shipped conveniently with a convertible top that can be totally removed to provide an open top to load. Open top containers are suitable for goods that are heavy for manual handling and must be lifted and loaded with a crane, or for commerce with projecting tops that cannot fit inside a normal container. Open top containers have walls to protect the goods. A tarpaulin is required to cover the top to protect the merchandise.



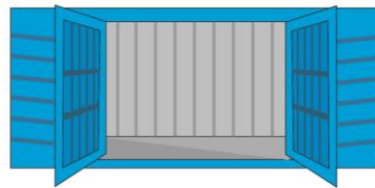
*Fig: 1.19 Open top container*

- III. **Tunnel container:** A tunnel container is designed to seem like a tunnel, having front and back doors for easy access. This makes loading and unloading more efficient because workers can access the container from both the sides.



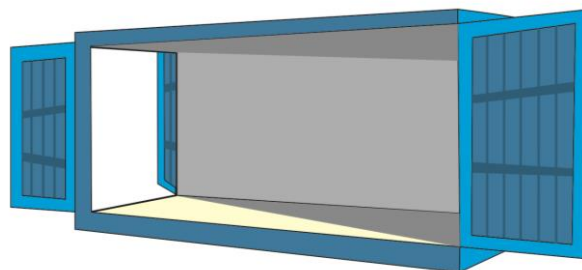
*Fig: 1.20 Tunnel container*

- IV. Open side storage container:** This type of container has one long side that can be completely opened. This is useful for the products that are too large to fit through the end of a tunnel container or a dry storage container. The side swings of this container open as if it is made of two large doors, but it can be secured to protect the merchandise inside. It also has two sets of double doors and these are arranged to open the entire length of the container. The side doors are manufactured to open either eight feet opening or twenty feet opening for a 20' container as per requirements.



*Fig 1.21 Open side storage container*

- V. Double door container:** Double-door containers have two doors, one on the end of the container and one on the side. This type, like a tunnel container, provides added convenience when loading and unloading the container. The containers are normally composed of steel or iron and come in lengths of 20 and 40 feet.



*Fig: 1.22 Double door container*

- VI. Cargo storage roll container:** This is one of the specialized foldable containers, for the purpose of transporting sets or stacks of items. These containers are made of thick and strong wire mesh along with

rollers that allow easy movement while shipping, loading and unloading.

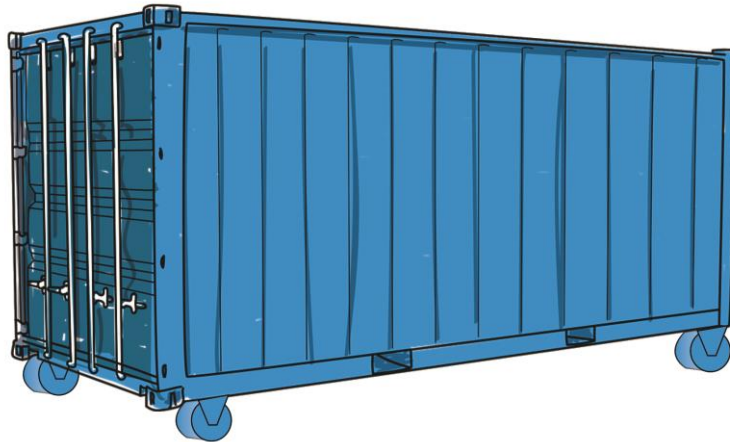


Fig 1.23 Cargo storage roll container

- VII. Flat rack container:** A flat rack container is a simple storage shipping container with collapsible sides that may be folded to create a flat rack for shipping a wide range of items. Metal plates are used to construct these containers, which have a standard structure of 20-40 feet. It has folding sides and no top. As a result, loading from the top or side is simple.

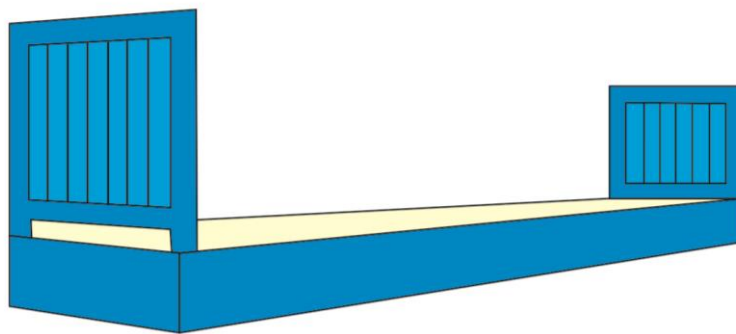
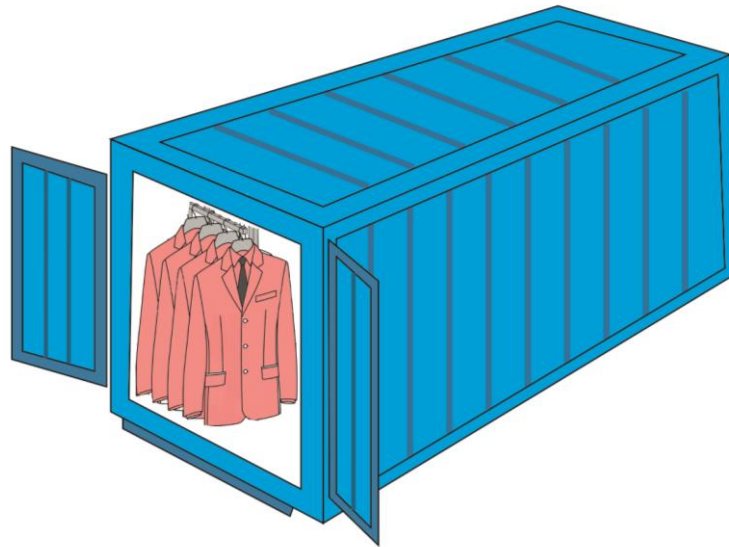


Fig 1.24 Flat rack container

- VIII. Garment on hanger:** It is also known as hangtainer and is standard container that is structured to carry garments on hangers safely and conveniently. A lot of the shipping lines have their own containers for which they charge a premium for the conversion and outfitting. The retail companies benefit a lot in terms of time, labour and money by using these containers for their garment imports as they can move the garments from the container to the shop floor directly and in a good condition. There are two compartments for hanging garments, one below the other and an outer lining to further protect the cargo from dirt, dust and moisture during transit.



*Fig: 1.25 Garment on hanger*

Packing is powerful because it tells customers why one's product and brand are different from others. Packing can continue to influence a company's sales as it grows larger. The containers and types of containers explained above help to add further safety to the packed product during transit of a shipment.

### 2.3 Container loaders

The next stage is to finish the process of loading the products after deciding on the type of container to utilise. Because the package or shipment handled in industries are usually large and heavy, the loading and unloading process (Containerization) becomes problematic. Because traditional truck loading and unloading can be a time-consuming procedure, customised automatic container loaders have been developed that reduce container loading and unloading time-period from half an hour to a few minutes.

**I. Lift gate:** A lift gate is a motorised platform connected to the back of a truck that assists with loading and unloading of cargo. It is raised and lowered from the ground to the height of the shipping container's floor (also known as the truck bed) being transported.

Lift gates are essential for pick up or delivery locations without loading docks or forklifts such as residential areas, construction sites, and certain commercial stores. They are mainly used for cargo or merchandise that is packed in such a way that it is very heavy to lift, load, or unload by hand.



*Fig 1.26 Lift gate*

- II. Forklift:** Also known as a lift truck, a forklift is a machine that is used to load or unload merchandise packed on pallets (or slip sheets) on and off shipping containers, as well as transport them over short distances.

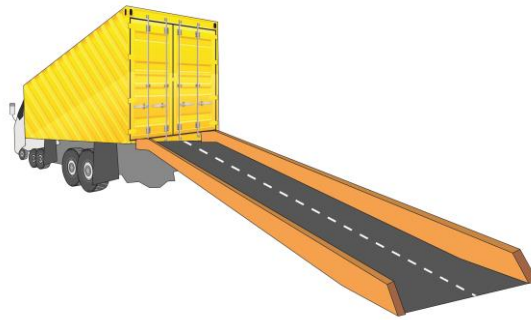
A typical forklift uses two power-operated horizontal forks that are raised and lowered, controlled by the forklift operator.



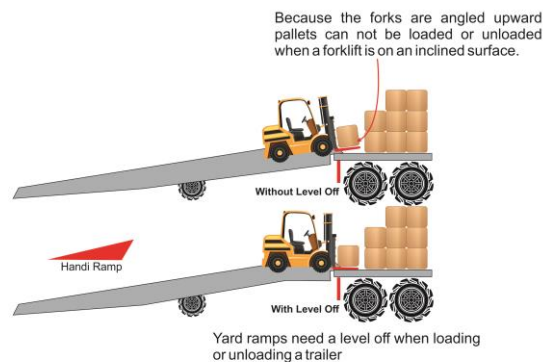
*Fig 1.27 Fork lift*

- III. Ramp:** A ramp may be required if there's no loading dock for you to unload your cargo. Depending on the ramp being used, it may be capable of withstanding heavy weight, including the weight of a forklift and the cargo it's transporting in and out of the truck or shipping container.

The ramp is normally located from the truck's or container's foot to the ground, allowing the forklift to easily go up and down.



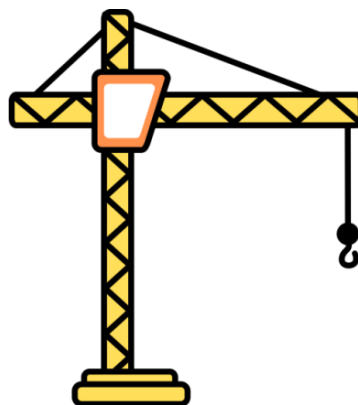
*Fig:1.28 Ramp*



*Fig: 1.29 Correct way of using ramp*

Some ramps, level off at the top where it meets the truck bed so that the forklift can easily lift the merchandise placed at the edge. These ramps are high weight capacity ramp and can be moved into place for loading or unloading of a trailer.

**IV. Cranes:** Cranes are used to move loads over a variety of horizontal and vertical paths within a restricted area. Cranes give more flexibility in movement than conveyors when there is insufficient (or intermittent) volume flow. This is because the loads handled by crane can be more diverse in terms of shape and weight.

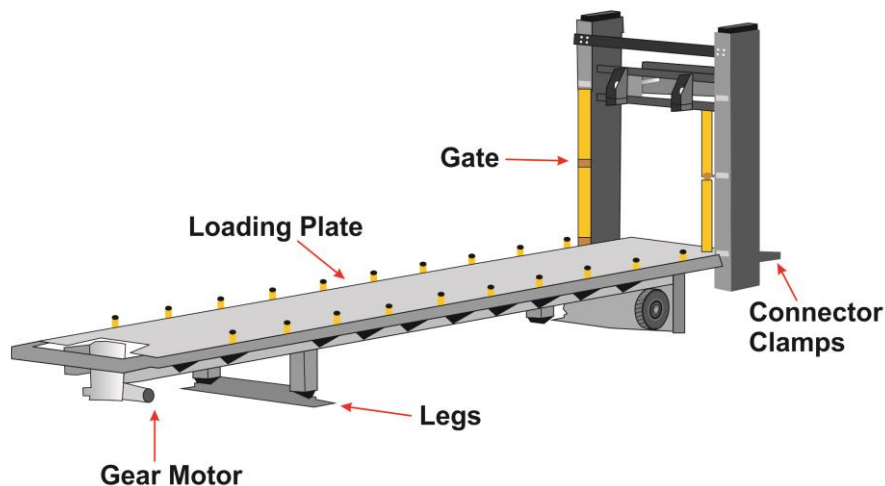


*Fig:1.30 Cranes*

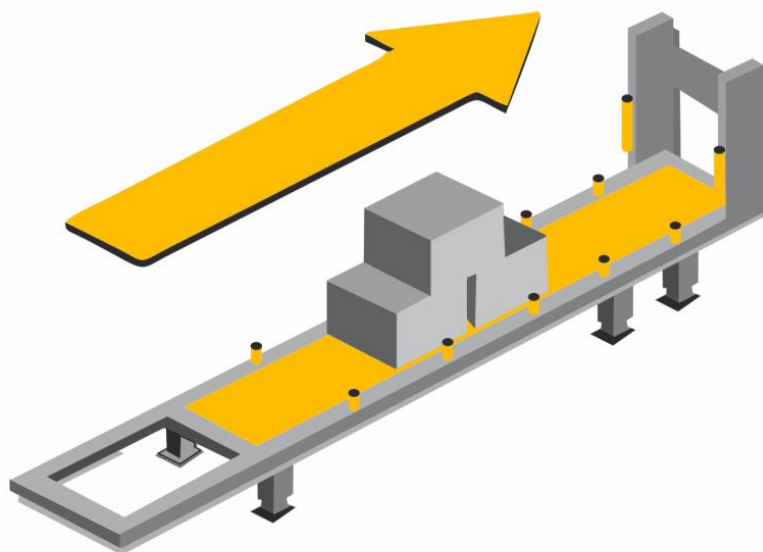


Cranes have less mobility than industrial trucks because they can only work inside a limited area, though some can be moved about using a portable base. Most cranes operate on trolley-and-tracks for horizontal movement and hoists for vertical movement, although manipulators can be used if precise positioning of the load is required. The jib, bridge, gantry, and stacker cranes are most common cranes. Automatic container loader works without any necessary adjustments on standard platforms with standard equipment.

Container loaders with a moving floor allow container loading and unloading times to be reduced from 30 minutes to 2-5 min. The automatic container loading/unloading system works without any necessary adjustments on standard platforms with standard equipment. It has a specially designed program that makes all the movements, ensuring safe and easy usage.



*Fig: 1.31 Container loaders*



*Fig: 1.32 Container loaders*

## Specifications

- a) **Loading plate:** This plate is made of a tough plastic, which can withstand up to 4000 loads (depending on the loading product). The plate is sided into the cargo space with the load and is then pulled out from underneath.
- b) **Legs:** Two sets of legs support the container loading system. To accommodate common trailer heights, both ends are height adjustable. The rear legs may also be adjusted in a horizontal orientation, enabling automatic and accurate alignment with the cargo space.
- c) **Gate:** The gate serves a variety of purposes. By supporting the cargo with side rollers, the gate ensures that it glides smoothly into the cargo compartment. When the loading plate is lifted out from beneath the cargo, the gate also supports the stopper plate, which travels up and down and holds the cargo in place. The stopper plate also allows the weight to be adjusted so that the doors can close smoothly.
- d) **Container connector clamps:** During the loading procedure, the container connector clamps keep the container or trailer steady.
- e) **Gear motor:** An electric and hydraulic motor drive the container loading system. The motors power the loading plate, leg adjustments, container connecting clamps, and gate of the container loading system.
- f) **Control system:** All movements are performed by a specifically control system, ensuring safe and simple system operation at the touch of a button. Other systems can also be incorporated with this control system. A remote control is also available with the intention of controlling the system from a distance.

## Benefits

- Product damage is reduced.
- Lower transportation costs
- Less off-site containerization
- Labour cost reductions
- Cost-cutting in operations
- 100% usage of cargo space
- Savings on loading dock space
- Lowering the cost of transportation idle

- Cost of ownership and sustainability

In container loading, container tilter also plays a very important role.

### 2.3 container tilter



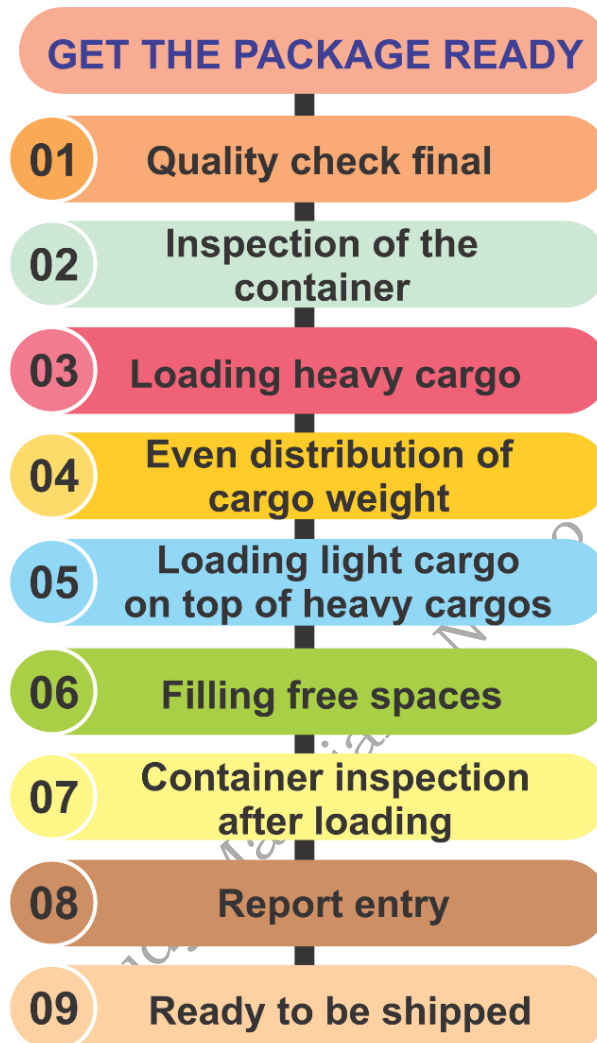
*Fig: 1.33 container tilter*

Container tilter (also known as container lifter) allows a container to be tipped at the chosen angle – anywhere between  $-10^{\circ}$  to  $90^{\circ}$ . By loading from above, one has access to 100% of the internal container volume. Container tilter works as shipping container loading equipment and enables to load cargo in less than five minutes.

#### **Step-wise processes of loading are:**

1. Initially it is essential to check the freight container's physical condition. There should not be any stuff left from previous cargo to avoid confusion. Any type of damages also be checked and repair the container.
2. Pre-planning is required before loading the products to the freight containers. The total weight of the product must be spread evenly across the entire length and width of the container. Light packages should be placed over heavy packages and fill the free space of the container to keep the goods intact during shipment.
3. Check the container after loading the goods. The total weight and labeling must be checked before exporting and packing condition of the products.

**This can be understood with a flow chart:**



*Fig: 1.34 Flow chart*

## 2.4 Container conveyers

Containerization is a system of intercontinental freight transportation using standard containers. Container ships carry standard containers between seaports within a country or between continents which are loaded and sealed intact onto container ships, railroad cars, planes, and trucks. This system helps to lower the freight charges and, in turn, enhances the trade flows.

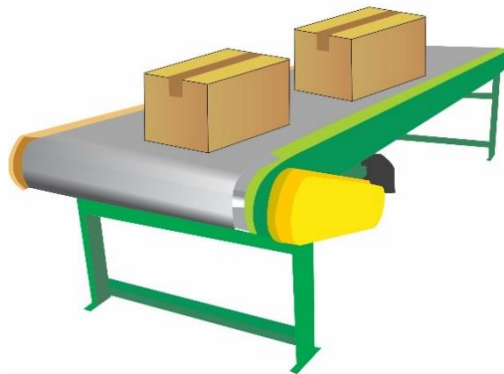
A container conveyer refers to the storing, transportation and control of materials in loose bulk form. These materials may be liquid, minerals, food, cloth materials, apparels etc.

Conveyors are available in a wide variety of different types of bulk material.

Different types and designs of conveyors are used in commercial industries. Among them most common are belt, roller, motorized roller and overhead conveyors. They are classified as floor and overhead conveyors. These are used to move, transfer and deliver the packages in a production processes with less effort.

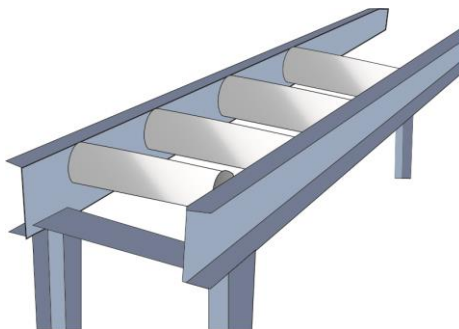
### The major types of industrial conveyors are:

- I. **Belt conveyor:** It transports merchandise from one end to the other. A variable speed drive controls the speed. They're part of the floor conveyor family. Belt conveyors normally move the belt across a supporting steel plate, with the belt supported from below by a slider bed style or on top of tightly spaced rollers, referred to as a roller conveyor belt.



*Fig:1.35 Belt conveyors*

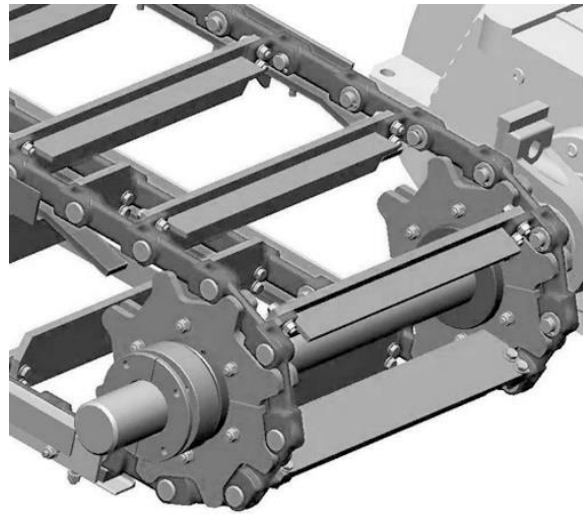
- II. **Gravity roller conveyor:** The rolling surface is provided by a series of rollers mounted on a side frame. Packages move on their own when attached at a downward inclination. Controlling the speed and angle is simple in this type of conveyor, when the packages are of the same size and weight.



*Fig:1.36 Gravity roller conveyor*

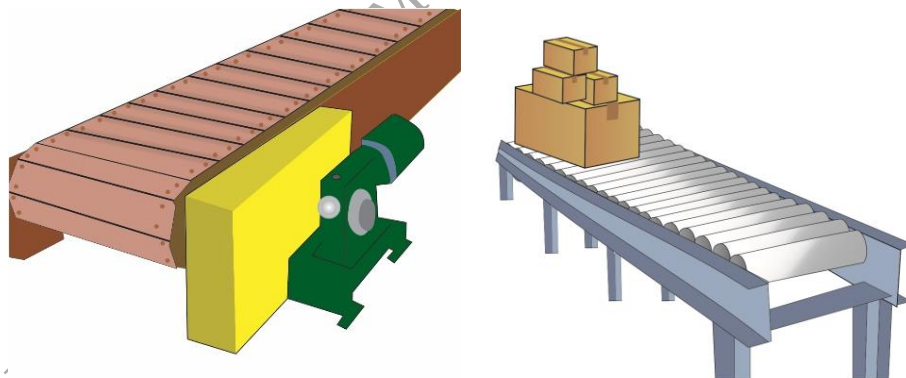
- III. **Chain conveyors:** Chain conveyors installed on the floor are handy for transporting heavy things. The chains on the bottom of the load

with two to three contact points assist in moving the product forward. They are heavy-duty machines that move at a slow speed.



*Fig: 1.37 Chain conveyor*

- IV. Motorized roller conveyors:** Apparel packages and other items are delivered to the next packing station at speeds of up to 200 feet per minute or more. The package is also moved from one department to the next using motorized roller conveyers. Plastic or reinforced belts connect one or more motor driven rollers per zone to create a series of zones along the conveyor.

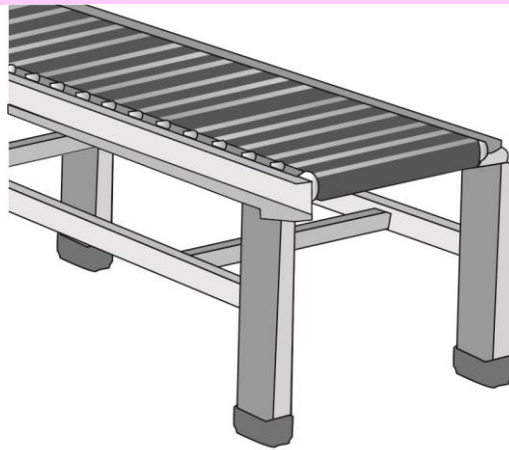


*Fig:1.38 Roller conveyor*

Photo eyes turn the motors on and off to indicate the movement of the load to the next zone. Thus avoiding damage and called “zero pressure accumulation, where the package bumps into each other due to a blocked path.

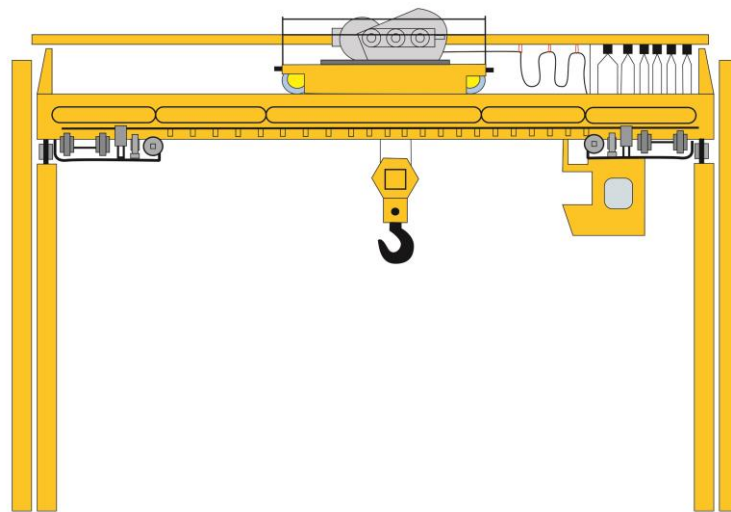
- V. Slat conveyors:** A slat conveyor is a two-strand chain conveyor with slats attached to the chain and a guiding mechanism for the slats that generates a smooth surface to hold the load pieces in place.





*Fig:1.39 Slat conveyor*

**VI. Monorails:** It's an overhead conveyor with a chain that connects the trolleys. There are two types of chains: enclosed and open. The pieces to be moved are suspended from trolleys attached to the chain, which are driven by a motor with a gearbox. The chain can be constantly moving, or alternatively the system can guide parts from one assembly station to the next.



*Fig: 1:40 Monorails*

**VII. Power and free conveyors:** There are two tracks on it. The chain is continuously running on one track. Trolleys are moved along the opposite track by a chain with pusher mechanisms known as "pusher dogs" set at regular intervals. The dogs can slide over the top when two trolleys are pressed against each other. This enables trolleys to start or stop moving at any point within the system. They can start, stop, buffer and re-sequence parts with switches. This adaptability makes power and free conveyors perhaps the most productive style of overhead conveyor.



**VIII. Automatic Guided Vehicles (AGV):** They are independent computer-operated trucks that transport loads along a predetermined path, with sensors and detectors to avoid bumping into anything.

**IX. Trucks:** These are developed with different features to make them suitable for different operations namely, forks, as in a forklift, a flat surface to lift items, or attachment of separate piece of equipment for loading. These are manual or powered lift and operation can be walk or ride. A stack truck is used to stack items and non-stack truck is used for transportation. These transportation devices include small hand-operated trucks, pallet jacks, and different types of forklifts.



*Fig: 1.41 Industrial trucks*

### Activities

#### Activity 1:

Prepare a chart on types of shipping containers and present in class explaining their unique features.

#### Materials required:

- Chart paper
- Glue, scissors, color pens
- Pen, pencil, eraser, and other stationary required.

#### Procedure:

1. Divide the class in smaller groups, with the help of a fish pond technique pick a chit and make a chart for the type of container written in the chit.

2. Present it in front of class explaining the unique features of the container.

### Check Your Progress

#### Fill in the blanks:

1. Container that carries hanging clothes/garments is also called as .....
2. Packing can influence company's.....
3. Fabric folder machine is mainly used for.....
4. .... transports merchandise from one end to the other.
5. .... is a motorised platform connected to the back of a truck that assists with loading and unloading of cargo.
6. .... is a machine that is used to load or unload merchandise package on pallets (or slip sheets) on and off shipping containers.

#### Answer the following:

1. Explain the three types of garment folders?
2. Write a note on container loaders and container shipper?
3. Explain stepwise process of loading with the help of a flow chart?

## Session: 3      Different Types of Cartons & Finishes used for Garments

A carton is a box or container primarily made of paperboard and sometimes of corrugated fiberboard. In the packing industry, there are many different types of cartons. Carton packing is critical in ensuring that the things arrive securely at their destination. When a packing firm accepts a contract, they are responsible for developing a packing that keeps things safe and secure. In this scenario, carton packing could be useful. Carton packing is not restricted to a single kind. There are as many different packing forms as there are different types of products, and each one serves a different purpose.

Usually there are three common types of cartons i.e. folding cartons, rigid cartons and corrugated boxes. Folding cartons can be seen at retail stores and are some of the most common types of boxes that can be folded flat for shipment. Rigid boxes on the other hand are sturdier and non-foldable. Corrugated boxes are also called as brown cardboard boxes.

Garments are loaded in cartons in a designated proportion of size and colour. As per sizes and colours of the garments, sizes of the carton also differ. Cartons are made of multiple layers using special type of paper. As per buyer requirement, carton boxes are constructed with a shipping mark on both side of carton box, bar-code sticker and other shipping information. An outer carton often contains a number of inner cartons. For example, an outer carton must contain forty shirts and they are divided into four inner cartons. Each inner carton holds ten shirts. Such packing keeps the garment to be safe and intact.

**Kraft paperboard:** Kraft paperboard (or chipboard) is a type of paperboard made from 100% post-consumer recycled material or reclaimed paper stock.

### Features of carton are:

- a) **Paper:** Khaki carton or brown carton, duplex carton, box carton, stitching or gum pasting carton.
- b) **Ply:** 3 ply carton, 5 ply carton, 7 ply carton.
- c) **Liner:** Outside liner carton or both side liner carton.
- d) **Size:** Master carton and inner carton. The size varies as per count of products per carton.

### Guidelines for determining dimensions of a carton

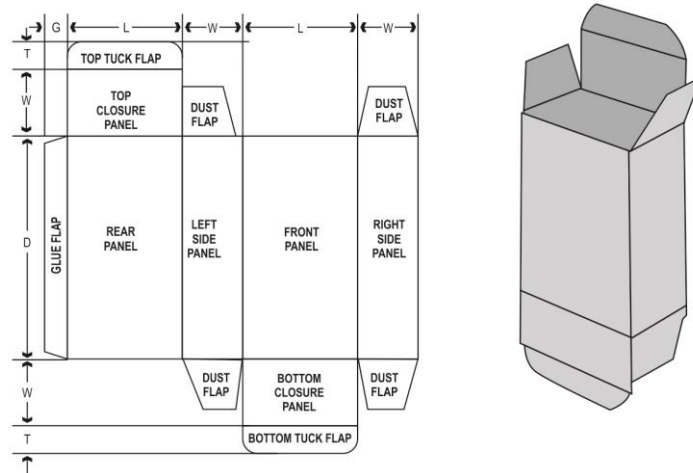
The dimensions of a carton are described in a specific order:

**Length x Width x Depth (L x W x D)**

Place the carton facing you with the opening pointing up to calculate the right length, width, and depth (as if the carton was to be filled from the sky).

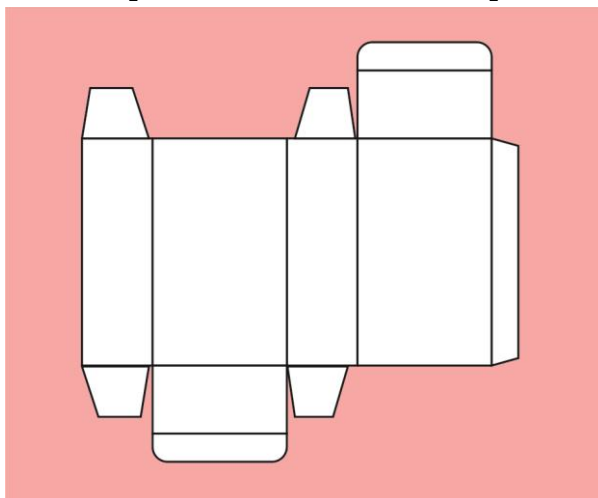
- **Length** – The longest open end dimension from left to right
- **Width** – The shortest open end dimension from front to back
- **Depth** – The remaining dimension from top to bottom

Always refer to the outside dimensions of the carton while measuring. Also, dimensions should be rounded to the nearest 1/16<sup>th</sup> of an inch.



*Fig: 1.42 Dimensions of a carton*

**1. Folding carton:** The folding carton was created in the packing industry in the late 19th century. The folding carton is made of paperboard that is printed, laminated, cut, then folded and glued. The cartons are shipped flat to the packing department which has its own machinery or workers to fold the carton into its final shape as a container for a product.



*Fig: 1.43 Folding of a carton*

Folding cartons are typically single-layered and feel like thick cardboard. It can be in solid colour or printed and serves as a marketing tool for the goods.

A folding carton is commonly used as the primary packing for a product, which means it directly holds the product. This type of material is not suitable for shipping without an additional corrugated box to protect the carton in transportation.

There are seemingly endless amounts of different box styles for folding cartons (Paperboard Boxes). They differ not just in terms of style, but also in terms of size. Below are some basic types:

**A. Straight and reverse tuck:** The straight and reverse tuck are two of the most common type of cartons. The straight tuck refers to the top and bottom flaps of the carton folding in the same direction. The reverse tuck, on the other hand, is similar to the straight tuck with the exception that the flaps fold in opposite directions.

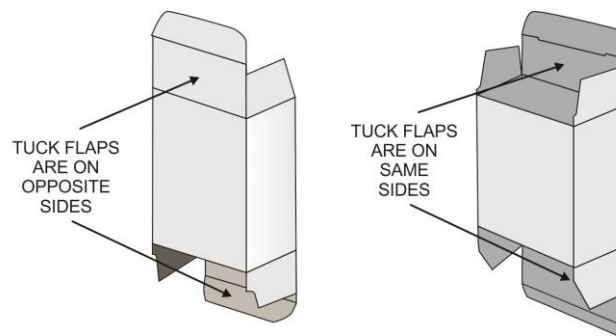


Fig: 1.44 Straight and reverse tuck

**B. Regular slotted carton:** In regular slotted carton, the top and bottom flaps are composed of kraft brown paper, and the side walls are sealed at one corner, referred to as the "manufacturer's joint." This carton is ideal for a wide range of packing applications.

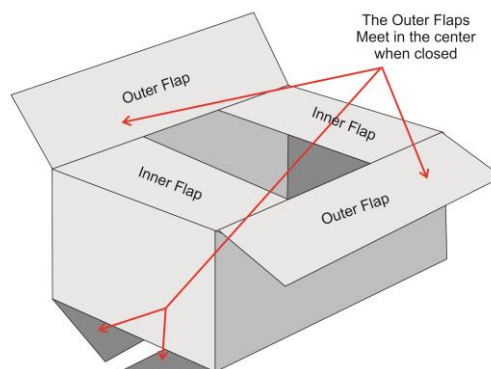
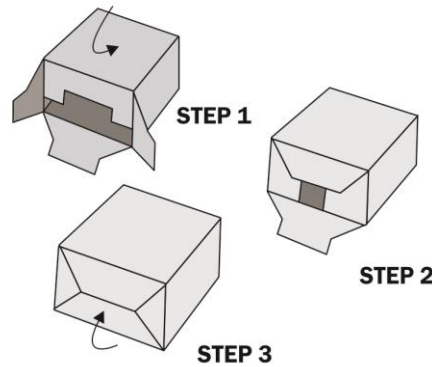


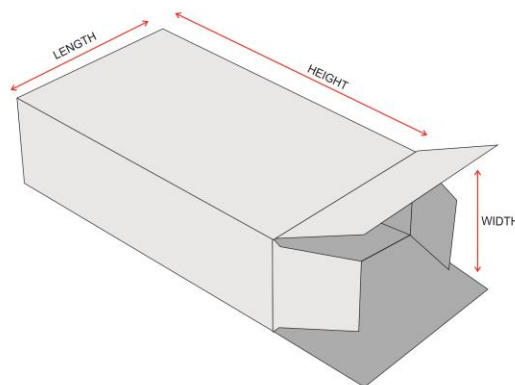
Fig: 1.45 Regular slotted carton

**C. Lock bottom:** For strength, garment businesses that create larger or bulkier products frequently pick a lock bottom box. The lock bottom box comes in a variety of shapes and sizes, but they always feature a bottom that is sealed by flaps that lock together. This technique creates a more strong foundation.



*Fig: 1.46 Steps of snap lock bottom boxes*

**D. Seal end:** Similar to the lock bottom carton, a seal end is an even stronger carton that ensures product safety. Seal end cartons remain sealed using an adhesive. These cartons are most common for products that must be sealed at the time of purchase.



*Fig: 1.47 Seal end*

**E. The tuck top auto bottom:** The tuck top auto bottom is designed to be quick. For quick and easy assembly, the top flap tucks into the front of the box, while the bottom of the box automatically folds. This design saves money on labour expenditures over time while providing a higher level of retail.

Tuck top auto bottom boxes come pre-glued and require no glue, tape, or staples to assemble.

### **Size restrictions:**

Length usually needs to be equal or bigger than the width.

Minimum dimensions: 4" (l) x 4" (w) x 3" (d).

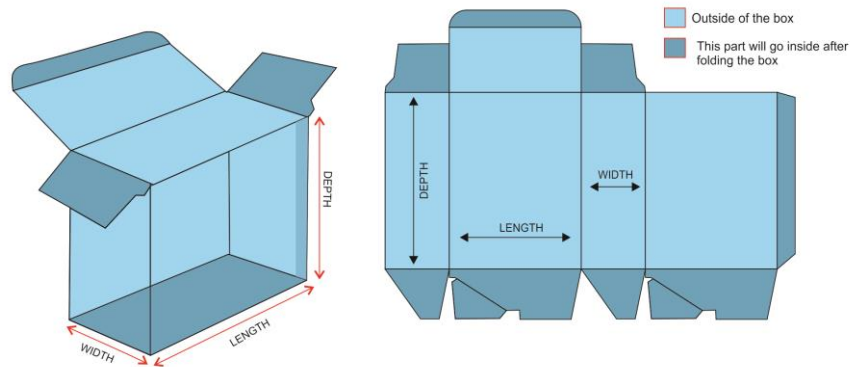


Fig: 1.48 The tuck top auto bottom

**Folding carton benefits:** Folding cartons have a lower carbon impact than other types of packing. Because the material is thinner and lighter in weight, it takes up less storage space. Folding cartons can also be embellished with foil stamping, embossing, texturing, and other techniques that can be applied throughout the manufacturing process.

**2. Corrugated carton:** Corrugated cardboard sheets are used to make corrugated shipping boxes. To make cartons of all shapes and sizes, stacks of corrugated cardboard are trimmed, scored, and folded. For added stability, glue is applied to corners and folds. Corrugated boxes are frequently used to transport larger items. They're typically employed as a bulk shipper, shipping a large number of similar items in a single box. The corrugated box's strength is provided by many layers of paper fibre: a top and bottom layer (known as linerboard) as well as a middle layer (called corrugating medium). The box's strength comes from the wavy, ripple-like shape of the medium in the middle. This ripple layer (or fluting) is always present in the middle of a corrugated box. That's why it's referred to as corrugated.

- **Corrugated medium:** Corrugated cardboard, often known as corrugated board, is a durable packing material comprised of three layers of kraft paper. It gets its name from the corrugated medium, which is the interior layer of wavy paper that gives cardboard its strength. The inner sheet is made corrugated in the production process to create flutes or stiff folds in the paper.
- **Types of corrugated cardboard:** Corrugated cardboard has layer of corrugated fluting and liner. These can be combined in different or various layers to create common types of corrugated boxes used in packing and shipping. Following are some types of corrugated board:



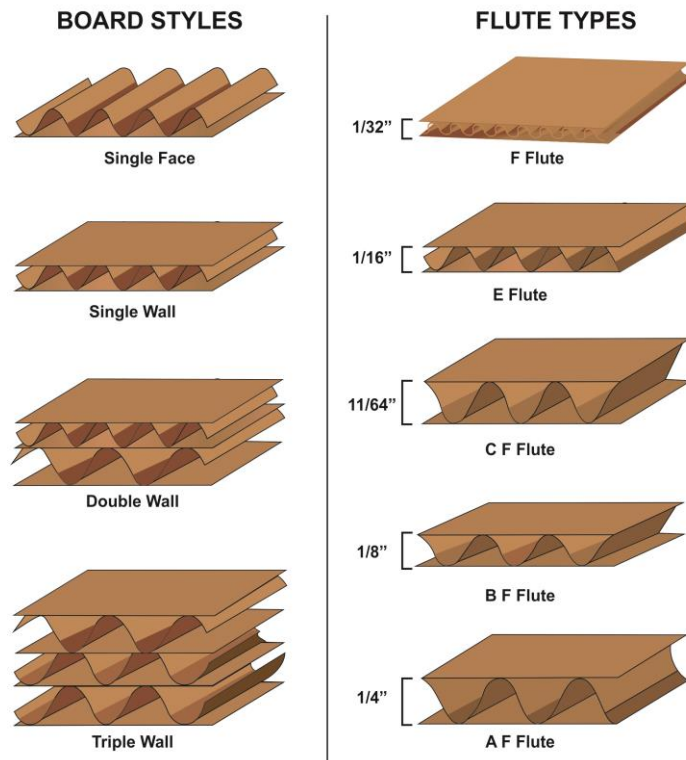


Fig: 1.49 Types of corrugated cardboard

#### A. Single face board

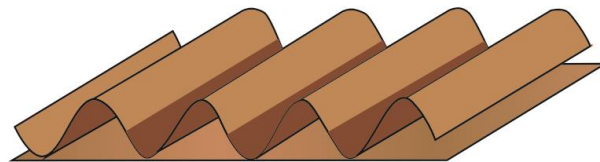


Fig: 1.50 Single face board

There are only two layers in a single face board: a liner layer and a corrugated layer. Although it is not as robust as other forms of corrugated cardboard, it is sometimes used inside boxes to provide additional cushioning.

- **order of layers:** fluting → liner
- **Uses:** packing for home furnishing

#### B. Single wall board

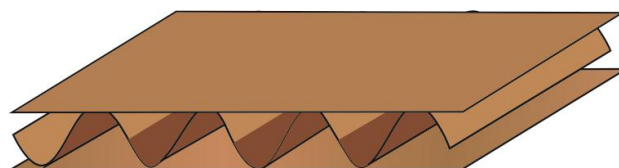
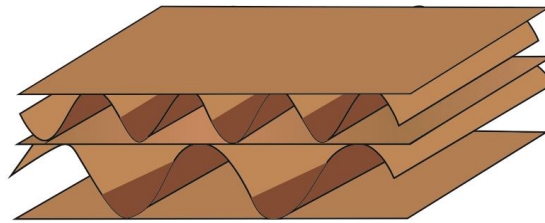


Fig: 1.51 Single wall board

The most prevalent type of corrugated cardboard is single wall board. When someone mentions corrugated cardboard, they are almost certainly referring to this style. It is made up of two outer liners and a corrugated medium layer in the centre.

- **Order of layers:** liner → fluting → liner
- **Uses:** shipping cartons

### C. Double wall board

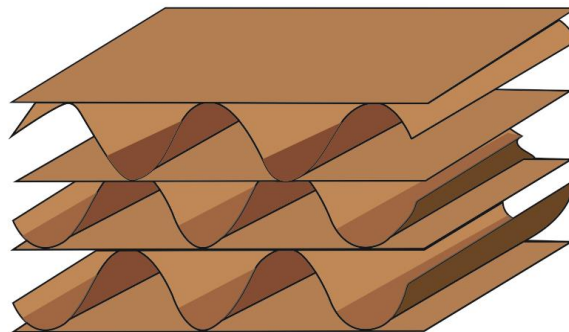


*Fig: 1.52 Double wall board*

Double wall board is highly durable since it includes two layers of corrugated fluting and three liners.

- **Order of layers:** liner, fluting, liner, fluting, liner
- **Uses:** industrial cartons

### D. Triple wall board



*Fig: 1.53 Triple wall board*

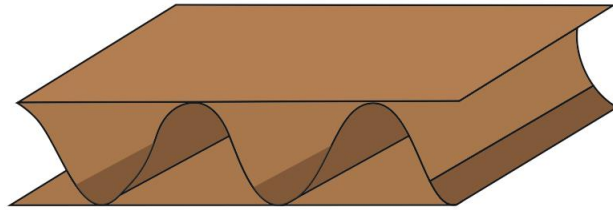
Triple wall board is strong enough to take the place of wooden containers. This corrugated cardboard has three layers of fluting, making it a reliable alternative for shipping the textile products that require particular handling.

- **Order of layers:** liner, fluting, liner, fluting, liner, fluting, liner
- **Uses:** shipping crates

**Corrugated flute sizes:** The letters a, b, c, e, and f are used to distinguish different types of corrugated boxes. C flute is the most common flute corrugation. The alphabetical designations of the flutes don't correspond to the sizes of corrugated boxes, but rather to the order in which the flutes were invented.

**Note: measurements are approximations. Corrugated flutes come in a variety of sizes from different manufacturers.**

### **A. Type (a) flute cardboard**

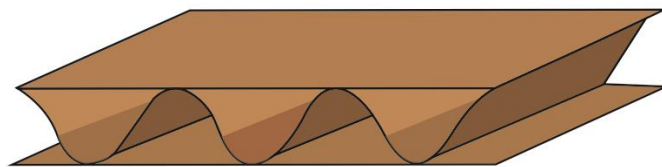


*Fig: 1.54 (a) Flute cardboard*

Type a cardboard offers good compression and cushioning properties, as well as stacking strength. It is excellent for packing delicate products and is frequently used for structural support.

- **# of flutes / linear foot:** 36
- **Flute height:** 1/4"

### **B. Type (b) flute cardboard**



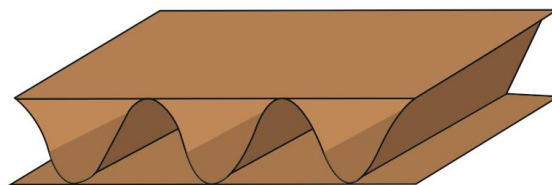
*Fig: 1.55 (b) Flute cardboard*

Type b cardboard has an outstanding crush, puncture resistance and has a great printing surface. Inner packing components like as pads and partitions are often made of this cardboard.

**# of flutes / linear foot:** 49

- **Flute height:** 1/8"

### **C. Type (c) flute cardboard**

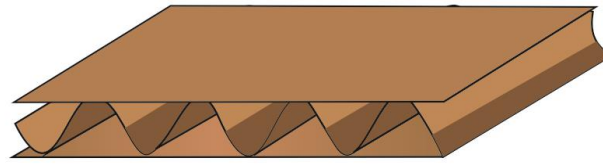


*Fig: 1.56 (c) Flute cardboard*

This type of cardboard offers a good printing surface. It also has compression qualities and can withstand crushing. It is most commonly used for shipping boxes and to secure handle with care/fragile products.

- **# of flutes / linear foot:** 41
- **Flute height:** 11/64"

#### D. Type (e) flute cardboard

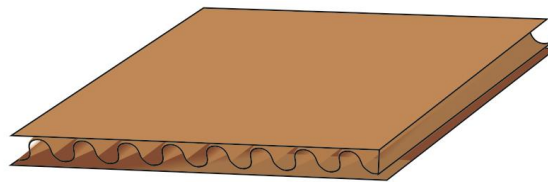


*Fig: 1.57 (e) Flute cardboard*

Type e cardboard has a thin construction which helps to reduce storage space. It offers excellent crush resistance and an exceptional printing surface. It is commonly used for displays.

- **# of flutes / linear foot:** 90
- **Flute height:** 1/16"

#### E. Type(f) flute cardboard



*Fig: 1.58 (f) Flute cardboard*

Type f cardboard has an outstanding printing surface and crush resistance. It has thin construction which allows for stiffer boxes with less fiber. It is commonly used in packing for footwear's.

- **# of flutes / linear foot:** 128
- **Flute height:** 1/32"

**Note: measurements are approximations. Manufacturers produce corrugated boards and flutes which may vary slightly in size according to industry and product.**

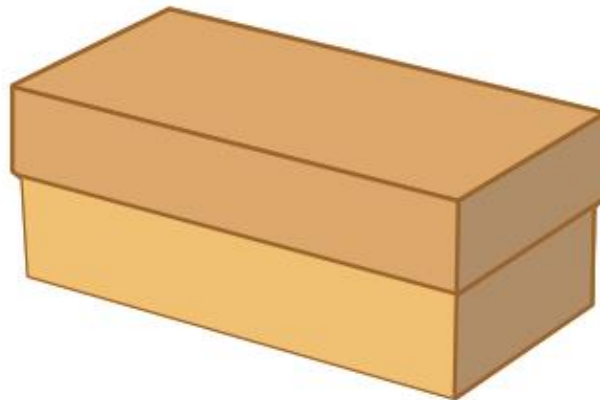
#### Benefits of corrugated cartons

Corrugated paper's ridged flutes are sandwiched between two layers of cardboard and are meant to sustain a heavy weight, hence it's usually used for shipping. This cardboard fluting design is particularly important for safeguarding things and preventing damage during transportation. The curved arches generated by these flutes make boards durable and resist

pressure applied from any angle. The empty space located between the flutes and under the arches offers cushioning, as well as insulation in the condition of extreme temperature changes.

**3. Rigid cartons:** Both folding and rigid cartons are used for packing and are composed of paperboard, and they often look extremely similar. The term "paperboard" refers to a thick piece of paper that is strong enough to be used for packing. However, the paperboard used in rigid cartons can be four times thicker than that used in folding cartons, and is commonly referred to as chipboard.

Folding cartons can be collapsed to lay on and then reassembled into box form. A stiff carton cannot be collapsed and must remain in box form from the time it is manufactured to the time it is delivered to the end user. While the printing process is usually applied directly to the box in folding cartons, rigid cartons generally have a separate wrapping of various possible materials glued to the box instead. Materials can include: leather, fabric, padding, fancy paper etc.



*Fig: 1.59 Rigid cartons*

### **Benefits of rigid cartons:**

1. Often, it does not require expensive device as used in folding carton manufacturing.
2. Higher perceived product value by the consumer (Expensive looking box = Better quality product).
3. Rigid boxes are stronger and more durable.
4. Rigid boxes usually do not require setup for product fulfillment.

The apparel industry is a vast and dynamic sector, where presentation and protection of garments are crucial aspects of delivering a satisfying customer experience. Quality control in packing materials plays a pivotal role in

ensuring that apparel products reach consumers in pristine condition. This article explores the significance of quality control in packing materials within the apparel industry, the key factors to consider, and best practices for maintaining high standards.

## Significance of quality control in packing materials

In the apparel industry, the packing materials are not just a means of transport; they are an extension of the brand and contribute to the overall customer experience. The significance of quality control in packing materials can be understood through the following points:

- **Brand image:** Packing is often the first physical interaction a customer has with a brand. A well-designed, durable, and aesthetically pleasing package can enhance brand perception and leave a positive impression.
- **Product protection:** Packing materials serve as a protective barrier for garments during shipping and storage. Quality control ensures that materials effectively shield products from external elements like moisture, dust, and physical damage.
- **Reduced returns:** Subpar packing materials can lead to damaged or soiled garments, resulting in higher return rates. Effective quality control measures can mitigate such issues and reduce operational costs.
- **Environmental sustainability:** Sustainable packing practices are increasingly important in today's eco-conscious world. Ensuring that packing materials are eco-friendly and meet environmental standards is essential for brand reputation and compliance.

## Key factors in quality control for packing materials

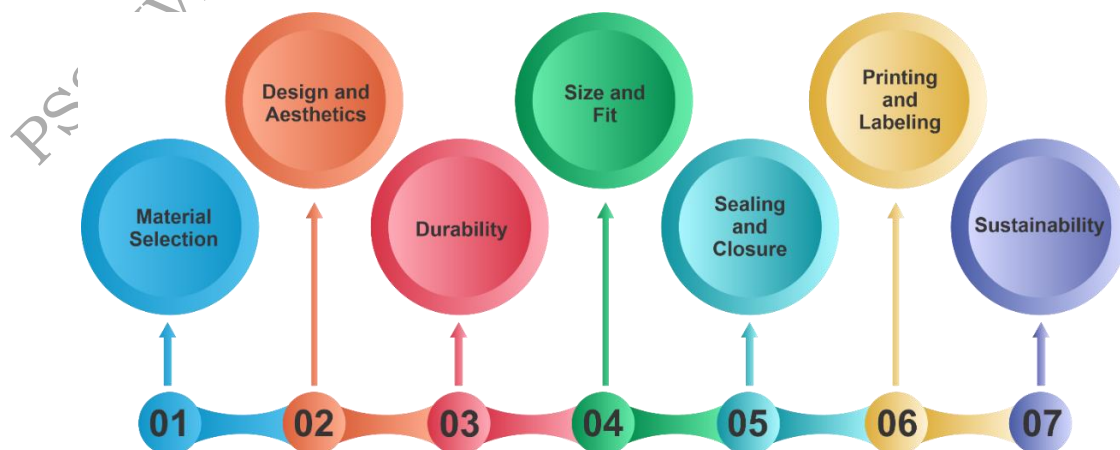


Fig: 1.60 Packing materials



To maintain high-quality packing materials in the apparel industry, companies should focus on several key factors:

- **Material selection:** The choice of packing material is crucial. Companies should select materials that provide adequate protection, are eco-friendly, and align with the brand's image. Materials commonly used in the apparel industry include cardboard boxes, poly bags, tissue paper, and eco-friendly alternatives like recycled and biodegradable materials.
- **Design and aesthetics:** The design of packing materials should reflect the brand's identity and appeal to the target audience. Colors, logos, and graphics should align with the overall branding strategy.
- **Durability:** Packing materials must withstand the rigors of shipping and handling. They should be robust enough to prevent tearing, crushing, or puncturing during transit.
- **Size and fit:** The size of packing materials should be appropriate for the garments they are meant to protect. Oversized or undersized packing can lead to damage or inefficiency in storage and shipping.
- **Sealing and closure:** The method of sealing and closing a package, such as adhesive seals, zippers, or ties, should be secure to prevent tampering or accidental opening during transit.
- **Printing and labeling:** Labels and printing on packing materials should be accurate and legible. This information may include product descriptions, barcodes, care instructions, and handling guidelines.
- **Sustainability:** Given the growing concern for the environment, companies should prioritize eco-friendly packing materials. This includes using recycled or recyclable materials, reducing excess packing, and adopting sustainable printing practices.

### Best practices for quality control in packing materials

Implementing effective quality control measures in the apparel industry's packing materials involves a combination of standardized processes, inspections, and continuous improvement strategies. Here are some best practices to consider:

- **Supplier evaluation:** Conduct thorough assessments of packaging material suppliers to ensure they meet quality standards, have a track record of reliability, and adhere to sustainability principles.



- **Quality standards and guidelines:** Develop clear and comprehensive quality control standards and guidelines for packing materials. These should cover aspects such as material specifications, design requirements, and sustainability criteria.
- **Regular inspections:** Establish a routine inspection process to assess packing materials for defects, damage, and compliance with quality standards. Inspections should occur at various stages, from material receipt to the final packaging stage.
- **Employee training:** Train employees responsible for packing and quality control on the importance of proper packaging and quality standards. Continuous training and awareness programs can help maintain consistency.
- **Feedback loops:** Create a feedback mechanism for employees to report packaging issues and suggest improvements. Encourage open communication to identify and address problems promptly.
- **Testing:** Perform testing, such as drop tests and compression tests, to assess the durability and protective capabilities of packing materials. Use the results to make informed decisions about material selection and design.
- **Sustainability initiatives:** Explore and implement sustainable packaging options, such as using recycled materials, reducing excess packaging, and investing in eco-friendly printing methods.
- **Documentation:** Maintain detailed records of quality control processes and inspections. This documentation can be invaluable for identifying trends, tracking improvements, and addressing any legal or compliance requirements.
- **Supplier collaboration:** Collaborate closely with packaging material suppliers to stay informed about new materials and innovations that can improve quality, durability, and sustainability.
- **Customer feedback:** Actively seek feedback from customers regarding their packaging experience. Use this feedback to adjust and improvements in response to customer preferences and concerns.

Quality control in packing materials is a critical component of the apparel industry's overall success. It not only protects garments during transit but also enhances the brand image and contributes to customer satisfaction. By focusing on material selection, design, durability, and sustainability, and implementing best practices such as supplier evaluation and regular inspections, apparel companies can ensure that their packaging materials meet high-quality standards while also aligning with environmental and

brand-conscious consumer expectations. In a competitive industry where presentation and protection are paramount, investing in quality control for packing materials is a wise strategic choice.

### **Garment finishing through wet processing:**

Garment finishing through garment wet processing add value to the garments and the additional effects become the clear differentiator. Garment finishing can be used for various applications, be it shirts, trousers or t-shirts, but majority of the effects are most popular for casual wear and denim segment. Garment finishing department takes care of the following functions:

- Trimming
- Stain removing
- Repairing
- Pressing

After stitching, there will be some hanging sewing threads on the finished product. Trimming is the operation of removing these extra hanging threads. Sometimes, finished products get stained during the production process. Finishing department is responsible to remove those stains by using different wetting agents. Some of the sewn products may also have some open seams or other stitching faults. The finishing department repairs such products before packing. The last objective of finishing department is pressing. The sewn products are pressed to remove the wrinkles and to enhance the look of the garment.

### **Purposes of garment finishing**

Pretreatments plays a crucial role and its impact major portion in textile dyeing, printing, and finishing process. Finishing is value addition of textile processing. Unless any product is characterized by value addition it is now impossible to survive in this highly competitive world market. Processing is important to make a usable but finishing gives value addition to it.

**Value addition = {(technology) + (innovation)} x quality**

### **The need for competitive strategy that utilizes;**

1. It makes garments attractive, comfortable and finishing can incorporate desirable properties.

2. Chemical compatibility to provide one-shot multifunctional finishes.
3. Cost reduction through process integration and minimizing the consumption of all utilities.
4. More environmentally friendly and application method.
5. Cost reduction through minimization of effluent treatment cost.
6. Improve process control, monitoring and automation.
7. Greater innovation in chemical finishes.
8. Quick response through right-first-time, right-on end time, right-every-time finishing.
9. Finishing of textile fabric is carried out to increase attractiveness and/or serviceability of the fabric.
10. Different finishing treatments are available to get various effects, which add value to the basic textile material.
11. The domestic ready-made garment sector is booming, and garment processing has emerged as one of the important production routes towards meeting quick changing demands of the fashion market.

### **Method of application:**

In the apparel industry, achieving the desired finish for garments is a crucial step in the production process. Two commonly used methods for garment finishing are the "dip" and "tumble" methods, each with its unique advantages and applications. These techniques play a vital role in enhancing the appearance, texture, and overall quality of the final product.

#### **Dip method:**

The dip method is a garment finishing process that involves immersing garments in a liquid solution, typically a chemical or dye, to achieve specific effects or finishes. This method can be used for a wide range of purposes, such as color enhancement, texture alteration, and fabric softening. Here are some key aspects of the dip method:

- **Dyeing:** The dip method is commonly employed for dyeing garments to achieve vibrant and consistent colors. Fabric dyes are mixed in large vats, and the garments are submerged for a predetermined period to absorb the dye evenly. This method ensures that the color penetrates the fabric fibers, resulting in a long-lasting and even finish.
- **Garment softening:** Garments can be dipped in softening solutions to make them more comfortable to wear. Softeners or fabric conditioners

are used in the dip process to relax the fibers, reduce stiffness, and improve the hand feel of the fabric.

- **Washing and distressing:** For denim garments, the dip method can be used to create distressed or washed-out effects. By dipping denim items in a mixture of water, enzymes, and abrasives, manufacturers can achieve a worn-in look, faded colors, and distressed patterns.
- **Waterproofing and stain resistance:** The dip method is also utilized to make garments waterproof or stain-resistant. Specialized coatings or chemical treatments can be applied through dipping to create a protective layer on the fabric.
- **Tumble method:** The tumble method, on the other hand, involves placing garments in a rotating drum or chamber and subjecting them to various mechanical actions, including tumbling, agitation, and temperature control. This method is particularly suitable for achieving finishes related to texture, softness, and overall garment appearance. Here are some key aspects of the tumble method:
  - **Stone washing:** Tumble machines are commonly used for stone washing denim garments. Small pumice stones or abrasive materials are added to the drum along with the garments. As the drum rotates, the stones rub against the fabric, creating a distressed and faded appearance.
  - **Garment softening:** Similar to the dip method, the tumble method can be employed to soften garments. By adjusting the tumbling speed and time, manufacturers can control the level of softness desired for the final product.
  - **Creasing and wrinkle effects:** Tumble machines equipped with specific settings can create creases and wrinkle effects on garments, adding a vintage or casual look to the clothing.
  - **Tumble drying:** In addition to the tumbling action, these machines can also be used for the drying process, which is essential for setting certain finishes, such as wrinkle-resistant treatments or fabric relaxations.

Both the dip and tumble methods of garment finishing are essential techniques in the apparel industry, offering manufacturers the flexibility to achieve a wide range of desired outcomes. These methods play a crucial role in enhancing the aesthetics, comfort, and functionality of garments, ultimately meeting the diverse preferences of consumers and ensuring high-quality products in the competitive world of fashion.

**Important features:**

1. MLR should not be less than 1: 0.85 for the garment weighing 600 gm and 1:1 for those weighing more than 600 gm.
2. Minimum time of tumbling should be 20 min.
3. Tumble rotation speed 20-30 rpm.
4. Tumble drying temp. Should not be more than 70°C.
5. Moisture retention after drying should be 10-12%.

**Wash down effects**

The wash down effect is a critical process in the garment finishing stage of the apparel industry. It refers to the intentional washing and treatment of finished garments to achieve specific design, texture, and color effects. This process is employed to create a worn-in, vintage, or distressed appearance, which has become increasingly popular in fashion over the years.

**Purpose of the wash down effect:**

- **Aesthetic enhancement:** The primary objective of the wash down effect is to enhance the visual appeal of garments. By subjecting them to various washing techniques, such as stone washing, enzyme washing, or sandblasting, manufacturers can achieve a wide range of distressed or aged looks that resonate with consumers.
- **Softening:** The process also softens the fabric, making it more comfortable to wear from the very first use. This is especially important for denim and other heavy-duty fabrics used in casual wear.

**Techniques used in wash down effect:**

- **Stone washing:** Involves washing garments with pumice stones or other abrasive materials to create a faded and worn appearance. This process simulates the look of garments that have been worn and washed many times.
- **Enzyme washing:** Enzymes are used to break down the fibers of the fabric selectively, creating a soft, vintage appearance without the harsh abrasion of stone washing.
- **Bleaching and dyeing:** Chemical treatments like bleaching and over-dyeing can alter the color of the fabric, giving it a weathered or distressed appearance.

- **Sandblasting:** High-pressure air or water is used to blast sand or abrasive materials onto the garment's surface, creating a faded and textured effect.

### **Environmental considerations:**

- The wash down effect, especially in its early years, raised concerns about environmental sustainability due to the excessive use of water, chemicals, and energy in the washing process. However, modern practices have evolved to be more eco-friendly.
- Many manufacturers now employ water-saving and chemical-reducing technologies, such as ozone treatments and laser abrasion, to achieve the desired wash down effects while minimizing environmental impact.

### **Consumer demand:**

- The wash down effect has become a significant selling point for apparel brands. Consumers appreciate the unique and customized appearance of garments achieved through this process.
- Vintage and distressed styles have gained immense popularity, not only in casual wear but also in high-end fashion. This consumer demand drives manufacturers to continuously innovate and refine wash down techniques.

### **Quality control:**

- Achieving consistent wash down effects across a production batch is a challenging task. Quality control measures, such as sample testing, color matching, and precise process documentation, are crucial to maintain uniformity and meet customer expectations.

The wash down effect in the apparel industry is a crucial aspect of garment finishing. It serves both aesthetic and functional purposes, enhancing the appearance and comfort of garments. As consumer preferences continue to evolve, the industry will likely see further innovations in wash down techniques and an increased focus on sustainable practices to minimize its environmental footprint.

### **Five good reasons can be attributed for washing the garments:**

1. To influence physical properties such as softness, handle, drape or fall, absorbency, creasing etc.

2. To influence appearance by altering the nature of yarn of fabric or lusture.
3. To create shrinkage and effects of shrinkage like puckering of garments.
4. To create abrasion and related effects.
5. To create a trend in fashion with consistent quality and brand image with range of finishes.

### **Some garment finishing agents:**

1. Dispersing agents
2. Lubricating agents
3. PH regulator
4. Anti-back staining
5. Anti-cross staining
6. Cationic dye fixing
7. Stripping agent
8. Optical brighteners
9. Cationic and nonionic softeners
10. Silicone softeners
11. Additives
12. Garment stage resin finish

### **Different types of garment finishing methods**

Finishing is one of the last major operations in the manufacture of garments before they are bagged or boxed and delivered to the finished goods warehouse. As the name implies, finishing covers all the operations required to complete a garment. For most garments this process starts after top pressing. To make a garment attractive to the customers then garments should have good appearance that appeal to customers to buy it. In this case there is no alternative of garment finishing treatment to give attractive look of garments. The garment finishing processes can assist to a certain extent to fulfill the requirement of fast-moving fashion and to add functionality. Garment finishing consists of a series of finishing operations



performed in the garment to improve its aesthetics, handle and functional properties. Finishing treatment may be either mechanical or chemical in nature.

The term ‘garment finishing’ was a buzzword for the process in the denim industry; now the term has been extended to a range of ready-made garments such as shirts, t-shirts, trousers and jackets and even to all other types of clothing. Various chemicals are used for value addition to garments through effects including various feels such as soft, supple, dry feel, bouncy feel; and to adding functionalities such as water/oil repellency, wrinkle free, moisture management, stain protection and durability to the garment.

Garment dyeing, one of the finishing operations, allows the manufacturer to produce special color effects that may not be feasible from continuous processed fabric. However, the recent technical advancements have assisted in the garment finishing techniques to achieve improved functionality and/or to create customized garments.

### **Different types of garment finishing techniques:**

There are various types of garment finishing methods or techniques. Popular and frequently used garment finishing techniques are discussed below:

**A. Permanent crease and wrinkle-free treatments:** Permanent creases in the apparel industry are an essential element of clothing design and manufacturing. These intentional, long-lasting folds or wrinkles are created through various methods, such as heat setting, chemical treatments, or mechanical processes. Permanent creases serve both functional and aesthetic purposes in garments. Functionally, they can enhance the durability and wearability of clothing items, ensuring that pleats or creases maintain their shape even after multiple washes and wears. Aesthetically, permanent creases add a distinctive and stylish element to certain types of apparel, like dress pants, skirts, or military uniforms, providing a polished and professional appearance. This technique has been perfected over the years, contributing to the overall quality and appeal of clothing in the fashion industry.

**Wrinkle-free treatment,** also known as wrinkle-resistant or easy-care finishing, has revolutionized the apparel industry by offering consumers garments that maintain a smooth and polished appearance with minimal effort. This innovative treatment process involves the application of specialized chemical coatings to fabrics, such as cotton or cotton-blend materials, during manufacturing. These coatings form a protective layer on the fibers, preventing them from creasing or wrinkling easily. As a result, wrinkle-free garments emerge from the wash or a suitcase looking crisp and fresh, eliminating the need for tedious ironing or steaming. This advancement not only enhances the convenience and comfort of

wearers but also contributes to sustainability by reducing the energy and water consumption associated with traditional ironing practices. Wrinkle-free treatment has become a staple in the fashion industry, providing both style and practicality to modern consumers.

**B. Antimicrobial treatment:** The incorporation of antimicrobial treatments while finishing of garments in the apparel industry has revolutionized the way we approach clothing hygiene and comfort. This innovative technology involves the application of specialized compounds to fabrics and garments, creating a shield against harmful microorganisms. By inhibiting the growth of bacteria, fungi, and other pathogens, antimicrobial-treated apparel not only helps reduce the risk of odor formation but also contributes to maintaining a healthier and more comfortable environment for the wearer. This is especially valuable in active sportswear, medical attire, and everyday garments, where prolonged contact with sweat and moisture can lead to microbial proliferation. Furthermore, antimicrobial-treated textiles are gaining popularity for their role in minimizing the transmission of infectious diseases, making them a key player in the ever-evolving landscape of textile technology.

**C. Water repellent treatment:** Water repellent finishing in the apparel industry has revolutionized the way we wear and interact with our clothing. This innovative finishing process involves the application of specialized coatings or finishes to fabric surfaces, rendering them resistant to water penetration. The treatment not only enhances the functionality of garments but also provides added comfort and protection to wearers in various weather conditions. Whether it's a rain jacket that keeps us dry during a downpour, hiking pants that repel water and mud, or even everyday clothing that withstands accidental spills, water repellent treatments have become an essential feature of modern apparel. Beyond the practical benefits, this technology has also paved the way for sustainable fashion trends, encouraging the use of longer-lasting clothing that reduces the environmental impact of frequent replacements. In an industry constantly evolving to meet consumer needs, water repellent treatments have emerged as a key player in improving both performance and sustainability in fashion

**D. Enzyme washing or bio-polishing:** Enzyme washing and bio-polishing are crucial processes in the finishing department of apparel industry, playing a significant role in enhancing the quality and aesthetic appeal of garments. Enzyme washing involves the use of

specific enzymes to break down and remove unwanted elements from the fabric's surface, such as excess dye particles or impurities. This process not only softens the fabric but also helps achieve unique distressed or vintage looks, making it a popular choice for denim and casual wear.

On the other hand, bio-polishing is a finishing technique that utilizes enzymes to remove the protruding fibers and fuzz on the garment's surface. By doing so, it imparts a smoother, shinier appearance to the fabric, improving its overall texture and reducing pilling. Bio-polishing is especially beneficial for cotton garments, as it enhances their lustre and ensures a longer-lasting, more comfortable wear.

Both enzyme washing and bio-polishing are eco-friendly alternatives to traditional chemical treatments, as they require less water and energy, and they produce fewer harmful by-products. These processes align with the growing demand for sustainable and environmentally conscious practices within the apparel industry, making them integral components of modern textile production.

**E. Flame retardant finishing treatment:** Flame retardant finishing treatment is a critical process in the apparel industry that plays a pivotal role in enhancing the safety and protection of clothing. This treatment involves the application of specialized chemicals or coatings to fabrics, rendering them resistant to ignition and significantly reducing their flammability. In an era where safety concerns are paramount, especially in industries like firefighting, oil and gas, or even everyday consumer apparel, flame retardant finishing is indispensable. It not only ensures the safety of the wearer but also contributes to compliance with stringent safety regulations. Furthermore, advancements in flame retardant technologies have led to treatments that are more environmentally friendly and less likely to compromise the comfort and aesthetics of the garments. As the industry continues to prioritize safety and innovation, flame retardant finishing treatment remains a cornerstone in the production of protective clothing, safeguarding both workers and consumers alike.

**F. Other functional finishes for garments:** Often, garment finishing includes softeners, soil-release finishes and finishes for ultraviolet (UV) protection. Softeners can alter the handle of the garment, and the degree of softness depends not only on the chemical character but also on their position in the textile. Soil-release finishes facilitate the removal of stains from various fabrics that usually show some resistance to stain removal by normal cleaning processes. The uv

finishes ensure that the clothes reflect the harmful rays of the sun, reducing a person's UV exposure and protecting the skin from potential damage.

Finally we can say that, finishing is a beautification process of garments. To achieve a good result in finishing, it is absolutely essential that the garments are well prepared, and that the recipes and processes are strictly followed and exactly monitored.

### Activities

#### Activity 1: create types of carton boxes.

##### Material required:

1. Thick chart paper
2. Cutter or scissors
3. Scale, pencil/pen, eraser, glue or scotch tape.

##### Procedure:

1. Create the template of any 3 carton boxes given in session above and make a decorative packing box.
2. Write the measurement and process in your file.
3. Present it in your class.

### Check Your Progress

#### A. Fill in the blanks:

1. A carton is a box or container primarily made of ..... and sometimes of .....
2. The two most common types of carton tucks are.....&.....
3. ....box is suitable for heavier and bulkier products.
4. .... finish is used for prevent burning or slow the spread of fire.
5. .... finish is used to little or no ironing is required to the garment, it will not allow the garment to form wrinkles.

#### B. Answer the following questions:

1. Explain the benefits of foldable cartons in your own words.
2. Explain features of cartons?

3. Explain the types of garment packed in a polybag and packed without polybag.
4. How is packing done based on style and folding method?
5. What do you mean by finishes?
6. Explain about some of the finishes used for garments?

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## **Session: 4 Document Records Related to Finishing & Packing**

Maintenance of information infrastructure, documents and records are essential to automate business processes and develop workflows across the product lifecycle. Any industry may succeed on national or international level by following systematic management strategies with the proficient management of documents and workflows.

In the world of apparel manufacturing, the finishing and packing department plays a critical role in ensuring that the final product meets the highest standards of quality and is ready for shipment to retailers and customers. Document records within this department are essential for maintaining efficiency, quality control, and traceability throughout the production process. In this article, we will explore the various types of documents and records that are vital in the finishing and packing department of an apparel industry.

### **Quality control records**

Quality control is a paramount concern in the apparel industry, and document records play a crucial role in maintaining and improving quality standards. The finishing and packing department maintains several quality control records:

**A. Inspection reports:** Inspection reports detail the findings of quality inspections conducted on finished garments. These reports include information on defects found, the severity of defects, and actions taken to rectify them. They serve as a valuable reference for improving production processes and ensuring that garments meet or exceed quality standards.

**B. Sample records:** Sample records include samples of finished garments that serve as reference points for quality control. These samples are compared to the production garments to ensure consistency in color, stitching, and other quality parameters.

**C. Defect logs:** Defect logs document all defects discovered during the finishing and packing process. This information helps identify

recurring issues and provides insights into areas that require process improvements or staff training.

## Packing and shipping records

Efficient packing and shipping are critical in meeting delivery schedules and customer expectations. Document records in this category include:

- A. Packing lists:** Packing lists detail the contents of each shipment, specifying the quantity and description of each item. These documents are essential for verifying that the correct products are included in each shipment and for cross-referencing with purchase orders.
- B. Shipping labels:** Shipping labels contain information about the destination, shipping method, and handling instructions. Accurate labeling is vital to prevent shipping errors and ensure that products reach their intended recipients in good condition.
- C. Shipment tracking records:** Shipment tracking records allow for real-time monitoring of shipments. These records include tracking numbers, expected delivery dates, and carrier information, helping the company and customers stay informed about the status of their orders.

## Compliance and regulatory documents

Apparel manufacturers must adhere to various compliance and regulatory requirements, both at the national and international levels. Document records related to compliance and regulations include:

- A. Certificates of origin:** These documents certify the country of origin of the garments, which can impact trade agreements and import/export regulations.
- B. Customs documentation:** Customs documentation, such as commercial invoices and customs declarations, is essential for international shipments, ensuring that goods are processed through customs smoothly.
- C. Safety and compliance reports:** Apparel must meet safety and compliance standards, including those related to materials, labeling, and environmental regulations. Document records prove that the products conform to these standards.



## Work instructions and training records

To maintain consistent quality and efficiency, the finishing and packing department relies on clear work instructions and ongoing training. Document records in this category include:

- A. Standard operating procedures (SOPS):** SOPS outline step-by-step instructions for various tasks within the department. These documents help ensure that all employees follow standardized procedures for quality and efficiency.
- B. Training records:** Training records track the training and certification of employees. These records ensure that staff members receive proper training and are qualified to perform their assigned tasks.
- C. Job cards:** Job cards are used to track the progress of specific orders or tasks within the department. They provide a snapshot of the work completed and help manage workloads efficiently.

## Inventory and stock records

Efficient inventory management is crucial to prevent overstocking or understocking of products. Document records in this category include:

- A. Inventory reports:** Inventory reports detail the quantity, location, and status of finished goods in the packing department. These reports help in managing stock levels, reordering supplies, and preventing stock outs.
- B. Receiving and dispatch records:** Records of incoming and outgoing shipments within the department help ensure accurate tracking of inventory movement.
- C. Stocktaking records:** Regular stocktaking records verify the accuracy of inventory levels and identify discrepancies that may require investigation.

## Communication records

Clear and effective communication within the department and with other departments is essential for smooth operations. Document records in this category include:

- A. Communication logs:** Communication logs document interactions between the finishing and packing department and other departments or external parties. These logs help track the progress of inquiries, requests, and issue resolutions.

**B. Production meeting minutes:** Minutes from production meetings record discussions, decisions, and action items related to the department's activities. They provide a historical reference for addressing issues and implementing improvements.

In the finishing and packing department of an apparel industry, document records serve as the backbone for maintaining quality, efficiency, and compliance throughout the production process. From quality control and packing to compliance and communication, these records are essential for ensuring that finished garments meet the highest standards and are ready for shipment to customers worldwide. Efficient document management in this department is key to achieving success in the competitive apparel industry.

### **Quality control testing of packing and packing material**

Garment manufacturers give more importance to better service quality by adding latest design features and using the latest packing technologies to the garments. The main role of a packer in a garment industry is to identify the root causes of packing defects and reducing the defects.

The quality of packing is as important as the quality of the products they contain. That is why it is important to conduct a quality check of the packing to ensure that the correct packing, quantities, and order details are securely loaded before the final shipment.

Even if the products are well made but the industry does not have good quality packing for the products, it will eventually fail during shipment or quality check. It is very devastating to know the order has failed because of its packing after putting the time, money, and effort into ensuring that the products meet all quality and compliance standards, conducting lab tests to verify for no harmful chemicals, conducting third-party inspections to confirm the appearance and meet all physical requirements. The rejection of packing maybe because of the cartons were crushed or damaged during shipping, the cartons were not containing the right assortment of products or the country of origin markings are illegible. So it is very important to include the right packing checks on the QC checklist because there are many ways that one can run into trouble with the product packing. Doing this quality check helps ensure that the products get to their destination in the expected condition.

### **Ideal requirements of a good package:-**

1. A good package should be able to store the product without it spoiling, or permeating.

2. They should offer protection against environmental conditions like light, air and moisture during storage.
3. They should be strong enough to endure shocks from handling, transit, and other factors.
4. They should make content utilisation more efficient, safe, and convenient.
5. The material must not interact with the contents.
6. A good package should offer protection from moulds, bacteria etc.
7. In a good package design, the cost of packing material should be as low as possible without compromising the quality.
8. They should facilitate easy identification.

**There are several packing checks that can be performed during inspection:**

**I. Verify package assortment and quantities:** An independent or third-party inspector can visit the supplier's facility and confirm the order quantity and assortment on-site during final inspection. If packing similar, but not identical SKUS (Stock Keeping Units) within the same carton, it's important to check the number and proportion of each SKU packed. For example, garment importers commonly ship shirts of the same style, but different colors, in the same carton.

In packing, if inspection reveals incorrect assortment, the supplier may need to sort the items again by rechecking and repacking the shipment. If left unchecked, this could result in incorrect delivery of products to customers, likely leaving with a number of product returns and customer complaints.

**II. Check sealing method and packing materials:** Temperature changes, excessive humidity and rough handling are some factors that could degrade the packing, and the product it contains during transit. Sealing, strapping and binding methods can affect the packing's structural integrity and durability against external elements. As with many other product and packing characteristics, an effective QC checklist typically includes a section identifying the sealing, strapping and binding methods used.

Depending on the experiences with international shipping, one might have a personal preference for a certain type of strapping and sealing methods for the cartons and polybags. For e.g. Metal bands are typically stronger than plastic bands, but they also have the potential to rust. Plastic strapping is also lightweight and easy to work with and dispose of. Polybags can be sealed in a number of ways, from vacuum sealing by a machine to a simple piece of tape placed over the opening.

**III. Check for necessary markings for shipping and customs clearance:**

Absence or incorrect label in packing can lead to major problems at customs. For example, customs officials pay particular attention to the country of origin for imports, in order to correctly levy appropriate duties and taxes. So marking products with an incorrect country of origin can lead to delays and even fines, which can total up to the domestic value of the imported merchandise.

**IV. Check barcodes on shipping carton and retail packing:** Similar to carton markings, barcodes are essential to tracking the shipments and ensuring timely processing. A packer should keep in mind the following points and report to the concerned authority in case of any issue related to barcode:

- Poor printing of barcode, for e.g. low contrast between the background and the information, white lines and missing bars.
- Barcode printing is too close to the edge or too close to other text or symbols because barcode scanners need a “dead zone”, or a blank space around the barcode, to read it properly.
- Damage of barcode, through creasing or peeling.
- Oversized or undersized printing of barcode.
- Incorrect orientation of barcode.

Checking barcodes is an easy and basic part of almost any packing inspection.

**V. Carton drop test:** To perform carton drop test, a carton is picked up at a specific height depending on how heavy it is. It is then dropped several times from different angles to ensure that the retail packing and products inside do not get damaged.

**Note: carton drop tests allow simulating rough handling during the shipping assuming that the packing is strong enough to withstand any external force or shock.**

**Identifying and fixing the defects of products to be packed**

In garment industry, many people are involved in production of the garments. Workers are working on the production line continuously. Hence there can be chances of sewing defects. In some cases any type of sewing defects can be revealed during packing process such as broken stitch, open seam, pleat, skip stitch, missing label and miss-matching of points up down. Therefore, the packer needs to pack the products very carefully by observing for any defects.

## Root cause identification

Sewing defects- some sewing defects that should be taken care of are open seams, wrong stitching techniques, usage of different colour threads on the garment, skipping of stitches, wrong thread tension and raw edges and creasing of the garment. If packer finds any of these defects then it should be added in report and the product must be returned to finishing department for rectification.

- If packer finds any oil stain or dust stain, it should be returned for spot removal to finishing department.
- If any misplaced size of product is found in a bundle, the packer is supposed to report it to the production unit where bundling is done.
- If any missing accessory and trim is found, it should be fixed in packing department only.
- Missing tags on the garment or wrong placement of tags should be checked and corrected by the packer.
- Packer should report any colour defected/shade difference piece to the concerned department.

If any defects are found while packing of the garment, it must be added in report and returned to the finishing department. Any oil stain, misplaced accessory, wrong size product, missing accessory or trim, missing label or tags, shade difference problems should be checked while final packing and should be send to the respective departments for correction if any problem found.

## Reporting of detected non-conformities to supervisors

A non-conformity report or NCR is a construction-related document that addresses specification deviation or work that fails to meet quality standards. The report is used as part of quality control processes by detailing the problem, reason for occurrence and prevention methods. An NCR also is used in determining a resolution with a customer and documenting any corrective changes made.

### **A non-conformance report includes the following information and are:**

1. What is the main reason for the NCR or what went wrong.
2. Why the work doesn't meet specs.
3. Prevention method to reduce the abnormalities.
4. Explanation of corrective action taken or to be taken.

## Issue of non-conformance report

Issuance of an NCR is based on,

1. Work that was not fulfilled as per the approved-issues for finished products.
2. Work that fails to meet specified tolerances as established in the garment specifications.
3. Failure to follow the approved testing and inspection plan.
4. Product does not meet established and approved standards
5. Design is not accurate and does not represent the trial sample.
6. Non-conformance reports often are used as training tools for team
7. Leaders to train other employees to prevent reappearance of similar Situations.
8. Product seems dimensionally unstable.

## Handling non-conformances

1. Document the nonconformance and give each nonconformance a unique number.
2. Issue the documented nonconformance to relevant department.
3. Department (responsible person) to investigate root cause.
4. Implement corrective action.
5. Verification of implemented corrective action.
6. Close out the nonconformance and file.
7. If deviation from established code of conduct, refer to supervisor for
8. Immediate appropriate action.
9. Replace the malfunctioned equipment with spare equipment or rent equipment from external service provider.

## Activities

### Activity 1:

Observe all the documents records related to finishing & packing from the internet and write down the contents list in each document.

### Material required:

1. Mobile/laptop with internet

2. Pen
3. Book

**Procedure:**

- Search on the internet about the finishing and packing documents.
- Write down in your file all the contents list in each of the documents.
- Discuss with your class teacher

**Check Your Progress****Fill in the blanks:**

1. NCR in shipping is \_\_\_\_\_.
2. Efficient inventory management is crucial to prevent \_\_\_\_\_ of products.
3. \_\_\_\_\_ are essential to tracking the shipments and ensuring timely processing.
4. \_\_\_\_\_ can visit the supplier's facility and confirm the order quantity and assortment on-site during final inspection.
5. A good package should be able to store the product without \_\_\_\_\_.

**Answer the following questions:**

1. Write a short note about document records in finishing & packing?
2. What is the role of quality control in finishing & quality?
3. What are steps involved in shipping the material?



**Module 2****Planning And Organizing Finishing And Packing Process****Module Overview**

Apparel industry has always been showing the need for different and attractive packing. In retail section of apparels, the product packing is as significant as the product itself. Different and creative packing is always important for attracting new customers as well as ensuring the customer satisfaction.

The garment industry is growing exponentially and so is the need of packing. Also the emergence of online shopping has drastically increased the demand of quality packing in apparel sector.

With the increase in online shopping, the product branding and marketing also has garnered new dimensions. Now a day, the trends in packing are inclining towards personalized and customized packing. Many reports suggest that manufacturers are spending a huge amount on product packing.

In the packing process, garments are folded and then packed in poly-bags. Generally poly-bags are of different sizes according to the size of the garment. The position of sticker, hangtags and other labels should be confirmed. After poly-packing, garments are arranged in the sorting rack according size and color. Then garments are then placed in inner box from the sorting rack according to size and color. Packing in inner/carton box according to work order is called 'assortment'. The carton is then sealed with the scotch tape. Carton bears some information on it i.e carton box no. Carton box size, shipping mark, destination etc.

Two basic objectives of packing are preventing any damage to the product during transportation and maintaining the features of the product till it reaches to the consumer. Basic functions of packing are protection, containment, information, utility of use and promotion. Packing has two primary functions: distribution and merchandising. The main purpose of distribution packing is to transport the garment at a lowest cost and in the shortest time to the buyer, without damaging the quality of the product. The merchandising function deals with showcasing the garment product to get attention of consumer for purchasing the particular product.

<b>Learning Outcomes</b>
After completing this module, you will be able to: <ul style="list-style-type: none"> <li>• Describe different types of customer labels, Distribution centers and shipping documents</li> <li>• Describe packing list, barcodes and preparation for shipment</li> <li>• Describe garment washing and types of washing machines</li> </ul>
<b>Module Structure</b>
Session 1: Types of Customer Labels, Distribution Centres and Shipping Documents
Session 2: Packing List, Barcodes and Preparation for Shipment
Session 3: Garment Washing and Types of Washing Machines

## **Session: 1    Types of Customer Labels, Distribution Centres and Shipping Documents**

Labeling plays the role of branding. It is printed information attached to the product for recognition and provides detailed information about the product. Customers make the decision easily at the point of purchase looking at the labeling of the product.

A garment label is a communicator between the buyer and product. A garment label includes information namely buyer name, country of origin, type of fabric and yarn, fabric composition, garment's size, special care instructions etc.

A care label is also tagged to the garment, it includes care instructions. Sometimes laundry symbols are included to indicate how a product should be washed, dry cleaned and ironed.

### **Different types of customer labels**

A label is a piece of paper, card or any metal that is attached to a product which furnishes information to the consumer. They are in the printed, woven or embroidered form at the edge of textile material or as specified by the buyer. Permanent labels remain for longer period, like printing of text on the selvedge of material. Some are temporary which removes after first washing. Labels are the major source to communicate with the end consumer. They furnish general information regarding care instructions, fiber content, name and address of the company or brand to the consumer. They help to attain satisfaction in the minds of purchasers and considered as a tangible and visible form of reminder for the consumer.

The labels are attached at different locations on the garments like, at the back of the neck, under the side seam, near the cuffs, or printed on the selvedge of the fabric or packing of the product.

The type of material used for labels vary from temporary to permanent use in its quality. Using the card paper is the cheapest method and leather or metal labels are used for high quality brand labels. Labels should be resistant to abrasion, washing, dry cleaning, pressing or any stresses. The written information or symbols used should be legible, correct, complete and easy to read.

### Functions of labeling

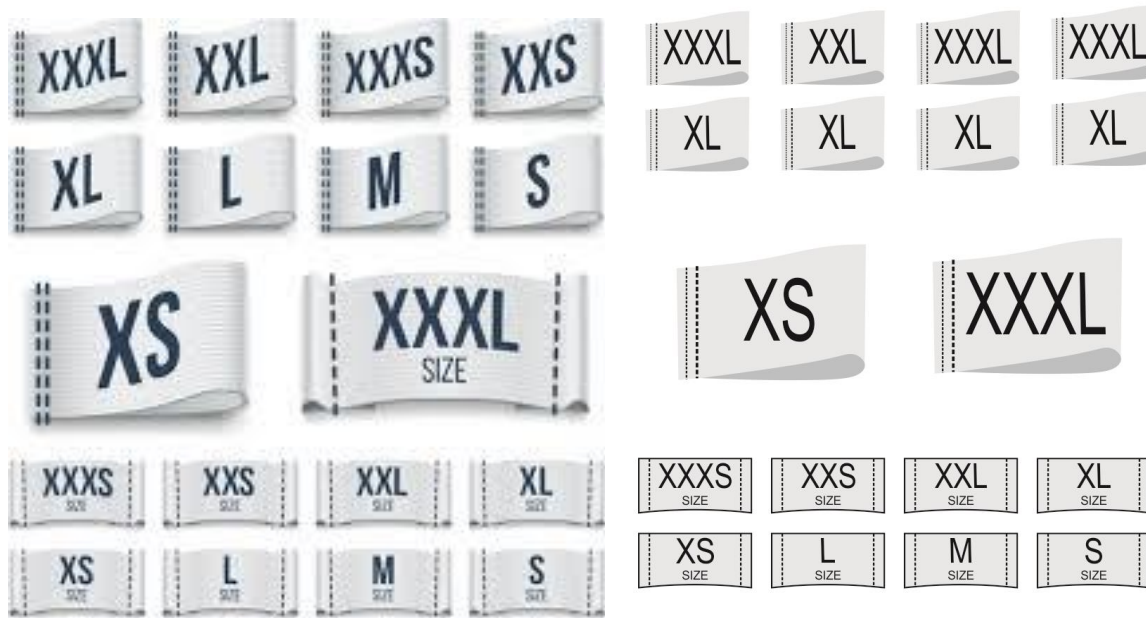
1. **Labelling defines a product and its contents:** A label is informative about the product's usage and cautions to be taken while using the product. Example: garments mention fibre content, blend and its composition in its label.
2. **Recognition of product:** Labeling assists in the identification of the product. Example, the brand name of a shirt and pant will help one to choose from the rest of the products available.
3. **Assorting of products:** It means classification or grading of products according to different categories in the market. Example, garments are categorized in size types as small (s), medium (m), large (l) etc. And cater to the consumers in the market with respective sizes.
4. **Assists promotion of products:** It gives the customer the reason to purchase the product. Example, it attracts the attention of the consumer by displaying messages such as '50% discount' or 'buy one and get one free offers and discounts.
5. **In compliance with the law:** Labels should strictly abide by the law. Example, with cross marking on the symbol, or information as 'no animals were harmed in making of the product' on its package.

### Types of labels are:

**1. Information labels:** It specifies product usage. These labels are used to provide information regarding fiber content, yarn type, finishes used, raw materials and manufacturing processes for consumer to choose the particular material according to his / her needs. For example, if a specific material is a blend of cotton and nylon, those purchasers who are allergic

tonyl on material will be well informed from the label that this product is not suitable for their use in future. So, it also helps to safe guard the consumer from any damages/harm. The generic fibre names and percentages by weight of each constituent fibre must be listed in descending order of prevalence. For example: 65% rayon 35% polyester. If the product is made from one fibre, the word “all” or ‘100%’ is used. For example: ‘100%cotton’ or ‘all cotton’.

This label is also used to indicate the information about manufacturer or retailer regarding his name, address, contact number or location etc. It helps an individual or industrial consumer who wishes an access. The information regarding different sizes of garments is also written on these labels like s for small, m for medium, l for large and xl for extra-large or sometimes they are written in the form of numbers that indicate the particular size like 10, 11, 12 etc.



*Fig:2.1 Size label*

**2. Care labels:** Care labels are used to guide the consumer regarding care instructions related to its maintenance like washing, drying, bleaching, ironing etc. These are very essential because while purchasing the garment, one has to calculate the care requirements, for example: the garments that require dry cleaning add much price to the consumer as compare to those materials that can be easily washed at home under ordinary washing conditions.



*Fig:2.2Care label*

**3. Brand labels:** It plays an important role in labeling as it gives information about the brand. It can be removable or non-removable. Brand labels hold a logo defining company's name. These labels are designed well by using creative techniques in design, color, pattern and printing because they also act as a promotional medium. It shows the distinctive features of sellers from their competitors in the market. It helps to create and maintain consumer's association with the company.



*Fig:2.3Brand label*

**4. Flag label:** A small label attached at outside side seam. Flag labels are normally made of brand logos and it is primarily used as design feature.



*Fig:2.4Brand label*

**5. Manufacturer label:** This label includes manufacturer's code given by buyers. Most of the international buyers source garments from the different part of the world and distribute those garment across the world. In case buyer needs to track the manufacturer of a particular product, they use this code.

**6. Batch mark label:** It indicates the sewing line or batch had made for the particular garment. This label is attached at the side seam under wash care label.

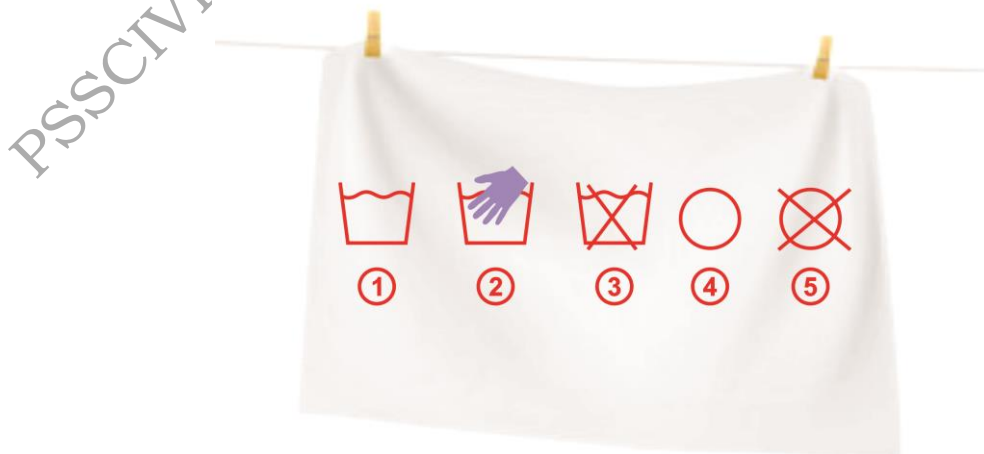
**7. Special label:** These labels are normally attached to draw customer's attention at the time of purchasing. 100% cotton, organic cotton, are an example of special labels.

### Washing labels

A washing label is in the form of pictogram which represents method of washing, for example: machine-wash, hand-wash and dry-cleaning etc. Washing labels play a very important role for maintenance and durability of the garments because getting the temperature and wash cycle right is important for good laundry results, and can even prevent damage of clothes.

**Some of the washing/cleaning labels are given below:**

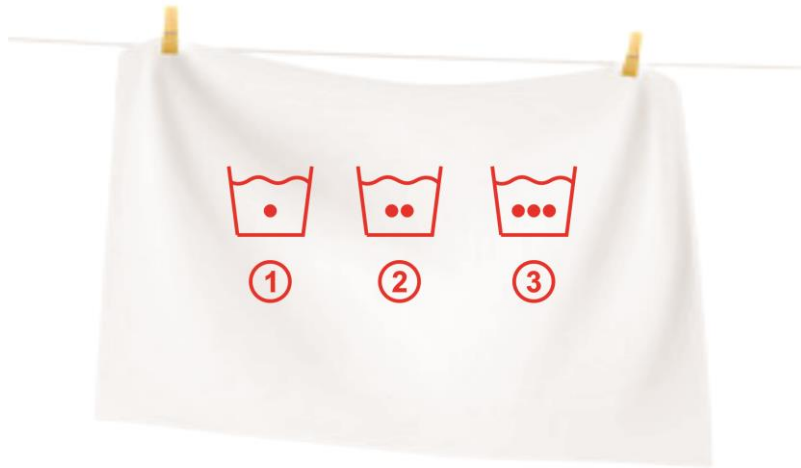
1. Machine wash
2. Hand wash
3. Do not wash
4. Dry clean only
5. Do not dry clean



*Fig: 2.5 Washing labels*

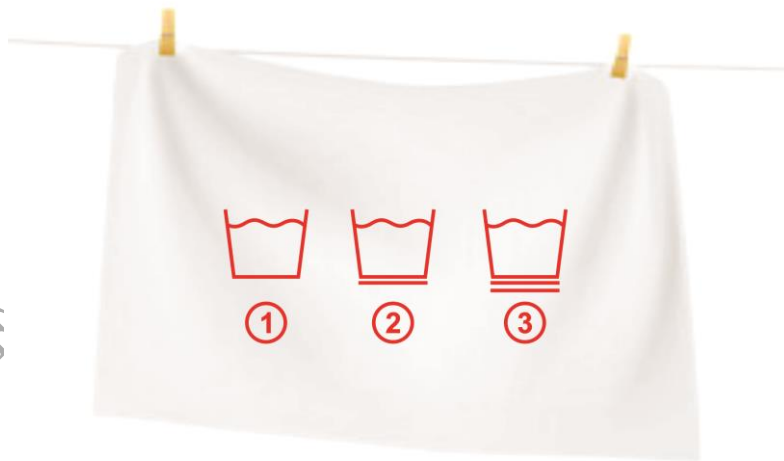


1. **Wash cold:** On temperatures between - 65 and 85f
2. **Wash warm:** On temperatures at max. - 105f
3. **Wash hot:** On temperatures at max. - 120f



*Fig:2.6 Brand label*

1. Normal cycle
2. Permanent press cycle
3. Delicate / gentle cycle



*Fig:2.7 Brand label*

### **Drying symbols**

1. Tumble drying allowed
2. Do not tumble dry
3. Hang to dry
4. Dry flat



## 5. Do not wring

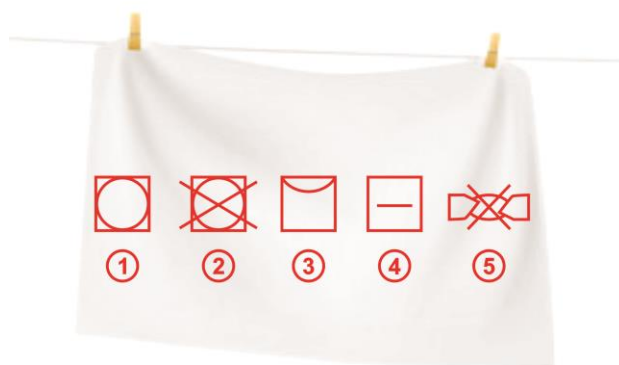


Fig:2.8 Drying symbols

1. Any heat
2. High heat
3. Medium heat
4. Low heat
5. No heat / air

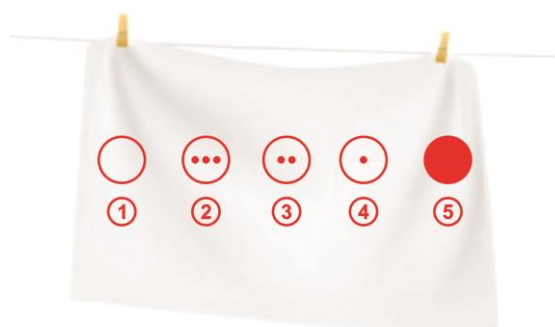


Fig:2.9 Drying symbols

1. Normal cycle
2. Permanent press cycle
3. Delicate / gentle cycle

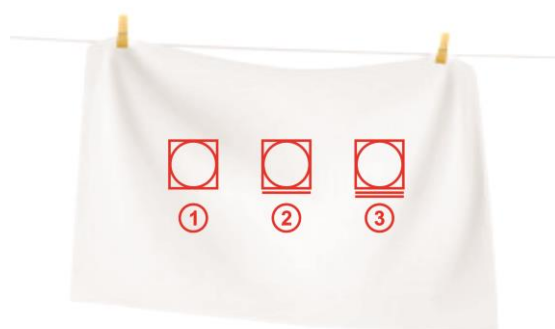


Fig:2.10 Drying symbols

## Bleaching symbols

If using bleach, one has to take a look at the garment's fabric care label to see if there is a bleach symbol, given by a triangle or more importantly a do not bleach symbol, a triangle crossed out. Recognizing these signs can save the garment from getting permanently damaged by chlorine bleach.

1. Bleaching allowed
2. Do not bleach
3. Use non-chlorine bleach



Fig:2.11 Drying symbols

## Ironing symbols

Some fabrics look great after ironing but more delicate materials can be damaged when ironed. There are even some fabrics that simply need special care when ironing. Iron symbol on the garment is represented by a little iron symbol with dots in the middle that indicate the temperature setting.

1. Iron low
2. Iron medium
3. Iron high
4. Do not iron
5. No steam added to iron

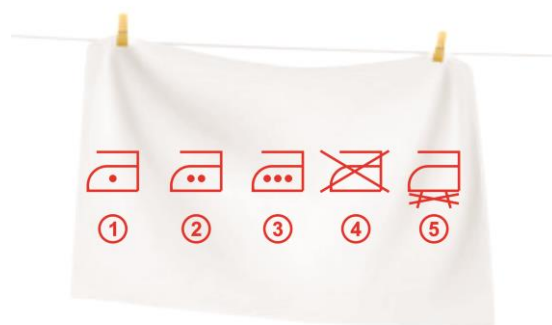
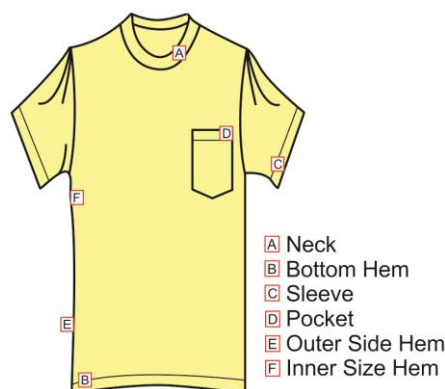


Fig:2.12 Ironing symbols

Care labels are not mandatory in all countries. There is no universal garment care symbol system but one should check these labels before washing, drying and ironing the garment to avoid any damage.

## Tags

**1. Hem tag:** These tags are folded logo tags attached on the outside of a clothing item often on the bottom of the shirt. They appear on the neckline and arm sleeve of t-shirts and sportswear. It is attached at any part of garment like, on the rim of the neck, the bottom hem, on the side, or on the sleeve of the shirt. The most common size of hem tags is about 1" x 1".



*Fig:2.13 Hem symbols*

**2. Hangtags:** Hang tags are not attached directly to the product or garment, they hang from a string and provide information such as price, manufacturer, care instructions, or material. Hang tags are usually larger than labels attached to a product which contain detailed information. Customer will look for these hang tags at a glance while buying the product. These are used to draw attention to finished garment. Both the sides of the hangtags are of different colours or in black and white. Standard paper stock is mostly used to produce hangtags. Other alternatives are stainless steel, bamboo, basswood, fabric, PVC, clear & white poly tags. These hangtags give garment or products a unique style that distinguishes items from the ordinary. Different shapes of hangtags are created like rectangle, square, circle, oval, hexagon, star, etc.

## Types of hangtags

Common garment hang tags are as below:

- Paper hang tags;
- Metal hang tags;
- Leather hang tags;

- Textile hang tags;
- PVC material hang tags, rubber, wood.

**A. Paper material for the garment hang tag:** These types of hangtags include coated paper, Kraft paper, single-faced and double-side paperboard, insulating and corrugated paper, cardboard, recycled paper, etc. Paper materials are considered perfect for garment hang tag.



*Fig: 2.14 Paper hang tags*

**B. Metal material hang tags:** These hangtags are made up of copper, iron, alloys, stainless steel, etc. Metal hand-tags are suitable for clothing tags such as denim clothing. Thus, it can be used as a chain to hang clothing tags to highlight its style.



*Fig:2.15 Metal hang tags*

**C. Leather material of garment hang tag:** These hang-tags are made-up of all kinds of animal skin, fur, leather, etc. But in this era of eco-friendly products, these tags are created with suede-leather. These are ideal for hang tags on leather and denim clothing and it aims to illustrate the material of the clothing itself.



Fig:2.16 Leather hang tags

**D. Textile material hang tags:** These tags are made up of canvas, silk, cotton fabrics, etc. Textile material hang-tags are perfect for leisure clothing and hang tag strings.



Fig:2.17 Textile hang tags

**E. Other materials:** There are many other materials for clothing hang tags like PVC, rubber, wood etc. They are great for garment hangtags to improve the brand value.

**3. Unique labels:** Unique labels are used to give a special touch to the garment and to distinguish it from other brands or manufacturers. Some of the special types of labels used are:

- A. Bead label:** This label has beads attached to it, either by sewing them or with the help of glue. The beads may be of a single or of multiple colours. Such label gives a unique look to a garment.
- B. Die cut label:** A die cut label is produced using a block or die to produce distinctive shape used to showcase uniqueness in the label.

- C. Pull label:** These labels look like a pillow because of its cushioning and can be used as a zipper pull. The symbol of the brand is printed or woven on these labels.



*Fig:2.18 Pull label*

- D. Studded label:** This label has stones stuck on to it to create a unique effect.
- E. Sequential numbered label:** Labels possess numbers on each individual label in a sequential manner that helps in identifying fake products.
- F. Dry peel labels:** Dry peel labels can be peeled away and removed from the product container or package. An adhesive is used to temporarily hold the label in place. Dry peel labels are often used for instant usable coupons at point of purchase or to provide additional copy.
- G. Fold out labels:** Labels are fold out to provide additional content and are made of a single substrate which is folded. A fold out label is used in addition to the primary label attached on the container.
- H. Prime labels:** This label is attached on the center front of product. Value addition is done to attract from the rest of packing. For example, primary labels may include foil stamp, matte and gloss finishes, tactile varnish, back-sided printing, specialty coatings and variety of other specialty features to enhance their shelf appeal. It is silent advertising for the garment.

### **Distribution centers- central and local level**

A distribution center used to perform the entire order fulfillment process. Based on the purpose of the operation, distribution center plays the role of warehouse, fulfillment center, cross-dock facility, bulk break center, and package handling center. For example, "retail distribution center" distributes goods to retail stores, an "order fulfillment center" distributes goods directly to consumers, and a cross-dock facility stores and distributes goods to other destinations.

- A. Central level distribution centers:** Distribution is the base of a supply network which allows a single location to stock a huge number



of products. Some centers operate both retail distribution and direct-to-consumer distribution by sharing space, equipment and labour resources.

Deliveries from suppliers are transported to the central location, in full load quantities but centralised distribution center organises its onward delivery to the individual branches of a multiple retailing operation.

- B. Centralised supply chain:** In the centralised supply chain, operations are limited to a “central” location. Goods are arrived and stored in a distribution center in different types of storage sections and containers according to the product type, characteristics and the amount of product to be stored. Cross-country customers who have an urgent need may be charged some shipping fees.

### **Characteristics of centralized supply chain:**

- a) Shipping containers are used for the transportation of goods.
- b) Pallets are used to store and move product in a distribution center. Some specialized devices are used to handle pallets like forklift truck, pallet jack, pallet inverter, unit load and automated storage and retrieval systems. Pallets are stored on the floor or in pallet racking.
- c) Bulk box are large single boxes attached to a pallet.
- d) Cases and cartons are boxes containing many items. A stored carton is called a case once it has been picked or pulled for shipment.
- e) Totes are reusable containers used to hold and transport goods.

- C. Local level distribution centers:** Retail distribution network operates with centers set up throughout a commercial market, with each center serving a number of stores, plays the role of distribution centers at local level. Large distribution centers for industries usually serve 50–125 stores. Many retailers own and run their own distribution networks. A distribution center can be co-located at a logistics center. Retail distribution center creates a place where orders are received, goods are picked up according to orders, and these are then packed for shipment to stores, end customers, or other channels.

- D. Central cum local distribution:** These distribution centers make the distribution process easy by unification of centralized and decentralized supply chain methodologies and industry culture is fostered and maintained in one location. In these centers, standardization of systems and processes are easier. These centers



should have the ability to locate products quickly if there are concerns about inventory status or reliability.

## Shipment documents

Documents related to shipment are forms that accompany a shipment listing i.e. the date of shipping, customer, method of shipment, quantities and specifications of goods shipped. Shipping documents usually include bills of lading, packing lists, invoices, insurance documents, and air waybills.

Shipping documents must be submitted along with declaration forms duly signed by customs within 21 days from the date of exports. For bulk shipments, the lot number should appear on the associated invoice and shipping documents.



Fig: 2.19 Shipment documents

### I. Packing invoice and slip

Packing slip and packing invoice, both the document transactions deals where physical goods change hands. However, the packing slip describes the physical merchandise, whereas the invoice describes the financial transaction after the sale of these merchandise.

## **Purpose of packing slips and invoices**

The purpose of a packing slip is to explain the contents of a package, so that the shipper can state what products have been sent and the receiver can verify that the same products have been received. The information given on packing slip solves this purpose by listing product description, quantities, and any other pieces of information that may be useful to the receiving department of the company making the purchase.

The purpose of a packing invoice is to tell the accounting department how much to pay, and when to pay it and also the information pertinent to this payment process, for example prices and terms, such as whether payment is due immediately or in 15 days.

## **Uses of packing slips and invoices**

The seller's shipping department uses the packing slip to make sure that everything that should be packed into an order is actually included. The receiving department of the buyer's company checks the items in the delivery, comparing the listed descriptions and quantities with the items received. Discrepancies are cause for contacting the seller and asking for the missing items to be reshipped or credited.

The accounting department of the seller's company uses the invoice to notify the balance due, and also to keep a record of accounts receivable, or outstanding invoices that have yet to be paid by the buyer. The accounting department of buyer uses the invoice to plan payments and also to make sure that the amount remitted is correct. It is always a good accounting practice to double check the math on an invoice, to make sure that the company hasn't been overcharged.

## **Similarities and differences between packing slips and invoices**

Packing slips and invoices, both list the items that have been shipped, as well as the quantities of the items. If any item is out of stock, this information is more likely to appear on the packing slip than on the invoice, because this information is relevant to the receiving department, which is responsible to handle inventory. The accounting department doesn't necessarily need to know about out of stock items because no payment is due for these items. However, if the accounting department has issued a purchase order, then an item which is out of stock will be relevant, because the invoice amount won't agree with the purchase order amount.

## II. Advanced shipping notice

Advanced Shipping Notice (ASN) is an electronically generated and sent notice of an upcoming or pending delivery to the buyer from a third-party-logistics or the supplier, well in advance.

The ASN'S structure or format depends on the customer demand or what information the supplier needs to provide. Advanced shipping notice includes:

- **Order information:** Purchase order number or reference should be included at a minimum.
- **Delivery details:** Delivery date, time and booking reference.
- **Location information:** Global Location Numbers (GLNS) to identify all trading partners involved in the transaction (supplier, buyer and carrier) and the delivery address must be included in all ASN'S.
- **Pallet codes:** The buyer should know how many pallets will be included.
- **Physical characteristics:** What package will be used, for example pallet type
- **Product details:** A description of the products should be included. GTIN'S, which stand for global trade item number and are the unique number that identifies products, should also be included for each product line.

The advanced shipment notice is a notice sent before the shipment is dispatched, followed by an invoice at the time of delivery. ASNS are usually provided by the third-party logistics companies, but can also be provided by the sellers themselves. The modern sellers never accept packages which are delivered without an ASN from the supplier.

Now ASN is sent via electronic data interchange (EDI) which was used to be sent via fax earlier. Once the ASN is received, it is uploaded to the warehouse management system (WMS) of the client. The WMS or the transportation management system then processes the ASN file and the shipment is received at the distribution center, warehouse, or store.

The supplier can either put barcodes on all the shipped boxes, crates and cases or maybe attach RFIDS and add that information to the ASN to make it easier for the seller. When the shipment is received by the seller, it is scanned for the Shipment's Serial Shipping Container Code (SSCC) with the ASN to maintain accuracy. Any sort of error identified is directly notified to the supplier and is rectified.

The associated purchase order is pulled out from the inventory system to make sure that the same shipment hasn't been received before. There can certainly be times when the order would be the same but not the SSCC.

### **The importance and benefits**

- a) ASN-based shipping and receiving practices assist companies and buyers with quick and accurate loading and unloading of shipment, the efficient sorting and management of inventory.
- b) ASN-based shipping rectifies loopholes for e.g. human-errors like confusion among similarly titled items thus saving the time.
- c) If any discrepancy causes between the order placed and the shipment received, ASN makes it very quick to figure out. With this, the seller can always claim the shipping insurance if anything goes missing and there is a changed number of shipments received at the other end.
- d) ASN offers multiple benefits related to logistical and supply chain and helps with accurate and on-time dispatch and delivery. If someone from the warehouse team, who is in charge of the incoming consignments, is notified regarding the shipments that are expected to arrive, they can accordingly arrange an outbound transportation of the same.

### **III. Airway bill**

An airway bill (AWB) is a document that includes all the details about the goods which are transported via air cargo. Airway bills are issued by a carrier or the agent and have details such as the shipment contents, details of the supplier, the recipient, terms and conditions under which the trade is to occur and other vital information.

Airway bill is that it is also a legal document which is often used during disputes between the parties indulged in the trade. Therefore, the International Air Transport Association (IATA) has instructed air cargo operators worldwide to issue airway bills in a standard format to ensure that there are no discrepancies.

### **Functions of the AWB**

The air waybill serves many functions, including:

- Evidence of receipt of goods by an airline
- Contact information among all parties

- Contract of carriage between shipper and carrier
- Freight bill
- Customs declaration
- Description of the goods
- Guide for handling and delivering goods
- Tracking of shipment

#### **IV. E-way bill**

An e-way bill is a permit needed for inter-state and intra-state transportation of products worth more than Rs. 50,000. It contains details of the products, consignor, recipient and the transporter. It can be electronically generated through the GSTN.

The e-way bill has now been made mandatory for inter-state and intra-state supplies in certain states (for e.g. Arunachal Pradesh, Madhya Pradesh, Meghalaya, Sikkim, and Puducherry).

#### **Contents of an e-way bill**

An e-way bill has two main components:

##### **I. Part a includes:**

- GSTIN of the recipient
- Place of delivery (pin code)
- Invoice/challan number and the date of issue
- Value of goods
- HSN code
- Transport document number (goods receipt number / railway receipt number/airway bill number/bill of lading number)
- Reasons for transportation

##### **II. Part B contains the details of the transporter (example: their vehicle number)**

**FORM GST EWB - 01**  
(See Rule 138)  
**E-Way Bill**

E-Way Bill No. :

E-Way Bill Date :

Generator :

Valid From :

Valid Until :

PART-1		
A-1	GSTIN of Supplier	
A-2	Place of Dispatch	
A-3	GSTIN of Recipient	
A-4	Place of Delivery	
A-5	Document Number	
A-6	Document Date	
A-7	Value of Goods	
A-8	HSN Code	
A-9	Reason for Transportation	
PART-B		
B-1	Vehicle Number for Road	
B-2	Transport Document Number/ Defence Vehicle No./ Temporary Vehicle Registration No. / Nepal or Bhutan Vehicle Registration No.	

*Fig:2.20 E-way bill*

### Marking basic packing details on cartons

**Shipping marks for export cartons:** “Shipping marks” are used by exporters on carton boxes as per the instructions of buyers. Having accurate shipping marks on the cartons is a key for correctly stocking the products and finding them later.

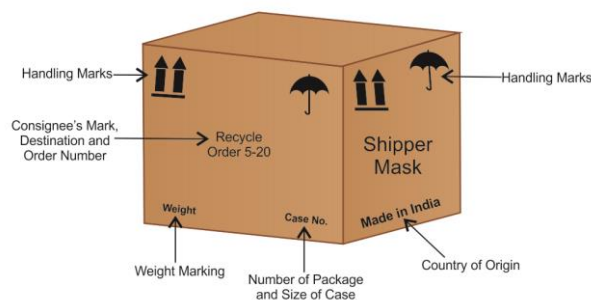


Fig:2.21 Shipping marks on cartons

“Shipping marks” designate written matter on the shipping cartons. These marks are printed before the goods packed.

**Purpose of a shipping mark:** Shipping marks are identification marks for the carriers and all parties involved in the carriage and handling during transit of the package. They are in the form of words, numbers or symbols shown on each package unit for easy identification and handling of the cargo.

**Information included is:**

The information in the shipping mark label may vary from time to time but generally the information included are,

- Purchaser's name and or logo
- Product reference and or order number
- Country of destination to reach
- Other relevant information about the products: design pattern, size, colour, etc.
- Net and gross weight of carton
- Dimensions of the carton
- Number of cartons per batch (example: 1/230, 2/230, 3/230...)
- Barcode is on the short side of the carton to make it visible



Fig:2.22 Barcode



- 1) **Shipping address label:** Consignee's name and address, key contact person with telephone and fax number on the shipping label, along with the customer purchase order number.
- 2) **Return address label:** Industry name, address, key contact person and communications numbers on each carton.
- 3) **Country of origin:** Industry return address to support all the documentation and streamlines processing at the port of destination.
- 4) **Marking location:** The contents of the carton should be marked outside which minimizes confusion for customs, customers, and handlers at every stage of the shipment.
- 5) **Markings in English language:** Outside of cartons should be marked in English unless notified and the translation approved by the buyer.
- 6) **Universal symbols and phrases:** It helps for immediate identification of packages for special handling. Standard international symbols for careful handling of hazardous or breakable products, such as "this side up," "Handle with care," "Flammable" or "Keep Dry."



*Fig: 2.23 Standard international symbols for careful handling of hazardous or breakable products*

- a) **Handle with care:** The package must be handled carefully
  - b) **This way up:** The upward arrows show the direction that the package must be Handled and Stored.
  - c) **Keep dry:** The package must be protected from excessive humidity and be stored under cover.
- 7) **Numbering of cartons:** Number the cartons "one of three," "two of three," and "three of three." which ensures that all of the cartons in the shipment will arrive together at the port of destination.

- 8) **Marking on all sides of cartons:** Cartons are marked on five sides, i.e. all four sides and the top. If not marked all sides, at least two sides of each carton, the long and short ends should be marked. They can easily be read in any direction. All old markings should be removed to prevent confusion for the buyer.
- 9) **Weight and measurement markings:** Net and gross weight and measurement markings should be written on the outside and in the metric system of measurement.

### Activities

#### Activity 1:

Collect the types of labels used in apparel industry and keep it on your record. Write some points about each and every label.

#### Material required:

1. Label samples
2. Pen, pencil, eraser
3. Lab book
4. Glue

#### Procedure:

- Collect the samples from your dresses.
- Fix it on your lab record.
- Write some important points on your note book of each label.
- Discuss with your class teacher.

### Check Your Progress

#### Fill in the blanks:

1. A garment label is a communicator between the ..... and .....
2. A label is ..... about the product's usage and cautions to be taken while using the product.
3. .... are used to guide the consumer regarding care instructions. related to its maintenance like washing, drying, bleaching, ironing etc.
4. The purpose of a packing slip is to explain the ..... Shipping marks are ..... marks for the carriers.

5. .... gives information about the brand.

**Questions:**

1. List out types of labels used in apparel industry?
2. What are the shipping marks used on cartons?
3. Differences between packing slips and invoice?
4. Explain about types of hangtags?
5. What do you mean by distribution centres –central and local level?
6. What purpose of shipping documents and its importance?
7. List out washing and cleaning labels?

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## Session 2: Packing List, Barcodes and Preparation for Shipment

The packing list is one of the most important documents for both apparel merchandising and commercial departments of an apparel manufacturing industry. The packing section is the part of finishing section of the readymade apparel industry. Normally, the packing section packs the goods as per ratio or assortment. Later, the apparel inspector inspects the apparel product according to the apparel packing list. To prepare final packing lists, the commercial department of the apparel industry needs the final packing list to forward it to the agents and the customs department. From here, they calculate the total shipping volume and weight to confirm the required shipping cargo. As its importance, both apparel merchandiser and commercial personnel should aware of it to reduce cost in shipping. Generally, merchandisers or packing in-charge is responsible to make and delivering packing lists to related departments. The packing section does packing as per customer packing requirements that solid or asserts/ratio pack. Without giving packing list buyer QC never does a final quality inspection. Packing list is also very important to export documents, without the packing list commercial department cannot submit exports document for garments shipment, that's why the packing list consider as important document. A packing list is a crucial document in the apparel industry, serving as a comprehensive record of the garments and accessories included in a shipment. It plays a vital role in ensuring accurate and efficient logistics, minimizing errors, and facilitating smooth operations within the apparel supply chain. Here, we will delve into the importance of packing lists in the apparel industry and outline the key elements typically included in such documents.

### 1. Importance of packing lists in the apparel industry:



Fig: 2.24 Packing list apparel industry

1. **Inventory management:** Packing lists provide an itemized account of all products contained in a shipment. This helps both the supplier and the recipient to maintain accurate inventory records, reducing the risk of overstocking or understocking.
2. **Quality control:** Apparel companies often rely on packing lists to cross-reference the items received with the items ordered. This facilitates quality control measures by allowing for immediate identification of any discrepancies, such as missing or damaged items.
3. **Customs and regulations:** International shipments, which are common in the apparel industry, require thorough documentation for customs clearance. A detailed packing list assists customs authority in verifying the contents of the shipment, ensuring compliance with import/export regulations.
4. **Order accuracy:** Packing lists serve as a reference point for order accuracy. Retailers can use them to verify that they received the correct products in the right quantities, reducing the likelihood of disputes with suppliers.
5. **Efficient warehousing:** Warehouses often rely on packing lists to efficiently organize and store incoming inventory. Accurate packing lists help warehouse personnel quickly locate and retrieve the required items for distribution.

### **Key elements of a packing list in the apparel industry:**

1. **Shipper and recipient information:** The packing list should include the name, address, and contact details of both the shipper (supplier) and the recipient (retailer or distributor).
2. **Shipment details:** This section includes the date of shipment, shipment number, and any other unique identifiers.
3. **Item description:** Each item in the shipment should be described in detail, including the product name, style number, size, color, and quantity.
4. **Unit of measurement:** Specify how quantities are measured (e.g., pieces, dozens, meters, yards) to prevent any confusion.
5. **Packaging information:** Describe how the items are packaged, including the number of cartons, pallets, or containers, and their dimensions and weight. This helps with handling and storage.

6. **Order number or reference:** If applicable, include the purchase order number or any other reference number to link the packing list to the corresponding order.
7. **Country of origin:** Indicate the country where the items were manufactured, as this is crucial for customs clearance and import regulations.
8. **Value and currency:** Include the value of each item and the total shipment value, along with the currency used.
9. **Harmonized system (HS) code:** For international shipments, provide the hs code for each item, which aids in classifying products for customs purposes.
10. **Special instructions:** If there are any specific handling instructions, such as temperature requirements or fragility, they should be clearly stated on the packing list.
11. **Authorized signatures:** The packing list should be signed and dated by authorized personnel from the shipping company.

A well-prepared packing list is indispensable in the apparel industry for efficient supply chain management, accurate order fulfilment, and compliance with regulations. It ensures that products are shipped and received correctly, contributing to the overall success of apparel businesses, whether they operate domestically or on a global scale.

**Packing list documents in apparel sector:** Packing list (P/L) is known as an inventory of the incoming cargo which is required for customs clearance in apparel shipment and accompanying the commercial invoice and the transport documents.

### **Packing list in garments factory**

A packing list is a very important document for the apparel industry. Generally, merchandisers or packing in-charge is responsible to make and delivering packing lists to related departments. Information included in the packing list of a garments factory is-

1. Garments factory name
2. Buyer name and product color
3. Po and style number
4. All size names and size-wise pack quantity

5. Order, pack and cutting quantity
6. Total carton quantity and product quantity of every individual carton
7. Size-wise and total over or less pack quantity
8. All SKU information
9. Carton serial number
10. Individual carton number
11. Carton information (if needed)
12. Carton net weight and gross weight
13. Carton dimension and whole lot CBM

### Packing list format in apparel industry:

Packing lists should start with date, buyer order, style number of product and carton number. Some buyers may even ask for the net weight and gross weight of each carton. The below format have to be maintained during carton packing:

**FINAL PACKING LIST**

STYLE #			
P O #			
ITEMS NAME:		MENS WALK SHORTS	
ORDER QTY:	880	PCS	
SHIP QTY :	878	PCS	
Excess/ Short	-2	PCS	
CAT NO.:	25		
H.S CODE NO.:			

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**SOLID COLOUR SOLID SIZE**

CARTON NO.	TTL. CTN	COLOUR	32	34	36	38	40	42	QTY PER CTN	TOTAL QTY
1 - 1	1	STONE(110)	36						36	36
2 - 6	5	STONE(110)		36					36	180
7 - 13	7	STONE(110)			36				36	252
14 - 18	5	STONE(110)				36			36	180
19 - 20	2	STONE(110)					36		36	72
21 - 22	2	STONE(110)						36	36	72
23 - 23	1	STONE(110)	35						35	35
24 - 24	1	STONE(110)		12			18	3	33	33
25 - 25	1	STONE(110)				18			18	18
<b>TOTAL</b>	<b>25</b>		<b>71</b>	<b>192</b>	<b>252</b>	<b>198</b>	<b>90</b>	<b>75</b>		<b>878</b>

SIZE	C/QTY	N.W. PER CTN	TOTAL	G.W. PER CTN	TOTAL
32	2	14.21	28.42	16.81	33.62
34	5	14.88	74.4	17.48	87.4
36	6	15.40	92.4	18.00	108
38	7	14.50	101.5	17.10	119.7
40	2	16.06	32.12	18.66	37.32
42	2	16.36	32.72	18.96	37.92
MIX	1	14.32	14.32	16.92	16.92
<b>TOTAL</b>	<b>25</b>		<b>375.88</b>		<b>440.88</b>

<b>PER CARTON :</b>			
MEASUREMENT		NET WEIGHT	GROSS WEIGHT
22 X 17 X 12 INCH		375.88 KGS	440.88 KGS

<b>TOTAL :</b>	
NET WEIGHT :	<b>375.88 KGS</b>
GROSS WEIGHT :	<b>440.88 KGS</b>
SHIPMENT QTY. :	<b>878 PCS</b>
SHIPMENT CTN QTY. :	<b>25 CTN</b>
TOTAL CBM :	<b>1.84 CBM</b>

<b>SUMMARY</b>									
STONE(110)	Color	32	34	36	38	40	42	TOTAL	
Order Qty.	110	70	190	250	200	100	70	880	
Ship Qty.		71	192	252	198	90	75	878	
+/-		1	2	2	-2	-10	5	-2	

Authorised Signature

Fig:2.25 Final packing list



**Packing List**

BUYER :  
 SHIP QTY : 8,876 PCS  
 CTN QTY : 370  
 NET WEIGHT : KGS  
 GROSS WEIGHT : KGS  
 CTN MEAS :  
 DESCRIPTION : MEN'S LONG SLEEVE SHIRT 100% COTTON.  
 MADE FOR : USA

COLOUR	PCS CTN	SIZE											TOTAL PCS
		14.5	15	15.5	16	16.5	17	17.5	18	18.5	19	20	
Navy	24	24	24	120	120	192	192	168	168	168	144	120	1440
L.T Blue	24	24	24	120	120	192	192	168	168	168	144	120	1440
Pink	24	24	24	120	120	192	192	168	168	168	144	120	1440
Yellow	24	24	24	120	120	192	192	168	168	168	144	120	1440
Sage	24	24	24	120	120	192	192	168	168	168	144	120	1440
White	24	24	24	120	120	192	192	168	168	168	144	120	1440
Total =		144	144	720	720	1152	1152	1008	1008	1008	864	720	8640

UNASSORTED ALL COLOUR AND SIZE:

+ 236

Total Pcs = 8876

Fig:2.26 Packing list

**Importance of garments packing list:** In apparel industry, before the preparation of products for shipment, it should be arranged in a detailed export packing list. This list is necessary for executing an export order because if there is any mistake of any term or condition then the order may be cancelled and ultimately the product will not arrive at the right time as well as at the right destination. As a result one will lose huge foreign currency as well as better opportunity from the foreign market. The packing list is intended to let transport agencies, government authorities, and customers know the contents of the package. So, it is important document for any export.

## 2. Introduction of barcode



Fig: 2.27 Introduction of barcode

The apparel industry has undergone significant transformations in recent years, driven by technological advancements. One of the key innovations that has played a pivotal role in reshaping the industry is the barcode. Barcodes have become an integral part of the apparel supply chain, from manufacturing to retail, offering numerous benefits such as enhanced efficiency, inventory management, and customer experience. This article explores the role of barcodes in the apparel industry, highlighting their impact on various aspects of the business.

**1) Barcode basics:** A barcode is a machine-readable representation of data that is typically presented in the form of parallel lines, dots, or other patterns. The most common type of barcode used in the apparel industry is the universal product code (UPC), which is a unique identifier assigned to each product. When scanned, the barcode can quickly provide information about the product, such as its manufacturer, style, size, and color.

**2) Manufacturing and inventory management:** Barcodes have revolutionized manufacturing processes in the apparel industry. In the past, tracking individual garments through the production line was a labor-intensive and error-prone task. With the introduction of barcodes, each garment can be assigned a unique code that is scanned at various stages of production. This allows manufacturers to monitor the progress of each item, ensuring that quality standards are met and production schedules are adhered to.

Furthermore, barcodes have streamlined inventory management in warehouses and distribution centers. When apparel items are received, they are scanned into the inventory system, updating the database in real-time. This ensures accurate and up-to-date information about stock levels, reducing the risk of overstocking or understocking, which can be costly for businesses.

**3) Supply chain efficiency:** The apparel supply chain involves multiple stakeholders, from fabric suppliers to manufacturers, distributors, and retailers. Barcodes play a crucial role in enhancing the efficiency of this complex network. They allow for the seamless tracking and tracing of products as they move through different stages of the supply chain.

For example, when fabric rolls are received by a manufacturer, they can be tagged with barcodes that contain information about the fabric type, quantity, and supplier. As these rolls are used in production, their barcodes are scanned, updating the inventory and triggering reorders when necessary. This real-time visibility helps prevent production delays and ensures that materials are always available when needed.

- 4) Retail operations:** In the retail sector, barcodes are a familiar sight at the checkout counter. When customers make a purchase, the cashier scans the barcode on each item to register the sale and calculate the total cost. This process is not only fast and accurate but also provides valuable data about which products are selling and at what rate.

Barcodes also play a crucial role in managing store inventory. Retailers can use barcode scanners to conduct regular stock checks, making it easier to identify items that need to be restocked or removed from the shelves. This helps maintain a well-organized and customer-friendly shopping environment.

- 5) E-commerce and OMNI-channel retailing:** The rise of e-commerce has transformed the way consumers shop for apparel. Online retailers rely heavily on barcodes to manage their vast product catalogues and ensure accurate order fulfilment. When a customer places an order online, the barcode on each item is scanned to verify its availability, update inventory records, and facilitate the packing and shipping process.

Moreover, barcodes enable OMNI-channel retailing, where customers can seamlessly switch between online and physical shopping. For instance, customers can use their smartphones to scan barcodes on items in a physical store to access additional product information, read reviews, or make online purchases for home delivery.

- 6) Customer experience:** Barcodes not only benefit retailers and manufacturers but also enhance the overall customer experience. When customers can quickly and accurately locate the items they want, it leads to higher satisfaction levels. Barcodes provide shoppers with the assurance that they are purchasing the correct product in the right size and color. Additionally, barcodes can be used in loyalty programs and promotional campaigns. Customers can accumulate points or receive discounts by scanning barcodes on their receipts or on specific products. This gamification of shopping adds an interactive element to the retail experience, encouraging customer loyalty.

- 7) Counterfeit prevention:** Counterfeit products pose a significant challenge in the apparel industry. Counterfeiters often try to replicate popular brands and sell fake products to unsuspecting consumers. Barcodes can be used as a tool to combat counterfeiting by providing a means of authenticating genuine products.

Each legitimate product can be assigned a unique barcode that can be verified by retailers and customers. This helps in identifying counterfeit items, as they will lack the correct barcode or may have duplicate codes that can be flagged as suspicious.

**8) Sustainability and ethical sourcing:** Sustainability and ethical sourcing have become critical concerns for the apparel industry. Barcodes can be utilized to provide transparency in the supply chain by allowing consumers to trace the origins of the products they purchase. By scanning a barcode, customers can access information about the materials used, the production process, and the environmental and social impact of the product.

This transparency empowers consumers to make informed choices and supports brands that prioritize sustainable and ethical practices. It also encourages companies to improve their supply chain practices to meet the growing demand for responsible and eco-friendly products.

**9) Future trends in barcoding:** As technology continues to evolve, the role of barcodes in the apparel industry is likely to expand further. Here are some future trends to watch:

**A. RFID integration:** Radio-frequency identification (RFID) technology is gaining traction in apparel. RFID tags can store more data than traditional barcodes and can be read without line-of-sight, making them ideal for tracking items in bulk.

**B. Smart tags:** Smart tags that incorporate RFID or NFC (Near-Field Communication) technology are becoming popular. These tags can provide real-time data about product status, location, and even temperature and humidity conditions.

**C. QR codes:** QR codes, which can store more data than standard barcodes, are increasingly used for product labelling and marketing purposes. They can link customers to online content, such as instructional videos or virtual try-on experiences.

**D. Block chain integration:** Some companies are exploring the use of block chain technology in combination with barcodes to create unalterable records of a product's journey through the supply chain, ensuring authenticity and traceability.

Barcodes have emerged as a fundamental tool in the apparel industry, playing a crucial role in manufacturing, supply chain management, retail operations, and customer experience. They have facilitated increased efficiency, reduced errors, improved inventory management, and supported sustainability initiatives. As technology continues to advance, the integration of RFID, smart tags, QR codes, and block chain will further enhance the capabilities of barcoding in the apparel industry. Embracing these innovations will be essential for businesses seeking to remain competitive and meet the evolving needs of consumers in the future.

### 3. Preparing for shipment of products

The preparation of shipment is a very important task. Every document needs to be checked properly.

Some types of inspections should also be done during the shipment preparation, to help ensuring the quality standards of the products before they are shipped:

- **Packing inspection (PI):** This inspection is performed while the product is packed into boxes prior to shipment. It ensures that quality is maintained and no damage is done to your products while they are packed.
- **Pre-shipment inspection (PSI):** This inspection is done right before or after loading, in order to check/ensure the quality of the products right before shipment.
- **Defect inspection (DI):** This inspection is done as an optional addition to the psi. It involves checking for defected products before shipment.
- **Loading inspection (LI):** This inspection is done during the loading process, to ensure that the products are loaded into their shipping container properly without being damaged.
- **Letter of credit inspection (LCI):** This inspection is done as an optional addition to the li. It involves checking for the letter of credit documentation required for the trade transaction to take place.

**Shipping documents should also be prepared which includes:**

- 1) Commercial invoice
- 2) Packing list
- 3) Certificate of origin
- 4) Shipper's letter of instruction
- 5) Bills of lading

### 4. Key points to avoid defects in the finishing and packing operation

In the highly competitive world of the apparel industry, the quality of finished products plays a pivotal role in determining the success of a brand or manufacturer. The finishing and packing operation is the final stage in the production process, where garments are given their final touches and prepared for shipment. It is a critical phase as even minor defects can result

in customer dissatisfaction, returns, and damage to the brand's reputation. Therefore, it is essential for apparel manufacturers to implement stringent quality control measures to avoid defects in finishing and packing. This article will delve into key points that can help apparel manufacturers ensure the highest quality standards in this crucial phase of production.

### **Robust quality control procedures**

The foundation of defect avoidance in finishing and packing begins with robust quality control procedures. Quality control teams should be well-trained and equipped with the necessary tools to identify defects promptly. Regular inspections should be conducted at various stages of the finishing and packing process to catch and rectify issues early. These inspections should cover aspects such as stitching, seams, buttons, zippers, labels, and overall appearance.

- 1) **Training and skill development:** The skills of the workers involved in finishing and packing are paramount. Adequate training programs should be in place to ensure that employees understand the importance of their role and are skilled in their tasks. Training should cover quality standards, defect recognition, and proper handling techniques. Regular skill development sessions and refresher courses can help keep the workforce updated and efficient.
- 2) **Clear standard operating procedures (SOPS):** Well-defined and documented standard operating procedures (sops) are essential for consistency and quality assurance. Sops should outline every step of the finishing and packing process, including specific quality checkpoints. These procedures act as a reference guide for workers, reducing the chances of errors and defects.
- 3) **Effective communication:** Effective communication between different departments, such as production, quality control, and packing, is crucial. Any issues or defects identified during quality control inspections should be communicated promptly to the production team for rectification. Likewise, the packing team should be informed of any special handling requirements or defects that need to be addressed during packaging.
- 4) **Investment in technology:** The apparel industry has seen significant advancements in technology that can aid in defect prevention. Automated sewing machines, computerized pattern recognition systems, and barcode scanning for tracking and quality control are just a few examples. Investing in these technologies can



enhance the precision and efficiency of the finishing and packing process.

- 5) **Materials and equipment:** Quality materials and equipment are essential for producing defect-free garments. Using subpar materials can lead to issues such as fraying, fading, or shrinkage, which can result in defects. Ensure that all materials used in finishing and packing meet the required quality standards. Regular maintenance and calibration of equipment such as sewing machines and steamers are also crucial.
- 6) **Sample inspections:** Random sample inspections should be conducted regularly to assess the overall quality of finished products. This can help identify any systemic issues in the finishing and packing process. If defects are consistently found in specific areas or batches, it indicates the need for process improvement or additional training in those areas.
- 7) **In-process inspections:** Implementing in-process inspections at key stages of finishing and packing can catch defects before they become widespread. For example, inspecting garments after stitching and before final packaging can help identify issues like loose threads, missing buttons, or incorrect labels.
- 8) **Documentation and records:** Maintaining thorough records of quality control inspections and defect reports is crucial. These records serve as a historical reference and can help in identifying patterns or trends in defects. Regularly analyzing these records can lead to process improvements and better defect prevention strategies.
- 9) **Feedback loop and continuous improvement:** Establish a feedback loop that encourages employees to report defects, suggest improvements, and share their experiences. This feedback should be used as a basis for continuous improvement efforts. Regularly review and update sops and quality control procedures based on the insights gained from this feedback.
- 10) **Supplier collaboration:** Collaborate closely with material suppliers and subcontractors. Ensure that they also adhere to stringent quality standards. Communication with suppliers about quality requirements and expectations is essential to avoid defects caused by subpar materials or workmanship.



- 11) **Environmental conditions:** Maintain suitable environmental conditions in the finishing and packing area. Extreme temperature, humidity, or dust can negatively affect the quality of garments. Proper storage and handling of garments in controlled conditions can prevent defects like mold, discoloration, or fabric damage.
- 12) **Employee engagement:** Engage employees by fostering a culture of quality consciousness. When workers take pride in their work and understand the importance of defect prevention, they are more likely to be proactive in identifying and rectifying issues.
- 13) **Packaging protocols:** Proper packaging is crucial in preventing defects during transportation and storage. Garments should be folded or hung neatly to prevent wrinkles or creases. Adequate padding and protection should be provided to prevent damage during transit. Labels, barcodes, and tags should be securely attached.
- 14) **Final inspection:** Conduct a final inspection of every garment before it is packed and shipped. This should include a thorough check of all components, including buttons, zippers, seams, labels, and overall appearance. A final inspection ensures that only defect-free garments reach the customers.
- 15) **Customer feedback loop:** Continuously gather feedback from customers regarding the quality of finished products. This feedback can reveal defects or issues that were not identified in internal quality control processes. Addressing customer concerns promptly not only resolves immediate issues but also helps in building trust and loyalty.

The finishing and packing operation is the last line of defence against defects in the apparel manufacturing process. By implementing these key points, apparel manufacturers can significantly reduce the likelihood of defects and improve the overall quality of their products. In a highly competitive industry where reputation and customer satisfaction are paramount, the commitment to quality in finishing and packing can make a significant difference in the success and longevity of a brand or manufacturer.

## Activities

### Activity: 1

Discuss with your class teacher about packing list, barcodes and preparation for shipment and understand the concepts clearly.

### Materials required:

1. Lab record
2. Pen, pencil, eraser
3. Glue
4. Scissor
5. A4 size paper

### Procedure:

- Search on the internet about packing list and barcodes.
- Discuss about barcodes used in apparel industry with your teacher.
- Take printout of packing list and barcode samples.
- Paste it in your file and write key points for better understanding.

## Check Your Progress

### A. Fill in the blanks:

1. P/L means .....
2. LCI means .....
3. SOP means .....
4. .... is performed while the product is packed into boxes prior to shipment.
5. .... inspection is done right before or after loading.
6. .... inspection is done during the loading process.

### B. Answer the given questions:

1. Discuss importance of packing list in the apparel industry?
2. What are the key elements of a packing list in the apparel industry?
3. What are the steps involved in preparing for shipment?
4. Explain key points to avoid defects in the finishing and packing operation?

### Session 3: Garment Washing and Types of Washing Machines

Garment washing is a crucial step in the finishing process of the apparel industry, playing a significant role in enhancing the overall appearance, texture, and comfort of garments. This process involves various techniques and methods designed to achieve specific aesthetic effects and functional improvements. Here, we will explore the importance of garment washing and some common techniques employed in the apparel industry.

The primary objectives of garment washing in the finishing process of the apparel industry can be summarized as follows:



Fig: 2.28 Garment washing finishing process

1. **Aesthetic enhancement:** One of the primary objectives of garment washing is to enhance the overall appearance and aesthetics of the garment. This includes achieving various fashion looks such as distressed, vintage, or faded styles. The process can create unique patterns, textures, and color variations, making the garment more visually appealing to consumers.
2. **Softness and comfort:** Garment washing helps in improving the softness and comfort of the fabric. By breaking down the rigid structure of the fibers and removing excess sizing or finishing agents, it results in a softer feel against the skin. This is especially important for denim and casual wear, as it enhances the wearing experience.

3. **Fiber cleanliness:** Garment washing is used to remove any dirt, dust, or contaminants that may have accumulated on the fabric during the manufacturing process, transportation, or storage. This ensures that the final product is clean and ready for retail without any blemishes.
4. **Shrinkage control:** In many cases, garments are subjected to a pre-shrinking process during washing to minimize further shrinkage after purchase. This helps in maintaining the garment's original size and fit, preventing customer dissatisfaction and returns due to sizing issues.
5. **Color fading and enhancement:** Garment washing can be used to fade or enhance the color of the fabric. This is achieved through techniques such as enzyme wash, stone wash, or bleach wash, which can create a vintage or worn-in look. Conversely, certain treatments can intensify the color, giving it a vibrant appearance.
6. **Distressing and whiskering:** Distressing techniques, such as sanding, grinding, or chemical treatments, are employed to create worn-out or "distressed" areas on the garment, giving it a trendy, vintage appearance. Whiskering, which simulates the natural creases around the hips and thighs, is also achieved through these processes.
7. **Unique design and branding:** Garment washing allows brands to differentiate their products and create unique designs. Distinctive washing effects become part of a brand's identity, making garments easily recognizable and desirable among consumers.
8. **Environmental sustainability:** In recent years, there has been a growing emphasis on sustainable and eco-friendly practices in the apparel industry. Garment washing techniques are being developed to reduce water consumption, energy usage, and the use of harmful chemicals, aligning with the industry's sustainability objectives.
9. **Quality control:** Garment washing helps in identifying and rectifying manufacturing defects or irregularities. Any flaws in the fabric or stitching can become more apparent after washing, allowing manufacturers to address quality issues before the products reach the market.
10. **Consumer preferences:** Ultimately, the primary objective of garment washing is to cater to consumer preferences. By offering a wide range of wash styles and finishes, the apparel industry can meet the diverse tastes and demands of its customer base, leading to increased sales and brand loyalty.

### Common garment washing techniques:



Fig: 2.29 Garment washing techniques

1. **Enzyme washing:** Enzymes are used to break down the starch and cellulose in the fabric, resulting in a softer and smoother texture. This technique is commonly applied to denim to achieve a worn-in look.
2. **Stone washing:** This method involves washing garments with pumice stones or other abrasive materials to achieve a distressed appearance. It softens the fabric and creates a faded, worn-out effect.
3. **Acid washing:** Acid-washing involves treating the fabric with a chemical wash, typically using chlorine or acid-based solutions. This process creates a mottled and faded appearance on denim and other fabrics.
4. **Bleach washing:** Bleach is used to remove color from specific areas of the garment, creating a unique, contrasted look. This technique is often used for jeans and denim jackets.
5. **Garment dyeing:** In some cases, the washing process is combined with garment dyeing to achieve unique color variations. This is particularly common in creating vintage-style clothing.
6. **Silicone wash:** Silicone is used to give garments a soft and smooth finish. It improves the fabric's drape and handfeel while maintaining its original color.
7. **Sandblasting:** Sandblasting is employed to create a textured or distressed surface on garments, often seen in denim products. However, due to health and environmental concerns, alternative methods like laser etching are becoming more popular.

Garment washing is an essential step in the finishing process of the apparel industry. It allows manufacturers to add value to their products by creating unique aesthetics, improving comfort, and enhancing the overall quality of garments. By employing various washing techniques, apparel brands can

cater to diverse consumer preferences and stay competitive in the ever-evolving fashion industry. Moreover, as sustainability becomes a key concern in the industry, eco-friendly washing techniques are gaining importance to reduce the environmental impact of garment production.

## 1. Types of washing machine

In the apparel industry, washing machines play a crucial role in the finishing process, ensuring that garments are clean, soft, and ready for distribution or sale. There are several types of washing machines used in the apparel industry, each designed for specific purposes and garment types. These machines are essential for processes like garment dyeing, stone washing, and enzyme washing. Here are some common types of washing machines used in the apparel industry:

### Front loading washing machines:

- Front loading washing machines are commonly used in industrial apparel washing. They are known for their efficiency and gentle treatment of fabrics.
- These machines have a horizontal drum that rotates, allowing garments to tumble freely and be evenly saturated with water and detergent.
- Front loaders are suitable for delicate fabrics and garments that require a gentle washing process.



*Fig: 2.30 Front loading washing machine*

### Top loading washing machines:

- Top loading washing machines are less common in industrial apparel washing but may still be used for specific applications.
- They have a vertical drum and are known for their robustness and durability.



- Top loaders are often used for heavier garments and textiles that can withstand more aggressive washing.



*Fig: 2.31 Top loading washing machine*

### **Continuous batch washing machines:**

- Continuous batch washing machines are designed for high-capacity operations. They can handle large quantities of garments in a continuous, automated process.
- These machines are often used in mass production settings where efficiency and speed are essential.
- Continuous batch washers are suitable for a wide range of fabrics and garments.

### **Tunnel washing machines:**

- Tunnel washing machines are conveyor-based systems that move garments through a series of chambers or compartments, each with specific functions like washing, rinsing, and drying.
- They are ideal for high-volume production and offer consistent and controlled washing processes.
- Tunnel washers are commonly used for denim and casual wear.



*Fig: 2.32 Tunnel washing machine*



**Hydro extractors:**

- Hydro extractors are used to remove excess water from washed garments before they are dried or further processed.
- These machines use centrifugal force to extract water, reducing drying time and energy consumption.
- Hydro extractors are essential for maintaining garment quality and production efficiency.



Fig: 2.33 Hydro extractor

**Stone washing machines:**

- Stone washing machines are used to achieve a distressed or worn look on denim and other fabrics. They typically use pumice stones or abrasive materials in the washing process.
- These machines create a unique finish by abrading the fabric's surface, giving it a softer and vintage appearance.

**Enzyme washing machines:**

- Enzyme washing machines use enzymes to break down and soften the fabric's fibers. This process is often used to create a "worn-in" look for casual garments.
- Enzyme washing is gentler on fabrics compared to traditional stone washing.

**Garment dyeing machines:**

- Garment dyeing machines are specialized for dyeing garments after they have been cut and sewn. This allows for precise color matching and customization.
- These machines ensure uniform dye distribution and color fastness.
- In summary, the choice of washing machine in the apparel industry depends on factors such as the type of garments being processed,

production volume, and desired finishes. Each type of machine offers specific advantages and capabilities to meet the diverse needs of the industry, from basic cleaning to creating unique aesthetic effects.

### 3. Precautions to be taken while garment washing



Fig: 2.34 Precautions of garment washing

Garment washing is an essential process in the apparel industry, used to enhance the appearance, texture, and overall quality of clothing. However, it is crucial to follow specific precautions to ensure that the washing process achieves the desired results without causing damage to the garments.

**Here are some precautions that should be taken while garment washing in the apparel industry:**

- **Quality control:** Before initiating the washing process, conduct a thorough quality check of the garments. Ensure that there are no defects or issues with the stitching, buttons, zippers, or other components that could be exacerbated during washing.
- **Sorting:** Sort the garments based on their fabric type, colour, and washing requirements. Washing different fabrics or colours together can lead to colour bleeding or damage to delicate materials.
- **Machine selection:** Choose the appropriate type of washing machine for the specific garments. Front-loaders, top-loaders, and industrial washing machines each have their own benefits and are suited for different types of garments.

- **Detergent selection:** Select the right detergent or chemical agents suitable for the fabric and desired washing effect. Using the wrong detergent can cause damage or color fading.
- **Water temperature:** Follow the recommended water temperature guidelines for different fabric types. Using water that is too hot can cause shrinkage or damage to certain fabrics.
- **Load size:** Do not overload the washing machine as it can lead to improper cleaning and may damage the garments. Follow the machine's capacity guidelines.
- **Gentle handling:** Ensure that the washing machine is set to a gentle cycle for delicate fabrics. Avoid using harsh agitation or spin cycles that can cause excessive wear and tear.
- **Time control:** Monitor the washing time carefully. Overwashing can lead to fabric abrasion and reduced garment lifespan.
- **Chemical dosage:** Accurately measure and control the amount of chemicals and detergents used. Too much or too little can affect the washing results and cause issues like colour fading or staining.
- **Rinsing:** Ensure thorough rinsing to remove all detergent residues, which can lead to skin irritation or fabric damage.
- **Drying:** Follow the manufacturer's guidelines for drying methods. Over-drying or using high heat settings can lead to fabric shrinkage or distortion.
- **Quality check post-washing:** After the washing process, conduct another quality check to ensure that the garments have not been damaged, and the desired washing effect has been achieved.
- **Stain treatment:** Address any stains or spots before washing, as washing can set stains permanently.
- **Environmental considerations:** Follow environmental regulations and guidelines for chemical disposal and wastewater management. Implement eco-friendly practices to minimize the environmental impact of garment washing.
- **Employee safety:** Ensure that handling chemicals and machinery are provided with appropriate safety gear, such as gloves, masks, and eye protection.

By adhering to these precautions, the apparel industry can ensure that the garment washing process is both effective and safe, leading to high-quality products that meet customer expectations while maintaining the integrity of the garments.

#### 4. List of major defects found in garment finishing section

Garment finishing is a crucial step in the production of apparel, as it ensures that the final product meets quality standards and is ready for retail. However, there can be various defects that occur in the garment finishing section, which can lead to a decrease in product quality and customer satisfaction.

**Here are some major defects found in garment finishing:**

- Brand: care or size label missing
- Shading
- Wrong colour
- Hole in fabric damage
- Conspicuous repair
- Poor construction
- Conspicuous soilage (Inside or Outside)
- Conspicuous abrasion marks from wash process
- High / low pockets
- Buttons, snap defect
- Button hole ravelling, incomplete not cut properly/miss aligned
- Sizing problem
- Poorly trimmed garments threads
- Broken stitches
- Skipped stitches
- Open seam

1) **Wrinkles and creases:** One of the most common defects is the presence of wrinkles and creases on the garment's surface. This can occur due to improper handling or folding during finishing. Wrinkles can give a negative impression of the product's quality.

2) **Loose threads:** Loose threads can make a garment look shabby and unprofessional. These threads can be the result of poor sewing or trimming processes. They need to be removed to achieve a neat appearance.

3) **Uneven stitching:** Uneven stitching or stitching defects like skipped stitches, loose stitches, or irregular stitching can compromise the durability and aesthetics of the garment. Quality control measures should be in place to identify and rectify such defects.

- 4) **Stains and spots:** Stains and spots, such as oil stains, watermarks, or ink marks, can occur during the finishing process or as a result of poor storage conditions. Proper inspection and cleaning are essential to remove these defects.
- 5) **Colour bleeding:** Colorbleeding happens when dyes from one part of the garment transfer to another, resulting in color discrepancies. It can occur during the washing or steaming processes and can lead to a significant reduction in product quality.
- 6) **Button and zipper issues:** Buttons that are not properly attached or zippers that do not function smoothly are common defects. These components should be securely fastened and tested for functionality during finishing.
- 7) **Uneven hemlines:** Uneven or crooked hemlines can make a garment appear poorly tailored. Quality control checks should ensure that hems are straight and uniform.
- 8) **Incorrect sizing:** Garments that do not conform to the specified size standards can result in customer dissatisfaction. It's essential to measure and label garments accurately during the finishing process.
- 9) **Misalignment of patterns:** In garments with printed or embroidered patterns, misalignment can be a significant defect. The patterns should be correctly positioned and matched to maintain the overall design integrity.
- 10) **Inadequate pressing and ironing:** Insufficient or improper pressing and ironing can leave the garment looking untidy and wrinkled. Proper equipment and techniques should be employed to achieve a polished appearance.
- 11) **Frayed edges:** Frayed edges on seams or fabric can occur due to poor cutting or handling. These edges should be trimmed and finished neatly to prevent further fraying.
- 12) **Labelling and packaging errors:** Incorrect labelling or packaging can lead to confusion and dissatisfaction among customers. It's essential to ensure that the correct labels and packaging materials are used.

To address these defects, garment manufacturers often implement stringent quality control measures, conduct thorough inspections, and provide training to their finishing staff. Additionally, investing in modern equipment and technology can help improve the overall quality of garment finishing and reduce the occurrence of defects.

## Pressing defects

Pressing defects in the garment finishing section can significantly impact the overall quality of the final product. These defects can arise from various factors, including the quality of the fabric, the pressing equipment, and the skills of the operators. Identifying and addressing these pressing defects is crucial for delivering a polished and presentable garment to the customer.

### Here are some common pressing defects found in the garment finishing section:

#### 1) Seam impression:

- **Cause:** Excessive pressure or heat during pressing can leave visible seam imprints on the fabric.
- **Solution:** Adjust the pressure and temperature settings on the pressing machine to ensure they are suitable for the fabric type. Using a pressing cloth can also help distribute heat and pressure evenly.

#### 2) Shine or gloss:

- **Cause:** Over-pressing or using too much steam can result in a shiny or glossy appearance on certain fabrics.
- **Solution:** Reduce the pressure and steam settings to prevent excessive shine. Steam only as needed for the fabric type.

#### 3) Wrinkles or creases:

- **Cause:** Insufficient pressing or uneven pressure can leave wrinkles or creases on the garment.
- **Solution:** Ensure that the pressing machine is properly calibrated, and operators are skilled in maintaining even pressure. Use a padded pressing surface to avoid creases.

#### 4) Seam puckering:

- **Cause:** Incorrect pressure or temperature can cause seam puckering, where the fabric gathers or bunches along the seams.
- **Solution:** Adjust the machine settings to match the fabric's requirements. Use a pressing ham or tailor's clapper to help flatten seams without puckering.

#### 5) Fading or discoloration:

- **Cause:** Excessive heat or improper pressing techniques can lead to fabric discoloration or fading.
  - **Solution:** lower the temperature and duration of pressing, especially for delicate or sensitive fabrics. Always use a pressing cloth when in doubt.
- 6) **Burn marks:**
- **Cause:** Overheating or prolonged contact with the pressing surface can result in burn marks on the garment.
  - **Solution:** maintain appropriate temperature and pressure settings. Avoid leaving the iron or press in one place for too long.
- 7) **Pressing line:**
- **Cause:** Inconsistent pressing pressure can create a visible line or indentation on the fabric.
  - **Solution:** Train operators to maintain even pressure throughout the pressing process. Use a padded pressing surface to avoid pressing lines.
- 8) **Fabric shine transfer:**
- **Cause:** If a pressing cloth is not used, the shine or gloss from one fabric can transfer onto another during pressing.
  - **Solution:** Always use a clean pressing cloth to prevent shine transfer between fabrics.
- 9) **Pleat misalignment:**
- **Cause:** Poor pleat-setting or incorrect pressing techniques can result in misaligned or uneven pleats.
  - **Solution:** Ensure that pleats are accurately set before pressing, and use pleat boards or templates to maintain consistency.
- 10) **Uneven collar or cuff shape:**
- **Cause:** Improper shaping or pressing techniques can lead to collars and cuffs with uneven shapes.
  - **Solution:** Use collar and cuff shaping tools, and ensure proper alignment and pressure during pressing.

Regular quality control checks and operator training are essential for minimizing pressing defects in the garment finishing section. Proper maintenance of pressing equipment is also crucial to ensure consistent and high-quality results.



**Activities****Activity:1**

Visit the industry and observe the functions of the garment washing machines, its model, types, and details of the machine. Ask the In-charge about user guide manuals if possible and discuss with your class teacher.

**Materials required:**

1. Pen, pencil, eraser
2. Lab record
3. Glue
4. Scissor

**Procedure:**

- Visit the industry and observe the finishing section for garment washing machines.
- Observe the machines working, functions, details, models, types and keep in the record.
- Ask the in charge the copy of user manual guide if possible.
- Fix it in the record and write some key points.
- Discuss with your class teacher.

**Check Your Progress****Fill in the blanks:**

1. Primary objectives of garment washing is to enhance the ..... and ..... of the garment.
2. Garment washing helps in improving the ..... and ..... of the fabric.
3. .... are used to break down the starch and cellulose in the fabric.
4. .... method involves washing garments with ..... stones.

5. Hydro extractors are used to remove ..... water from washed garments
6. Continuous batch washing machines are designed for .....
7. .... washing machines are commonly used in apparel industry.

**Answer the given questions:**

1. What are the primary objectives of garment washing in finishing process?
2. Write some common garment washing techniques?
3. Write about types of washing machines in garment industry?
4. Write about pressing faults in a garment.

**Module 3****Trends in Finishing and Packing Operations****Module Overview**

The apparel industry is constantly evolving to meet changing consumer demands and market dynamics. Finishing and packing operations play a crucial role in ensuring that garments are not only aesthetically pleasing but also ready for distribution. Sustainability has become a central focus for the apparel industry. Consumers are increasingly concerned about the environmental impact of their clothing choices. In response, apparel manufacturers are adopting sustainable finishing processes. This includes the use of eco-friendly dyes and chemicals, water-saving techniques, and the reduction of energy consumption in finishing operations.

Automated systems are being used for folding, sorting, and packaging garments, leading to increased efficiency, reduced labor costs, and improved consistency in packing quality. Robotics can also handle delicate items with care, minimizing damage during the packing process. With the rise of e-commerce, apparel brands are investing in smart packaging solutions. These may include RFID tags or QR codes on packaging to provide customers with product information, care instructions, and even access to exclusive digital content. Smart packaging enhances the overall customer experience and helps brands engage with consumers beyond the point of sale. Personalization is a growing trend in the apparel industry. Brands are using customized packaging to create a memorable unboxing experience for customers. This may involve adding personalized notes, stickers, or unique packaging designs that align with the brand's identity. Such efforts not only enhance customer loyalty but also generate social media buzz.

Apparel brands are focusing on sustainable packaging materials. Biodegradable and recyclable packaging options are gaining popularity. Brands are also reducing excess packaging and using minimalist design approaches to minimize waste. Finishing and packing operations in the apparel industry are evolving to meet the demands of a changing market. Sustainability, automation, customization, and transparency are driving these trends, ensuring that apparel brands can remain competitive and meet the expectations of environmentally conscious and tech-savvy consumers. As technology continues to advance, we can expect further innovations in these operations.

<b>Learning Outcomes</b>
<p>After completing this module, you will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate Folding and Packing Methods of Basic Garments</li> <li>• Describe Problems faced by finishing and Packing section in apparel Industry</li> <li>• Identify The growing demand for Sustainability and Ethical Packing</li> </ul>
<b>Module Structure</b>
Session 1: Folding and Packing Methods of Some Garments
Session 2: Common Problems Faced by Finishing and Packing Section in Apparel Industry
Session 3: The Growing Demand for Sustainability and Ethical Packing

## **Session: 1      Folding and Packing Methods of Some Garments**

Garment folding methods and techniques might vary according to industry standards. However, below is the representation of few most common methods used to fold the basic garments.

### **Some of the folding methods are:**

- Bottom – center crease – half fold
- Bottom – center crease – quarter fold
- Bottom – center crease – third fold
- Bottom – flat fold – front out – third fold – folded crotch
- Bottom – flat fold – front out – third fold – open crotch
- Skirt – half fold
- Skirt – long and full – half fold
- Top – third or half fold
- Top – sleeve showing on pack

- Top – rolled sleeve

### Bottom – center crease – half fold

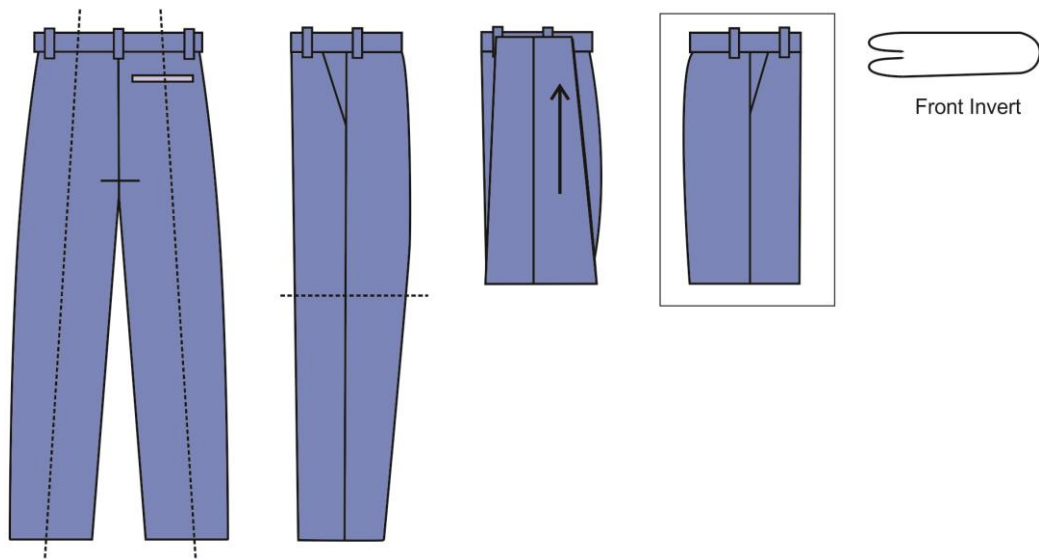


Fig: 3.1 Folding instructions- Half fold

#### Steps of folding-

1. Do not close zippers or waist buttons.
2. Fold pant in half, with inseam to out seam at center.
3. Invert front by tucking in zipper side.
4. Fold pant in half by bringing the bottom of the leg up to the top of the pant.
5. Do not press fold in garment form.

### Bottom – center crease – quarter fold

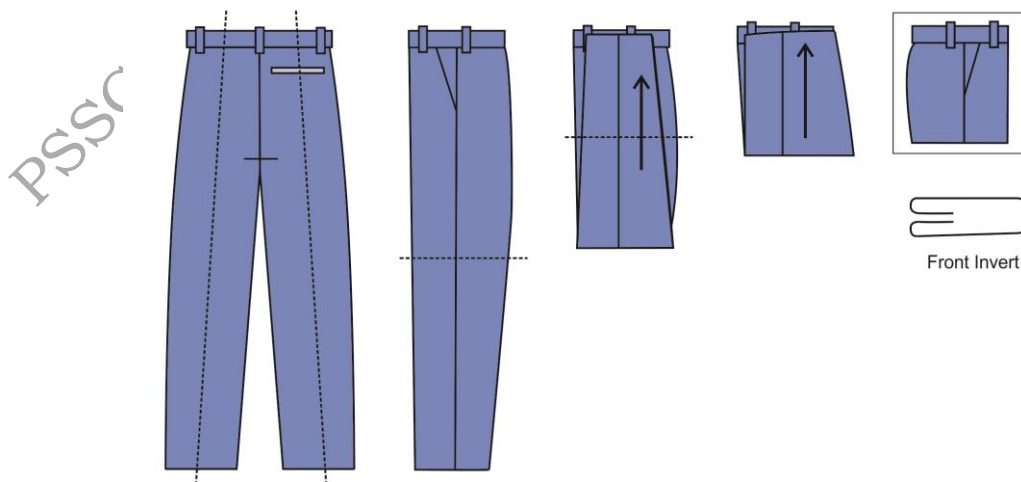
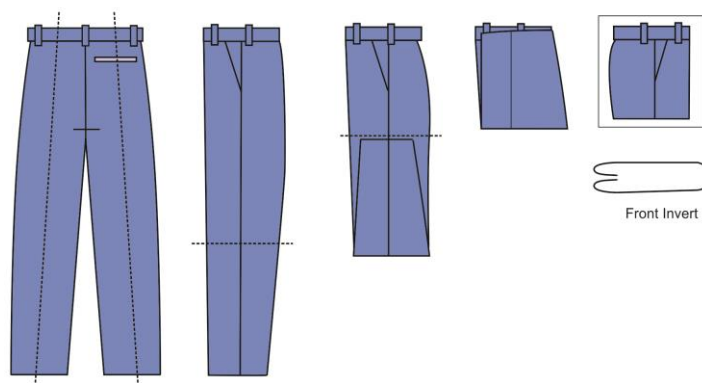


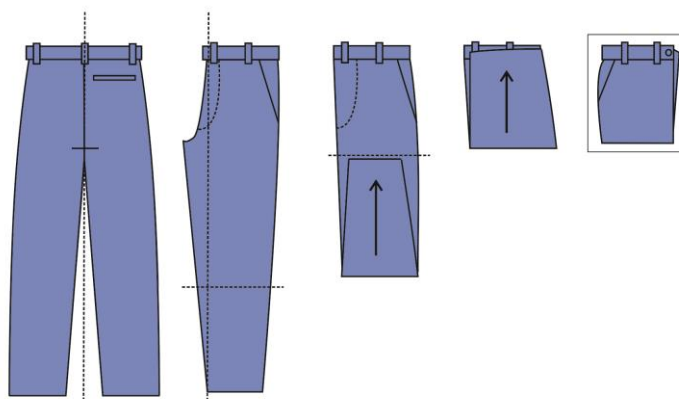
Fig: 3.2 Folding instructions- Quarter fold

**Steps of folding-**

1. Do not close zippers or waist buttons.
2. Fold pant in half, with inseam to out seam at center.
3. Invert front by tucking in the waistband zipper side.
4. Fold pant in half by bringing the bottom of the leg up to the top of the pant.
5. Fold pant in half again.
6. Do not press fold in garment form.

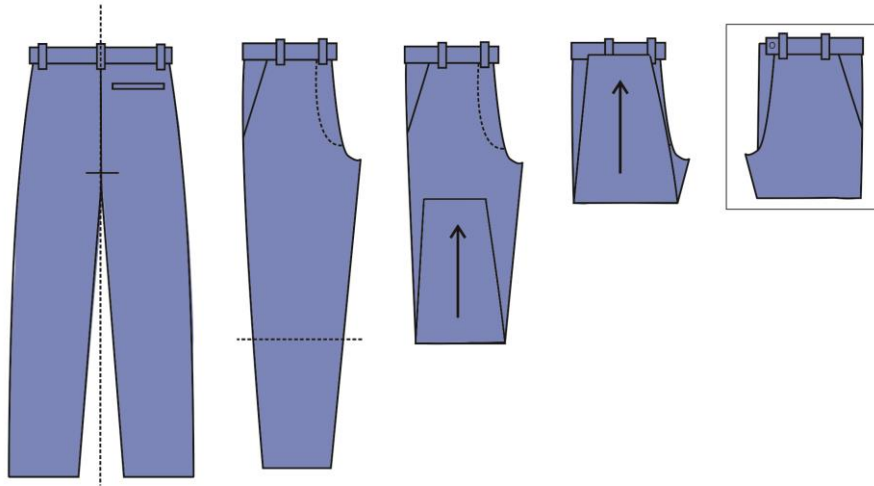
**Bottom – center crease – third fold***Fig: 3.3 Folding instructions – Third fold***Steps of folding-**

1. Do not close zippers or waist buttons.
2. Fold pant in half, with inseam to out seam at center.
3. Invert front by tucking in zipper side.
4. Fold pant leg in thirds – bottom edge to above knee and fold up to waist edge.
5. Do not press fold in garment form.

**Bottom – flat fold – front out – third fold – folded crotch***Fig: 3.4 Folding Instructions – Third fold- Folded crotch*

**Steps of folding-**

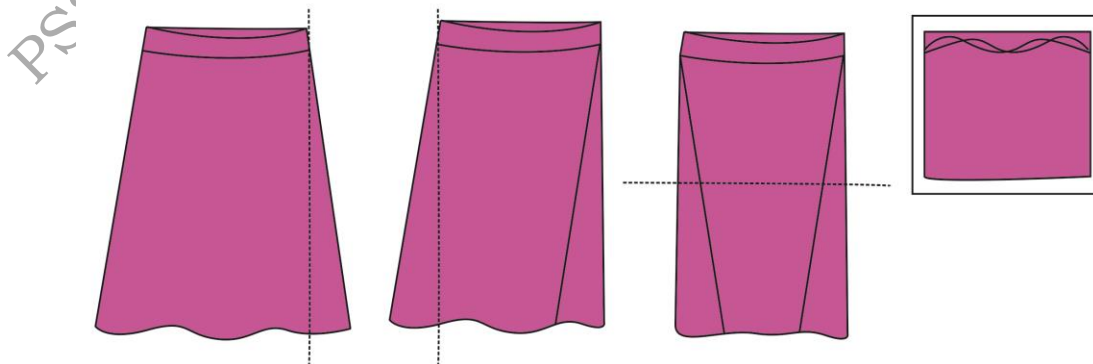
1. Do not close zippers or waist buttons.
2. Fold pant back to back with fold at rise.
3. Fold pant leg in thirds – bottom edge to above knee and fold up to waist top edge.
4. Do not press fold in garment form.

**Bottom – flat fold – front out – third fold – open crotch**

*Fig: 3.5 Folding Instructions – third fold- open crotch*

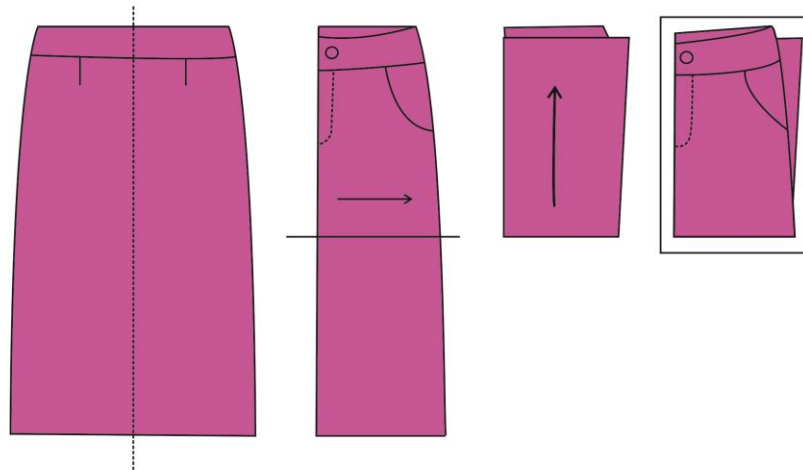
**Steps of folding-**

1. Do not close zippers or waist buttons.
2. Fold pant back to back with fold at rise.
3. Fold pant leg in thirds – bottom edge to above knee and fold up to waist top edge.
4. Do not press fold in garment form.

**Skirt – half fold**

*Fig: 3.6 (a)a- Line Skirt-Half Fold*



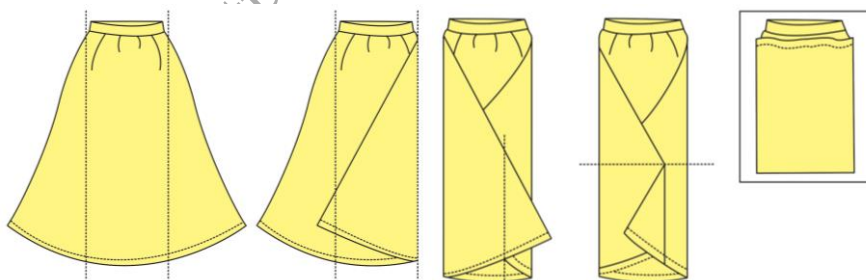


*Fig:3.6 (b) Straight/Pencil Skirt*

#### **Steps of folding-**

1. Close all zippers or waist buttons
  - a) A-line/full skirt - fold from waist to sweep to left side of the center back.
  - b) Straight/pencil skirt – fold half center fold.
2. A-line/full skirt - fold from waist to sweep to right side of the center back.
3. Fold bottom to align with waistband edge, square half fold
4. Do not press fold in garment form.

#### **Skirt – long and full – half fold**



*Fig: 3.7 Skirt – Long and Full – Half fold*

#### **Steps of folding-**

1. Close all zippers or waist buttons.
2. Fold from waist to sweep to left side of the center back.
3. Fold from waist to sweep to right side of the center back.
4. For full skirt, fold right side overlap sweep toward the left side.
5. Fold skirt in half – bottom hem edge to waist band edge.
6. Do not press fold in garment form.

## Top – third or half fold

### Steps of folding-

1. Fold right sleeve to left side.
2. Fold left sleeve to right side.
3. Fold in  $\frac{1}{4}$  right side to center back.
4. Fold in  $\frac{1}{4}$  left side to center back.
5. Fold bottom fold to align with shoulder edge, square. If garment is long, fold 2"- 6" from bottom.
6. Hem to middle of the garment before fold to align with shoulder edge.
7. Do not press fold in garment form.

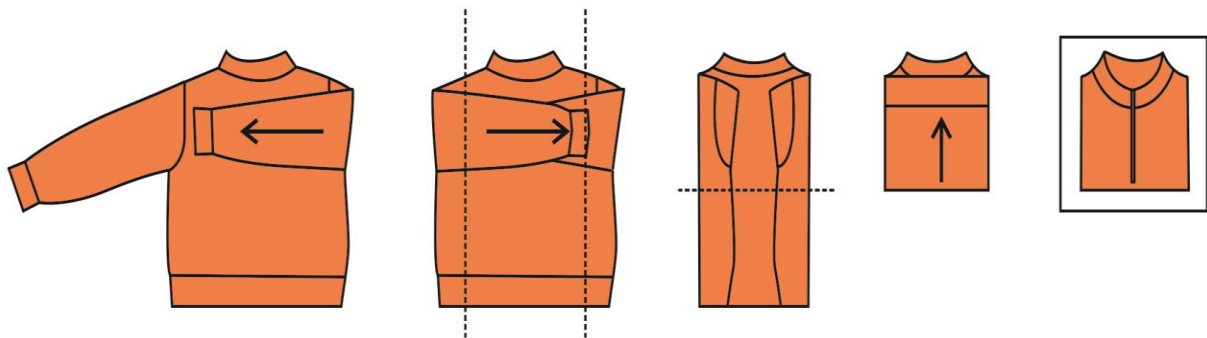


Fig: 3.8 top – Third or half fold (Long Sleeve)

Tops less than and equal to 25 inches (64cm) in length - long sleeve half fold

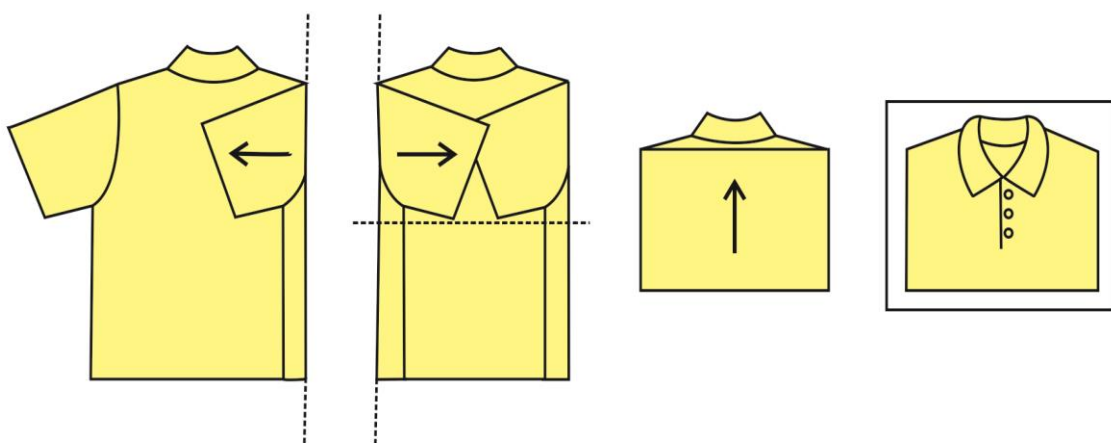


Fig: 3.9 top – Third or half fold (Short Sleeve Half Fold)

Tops less than and equal to 25 inches (64cm) in length – short sleeve half fold

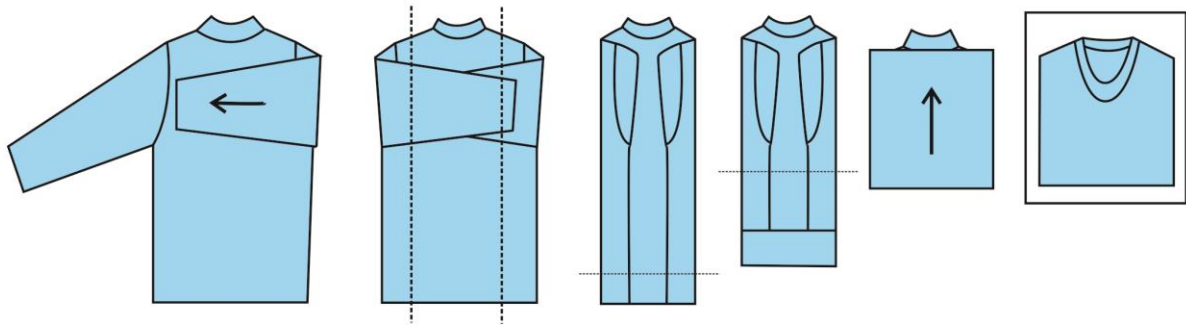


Fig: 3.10 top – third or half fold (long sleeve third fold)

Tops greater than 25 inches (64cm) in length - long sleeve third fold

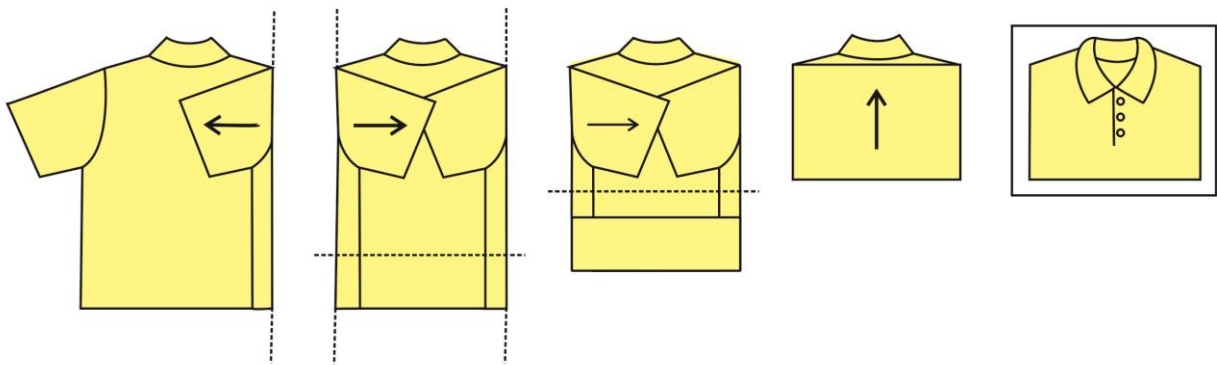


Fig: 3.11 top – third or half (short sleeve fold)

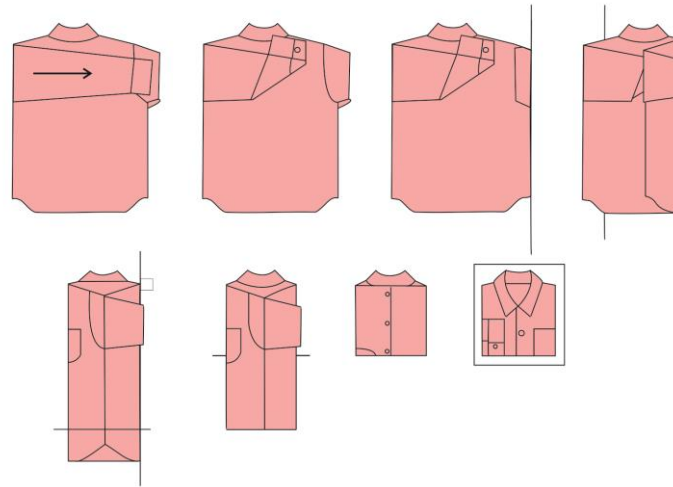
Tops greater than 25 inches (64cm) short sleeve third fold

### Top – sleeve showing on pack

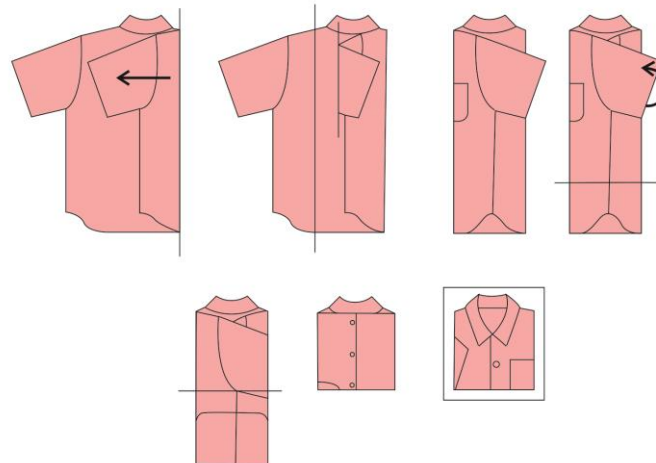
Folding instructions:

1. Button all buttons.
2. Fold left sleeve to right side.
3. Fold left cuff to right shoulder.
4. Fold back right sleeve head to back.
5. Fold  $\frac{1}{4}$  right side to center back.
6. Fold  $\frac{1}{4}$  left side to center back.
7. Fold bottom shirt up 4" – 8"
8. Fold bottom fold to align with shoulder edge, square.
9. Right sleeve cuff will align with front bottom fold edge, on front

10. Do not press fold in garment form.
11. For short sleeve follow the fold as the sketch.



*Fig:3.12 long sleeve*



*Fig:3.13 short sleeve*

### **Top – rolled sleeve**

Folding instructions:

1. Button all buttons, except sleeve placket & cuff.
2. Roll each sleeve cuff up twice.
3. Fold back 1/4, right sleeve to left side.
4. Fold right rolled cuff to right side.
5. Fold back 1/4, left sleeve to right side.
6. Fold left rolled cuff to left side.
7. Fold bottom shirt up 4" - 8"
8. Fold bottom fold to align with shoulder edge, square.
9. Do not press fold in garment form.

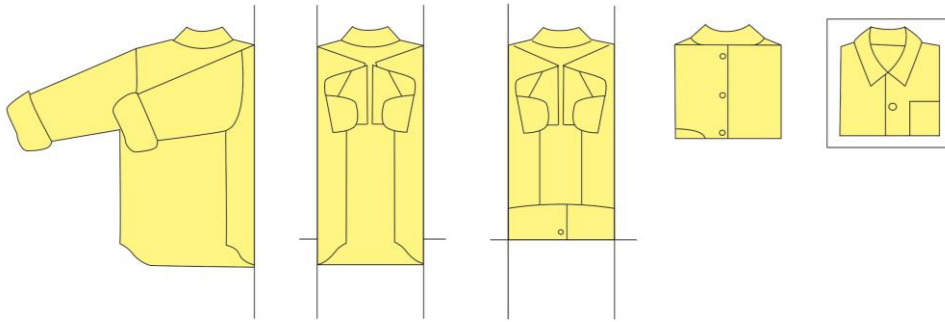


Fig:3.14 long sleeve

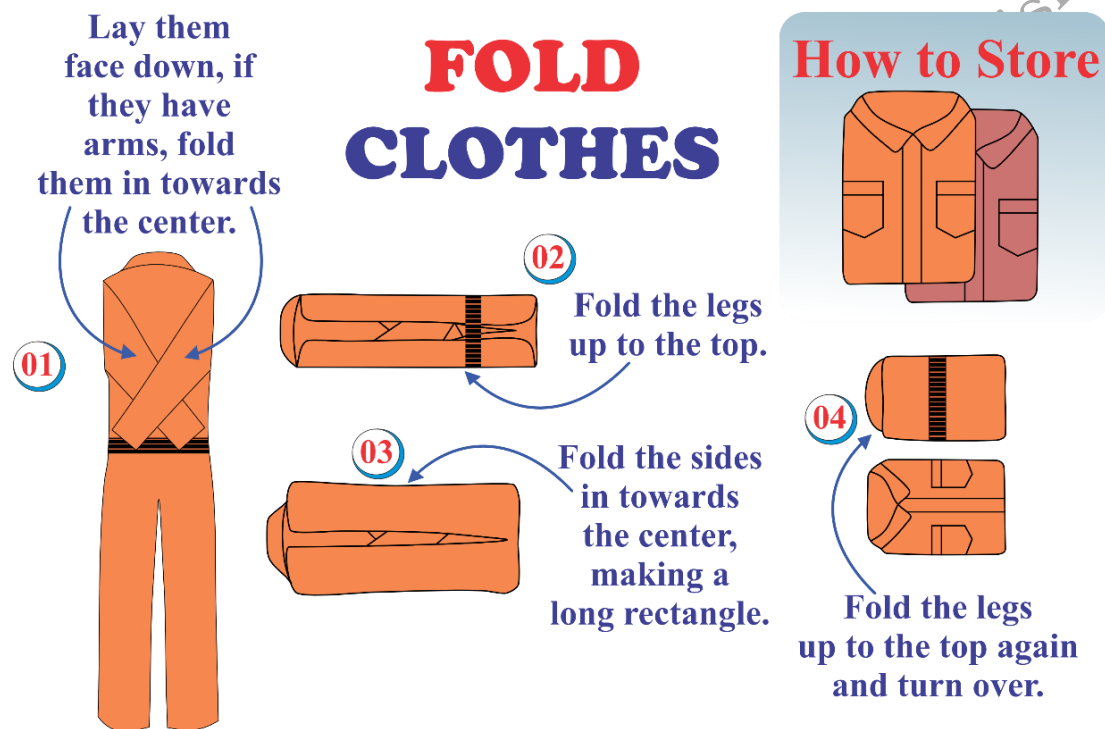


Fig: 3.15 Clothes folding

## Activities

### Activity:1

Take some different varieties of garments and practice folding.

### Materials required:

1. Different types of garments
2. Flat folding table
3. Packing materials

### Procedure:

- Collect some varieties of garments.
- Place each of the garment on the flat table.
- Fold the garments appropriately as same as above given methods.

### Check Your Progress

#### Fill in the blanks:

1. Garment folding methods and techniques might vary according to .....
2. Garment packing means .....
3. One of the most significant reasons to fold your clothes is to prevent ..... and ..... from forming.

#### Answer the given questions:

1. Explain about garment folding methods and techniques?
2. Write the folding steps involved in long sleeve – half fold?
3. Write the folding steps involved in long and full skirt – half fold?
4. Write the folding steps involved in trouser – half fold?

## **Session: 2 Common Problems Faced by Finishing and Packing Section in Apparel Industry**

Ergonomics is a science that focuses on designing a job for the worker. An ergonomically-designed job would ensure that a taller worker had enough space to safely perform his or her job, and also that a shorter worker could reach all of his or her tools and products without reaching beyond a comfortable and safe range. The opposite of this, and what typically happens in the workplace, is that a worker is forced to work within the confines of the job or workstation that is already in place. Ergonomics aims at preventing injuries by controlling the risk factors such as force, repetition, posture and vibration that can cause injuries to develop.

### **Ergonomics in finishing and packing department**

Ergonomics, the science of designing workspaces and equipment to fit the capabilities and limitations of workers, plays a crucial role in optimizing productivity, safety, and employee well-being in various industries. In the context of the finishing and packing department, where products undergo the final stages of production before distribution, ergonomics is of paramount importance. This article explores the significance of ergonomics in the finishing and packing department and its impact on efficiency, worker health, and overall product quality.

This task can involve folding and packing the garments in a bag or a box. We looked at several operations for packing men's dress shirts and special considerations for these packing stations will be described.

#### **Important features to consider include:**

- The work surface,
- Input/output,
- Support surface and
- Accessories

#### **1. Workstation design:**

- **Adjustable work surfaces:** Ensuring that workstations are adjustable to accommodate different worker heights and tasks is fundamental. This helps prevent strain on workers who may be either too tall or too short for fixed workstations.



- **Proper lighting:** Adequate and adjustable lighting is essential to reduce eye strain and enhance visibility, especially when workers are inspecting or packaging small details.

## 2. Tools and equipment:

- **Ergonomic tools:** Providing workers with ergonomic tools and equipment can significantly reduce the risk of repetitive strain injuries. Tools with comfortable grips, reduced vibration, and lightweight designs can make a substantial difference in worker comfort and efficiency.
- **Conveyor systems:** In packing departments, conveyor belts can be adjusted to the right height to reduce bending and reaching, which can lead to musculoskeletal disorders over time.

## 3. Material handling:

- **Proper lifting techniques:** Training workers in proper lifting techniques is essential to prevent back injuries. Implementing mechanical aids like pallet jacks or forklifts for heavy materials can reduce physical strain.
- **Gravity flow racks:** Utilizing gravity flow racks for material handling can minimize the need for repetitive lifting and carrying.

## 4. Packaging design:

- **Ergonomic packaging:** Designing packaging that is easy to handle and open is crucial. It not only ensures customer satisfaction but also reduces the risk of worker injuries when opening or sealing packages.
- **Labelling and identification:** Clear labelling and color-coding of packages make it easier for workers to identify and sort products efficiently, reducing errors and the need for repetitive tasks.

## 5. Workplace layout:

- **Efficient layouts:** Organizing workstations and materials logically can reduce unnecessary movement and promote a smoother workflow.
- **Adequate space:** Ensuring that workers have enough space to move around and perform their tasks without hindrance is essential for both efficiency and safety.

## 6. Training and education:

- **Employee training:** Providing training and ongoing education on ergonomic principles and best practices is crucial. Workers should be aware of the potential risks and be equipped with strategies to minimize them.

**7. Regular assessment:**

- **Continuous improvement:** Regularly assessing and analyzing the ergonomics of the finishing and packing department is essential for identifying areas that need improvement. Feedback from workers can be invaluable in making necessary adjustments.

**8. Health and wellness programs:**

- Promoting health: implementing wellness programs and initiatives can help workers maintain their physical health and prevent long-term musculoskeletal issues.
- Work surfaces are often flat tables that are not height adjustable and are not at a height appropriate for the worker. When the table is too high the worker has to use an elevated shoulder posture and when it is too low a poor neck and back posture is the result.
- Packing tables are often too deep and require excessive reaching to locate tools and supplies. This is particularly true for the shirt folding tables.
- Rolling carts are much too low and require the packer to work with a much flexed back posture. Overhead racks are too high and require elevated arm postures and heavy overhead lifts.
- Garments are placed in very large cardboard boxes that packers can barely reach over, or placed on high, over-filled racks.
- Tables or benches are at inappropriate heights. Workers must lift and carry awkward, heavy boxes.
- For support surface, many packers are required to stand on concrete floors without anti-fatigue mats.
- Accessories. Like some swift tackers require excessive force to operate and create contact stresses in the hand.
- Hangers are often very difficult to open and close.
- Irons are heavy and require a poor thumb posture to operate the steam.

Ergonomics in the finishing and packing department is not only about creating a comfortable work environment but also about enhancing productivity, reducing injuries, and improving the overall quality of the finished products. Investing in ergonomics is an investment in the well-being of the employees.

### **Empowering individuals with disabilities in the finishing and packing section of the apparel industry**

In recent years, there has been a growing recognition of the importance of diversity and inclusion in the workplace. One area where significant progress has been made is in creating opportunities for individuals with disabilities to thrive in various industries, including the apparel industry. This article focuses on the experiences of individuals with disabilities in the finishing and packing section of the apparel industry and highlights the positive impact they bring to the workplace.

### **Challenges faced by person with disabilities:**

Individuals with disabilities have faced numerous challenges when it comes to entering and advancing in the workforce. In the apparel industry, some common challenges include physical barriers in the workplace, a lack of awareness about reasonable accommodations, and the perception that certain roles are not suitable for individuals with disabilities.

Empowering individuals with disabilities:

Fortunately, the apparel industry is gradually recognizing the value that individuals with disabilities bring to the finishing and packing section. Here are some ways in which these individuals are being empowered:



*Fig: 3.16 Challenges faced by person with disabilities*

1. **Accessible workspaces:** Employers are increasingly making their workplaces accessible to individuals with disabilities. This includes

installing ramps, elevators, and other facilities that make it easier for employees with mobility challenges to navigate the workspace.

2. **Reasonable accommodations:** Employers are legally required to provide reasonable accommodations to employees with disabilities. This might include modified workstations, specialized tools, or flexible work schedules. By embracing these accommodations, the apparel industry is ensuring that individuals with disabilities have equal opportunities for success.
3. **Inclusive hiring practices:** Many apparel companies have adopted more inclusive hiring practices. They actively seek out and hire individuals with disabilities, recognizing the unique skills and perspectives they bring to the workforce. Additionally, diversity and inclusion training programs help educate all employees about the value of an inclusive workplace.
4. **Skill development:** Training and skill development programs are provided to individuals with disabilities to help them excel in their roles. This may include training in specific tasks related to finishing and packing, as well as soft skills like communication and teamwork.

#### **Positive impact on the industry:**

The inclusion of individuals with disabilities in the finishing and packing section of the apparel industry has had a profoundly positive impact:

1. **Diverse perspectives:** Diverse teams often come up with more innovative solutions and ideas. By including individuals with disabilities, the industry benefits from a broader range of perspectives, leading to improved products and processes.
2. **Increased productivity:** Employees with disabilities are known for their dedication and strong work ethic. By providing the necessary accommodations, they can be just as, if not more, productive than their colleagues.
3. **Improved brand image:** Companies that prioritize diversity and inclusion, including the inclusion of individuals with disabilities, are seen as socially responsible and are likely to enjoy a positive brand image. This can lead to increased customer loyalty and support.

The apparel industry's efforts to empower individuals with disabilities in the finishing and packing section are a testament to the industry's commitment to diversity and inclusion. By creating accessible workplaces, providing reasonable accommodations, and embracing inclusive hiring practices, the

industry is not only enriching the lives of individuals with disabilities but also reaping the benefits of their valuable contributions. As the apparel industry continues to champion diversity and inclusion, it sets an example for other sectors to follow.

### **Finishing processes and packing materials that are threat to the environment:**

The apparel industry has long been recognized as one of the most significant contributors to environmental degradation. While efforts have been made to reduce the environmental impact of various stages in the production process, there are still significant challenges associated with finishing processes and packing materials. These two aspects of the apparel industry pose a considerable threat to the environment.

#### **1. Finishing processes:**

- A. **Chemical usage:** Finishing processes in the apparel industry often involve the use of a wide range of chemicals such as dyes, bleaches, softeners, and flame retardants. Many of these chemicals are harmful to the environment and can leach into water systems, causing pollution and harm to aquatic life.
- B. **Energy consumption:** Some finishing processes, like heat setting and curing, require significant energy inputs, contributing to greenhouse gas emissions. High energy consumption not only adds to the industry's carbon footprint but also increases operational costs.
- C. **Wastewater disposal:** The wastewater generated during finishing processes can contain harmful chemicals and dyes, which are typically released into water bodies without adequate treatment. This pollutes water sources and disrupts ecosystems.
- D. **Air pollution:** Certain finishing techniques release Volatile Organic Compounds (VOCs) and other air pollutants into the atmosphere, contributing to air quality degradation and smog formation.
- E. **Microfiber pollution:** Some finishing processes, particularly those involving synthetic fabrics, release microfibers into the environment when washed. These microfibers end up in water bodies and can be ingested by aquatic life, ultimately entering the food chain.

## 2. **Packing materials:**

- A. **Single-use plastics:** The apparel industry relies heavily on single-use plastics for packaging, including polybags and plastic hangers. These materials are not biodegradable and often end up in landfills or oceans, where they persist for centuries, harming wildlife and ecosystems.
- B. **Excess packaging:** Many apparel brands use excessive packaging, including multiple layers of plastic, tissue paper, and cardboard boxes. This not only wastes resources but also increases the carbon footprint due to transportation of bulkier packages.
- C. **Non-recyclable materials:** Some packing materials, such as laminated paper bags, are difficult to recycle. This results in more waste being sent to landfills and incineration facilities, contributing to environmental pollution and greenhouse gas emissions.
- D. **Resource depletion:** The production of packing materials consumes natural resources, such as oil for plastic production and trees for paper packaging. This puts additional pressure on ecosystems and contributes to deforestation and habitat loss.

Addressing these environmental threats in the apparel industry requires a concerted effort from all stakeholders, including manufacturers, brands, consumers, and governments. Some potential solutions include:

- 1. **Adopting sustainable finishing techniques:** Invest in research and development to create more sustainable finishing processes, such as waterless dyeing methods and reduced chemical usage.
- 2. **Promoting recycling and circular fashion:** Encourage the recycling of clothing and packaging materials. Brands can also adopt circular fashion practices, such as take-back programs and upcycling initiatives.
- 3. **Reducing packaging waste:** Implement eco-friendly packaging alternatives like biodegradable materials, recycled paper, and minimalistic packaging designs to reduce waste.

4. **Regulations and standards:** Governments can enforce stricter regulations on the use of harmful chemicals and promote industry-wide standards for sustainable production and packaging practices.
5. **Consumer education:** Raise awareness among consumers about the environmental impact of finishing processes and packing materials, encouraging responsible consumption and disposal.

Finishing processes and packing materials in the apparel industry pose significant threats to the environment due to chemical usage, energy consumption, pollution, and resource depletion. To mitigate these risks, a holistic approach involving innovation, regulation, and consumer awareness is necessary to move towards a more sustainable and eco-friendly future for the apparel industry.

### Activities

#### Activity:1

Discuss with your teacher about common problems faced by finishing and packing section in apparel industry, find out what might be the causes and its remedies. Keep in the record

#### Material required:

1. Pen, pencil, eraser
2. Lab record

### Check Your Progress

#### Fill in the blanks:

1. .... is a science that focuses on designing a job for the worker.
2. Adequate and adjustable lighting is essential to reduce ..... and .....
3. Training workers in proper lifting techniques is essential to prevent .....
4. Ensuring that workers have enough ..... to move around and perform their tasks.



5. The wastewater generated during finishing processes can contain ..... and ..... Finishing techniques release volatile organic compounds (VOCS) and other air pollutants into the atmosphere and cause for .....
6. Some packing materials, such as laminated paper bags, are difficult to recycle and contributes to ..... Pollution.
7. .... material consumes natural resources such as oil, trees and contributes to deforestation and habitat loss.

**Answer the following questions:**

1. What do you mean by ergonomics in finishing and packing department?
2. How to empower individual with disabilities in the finishing and packing of apparel industry?
3. Discuss about environment concern related to finishing & packing section.

### **Session 3: The Growing Demand for Sustainability and Ethical Packing**

The apparel industry is experiencing a profound shift driven by a growing demand for sustainability and ethical packaging practices. As consumers become increasingly aware of the environmental and social impacts of their purchasing choices, they are placing greater emphasis on the way clothing is packaged. Sustainable packaging options, such as biodegradable materials, recycled cardboard, and minimalistic designs, are gaining traction as consumers seek to reduce their ecological footprint. Moreover, ethical packaging practices that prioritize fair labor conditions, responsible sourcing of materials, and transparent supply chains are becoming essential for brands aiming to meet the evolving expectations of their customers. The apparel industry is recognizing the need to align with these values, not only as a means to attract and retain customers but also to contribute to a more sustainable and ethical future for fashion. Eco-friendly packing ideas for clothing should:

- Should be physically designed to optimize materials and energy,
- Should be made from materials that are healthy throughout the life cycle,
- Should be sourced, manufactured, transported, and recycled using renewable energy,
- Should be manufactured using clean production technologies and best practices,
- Should use renewable or recycled source materials,
- Should meet market criteria for both performance and cost,
- Should be beneficial, safe, and healthy for individuals and communities throughout its life cycle,
- Should be effectively recovered and utilized in biological and/or industrial closed-loop cycles.

#### **Introduction to sustainable packing:**

A path towards eco-friendly fashion the apparel industry has long been associated with issues of environmental sustainability, from the massive amounts of water and energy required for production to the disposal of clothing at the end of their lifecycle. However, one critical aspect that often goes overlooked is the role of packaging in this industry. Sustainable

packaging in the apparel industry is an emerging trend that seeks to address the environmental impacts associated with how clothing is wrapped, shipped, and presented to consumers.

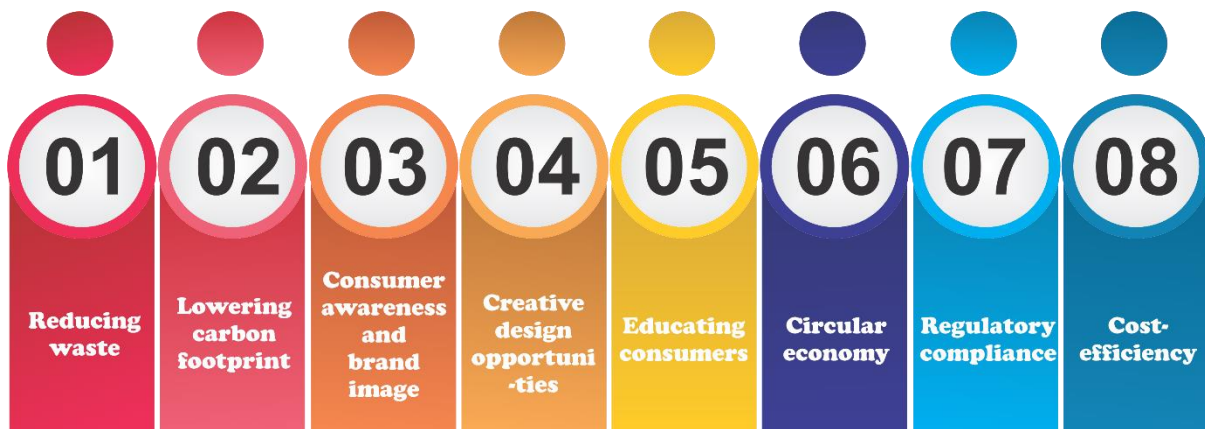


Fig: 3.17 Sustainable packing

1. **Reducing waste:** One of the most significant advantages of sustainable packaging is its ability to reduce waste. Traditional packaging materials like plastic bags, excessive tissue paper, and cardboard boxes often end up in landfills, contributing to pollution and resource depletion. Sustainable alternatives, such as recycled cardboard, biodegradable poly bags, and reusable fabric pouches, help minimize this waste and its negative impact on the environment.
2. **Lowering carbon footprint:** The apparel industry relies heavily on global supply chains, leading to substantial transportation-related carbon emissions. Sustainable packaging can help offset some of this environmental impact by using lightweight materials that reduce shipping costs and emissions. Additionally, using recycled or locally sourced packaging materials further cuts down on transportation-related carbon emissions.
3. **Consumer awareness and brand image:** Today's consumers are increasingly eco-conscious and are more likely to support brands that prioritize sustainability. Utilizing sustainable packaging not only aligns a brand with these values but also serves as a visual representation of the company's commitment to environmental responsibility. This, in turn, can enhance brand loyalty and attract new customers.
4. **Creative design opportunities:** Sustainable packaging doesn't mean sacrificing aesthetics. In fact, it provides opportunities for creative and innovative design that can set a brand apart. Using recycled materials, incorporating eco-friendly inks and dyes, and opting for minimalist, elegant packaging designs can enhance the overall appeal of a product.

5. **Educating consumers:** Sustainable packaging can be a tool for educating consumers about the environmental impact of their fashion choices. Brands can use packaging to share information about sustainable materials, production processes, and care instructions that promote the longevity of the clothing, thus encouraging more sustainable consumption.
6. **Circular economy:** Sustainable packaging aligns with the principles of the circular economy by encouraging the reuse, recycling, and responsible disposal of materials. Brands can design their packaging to be easily recyclable or even encourage customers to return packaging for reuse.
7. **Regulatory compliance:** As governments and international bodies become more focused on environmental issues, there is an increasing likelihood of regulations related to packaging materials and waste. Embracing sustainable packaging early can help apparel companies stay ahead of compliance requirements.
8. **Cost-efficiency:** While there may be initial investments in sourcing sustainable packaging materials, in the long run, they can lead to cost savings. Lightweight and minimalist designs can reduce shipping costs, and eco-friendly materials can often be more affordable as recycling processes become more efficient.

Sustainable packaging in the apparel industry is a critical component of the broader movement towards eco-friendly fashion. It addresses waste reduction, carbon emissions, consumer preferences, and creative design opportunities, all while fostering a sense of responsibility for the environment. As sustainability continues to gain prominence in the fashion industry, adopting sustainable packaging practices is not just a choice but a necessity for brands that want to thrive in the evolving market and contribute positively to the planet's well-being.

### **Materials used in sustainable packing**

Sustainable packaging in the apparel industry is a critical component of the broader sustainability movement within the fashion world. As consumers become more environmentally conscious, there is a growing demand for clothing brands to adopt eco-friendly packaging solutions. To meet this demand, apparel companies are turning to a variety of materials and practices that reduce their environmental impact. Here are some of the materials commonly used in sustainable packaging within the apparel industry:

1. **Recycled materials:** Using recycled materials for packaging is a cornerstone of sustainable packaging in the apparel industry. Recycled cardboard, paper, and plastic are commonly used to create boxes, bags, and other packaging items. These materials reduce the need for virgin resources and divert waste from landfills.
2. **Biodegradable and compostable plastics:** Traditional plastics are a major environmental concern due to their non-biodegradable nature. However, biodegradable and compostable plastics made from renewable sources like corn-starch or sugarcane offer a more sustainable alternative. They break down naturally over time, reducing pollution and waste.
3. **Organic fabrics:** In some cases, clothing brands use fabric remnants or organic textiles to create reusable packaging pouches or bags. These can serve as an added value to customers, who can reuse the packaging for various purposes, reducing the need for single-use materials.
4. **Hemp and jute:** Hemp and jute fibers are renewable, biodegradable, and require minimal water and pesticide usage compared to other crops. These materials can be used to make durable and eco-friendly packaging solutions like bags, tags, and labels.
5. **Mushroom packaging:** Mushroom packaging, also known as mycelium packaging, is a bio-based material created by growing mycelium (the root system of mushrooms) in molds. It can be molded into various shapes to create protective packaging for apparel items. Mushroom packaging is biodegradable and compostable.
6. **Fabric wraps and ribbons:** Brands can also reduce waste by using fabric wraps or ribbons made from sustainable materials like organic cotton or bamboo. These can be used to present and secure garments without relying on disposable options.
7. **Soy-based inks:** Sustainable packaging isn't just about materials; it also involves eco-friendly printing practices. Soy-based inks are derived from renewable soybeans and release fewer volatile organic compounds (VOCS) into the atmosphere compared to traditional petroleum-based inks.
8. **Minimalist design:** Reducing the amount of packaging used is another key strategy. Brands can adopt minimalist packaging designs that focus on functionality and aesthetics while minimizing waste.
9. **Reusable packaging:** Some companies are exploring the concept of reusable packaging, where customers can return the packaging for a discount or reuse it for other purposes. This approach extends the life of packaging materials and reduces overall waste.

10. **Water-based adhesives:** To assemble packaging materials, water-based adhesives are preferred over solvent-based adhesives. Solvent-based adhesives often contain harmful chemicals and VOCs that can harm the environment and human health.

The materials used in sustainable packaging within the apparel industry play a crucial role in reducing the environmental impact of the fashion sector. By adopting eco-friendly packaging materials and practices, clothing brands can not only meet consumer demands for sustainability but also contribute to the broader goal of reducing waste and conserving resources in the fashion industry.

### **Smart and personalized packaging in the apparel industry: revolutionizing the customer experience**

In today's fast-paced and digitally-driven world, the apparel industry is constantly evolving to meet the ever-changing demands of consumers. Beyond just creating stylish and sustainable clothing, companies are now focusing on enhancing the overall customer experience, and one area where this transformation is particularly evident is in smart and personalized packaging.

1. **Customization for the win:** Smart and personalized packaging in the apparel industry is all about delivering unique, tailor-made experiences to customers. Brands have recognized that personalization is not just a buzzword but a powerful tool to capture consumer attention and loyalty. From choosing the color and design of the box to adding a personalized note or message, these customized touches make customers feel special and valued.
2. **Tech-driven personalization:** Technology plays a pivotal role in smart packaging. Companies are utilizing data analytics, AI, and machine learning to gather insights into consumer preferences, behaviour, and demographics. These insights are then used to create personalized packaging solutions. For instance, if a customer frequently buys active wear, a brand might send their purchase in a sports-themed box or include a discount coupon for the next active wear purchase.
3. **Sustainability and efficiency:** Smart packaging also aligns with sustainability goals. Brands are using eco-friendly materials and innovative designs to reduce waste and environmental impact. For example, reusable packaging options or biodegradable materials are being adopted. Furthermore, smart packaging can be optimized for



efficient logistics and transportation, reducing the carbon footprint of the apparel industry.

4. **Interactive packaging:** With the integration of Augmented Reality (AR) and QR codes, apparel packaging becomes an interactive experience. Customers can scan a code on the package to access additional content, such as styling tips, fashion shows, or even virtual fitting rooms. This not only enhances the customer's engagement with the brand but also creates a sense of excitement and discovery.
5. **Enhancing brand image:** Smart packaging is a reflection of a brand's commitment to innovation and customer satisfaction. It sets a positive first impression, which can significantly impact brand perception. Memorable packaging encourages customers to share their unboxing experiences on social media, effectively serving as free marketing for the brand.
6. **Personalized messages and recommendations:** Inside the package, brands can include personalized messages, handwritten notes, or recommendations based on the customer's purchase history. These touches not only make the customer feel valued but also serve as a subtle marketing strategy, encouraging repeat purchases.
7. **Safety and authentication:** In addition to aesthetics and personalization, smart packaging can also incorporate security features. This is especially crucial in the apparel industry, where counterfeit products can be a problem. Smart packaging can include QR codes or NFC tags for customers to verify the authenticity of their purchase.
8. **Consumer data privacy:** While collecting data for personalization is essential, ensuring the privacy and security of customer information is equally crucial. Brands must maintain transparency and comply with data protection regulations to build and maintain trust.

Smart and personalized packaging in the apparel industry is a dynamic and innovative approach to enhancing the customer experience. It is not only about aesthetics but also sustainability, interactivity, and authenticity. Brands that embrace these trends are likely to stand out in the highly competitive apparel market, fostering customer loyalty and positive brand recognition. As technology continues to advance, we can only expect these packaging innovations to become more sophisticated and integral to the industry's success.



Here are some types of personalized packaging commonly used in the apparel industry:

1. **Customized boxes and bags:**

- **Branded boxes:** Many apparel brands create custom boxes with their logos and unique designs. These sturdy boxes offer protection to the clothing during shipping and make the unboxing experience special.
- **Custom shopping bags:** High-quality paper or fabric shopping bags with the brand's logo and colors provide an upscale feel. Some brands even personalize these bags with the customer's name or initials for an extra touch.

2. **Personalized tissue paper:**

- Customized tissue paper featuring the brand's logo, slogan, or patterns can be used to wrap individual clothing items within the packaging. It adds an element of surprise when customers open their packages.

3. **Custom stickers and labels:**

- Brands often include stickers or labels that match their packaging design. These can be placed on the outside of the box or on clothing tags, providing a cohesive and branded look.

4. **Thank-you notes and inserts:**

- Personalized thank-you notes or inserts are a thoughtful touch. These can be handwritten or printed with a personalized message, expressing gratitude for the customer's purchase.

5. **Size and care labels:**

- Some brands go the extra mile by providing personalized size and care labels on their clothing items. These labels can include the customer's name or a special message, reinforcing the sense of personalization.

6. **Customized ribbons and bows:**

- Brands can add a touch of elegance to their packaging by using customized ribbons and bows that match their branding colors and design.

7. **Custom packaging tape:**

- Custom packaging tape featuring the brand's name, logo, or a unique pattern can be used to seal the boxes. It not only secures the package but also reinforces brand identity.
8. **Exclusive packaging for special occasions:**
    - Some apparel brands offer specialized packaging for holidays, birthdays, or other special occasions. This could include themed boxes or inserts to celebrate these moments with the customer.
  9. **Sustainable packaging with personalization:**
    - Many brands are adopting eco-friendly packaging materials and incorporating personalization into them. For instance, using recycled cardboard boxes with personalized printing.
  10. **QR codes and personalized shopping experiences:**
    - Brands can include QR codes on their packaging that lead customers to a personalized shopping experience, such as a curated collection or exclusive discounts.
  11. **Geographic personalization:**
    - Some brands personalize packaging based on the customer's location, adding a map or a local landmark to create a connection with the customer's hometown.

Personalized packaging in the apparel industry not only enhances the perceived value of the products but also fosters a stronger bond between the brand and the customer. It creates memorable unboxing experiences and encourages repeat business, making it a valuable marketing and branding strategy.

### Activities

#### Activity:1

Understand and forecast of future developments of growing demand for sustainability and ethical packing.

#### Material required:

1. Internet
2. Pen/pencil
3. Computer/mobile

**Procedure:**

1. Observe and understand fast growing world and its technology.
2. Do researching and surveying of futuristic needs and developments in sustainability and ethical packing.
3. Make a PowerPoint presentation based on your research.

**Check Your Progress****Fill in the blanks:**

1. The apparel industry is experiencing a profound shift driven by a growing demand for ..... and..... practices.
2. One of the most significant advantages of sustainable packaging is its ability to .....
3. .... practices prioritize fair labor conditions.

**Answer the given questions:**

1. Explain some materials used in sustainable packing?
2. What do you mean by smart and personalised packing in the apparel industry? Discuss it in detail.

**Module 4****Maintaining A Clean And Hazard Free Working Area-II****Module Overview**

A clean and hazard free workplace ensures the safety and health of the employees and visitors. Clean walking surfaces, suitable footwear, and appropriate speed of walking are important to preventing falling accidentally.

Clean and dry stairways and aisles are also important in preventing accidents and maintaining a safe work environment. Clean light fixtures improve lighting efficiency in the workplace. Good air quality greatly influences work environment as well as the health of the employees.

**The negative effects of the unclean environment are as follows:**

- A buildup of dust, lint, and grease can create breathing problems for everyone in the working area, resulting in asthma attacks, stuffy noses that may lead to serious health issues.
- A dirty work environment is breeding ground for various germs and allergens.
- Poorly designed workstations, tools and equipment, machinery, materials and the progressive bundle system of production systems, pose serious risks of musculoskeletal injury and stress-related conditions.
- Overcrowding, together with improper storage of flammable materials, frequently creates serious fire hazards.
- Poor sanitation and lack of proper maintenance measures contribute to the severe health and safety concerns.
- Two most common ways to tackle it are:
  - Use of disinfectants to prevent the spread of germs and microbes.
  - Proper disposal of waste and recyclable materials keeps work areas clutter-free.

Therefore, the major health and safety concerns of the apparel industry are related to general conditions of the work environment.

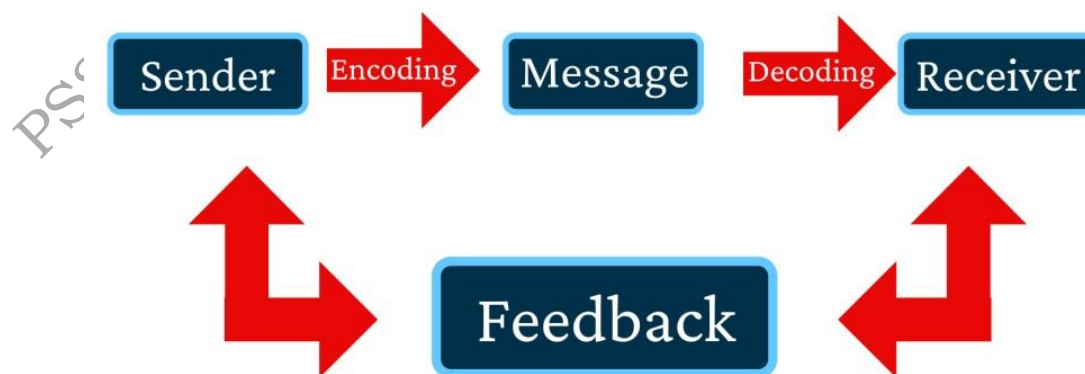
Proper maintenance procedures are a must to ensure a clean and safe working environment.

<b>Learning Outcomes</b>
After completing this module, you will be able to: <ul style="list-style-type: none"> <li>• Explain Effective Oral and Written Communication</li> <li>• Explain Compliance to Health, Safety and Security Requirements at Workplace</li> <li>• Describe Potential safety risks and emergencies</li> </ul>
<b>Module Structure</b>
Session 1: Effective Oral and Written Communication at Workplace
Session 2: Compliance to Health, Safety and Security Requirements at Workplace
Session 3: Potential Safety Risks and Emergencies

## **Session: 1 Effective Oral and Written Communication at Workplace**

Effective oral and written communication not only helps in communicating one's thoughts clearly and concisely, but also to create focus, energy, and passion. Clear messages help to build trust and integrity between the writer and the reader. Well-written communication helps to define goals, identify problems and arrive at solutions. Employees must clearly write and talk so that other staff understand the situation without confusion.

Effective writing allows the reader to thoroughly understand everything that one is not able to say. Listening, reading, writing and talking are collectively known as effective communication skills. Good communicators have a wide range of skills and are able to adjust their communication style in response to the many variables they face at a given time.



*Fig: 4.1 Communication process*

**The communication process includes the following:**

1. **Sender:** The burden of responsibility lies with the sender to ensure that the message is understood and that expectation for deliverables are clearly defined. Sender should also consider the barriers that may interfere with the receivers' ability to understand the message. These barriers include language, ethnic cultural beliefs, level of education and/or level of experience.
2. **Message:** Verbal, non-verbal and written communications are affected by the sender's tone and method of communication. While sending a written message, the sender must be sure that it is professional, precise, clear and in simple language. Written communications are open to interpretation by receiver. Proof the written communication for typographical errors, grammar, punctuation and sentence structure to reduce the chances of miscommunication.
3. **Method and environment:** Messages are conveyed through channels. These channels are affected by the method and environment which is chosen to communicate. All written communications are one-way communication, as there is no opportunity for people to ask questions, provide feedback, express concern or gain clarification during or immediately after communication.
4. **Receiver:** Messages are delivered to the concerned receivers. Receiver enters into the communication process with ideas and feelings that influence his understanding of the message and send their response.

Communication at the workplace is one of the signs of a high-performance culture. Exchanging information and ideas within an organisation is called workplace communication. However, effective communication occurs when a message is sent and received accurately.

**A. Effective communication at workplace is center of all business goals.****Its benefits are:**

- It avoids confusion
- It provides purpose
- It builds a positive company culture
- It creates accountability

**B. Skills that employers mostly seek are:**

- Oral communication
- Listening
- Written communication
- Public speaking
- Adaptability

### C. The importance of good communication at workplace:

Good communication is an essential tool in achieving productivity and maintaining strong relationships at all levels of an organisation. Employers who invest time and energy into delivering clear lines of communication will rapidly build trust among employees, leading to increases in productivity, output and morale. Employees should communicate effectively with colleagues, managers and customers. The message is the outcome of the encoding, which takes the form of verbal, nonverbal, or written language.

### The lines of communication, authority and reporting procedures at work place

Lines of communication can include a chain-of-command that requires employees to communicate only with their direct superior. Workplace communication is the process of exchanging information and ideas, both verbal and non-verbal, between one person/group and another person/group within an organisation. To establish and manage, various lines of communication within a business is essential so that all workers and managers can contact the communicator, for example a manager communicating to an employee and an employee to a customer.

Protocol is a set of guidelines regarding the chain of command for how various members of an organisation must communicate with each other.

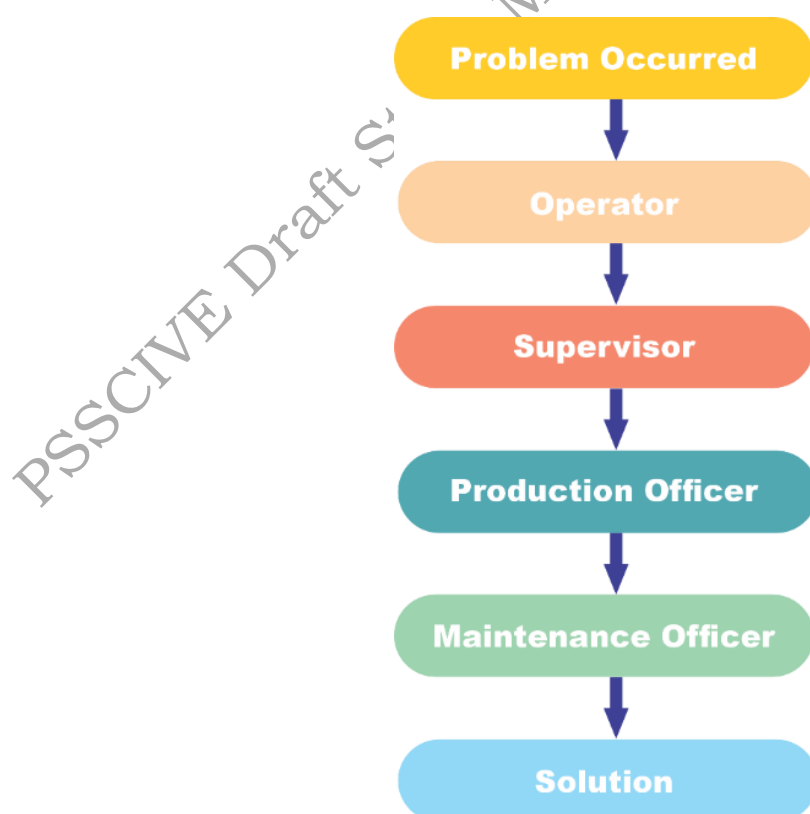


Fig: 4.2 Flow chart of maintenance



- 1) **Owner to manager:** The company owner provides directions to manager as well as any update or news he wants to give employees through manager.
- 2) **Manager to employee:** Managers must delegate specific duties to workers and provide directions about work projects. A manager commonly communicates through regular meetings with the entire department. Manager may also schedule yearly employee review sessions with individual workers to discuss performance and productivity.

For example, a flow chart of reporting and conducting maintenance in an industrial set-up is given as below:

- 3) **Employee:** A line of communication is also established between employees/managers and outside business contacts. Certain employees of a manufacturing unit may have to communicate directly with representatives of companies to supply raw materials, submit orders or request information.
- 4) **Communication with customers:** Possibly the most important line of communication at a business is between the employees of a business and its customers. In some cases, certain employees are authorized to speak to clients for business contacts.

### Reporting procedures at work place

Effective communication in the workplace is imperative in a leadership role. Having effective communication skills is the key to good leadership. In turn line of communication begins in descending order, i.e. Reporting procedure begin from customers to employee, employee to supervisor, supervisor to manager and from manager to industry owner.

**Ways of reporting procedures for effective communication at workplace are as follows:-**



Fig: 4.3 Reporting procedures for effective communication

1. **Open meeting:** It is easier to communicate in the work place situation via open meetings. In this kind of forum, workers will hear, see and feel it. This oral communication is one of the best approaches to communicate effectively with a team.
3. **E-mails:** In official settings, written communication via email remains potent. It will enable to pass messages to the members of the team without pulling them out of their workstations.
4. **One to one:** Workers understand better when we talk to them on a one-to-one basis. Ensure to maintain eye contact with them to enable the message to sink in.
5. **Creating a receptive atmosphere:** To effectively communicate with the team, one must create an interesting atmosphere which is open for communication.
6. **Display confidence and seriousness:** Ensure that one must display confidence and seriousness to ensure that one is not taken for granted. When the team members notice any uncertainty and lack of seriousness while communicating with them, they are likely to treat the information with disregard.
7. **Using simple words:** To be effective in the communications with the team members, use words that are easily understood.
8. **Using visuals:** Place visuals at strategic positions around the work place of the team. Delivering messages both through sight and sound gives room for better comprehension.
9. **Listening to the team members:** Encourage team members to open up so that the leader can be well informed while communicating with them.
10. **Using body language:** Body language will pass the message much faster and better. Master the art of using body language when communicating with the team. Stand/sit up straight, use smiles, handshakes and eye contact.
11. **Using the appropriate tone of voice:** Use the appropriate tone of voice to communicate the message to the team so that the message is not misunderstood and discourage / frighten the receivers. Voice modulation in such scenarios help to be beneficial.
12. **Being clear:** Being clear to communicate to the team members makes it easier for them to understand the message. Make a message to the point for better comprehension. Keep the focus of point to be conveyed straight forward.

13. **Encouraging feedback:** Do not just talk and walk away, give room for feedback so that one can measure the effectiveness of the style of communication. It will also afford the privilege of knowing if the message was well understood.
14. **Gesticulate:** Use the hands to demonstrate the message. Make hand motions and signals to establish the seriousness of the subject matter while communicating with the team members.
15. **Being appreciative:** After every communication session, always remember to thank the listeners for their time. One should work hard at these communication tactics and create ground rules to keep everyone up to date, which will ensure the completion of the project with ease. Lines of communication help to facilitate not only to communicate the message accurately, but also timely response to prevent missed opportunities or late delivery of work.

### **The importance of complying with written instructions**

A written communication is always put into writing form and used when the audience is at a distance or when record is required or where its preservation is essential and required as an evidence. It is in the form of instruction, orders, rules and regulations, policies, procedures, posters, memos, reports and information bulletins.

#### **1. The importance of written instructions is mentioned as below:**

- a) It keeps evidence of what has occurred or what was stated.
- b) It keeps permanent record for future use.
- c) It reduces the chances for misinterpretation and distortion of information.
- d) It is more reliable when transmitting lengthy information on financial, production or other important data.
- e) It provides an opportunity to put up their grievance in writing and get it supported by facts.

#### **2. Complying with industries written instructions**

- a) Carry out work functions in regulatory and accordance with legislation and organisational regulations, guidelines and procedures.

- b) Seek and obtain clarifications on policies and procedures, from the authorized person.
- c) Apply and follow the policies and procedures within work practices.
- d) Provide support to the supervisor and team members in enforcing these considerations.
- e) Comply with health and safety and security related instructions applicable at workplace.
- f) Use and maintain personal protective equipment as per protocol.
- g) Carry out own activities in line with approved guidelines and procedures.

Writing care instructions: Care instructions should be written in the form of notices or signage's to help employees remind of care or caution to be followed with regard to machinery or wet floor or any hazardous situations.

### **Equipment operating procedures/manufacturer's instructions**

The manufacturer of machines, as well as the operator, both should take all technical and organisational measures, in order to ensure the safety of machine operators. It includes the general rules for approaching safety issues that should be taken into account by machinery designers in the design process e.g. inherently safe design, safeguarding and protective measures, information for use, mode of application, conformity assessment procedures etc. Use of machine operating manuals should be encouraged to employee designated to use particular machine.

### **Implementation of safety measures by the manufacturer**

The manufacturer of machinery should eliminate hazards or reduce risks associated with these hazards by applying safety measures in the following order:

1. **Inherently safe design:** Hazard can be eliminated through the right choice of the machine design and features and minimizing personal exposure to hazards, through reduction of the number of un-necessary interventions within the danger zones. All accessible parts of the machine should have no sharp edges, sharp corners, rough surfaces, protruding parts, etc. Many hazards of the machine can be eliminated by means of choosing proper shapes and employing proper arrangement of mechanical parts.

2. **Safeguarding:** The hazards that cannot be eliminated using the inherently safe design approach should be reduced by means of the application of guards or protective devices. Covers, doors, fences, etc. Also perform guarding functions. Guards should be difficult to remove or switch off, situated at a proper distance from the danger zone and allow performance of required operations like installation, tool changing or maintenance, guard locking, providing only limited access to the area where the operations are to be performed and without the necessity for removal.
4. **Protective device:** Protective devices that do not create actual physical barriers perform their protective functions by means of generating a signal that stops a dangerous motion of a given machine element. When it is impossible to apply guards, sensitive protective devices are used to reduce risk. There are several types of these devices. Optoelectronic protective devices such as light curtains, scanning devices like laser scanners and pressure-sensitive devices, mats, trip bars, trip wires etc. Are often used.
5. **Functional safety of machinery control system:** If failure of a control function performed by a control system can result in an immediate increase in risk, then this function is named a “safety function”. Generally, safety functions can be implemented for the reduction of risk associated with the improper machine operation, failure of technological processes and mechanical hazards.

**The safety functions included in manufacturer’s instructions are:**

- a) Safety-related stop function initiated by a safeguard
- b) Manual reset function
- c) Start/restart function
- d) Local control function
- e) Muting function
- f) Monitoring of safety-related input values
- g) Response time
- h) Monitoring of safety-related parameters such as speed, temperature or pressure
- i) Reaction to fluctuations, loss and restoration of power sources.
- j) Common cause failure factor
- k) Components and elements to achieve emergency stop function

- l) Measures for escape and rescue of trapped persons
  - m) Measures for isolation and energy dissipation
  - n) Provisions for easy and safe handling of machines and parts
  - o) Measures for safe access to machinery.
6. **Information for use:** Despite the adoption of measures for inherent safe design, safeguarding and protection, the user is informed about machine design and their parts, running and maintenance of machine.
- A. The information may be in the form of accompanying documents and instruction manual, on the machine itself, on the packing and by other means, such as signals and warnings outside the machine. Information and warnings on machinery is provided in the form of readily understandable symbols or pictograms. The operator must have facilities to check the operation of the warning devices all the time.
  - B. Visual signals, such as flashing lights and audible signals such as sirens may be used to warn of an impending hazardous event, such as machine start-up or over-speed.
  - C. All the necessary markings on machine itself
    - a) for unambiguous identification,
    - b) in order to indicate compliance with mandatory requirements, for safe use.
  - D. The instruction handbook or other written instructions includes all information for safe commissioning, operating, adjusting and maintenance of the machine.
  - E. Implementation of safety measures by the user of machinery and work equipment. Work equipment should be properly adapted to the work without impairment to their safety or health.
7. **Additional safeguarding:** The employer should ensure that work equipment is installed, located and used in a way ensuring that the risks to the operators and other workers have been reduced. In particular, sufficient space between moving parts of work equipment and fixed or moving parts should be allowed with movable guards or protective devices.
8. **Use of personal protective equipment:** Technical safety measures comprise personal protective equipment. These are devices or equipment designed to protect worker against single or multiple risks that may affect health or safety at work.

### **Personal protective equipment also comprises,**

- a. A unit constituted by several devices or appliances which have been integrally combined by the manufacturer for the protection of an individual against one or more simultaneous risks, e.g. A helmet coupled with a visor and/or hearing protection.
- b. A protective device or appliance combined or separately, with personal non-protective equipment worn or held by an individual for the execution of a specific activity e.g. Clothing or knee protectors included in trousers used for performing work while kneeling.

### **Personal protective equipment should include the items such as:**

- 1) **Clothing:** Well-fitted pants and jackets with all buttons fastened. Sleeves should be close fitting, hair nets and aprons made of non-combustible and flame-resistant materials.
- 2) **Footwear:** Approved and sturdy footwear with non-slip sole and a closed toe and closed back.
- 3) **Hand protection:** Natural rubber latex gloves, synthetic rubber gloves, and vinyl gloves or thick plastic gloves.
- 4) **Eye protection:** Safety goggles or masks.
- 5) **Respirators:** Properly fitted to provide the best protection from inhaling harmful fumes or vapours.
- 6) **Work organisation and procedures:** Proper work organisation is important in ensuring safe operation of the work equipment. All operations should be performed according to established safe working procedures. The employer should take necessary measures to ensure that the use of work equipment is restricted solely to persons given the task of using it. Written permission for conducting high risk works should be issued namely, repairs, modifications, maintenance or servicing.

### **Suggestive standard operating procedures or instructions**

#### **A. Sop for machine inventory including spares, tools and tackles.**

- Receipt of material against packing list/indent.
- Machine taken for installation as per requirement.
- After installation machine is numbered. Record is to be maintained in asset register / computer excel sheet.
- Machine is not issued to production until the numbering is complete.



**B. SOP for machine installation**

- Arrange the related person from agencies to install the machine.
- After installation arrange to train production from company technician.
- Hand over the bobbin/bobbin case or related material use to run machine to production department.

**C. SOP for maintenance of utilities - Air/Water/Steam related**

- Making indent for materials for installation.
- After receiving of materials from vendors, installation from vender.
- Looking after the maintenance of steam generator and air compressor.
- Operating of steam generator and air compressor in shift timing.

**D. Sop for machine's preventive maintenance**

- Preventive maintenance schedule is prepared.
- As per schedule, preventive maintenance is done and record is maintained
- All weighing scales shall be calibrated once a year and certificate is obtained.
- Maintenance department shall inform the purchase department regarding renewal of AMC (Annual Maintenance Contract) at least 1 month prior to its expiry.

**E. SOP for machine breakdown maintenance**

- Breakdown intimation is received from concerned department.
- Breakdown maintenance is done considering type of fault.
- Record of breakdown maintenance is maintained in the breakdown maintenance register.
- Electrician repairs all electrical faults and maintains a register for electrical repair and breakdowns.
- A machine history record shall be maintained for all machines.

**F. SOP for calibration of measuring instrument & light illuminations record**

- Any machine having measuring instrument should be calibrated yearly.
- The calibration check list shall be maintained for all such instruments.
- The maintenance in charge shall keep the certificates of calibration in a file.
- Actual date of calibration shall be maintained in the machine history sheet.
- Monthly light illumination shall be recorded in all working area on the production floor.
- At least once in 6 months, illumination checking is done and record is maintained

### Activities

#### Activity:1

Prepare a graphical poster on sop instructions.

#### Materials required:

1. Writing material
2. Ruler
3. Adhesive
4. Camera for clicking pictures

#### Procedure:

1. Based on your understanding, prepare a graphical and interactive poster on sop instructions.
2. Display the same in your class.

### Check Your Progress

#### Fill in the blanks:

1. Clear messages help to build trust and integrity between the .....

2. The burden of responsibility lies with the ..... to ensure that the message is understood and that expectation for deliverables are clearly defined.
3. While sending a ....., the sender must be sure that it is professional, precise, clear and in simple language.
4. Having effective communication skills is the key to good .....

**Write answers for the following:**

1. Which are the ways to create effective communication at workplace?
2. Discuss effective oral and written communication at workplace
3. Explain the lines of communication, authority and reporting procedures at work place.
4. Describe reporting procedures at work place.
5. Explain the importance of complying with written instructions.

## Session: 2 Compliance to Health, Safety and Security Requirements at Workplace

Safety and security of the workplace greatly depends on the enforcement of safety policies and rules of the industry which also ensures compliance with health and safety standards. Compliance is obtained through specific efforts made to reduce the risk of potential hazards and accidents at the workplace. It is increasingly observed that the health, safety and security of workers are subject to a variety of risks. Inculcation of safety culture in the working environment along with strict guidelines on safe work procedures significantly reduces the risk of potential hazards/accidents.

### Health and safety related practices at workplace

Apparel industry is a labour oriented industry. Workers are the main resources and all companies must follow certain practices applicable at workplace for maintaining health and security of their workforce.

Following points must be taken care–

- Ensuring availability of fully stocked first aid boxes at every designated location according to the floor plan/layout.
- Fire extinguishers should be placed at clearly marked areas at regular intervals



Fig: 4.4health and safety practices

- It is advisable to maintain an accident register. This helps in record keeping of various accidents, their causes and the damages. The information in accident registers can be useful in prevention of accidents in future.
- Factories should ensure proper positioning of emergency lights on work floor leading the pathway to exit.
- It is essential to ensure that all fire-fighting equipment such as extinguishers are regularly inspected and kept in good working order.

- Exit signs should be clearly marked and displayed.



*Fig: 4.5 Exit*

- Yellow lines should be marked on the factory floor to demarcate the pedestrian pathway from the space allocated for machines.



*Fig: 4.6 Yellow lines*

- Aisles should be designed wide enough and should not have any obstruction in between to prevent any accidents during movement of men and material.
- Cables /wires should never be left loose or visible hanging at the floor.
- Proper lighting with well-distributed artificial light to ensure effective use of available daylight should be arranged.
- Good general ventilation plus local exhaust ventilation to remove air contaminants at the source should be ensured.

- A clean lunch room commonly called as canteen area for employees to have their meals should be allocated.
- Oily floors are a common cause of accidents and fire hazard. Splash guards and drip pans should be installed wherever oil spills or drips may occur. Prevent accidents by keeping oil and grease off the floor.
- Adequate supply of clean and pure drinking water must be ensured for all workers.
- Workers should be encouraged to use mask and gloves wherever required.
- Provision must be made for clean washrooms/restrooms for workers and staff members
- Mock drills must be performed with the workers at regular intervals for them to be prepared in case of any spills, fire, and explosion.
- It is advisable to carry out the regular maintenance of the factory if something gets broken or damaged. It must be ensured that same be replaced or immediately corrected/fixed, for example - defective ladders, broken handrails, steps, etc.
- Factories should have a provision of regular maintenance programmes like inspection, lubrication, upkeep and repair of tools, equipment, machines and processes.

Compliance to health, safety and security requirements at workplace will help in eliminating risk related to potential accidents and hazards caused by unfavorable conditions and thus, will lead to efficient, smooth and uninterrupted production cycle and safe and secure work environment.

### **Access to clean drinking water and sanitary facilities**

Welfare facilities like access to clean drinking water, hygienic and well ventilated wash rooms or rest rooms are a vital part of good working conditions in an industry.

### **Clean drinking water**

Provision of safe and clean drinking water, beverages or an adequate meal is mandatory for a healthy workforce.

Availability of clean drinking water is indispensable for all workers. Mostly in hot weather conditions a lot of water is lost from the body in the form of sweat or evaporation. If appropriate arrangements are not provided then the

workers might have to make the arrangements by themselves or leave the workplace often in search of clean and safe drinking water.

In case of impure or contaminated water being made available for the workers, it can be a cause of frequent transmission of diseases among them. If the workers get dehydrated, they can be tired, exhausted or fatigued and will be less productive in their outcome. Thus, provision of clean and pure drinking water should be made near the workstations. Preferably, cool drinking water must be provided specially in hot weather conditions. For example - arrangements of water coolers or water dispenser with clean and cold drinking water can be done at regular intervals near the workstations.

### **Sanitary facility**

All industries must ensure appropriate sanitary facilities for workers within the working premises. Hygienic and disinfected toilets/restrooms are very important. It is also requisite to equip adequate number of washrooms as per the number of workers/staff working in an industry and ensure their maintenance and cleanliness.

To ensure mental and physical well-being of workers and to prevent spread of any diseases within the working premises, it is vital to have proper sanitary facilities. These facilities also helps in improving rate of production as healthy workers are more efficient in their working and it simultaneously leads to lower rates of absenteeism within the workforce.

Therefore, developments in sanitary facilities should be undertaken and materials incorporated should be durable, easy to clean and quick drying likes tiles. Frequent cleaning and maintenance of toilets is also recommended.

The following points must be considered;

1. Sanitary facility must be within easy access from the work site.
2. These facilities must be well enclosed, well lit and adequately ventilated.
3. Proper supply of toilet paper and other hygiene supplies must be ensured.
4. It must be equipped with a covered garbage bin.
5. Hand claning facility like a wash basin along with soap and a sanitary way to dry hands must be installed in every single toilet facility.

### **Reporting malfunctions in machinery and equipment or any other hazard at workplace**



Identification of malfunction in machinery/equipment or any other hazard at a workplace is an indispensable component of the health and safety management system. It is the first step in development of the safety procedures for prevention and controlling of any hazard.

A hazard is a source of any potential damage.

Identification of hazards includes the following:

- Identifying both existing and prospective workplace hazard
- Assessing or calculating the risks involved
- Determining and implementing the control measures
- Reviewing the situation

Workers must be trained to identify all the possible hazards associated with their job role and also know the control measures during an emergency situation to prevent any injury to people, property or environment from the same.

Workers must follow all the safety practices which comply with the standard operating procedures. They must regularly check/inspect the workplace, equipment's, machines and tools for any abnormal changes, conditions or unanticipated emissions/leaks for identification of any perilous conditions. In case of an unsafe condition they must report them to their supervisor or authorized personnel and collectively work towards resolving the same.

Workers are exposed to various potential hazards while working near or on a machine. There is a risk of injury caused due to entanglement, friction or abrasion, cutting, stabbing or getting trapped in the moving parts of the machines. Therefore, it is suggested that workers must follow guidelines related to dress code/uniform/using protective equipment's and safe working practices applicable while working near or on a machine.

Risk is also associated with noise, vibrations and radiations generated by the machines. Levels of the aforementioned must be monitored to prevent any health issues among workers. Workers must be also able to identify and report any sparks or loose fitting which can cause fire accidents or electric shocks, over speeding or under speeding of parts of machines etc.

**The following points must be checked for identification of possible hazards linked with machines, equipment's, tools and services –**

1. Identify use of the machine by considering the following points-
  - Cycle time & rate of production.

- Intended use of the machine.
  - Different types of materials being used on it.
  - Amount of force being generated.
  - Range of motion or moving parts of the machine.
2. Identification of space required by the machine for safe operation of all tasks including access for maintenance and repairs.
  3. Identifying the environmental limits of the machine such as the operating temperatures, humidity levels, and noise generation level.
  4. Consideration of all the tasks performed by and on the machine such as–
    - Regular operations
    - Change of tools
    - Scheduled maintenance of machine
    - Recovery from crashes/timeouts.
  5. Identification of operation/ motions of machine such as–
    - Parts of the machine which are movable.
    - Range of motion of moving parts.
    - Type of motion (e.g., rotation, shearing, bending, cutting, punching)
  6. Identify the entanglement hazards of the machine that can be caused due to coming in contact with rotating or moving parts of the machine.
  7. Identify hazards due to cutting, where a worker can come in contact with cutting tools, saws, routers, knives, or any other sharp material.
  8. Identify any potential hazard due to slips or fall in and around the machine due to the spills on the floor surface such as lubricating oils, grease, water etc.
  9. Identifying any ergonomic issues caused while operating the machine. Ensure the following–
    - Workers do not have to reach exclusively.
    - Workers do not have to use excessive force.
    - Workers do not have to perform movements at a very high speed.

- Machine cycle must be planned in accordance with the workers capacity
  - Workers can perform work in multiple positions that promote a neutral body position.
  - Work surface is adjustable according to the workers requirements.
  - Worker has enough room space to move without striking anything.
10. Identify all the work that a worker must perform while operating the machine such as-
- Feeding stock into the machine
  - Removal of final products from the machine
  - Removal of scrap
  - Scheduled and regular cleaning parts of the machine.
  - Pre and post shift safety checks.

Therefore, it is advisable to identify, report and correct any prospective risk which can lead to a hazard at a workplace, thereby ensuring prevention and control of any injury or loss.

### **Safety signs at work place and their meaning:**

**First aid:** It is an emergency treatment given to a sick or injured person. The main aim of first aid is to preserve life, prevent from further harm or injury and to start the recovery process. A first aid kit is used in giving the first aid. The sign of first aid which is mostly used is as follows –



*Fig: 4.7 First aid*

**Fire exit:** This sign marks the way to nearest exit point during a fire accident.



Fig: 4.8 Fire exit

**Assembly points:** This signage marks the area where the workers need to assemble in case of any hazard or emergency.



Fig: 4.9 Assembly point

**Fire equipment:** This sign marks the location of storage area of firefighting equipment's such as fire extinguisher, fire blankets etc.

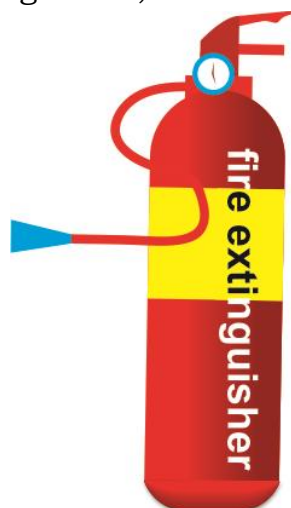


Fig: 4.10 Fire equipment

**Smoking ban signs:** This signs mark areas/location where smoking is not allowed/prohibited.



Fig:4.11 Smoking ban size

**Machinery hazards:** These signs mark the areas near the machinery where one needs to be cautious of his/her movements and actions for safety purposes.



Fig: 4.12 Machinery hazards

**Hazardous substance:** This sign marks the areas where any hazardous or toxic substance is stored.



Fig: 4.13 Hazardous signs

**Pedestrian access and no access:** These signs indicate where pedestrians can and cannot access respectively.



Fig: 4.14 Pedestrian access and no access

**Flammable substance:** This sign denotes the location of any extremely flammable substance being stored there.



Fig: 4.15 Flammable substance

**Wet floor :** This sign marks the areas with wet/ slippery floor to be cautious while crossing it.



Fig: 4.16 Wet floor

### Activities

#### Activity: 1

Prepare a file with pictures and details of all the safety signs applicable at workplace.

#### Material required:

1. File/register
2. Pictures of safety signs

3. Color pencils
4. Pen
5. Ruler
6. Eraser
7. Glue stick

**Procedure:**

1. Collect pictures and information about all the safety signs applicable at workplace.
2. Prepare a file with all the details.
3. Submit the file to your teacher.

**Activity:2**

Prepare a report on various types of health and safety related practices applicable at a work place. Place it a file and submit the same.

**Material required:**

1. Register/file
2. Pen/pencils
3. Eraser
4. Ruler

**Procedure:**

1. Visit an apparel industry, learn and understand about the health and safety related practices being followed.
2. Make a report on the same.
3. Place the report in a file and submit the same.

**Check Your Progress****A. Fill in the blanks:**

1. Compliance is obtained through specific efforts made to reduce the risk of ..... at the workplace.
2. .... should be marked on the factory floor to demarcate the pedestrian pathway from the space allocated for machines.
3. .... should be clearly marked and displayed.
4. Workers must follow all the safety practices which comply with the.....

**B. Write short answers for the following:**

1. Discuss health and safety related practices at workplace
2. Explain about reporting malfunctions in machinery and equipment or any other hazard at workplace.



3. Discuss safety signs at work place and their meaning

**C. Identify and name the following safety signs–**

1.  .....
2.  .....
3.  .....
4.  .....

### Session: 3 Potential Safety Risks and Emergencies

Safety risks are chances of any detrimental or unfavorable result/outcome or anticipated losses (for example – deaths or injuries caused due to malfunction of a machine in a factory) caused due to natural or human induced causes.

Emergency is an unforeseen and unexpected incident demanding instant/immediate response. It may be caused due to natural, technological or human causes/forces.

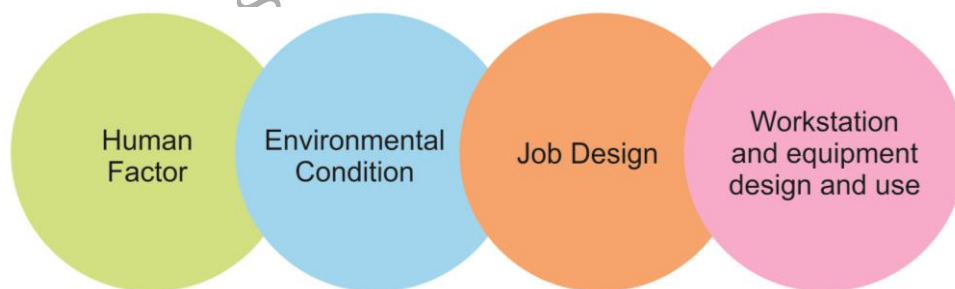
Preparedness against any potential safety risk or emergency is essential to protect the workers against any damage of life and property. The impact of any emergency crisis can be substantially reduced by active participation of employees and employers in safety related practices at workplace.

#### Response to potential accidents and emergencies

Ergonomically designed work areas have several benefits like:

- Increased human comfort
- Reduced stress and fatigue
- Increased workers rate of production
- Reduced risks of potential accidents/hazards

**Some of the factors that must be considered to be prepared are as follows–**



*Fig: 4.17 Factors for potential accidents in industries*

**A. Human factors:** Major human factors that affect are:

- Physiological
- Psychological
- Physical
- Cognitive

Human factors mostly include all physiological and psychological factors. Workers dimensions like reach, posture and strength must be considered while considering the human factors. Physical injury can cause a negative impact on employee's work performance and lead to increase cases of absenteeism. Cognitive factors equally affect the job performance. For example – lack of proper guidance and feedback from supervisors or lack of autonomy can often cause stress and result in lack of motivation among workers to perform well.

**B. Environmental conditions:** Environmental conditions in particular like proper lighting facilities, sound & vibrations, extreme temperature, humidity and poor air quality may affect the workers performance. Undesirable and unpleasant levels of a fore mentioned condition can be detrimental to workers health and safety.

**C. Job design:** A job must be designed keeping in mind the anthropometric characteristics such as age, gender, height, weight and ethnic differences. Proper use of ergonomics is advised as tasks can be either static or dynamic. Static tasks need a sustained position which can cause stress and pain in the lower back, neck and shoulder areas. Whereas, dynamic tasks require continuous body movements, very fast movements can cause fatigue, pain, weakness and sometimes lead to injury if performed with excessive force. Poor job designs and lack of proper training to workers can often be cited as an underlying cause of injuries among workers.

**D. Workstation & equipment design and use:** A workstation should be designed keeping in mind factors such as workable heights, placement, reach, requirements and postures. Adjustable equipment's make it possible to adapt it in accordance to individual requirements. Tools and equipment's must also have flexibility of usage and it should not force the workers to use an unnatural body posture or motion while using it. All equipment's and workstation should work together in a well-coordinated system to ensure a smooth flow of production and safety of workers.

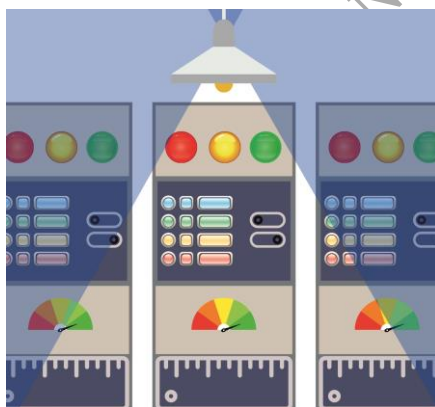
**The following points are mostly the main sources of accidents at the workplace**

- Spills
- Slippery surfaces
- Obstructions (unclear pathways)
- Broken equipment's/tools.

- Machineries which are not regularly checked/maintained and kept unrepaired.
- Areas lacking safety signage's (fire and emergency exits)

Therefore, workers and employers must take collective active measures to adhere to an accident prevention plan. The following points must be considered to strengthen the safety practices at work and be prepared with response to any emergency situation–

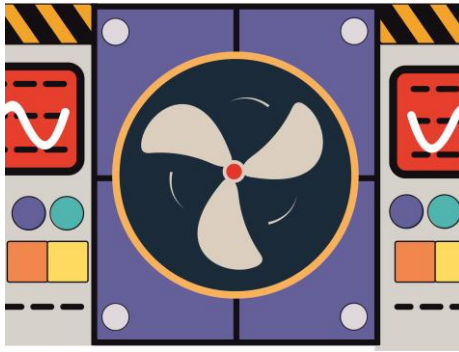
1. Regular programmes and training sessions must be conducted on safety related practices at workplace for workers. It can be held in the form of mock drills for evacuation during fire hazards or any chemical spills, quick response training during accidents/emergencies etc.
2. Ensuring installation of proper lighting system, to have a well-lit and clear visible job site/ workstation, to avoid any potential risk associated with darkness around the workplace.



*Fig: 4.18 Proper lighting*

3. Clearly visible and demarcated safety signs must be placed/ installed wherever necessary, which will help in clear identification of hazardous areas and associated risk like obstacles in pathway, toxic chemicals being stored, slippery floor, emergency exit doors etc..
4. In case of a chemical or any hazardous spill, ensure to always suppress and hold the spill and always keep the cleaning equipment at an easily accessible location.
5. Ensure to conduct routine audits and checks for all potential safety hazards and emergencies to prevent any actual loss.
6. In case of an emergency/ accident, evacuate the premises and helps fellow workers in need.

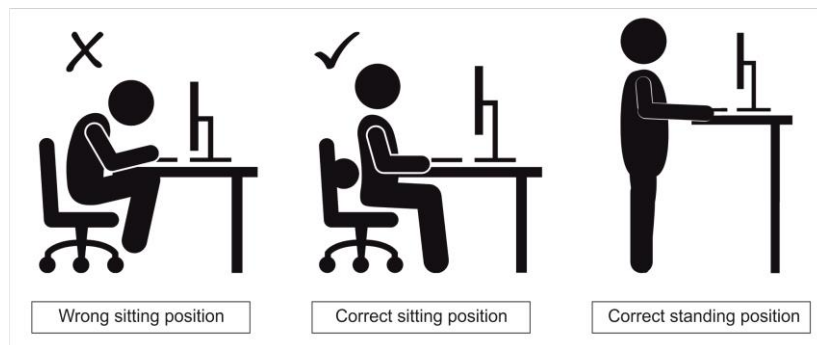
7. Proper ventilation facilities must be ensured throughout the working place to avoid inhalation of any toxic chemical or foreign particles by the employees at the time of any chemical leak.



*Fig: 4.19 Proper ventilation*

8. Workers must be instructed to follow all the rules with regards to the attire/uniform permitted for their job role. For example- workers working in the dyeing unit must wear slippage resistant shoes to prevent any fall or trips which can lead to injury.
9. Employees in an apparel or home furnishing industry need to spend long hours in the sitting posture which can cause soreness in back and reduced circulation in legs. Therefore, to avoid any pain or injury, adjustable chairs must be provided to ensure easily adjustable heights, seat tilt and backrest positions.
10. Chairs with a cushioned/contoured seat, which distributes the worker's weight ensuring no body part feels all the pressure must be preferred.
11. To minimize awkward body postures, chair should also be placed at an appropriate distance from the workstation, so that the workers can perform their tasks without stretching their elbows away from the body.
12. Workstation design must ensure that all the tools and materials are positioned to reduce risk of tilting too far or leading to an awkward body position. It can increase the level of stress/strain in arms, shoulders and the neck. This greatly increases the risk of injury which can be avoided by proper preventive actions and adhering to ergonomically designed principles of work.
13. Workers who need to stand for prolonged hours must be provided with anti-fatigue mats. These mats help in better circulation and reduce fatigue in lower body parts.
14. Emphasis should be given on frequent short breaks to stretch and change body positions. It allows legs, back, neck and eyes to rest in

between long working hours. Shorter breaks often reduce the risk of discomfort, fatigue and injury among the workforce.



*Fig: 4.20 Correct sitting positions*

## **Maintenance and storage of protective equipment**

An effective system of maintenance and storage of protective equipment and tools is crucial to provide the level of protection they are intended or designed for. Therefore, one must always maintain an inspection schedule for all the protective equipment and tools including its shelf life. Inspection must include thorough check against any breaks, tears or any other visible sign of damage.

Maintenance also includes cleaning, examining, repairing, testing and replacing (in case it cannot be repaired) tools and equipment on a scheduled basis. Some examples of protective equipment are – gloves, masks, protective helmet, safety shoes/boots, protective eye wear, ear plugs etc.

Adequate and proper storage facilities for storing of all protective equipment's and tools when not in use is must. Employers must provide for a clean and safe place for the same. For example – pegs for hanging clothing or safety helmets, case for safety glasses, a zip lock bags, shelves or racks for storing of ear muffs, gloves, masks etc.



*Fig: 4.21 Proper storage facility*

The facility of storage must be appropriate and sufficient to protect the protective equipment from any kind of contamination, loss or damage due to coming in contact of water or sunlight. The place should be dry, clean and well sanitized and should also not be subjected to extreme temperatures. It should protect the equipment against ageing and damaging.

For hygiene purposes, one must consider separate storage from ordinary clothing storage in cases where protective equipment may become contaminated during use.

### **Duties of the workers in respect to protective equipment–**

- All the protective equipment must be worn by the workers in accordance to the work requirements and instructions provided.
- Workers must ensure that all the protective equipment must be stored back carefully to their designated/ allocated storage areas after use.
- All the protective equipment must be inspected before use and any defect observed must be reported to the supervisor.
- It is the responsibility of the worker/employee to take due care of the protective equipment provided to them and do not make any modifications to the same them unless and until they are authorized and trained for its maintenance activities.



*Fig: 4.22 Proper storage of protective equipment*



## Reporting emergency situations

Identifying and reporting all hazards/emergency situations is of vital importance for the safety and security of the workplace. All such unsafe incidents must be immediately and directly reported to a supervisor or any other concerned authority. All the workers must be trained so that in case of any hazard or potential emergency situation, the standard procedure could be followed like reporting it to the supervisors expeditiously.

Employers must develop and set up a hazard reporting system for the workers. Implementation of such a system will make the workplace a safer and secure place to perform and work well.

All the workers must be trained in hazard identification and its control measures. They must be trained on the following points–

- Identification of an unsafe condition – this involves recognising any incident that might cause harm or damage to the people, machinery, tools or property. For example - Containers that are not labelled properly, insufficient stairway lighting, broken machine guards etc.
- Identification of an unsafe act that must be reported – this involves any inappropriate behaviour that could lead to an accident/cause an injury or any other damage. For example – Worker using equipment's in a careless manner or not using PPE while running a machine.
- Procedure followed if any unsafe condition is witnessed - Any such unsafe situation should be immediately reported to the supervisor. It can be in a form of a verbal complain, a hard copy of a form to be filled or an online complain system on the website of the company.
- Follow up action post reporting the incident – Workers must expect that the corrective and preventive measures will be taken within the expected time frame. In case of any delay, they must report it again till any necessary action is taken for the same.

Taking necessary preventive actions can save from potential injuries or any significant losses caused due to sheer negligence. Reporting of hazards ensures that employees are involved in the safety management system of the company and are aware of the safety guidelines followed in the company.

For making the reporting by the workers smooth and easy, the following points can be considered–

1. Making reporting procedures easy and possible.
2. Ensure that there is no negative impact or punishment linked with the process of reporting an emergency.
3. Workers who report the hazards or any unsafe incident should be rewarded or recognized for the same.
4. Posters or signs to encourage reporting of any unsafe practices at work can be placed within the work premises.

### **Reporting protocol and documentation required**

In case of any hazardous condition, all workers are responsible for reporting it to their supervisors. Supervisor is responsible to take corrective steps and in case of serious conditions, must fill the hazard reporting form along with the assistance of the worker. The following steps must be followed–

- Workers who identifies an emergency condition/concern must report to his supervisor immediately.
- The supervisor must respond promptly, take necessary actions to resolve the matter within the reasonable time limits.
- If the supervisor is not able to solve the situation, then he/she must report the matter to the manager or to concerned senior authority.
- The employee is responsible to draft a document/fill the form (depending on the rules of the company) outlining the concerns and fact.
- The senior committee members will investigate the matter and ensure correction of the unsafe conditions.

The process of reporting the hazard immediately allows the workers to report the unsafe conditions immediately. This process allows a fast response and prevent further damage. Hazards can be reported verbally or by filling a form, generally called as a hazard reporting form.

Hazard reporting form is a document which is used to report an unsafe incident/ accident at the workplace and ensures that it has been reported formally and necessary corrective steps have been taken. It is used by the first line workers – such as factory workers.

## Hazards Reporting Form

Use this form to report safety concerns

Employee Name		Employee Number	
Department / Area		Supervisor Name	
Describe Fully the safety concern or hazard:			
What can be done to make this situation Safe?			
YES			
YES	NO	Has the supervisor in that area been notified of the safety concern or hazards?	
YES	NO	Has the maintenance team been notified of the safety concern or hazards?	
Employee Signature		Report Date:	

*Fig: 4.23 Hazards reporting form*

### Emergency responses during a hazard/emergency

Any kind of hazard or emergency can occur anywhere and at anytime. To prevent the amount of loss and damage caused due to such unwanted incidents, employers need to provide relevant training to their employees to be adequately prepared to deal with any undesirable circumstances.

Emergency response training can be very advantageous for the employees to acquire knowledge on how to respond to an emergency situation. Employees must learn life-saving skills and acquire knowledge to save themselves and co-workers during the course of any emergency.

It is advisable to designate roles and responsibilities to every employee in the form of tasks they must perform during an emergency and train

them to be specialised to fulfil the requirements of specific roles, for example – specific employee may be trained to perform first aid in the event of any injury or specific group of employees must be trained to handle fire-fighting equipment's in case of fire.

Details about the following equipment's, people and locations must be displayed clearly at every workstation for reference for use during any emergency situations–

#### **Location of emergency equipment's-**

- Fire alarm
- Fire extinguisher
- Fire hose
- First aid
- Panic alarm
- Personal protective equipment's

#### **Emergency contact numbers-**

- Fire station and employee trained in fix hazard handling
- Ambulance and first aid attendant
- Police
- Hospital

### **Emergency response plan**

An emergency action plan involves allocating designated actions that all the employees need to take for their safety during an emergency situation. Some of the suggested actions to be taken in case of an emergency like a fire or chemical hazard, injury etc.

#### **Are as follows –**

- ✕• In case of a fire accident or a chemical spill, one must try to move quickly towards the nearest accessible exit door.
  - Walk, do not run during an emergency and do not use elevators.
  - Help other co-workers to evacuate along the way to exit.
  - In case of fire, if the fire alarm does not ring automatically, try activating the alarm manually for notification of all other employees.

- Exit the building/factory premises and assemble in the allocated area of assembling during an emergency.
- If any person gets caught in fire then try to extinguish their burning clothes by using the drop and roll technique, dousing with some cold water and using an emergency shower or using a fire blanket.
- If caught in the area filled with smoke, then try and stay in lower positions as smoke will rise to ceiling level first. Drop down to your hands and knees and crawl toward the nearest accessible exit point.



*Fig: 4.24 Ways to exit*

- In case of any toxic spill or leak, alert all workers in the immediate area of spill.
- Wear your required Personal Protective Equipment's (PPE) like gloves, protective eye wear etc.
- In case of a minor spill try to contain the spill with spill absorbent material and clean the area where the spill occurred.
- Try to seek immediate medical help in case of any exposure to the spill contents.
- In case of a chemical exposure to the skin or eyes, try to immediately clean it with cool water for at least 15 minutes.
- Do not attempt to move or reposition a victim in case of a muscle, joint or bone injury, sprain or fracture as it can further deteriorate/worsen the condition.
- If there is any open wound injury or bleeding wound, then try to cover the wound with dressing/first aid at the earliest.

**Activities****Activity: 1**

Prepare a sample report of an emergency situation at the workplace.

**Material required:**

- File/register
- Pen
- Pencils
- Ruler
- Eraser

**Procedure:**

1. Study an emergency situation at a workplace.
2. Prepare a sample report of the emergency situation.
3. Submit the same to your teacher.

**Check Your Progress****A. Fill in the blanks:**

1. .... is an unforeseen and unexpected incident demanding instant/immediate response.
2. A .....should be designed keeping in mind factors such as workable heights, placement, reach, requirements and postures.
3. Ensure to conduct..... and checks for all potential safety hazards and emergencies to prevent any actual loss.
4. To avoid any pain or injury,.....must be provided to ensure easily adjustable heights, seat tilt and backrest positions.
5. Taking necessary.....can save from potential injuries or any significant losses caused due to sheer negligence.

**B. write answers for the following:**

1. Discuss response to potential accidents and emergencies.
2. Explain maintenance and storage of protective equipment.
3. Discuss about reporting emergency situations.
4. Describe emergency response plan.

**Module 5****Industry and Organisational Requirements****Module Overview**

The Indian garment industry is well established and recognized worldwide and also enjoys a considerable demand from both domestic as well as global market. The growth of manufacturers and suppliers from developing countries like India, china, Pakistan, Bangladesh and others, and zeal to compete and offer products at competitive prices, the manufacturers have compromised with working conditions, safety and rights of workers.

The recognition to labour standards and worker's rights, most of the international apparel buyers started focusing and pressurizing manufacturers to comply with the labour standards and worker's rights. This resulted in increased awareness and compliance to code of conduct policies among Indian garment factories.

Indian apparel manufacturers and suppliers are not only bound to follow government guidelines but they also must comply with social compliance standards and code of ethics. Such compliance is mandatory not only for the manufacturers but also for their vendors, distributors and other collaborators involved in the supply chain.

**Learning Outcomes**

After completing this module, you will be able to:

- Describe Standard Organisational Compliance and Related Documents
- Explain Ethical Compliance and Related Documents
- Identify and report Compliance Deviation

**Module Structure**

Session 1: Standard Organisational Compliance and Related Documents

Session 2: Ethical Compliance and Related Documents

Session 3: Documentation and Reporting of Compliance Deviation



## Session: 1 Standard Organisational Compliance and Related Documents

Compliance means conforming to a rule. Compliance helps in better organisational control as it is a set of processes to ensure that the organisation as a whole abide by these set of regulations.

### Significance of compliance in Indian apparel industry:

Compliance with respect to the garment industry must meet the audit requirements and refers to the following:

1. Quality of products
2. Safe and comfortable working environment

Apart from quality of products, international buyers are also demanding ethical manufacturing of products, which leads to the compliance of standards by garment manufacturers. The rise in export of garment products increases the demand for social compliance has also increased in the indian garment industry.

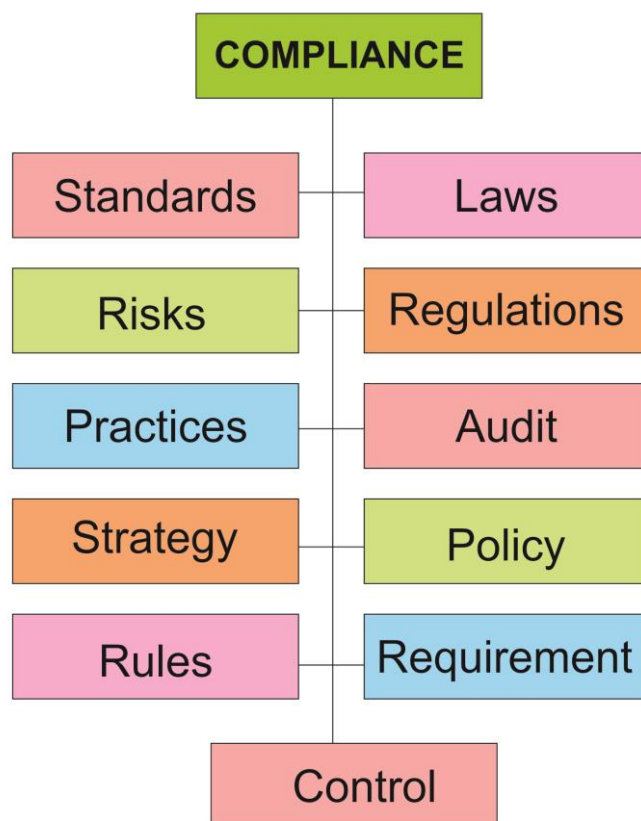


Fig: 5.1 Compliance

## Social compliance

Social compliance refers to compliance in respect to social responsibility, ethical treatment of employees and the working environment. A code of conduct is followed regarding employee wages, working hours and work conditions. In order to keep a check on compliance by manufacturing unit, regarding various environmental standards, a compliance audit is conducted regularly.

### Some of the common requirements of social compliance are as follows-

1. **Child labour-** Organisations must ensure no child under the age of 15 is employed.
2. **Forced labour-** No person should be employed under any threat and if they have not offered their services voluntarily.
3. **Discrimination-** An organisation must not discriminate among its employees on factors like remuneration, promotion, training facilities etc.
4. **Working hours-** An organisation must comply with government rules and industry standards on working hours, break timings, public holidays etc.
5. **Disciplinary practices-** An organisation must not use any mental or physical abuse against the employees in the name of punishment.

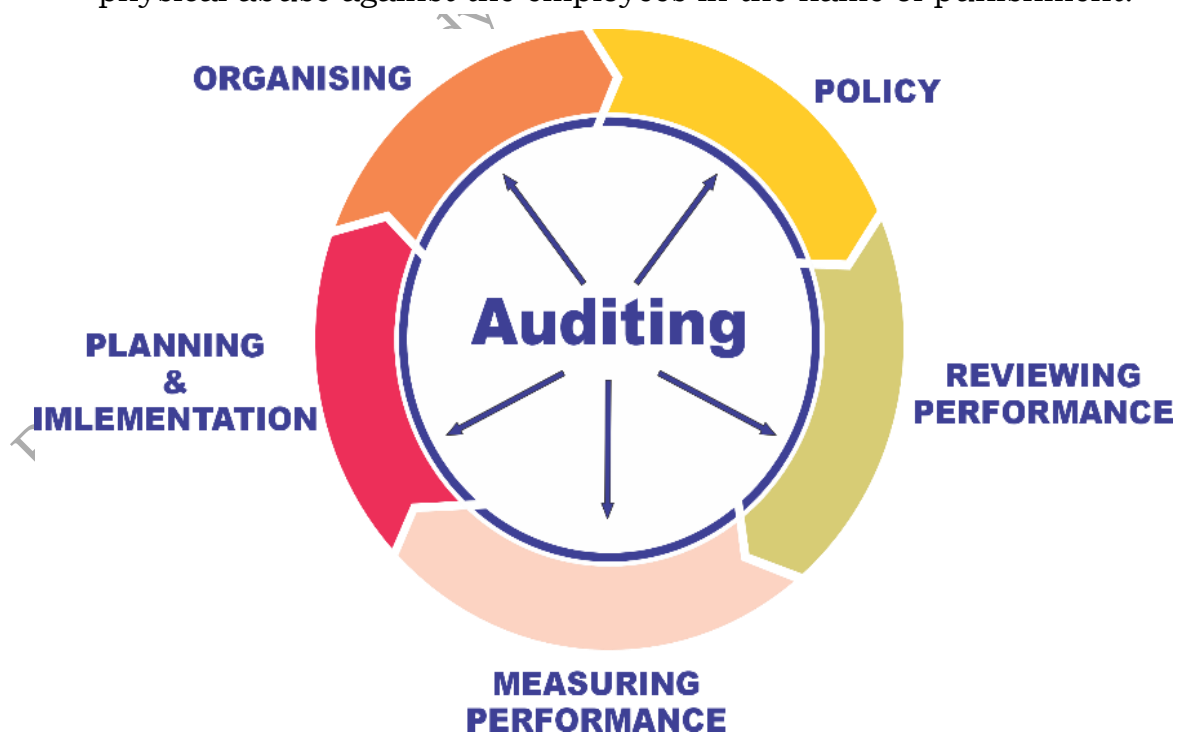


Fig: 5.2 Social compliance

## Introduction to Audit:

Audit means to officially inspect, check or examine. Thus audit in organisational terms means check or inspection of various departments, resources and finances of an organisation. Audit is conducted regularly to ensure that no fraud or scam is caused by the organisation.

Audits and assessments ensure safety management, security management, and risk management. Aim of auditing is to adhere to the prescribed policies and procedures and to verify compliance with regulatory requirements and industry standards. It helps to ensure that all programs are properly designed and implemented. Further, audits also helps in identifying programme deficiencies so that recommendations can be developed for corrective action.

## Audit in apparel industry:

Audit can be done by:

1. **Internal auditor:** Employees or heads of a particular department.
2. **External auditor:** An outside firm or an independent auditor.

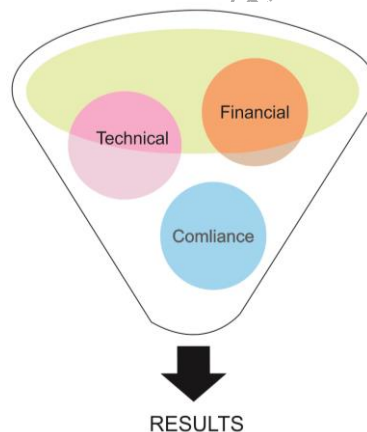


Fig: 5.3 Audit in apparel industry

## Compliance Audit

A basic compliance audit may require the auditor to examine the rules, regulations, orders and instructions for their legality, adequacy, transparency and prudence. Auditors gather information through visual observation at the site, review of document and interviewing staff. This collected data is then compared with the applicable permits and regulations to evaluate the compliance to the applicable legal requirements.

Following information may be collected and reviewed by an auditor during compliance audit-

1. Licenses, permits and facility information
2. Child labour
3. Forced labour and discrimination
4. Freedom of association and collective bargaining
5. Right of worker
6. Disciplinary practice
7. Working hours
8. Wages, benefits & compensation
9. Workplace safety
10. Occupational health & welfare
11. Environment management
12. Management practice & sub-contractor /supplier control
13. Training records
14. Company policies

### Technical Audit

Technical Audit (Ta) is a very crucial task for garment manufacturing unit. Every buyer conducts a technical audit before confirming an order to any garment factory. Many garment buyers have their own technical audit checklist, which may vary from buyer to buyer. Audit must be conducted in a routine manner at different stages of garment manufacturing. Through technical audit, auditors check the ability of a manufacturing unit to make export quality garments as per order and specifications. The initial step of a technical audit is to check the plant outline and its suitability to complete the order. The objective is to pick the right manufacturing unit for the order. Following information is collected by an auditor during technical audit-

- General information about the plant like number of staff members, production facility, location etc.
- Production capacity
- Versatility in product manufacturing
- Quality control of raw materials
- In-house quality system
- Production planning & executions
- Process control

- Availability of in-house testing facility
- Availability of in-house design team
- Housekeeping and maintenance of instruments
- Quality assurance process
- Lighting, fire safety etc.

## Financial audit

Financial audit is an examination or inspection of accounts books by an auditor. It is then compared with physical checking of inventory to make sure that proper documentation is being followed. The objective is to confirm the accuracy of financial statements prepared by the organisation. All the public listed firms are required to get their financial accounts audited by an independent auditor, before the results for any quarter is declared.

The idea behind financial audit is to check and verify the accounts by an independent authority to ensure that all books of accounts are maintained in a fair manner and there is no misrepresentation or fraud being conducted.

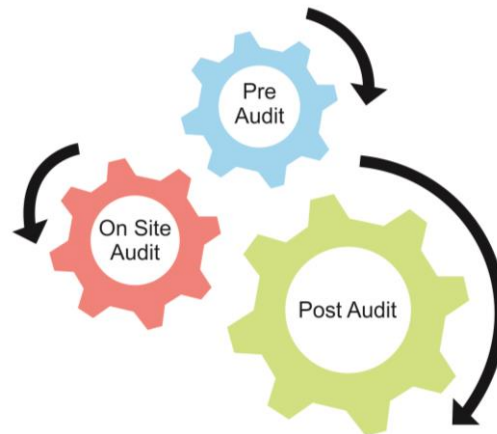
In India, independent financial audit for any organisation is conducted by chartered accountants licensed by the Institute of Chartered Accountants of India (ICAI).

## Steps in auditing process:

**Following are the four main steps in the auditing process:**

1. **Defining the auditor's role and the terms of engagement.** It could be in the form of a work / authorization letter which is duly signed by the buyer.
2. **Planning the audit.** It includes detailed planning of deadlines and the departments the auditor would cover. Duration of audit may vary depending upon nature and area of work.
3. **Compilation of the information collected from the audit.** When an auditor audits the department, findings are usually put out in a report or compiled in a systematic manner.
4. **Reporting the result.** The results are documented in the auditor's report.

**Phases of audit:** There are three main phases of compliance audit in India:



*Fig: 5.4 Phases of audit*

### 1. **Pre-audit phase**

- Planning and organising the audit
- Establishing the audit objectives
- Scope and etiquette
- Reviewing the design of the programme by inspecting documentation.

### 2. **On-site audit phase**

- Conducting personal interviews
- Reviewing records
- Making observations to assess programme implementation.

### 3. **Post-audit phase**

- Briefing the management about audit findings
- Preparation of final report.

## **Introduction to core labour standards**

International labour organisation has set rules for core labour standards, to protect the rights of workers and to ensure that worker get good working conditions. These standards aim at improving working conditions on a global scale.

### **Functions of international labour standards:**

1. To prevent disruptive competition through the defence of particular workers group and setting minimum wage and working conditions.

2. To promote constructive competition through definite rights, for e.g. Workers involvement in decision-making, improvements in productivity and motivation of workers, increasing aggregate demand and promoting the creation of jobs, active labour market policies and ways of adjusting socially desirable measures.

**Rules are set of four fundamental and universal human rights, as conceived by international labour organisation:**

1. Freedom from forced labour
2. Freedom from child labour
3. Freedom from discrimination at work
4. Freedom of association and right to bargain collectively.

In most countries, all the export-import trade agreements require both the seller and buyer to meet the international labour standards especially on the issues linked with child labour and rights of workers.

These are the minimum ‘enabling rights’ which workers need to defend in order to improve their working conditions, to work in freedom and dignity. The aim behind this concept is to make sure that the apparel industries have labour contractors which don’t engage forced or child labour and get the supply chain of the suppliers audited.

Apparel Export Promotion Council (AEPC), which is an apex body of Indian apparel exporters, has designed a garment factory compliance program called ‘DISHA’ (Driving Industry Towards Sustainable Human Capital Advancement), with an aim to make India a global benchmark for social compliance in apparel manufacturing and export business. This common compliance code project will prepare the Indian apparel manufacturers and exporters on a common platform towards a more social and environmentally compliant industrial environment.

The common compliance code gives opportunity for the industry to negate international claims against child labour promotion in the garment industry. It also helps to improve the image of the industry and win more international businesses.

**Some of the common compliance code guidelines for Indian garment industry are:**



- Employers must not be involved in unfair labour practices including child labour and forced labour.
- There should be no discrimination among workers' remuneration for work of equal value on the basis of gender, race, religion, age, disability, sexual orientation, nationality, political opinion, or social or ethnic origin.
- Employers should not threaten female workers with dismissal or any other employment decision that may affect their employment status negatively, in order to prevent them from getting married or becoming pregnant.
- Employers should ensure that proper air ventilation systems are installed within their factory premises to prevent airborne diseases among workers.
- If workers wish to form organisations or participate in union activities, including strikes, employer shall not restrict the workers in doing so by use any form of physical or psychological violence, threats, harassment, or abuse.
- Workers should be entitled to at a day rest in a week. If workers are required to work on a rest day, an alternative rest day must be provided in next week.
- Workers should be provided with paid annual leaves as per local laws, regulations and procedures. Employer shall not impose any undue restrictions on workers' use of annual leave or sick leave or maternity leave.
- Workers should be paid at least the legal minimum wage or the prevailing industry wage, whichever is higher.
- Employers should compensate workers for the hours they have worked. Workers engaged on a per piece rate payment scheme or any other incentive scheme, must be paid accordingly.
- There should not be any sort of unreasonable restraint in the freedom of movement of workers, including movement in canteen during breaks, using toilets, accessing water, or to access necessary medical attention.
- Garment exporters or manufacturer must ensure that none of their workers is less than 14 years of age, as per the guidelines for non-hazardous employment. Child labour is the most important concern in Indian industries nowadays. Further, each worker shall have the right to enter into and to terminate their employment freely.

Indian apparel manufacturers must follow all the compliance related guidelines to comply with global standards. Compliance to such codes or guidelines also helps the industries to boost their image or to project a positive image and protect their goodwill in the market. The Indian garment industry must stress on strong compliance rather than competition of manufacturing cheaper garments.

### **Corporate social responsibility**

Social responsibility is “an organisation’s obligation to increase its positive impact and reduce its negative impact on the society”. It can also be known as “the concept that business entities should also be concerned with the welfare of the society at large”.

The social responsibility of an organisation is referred to as ‘corporate social responsibility’.

Corporate Social Responsibility (CSR) essentially means that the organisation should work in an ethical manner and it should also be in the best interest of the various stakeholders. Nowadays, this concept of corporate social responsibility in Indian garment industry is gaining great popularity. More and more organisations are trying to work in a way to protect the interests of the society at large along with the interest of its stakeholders including employees, customers and the suppliers.

#### **Social responsibility can be divided into two types:**

**A. Human responsibility:** Refers to the responsibilities of the organisation towards the various ‘stakeholders’ in business parlance, including employees, shareholders, the government, customers, investors, suppliers, competitors and the society at large.

**B. Environmental responsibility:** Refers to the responsibilities of the organisation towards environment protection.

The scope of social responsibility extends beyond the legal responsibilities of an organisation. It has to be voluntarily fulfilled by the organisation; however there also are legal obligations.

### **Social responsibility in an apparel industry**

The garment and textile industry is one of the largest industries in the world. It is also the biggest employer in India after agriculture. Globalization has made clothing affordable for all and competitive low prices. However, it has major negative impact on environment and society throughout the product life cycle. Production of textiles and garments requires consumption of vast energy. A considerable amount of wastes including sewage and discarded clothing is also generated which leads to the burden on the environment. Moreover, poor labour standards and poor working cum living

conditions are additional outcomes of the ready-made garment industry. Poor labour standards may include low wages, long working hours, hazardous work environment, workplace abuse and being excluded from unions.

Buyer companies in developed countries prefer outsourcing the production from overseas suppliers especially from countries where labour cost is considerably low, in order to keep the costing at the lower side as much as possible and also to avoid the ill effects of production and industrialization. Working conditions of labour and their human rights are a matter of great concern in developing countries such as in India, china, Bangladesh, Pakistan and other Asian countries. This poor condition leads to many tragedies like factory fire and labour abuse that again results in poor life for workers and even death.

Textiles and garment firms are realising their responsibilities towards its stakeholders, environment and society. The ways in which a textile firm can fulfill its responsibility towards various stakeholders are similar to those of firms in other industries, as is evident from the suggestive points mentioned below:

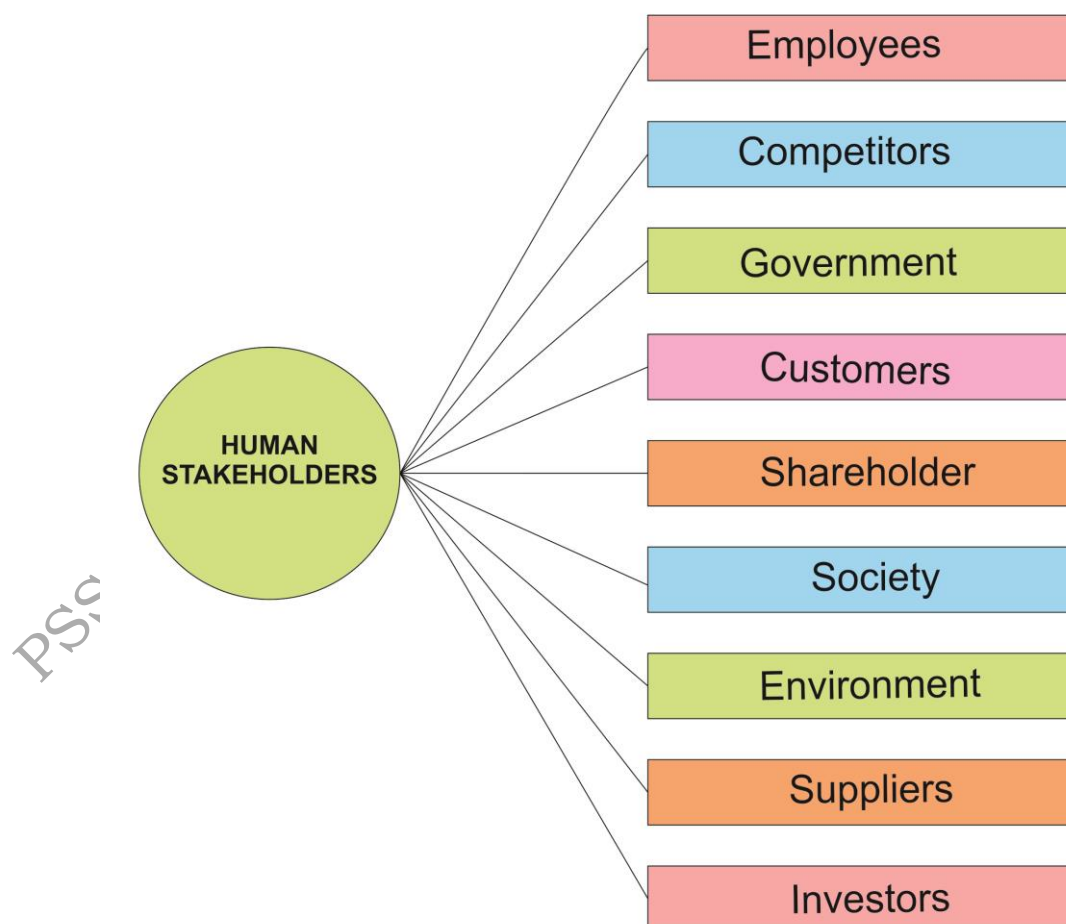


Fig: 5.5 Human stakeholders

**1. Towards Employees:**

- By having ethical recruitment, remuneration, promotion and other policies.
- By providing opportunities to the employees to voice their opinion and complaints and have an effective policy for the solution of these complaints.
- Ensuring a safe working environment for the employees.
- Having fair policies for the solution of employee disputes.

**2. Towards Shareholders:**

- By representing a fair picture of the company's financial position and profit/loss to the shareholders.
- By rewarding them with a fair rate of dividend.

**3. Towards The Government:**

- By providing the necessary information to the government as and when required.
- By paying taxes and dues timely.
- By abiding by the laws and regulations of the area in which the firm operates.
- Contributing to the economy through exports.

**4. Towards Customers:**

- By providing quality products to the customers at reasonable prices.
- By undertaking constant research and development and coming up with innovative and more useful products from time to time.

**5. Towards Investors:**

- By giving the investors a true and fair picture of the financial condition of the business.
- By ensuring a fair ROI (Return On Investment)

**6. Towards Suppliers:**

- By ensuring timely and fair payment to the suppliers.
- By maintaining a good relationship with the suppliers.

**7. Towards Competitors:**

- By indulging in fair and ethical practices, thereby raising the spirit of fair competition

**8. Towards Society:**

- By involvement in activities that ensure development of area and society at large.
- By having a philanthropy arm to take care of the needs of the under-privileged.
- By creating job opportunities.

**9. Towards Environment:**

- By ensuring the purchase of environment-friendly supplies.
- By ensuring a pollution-free process of production.
- By establishing a system of efficient disposal.
- By adopting practices which make the production and product eco-friendly.
- By adopting eco-friendly packing.

<b>Activities</b>
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**Activity: 1**

Make a presentation on CSR activities of a firm.

**Material required:**

1. Writing material
2. Computer / laptop for PPT

**Procedure:**

1. Make a group of 4 students each.
2. Select a garment manufacturing firm
3. Enquire about its CSR activities through published literature or internet. (Volunteer in CSR activities if opportunity available)
4. Prepare a presentation document (Preferably a PPT)
5. Deliver the presentation to the class.

<b>Check Your Progress</b>
----------------------------

**A. Fill in the blanks:**

1. .... means conforming to a rule.

2. Social compliance refers to compliance in respect to....., ethical treatment of employees and the working environment.
3. .... in organisational terms means check or inspection of various departments, resources and finances of an organisation.
4. .... has set rules for core labour standards, to protect the rights of workers and to ensure that worker get good working conditions.
5. The..... gives opportunity for the industry to negate international claims against child labour promotion in the garment industry.

**B. Write answers for the following:**

1. Explain significance of compliance in Indian apparel industry.
2. Discuss audit in apparel industry.
3. Describe international labour standards.
4. Write in brief about common compliance code.

**Session: 2 Ethical Compliance and Related Documents**

Indian garment industry is getting attention from consumers, social workers, welfare organisations and branded international buyers. Many international buyers are demanding their manufacturers / suppliers to comply with their 'code of conduct' and 'code of ethics' while placing an order.

Adherence to quality standards and employee satisfaction has become important parameters for measuring the organisation's performance. Manufacturers and organisations comply with regulations and codes, not only out of a need to act generously, but also for survival in a globally competitive environment.

In the light of growing competition among exporting countries and increasing demand for products that meet internationally recognised standards, it is essential for the manufacturers / suppliers to improve their safety and health compliance code and provide proper working environment in their factories.

Several countries have also developed various international compliance standards on health and safety compliance. Exporters should follow these compliance codes to survive in the global market. Moreover, regular practice of compliance with code of conduct would ensure higher price of products, less employee turnover rate, smooth industrial relation as well as global image & reputation.

In a consumer market, brand name and reputation are most critical assets. Companies should adopt ethical compliance code to protect their goodwill in the market. The Indian garment industry needs to be tough on compliance rather than competing with other developing countries manufacturing cheaper garments.

**Why code of ethics is required?**

Code of ethics represents an organisation's self-made constitution / regulation which aim to provide general behavioural guidelines. Such guidelines are generally towards safe working conditions, prohibition of child labour, environment protections, work hours and wage rate control, equality and discrimination issues, labour safety standards, bribery and corruption, unfair practices etc.

Codes of ethics are generally not as detailed as code of conduct. Code of ethics represents an organisation's culture and values. Large organisations usually have a dedicated department of corporate social responsibility to



take care of ethical practices of the organisation. Also it is a great tool for the organisation or the brand to portray and improve brand image to the customers.

By following such ethical practices, it is conveyed that the brand is dedicated towards high quality products, comply with legal requirements and undertakes to protect the environment. Such message boost customers' confidence in the brand and products quality. Brands speak loud about their ethics and value on their websites and promotion campaigns to educate the customers and stand out in the market.

Attention to working conditions and labour related issues is also required as most of the buyers outsource their requirements from countries with lower wage rates in order to cut down on costs. But such manufacturer might not be following ethical and fair practices related with labour and environment. Hence, buyers link their code of ethics to work orders for manufacturers and compel them to respect all the labour and environment related guidelines which the buyer company believes in.

These ethics are required for:

- Increasing national competitiveness in terms of social compliance
- Increasing competitiveness of small scale manufacturers
- Reducing burden on manufacturers

In India, the **Apparel Export Promotion Council (AEPC)** is committed towards legal compliance and ethical business practices and encourages members / exporters to comply with all applicable laws and regulations of the country, to meet all the **International Compliance Standards**.

Further, the council has designed a garment factory compliance program '**DISHA**' (Driving Industry Towards Sustainable Human Capital Advancement) that aims to spread awareness regarding the importance of compliance among Indian garment exporters.

Some of the important compliance codes in Indian garment industry are listed below.



*Fig: 5.6 Compliance codes*

## 1. Working hour and wage rate compliance

- Garment factory must ensure that employees should get at least minimum wages according to the domestic law and as per the time spent by them in the industry.
- Employer should pay equal wages to both men and women employees, for performing the same work or work of a similar nature.
- Worker employed for more than nine hours on any day or for more than 48 hours in any week, should be entitled to wages at premium legal rates for such overtime work.
- Every worker should be given one holiday (for a period of 24 consecutive hours) in a week. Whenever a worker is required to work on a weekly holiday, he is to be allowed a compensatory holiday for each holiday so lost.
- Every worker is to be allowed at least half an hour rest interval after a maximum working of 5 hours at a stretch.
- Overtime work should be voluntary for employees and should be supported by legally required rate of compensation for such overtime period.
- No worker should be employed below the age of 14 as per guidelines of international labour organisation.
- There should not be any sort of forced labour whether in the form of prison labour, indentured labour, bonded labour or otherwise.

## **2. Workplace and work environment compliance**

- Organizations should ensure proper ventilation, sufficient light and air to provide the employees with standard working environment.
- Indian garment industries should provide the workers with comfortable sitting chair with back support and proper leg space.
- All employees should be treated with dignity and respect. No employee should be subject to any physical, sexual, psychological or verbal harassment or abuse.
- Right of employees to form association and collective bargaining should be respected and recognized. No employee should be subject to any sort of harassment, intimidation or retaliation for engaging in association or collective bargaining.

## **3. Non-discrimination compliance**

- Organizations should not discriminate employees on the basis of physical characteristics, beliefs and cultural characteristics. All the

terms and conditions of employment should be based on an individual's ability to do the job. They should provide equal employment opportunities for all employees and associates irrespective of the employees' race, colour, religion, age, sex, creed, national origin, marital status, etc.

- Women workers should receive equal remuneration, including benefits, equal treatment, equal evaluation of the quality of their work, and equal opportunity to fill all positions as male workers.
- Women workers who avail maternity leave, should not face dismissal or threat of dismissal or loss of seniority or deduction of wages, and should be allowed to return to their former employment at the same rate of pay and benefits.

#### **4. Health and safety compliance in Indian garment industry**

- Employees should not be exposed to hazards, including glues and solvents, which may endanger their safety, including their reproductive health.
- No employee should work on machines without adequate training, knowledge and supervision.
- Industries should comply with international standard code, such as ISO (Indian Standards Organisation) or importing countries standard code to become competitive in international markets.
- Wiring should be in good condition with no broken junctions or wires sticking out at the end.
- Eye-wear and face shields should be provided in areas with danger of sparks, glare, hazardous liquids and excessive dust.
- Ear plugs or muffs should be given in places with excessive noise such as generator rooms and rooms with embroidery machine.
- Headgear and protective shoes are necessary for workers involved in loading and unloading operations.
- Factories should have effective fire extinguisher with proper usage instructions.

### **Activities**

#### **Activity: 1**

Visit a garment export unit and make a report on code of ethics which they follow.

**Materials required:**

1. Writing material
2. Ruler
3. Adhesive

**Procedure:**

1. Make a visit to any nearby garment manufacturing unit.
2. Enquire about the countries where they export their product.
3. Enquire and prepare a report about the code of ethics being followed.

**Check Your Progress****A. Fill in the blanks:**

1. .... represents an organisation's self-made constitution / regulation which aim to provide general behavioural guidelines.
2. AEPC stands for.....
3. ICS stands for.....

**B. Write answers for the following:**

1. Explain 'Code Of Ethics'.
2. Explain in brief about workplace and work environment compliance in a garment unit.
3. Discuss about wage rates and working hour's compliance for workers in a garment unit.
4. Write short note on compliance code guidelines for Indian garment industry.
5. Explain health and safety compliance in Indian garment industry.

### Session: 3 Documentation and Reporting OF Compliance Deviation

Social compliance deals with employee's health and safety, their legal rights and working environment from social perspective. To make a factory compliant to such national or international standards, it needs to follow local labor law and international social compliance requirements. Social compliance audit is generally related to child labor, forced labor, health and safety, abuse and discrimination, disciplinary practices, working hours, remuneration, freedom of association, management systems, etc. Social compliance is a vital part of the apparel industry because it has an impact on a company's reputation and business.

#### The significance of reporting compliance deviations



Fig: 5.7 Significance of reporting compliance deviations

1. **Ethical responsibility:** Apparel companies have a moral and ethical responsibility to ensure the safety and well-being of their workers, protect the environment, and uphold fair trade practices. Reporting compliance deviations is a fundamental step in fulfilling these responsibilities.
2. **Legal compliance:** Non-compliance with regulations, such as labor laws, environmental standards, and product safety requirements, can result in legal consequences, fines, and reputational damage. Reporting deviations helps companies avoid legal liabilities.
3. **Reputation management:** The apparel industry relies heavily on brand image and consumer trust. Failure to address compliance deviations can tarnish a company's reputation and lead to decreased consumer confidence and market share.
4. **Supply chain sustainability:** Reporting deviations helps identify weaknesses in the supply chain, enabling companies to take corrective actions and strengthen the sustainability of their operations.

In the highly regulated and competitive world of the apparel industry, ensuring compliance with various standards and regulations is paramount. Compliance deviation, when not addressed promptly and effectively, can result in legal consequences, reputational damage, and loss of consumer trust. To manage compliance effectively, apparel companies must establish robust documentation and reporting processes.

**1. Establish clear compliance policies and procedures:** The first step in managing compliance deviation is to establish clear and comprehensive compliance policies and procedures. These documents should outline the specific regulations, standards, and codes of conduct that the company must adhere to, including labor laws, environmental regulations, safety standards, and ethical sourcing guidelines.

**2. Training and education:** Employees at all levels of the organization should be educated about these policies and procedures. Regular training sessions can help raise awareness and understanding of compliance requirements, reducing the likelihood of deviations.

**3. Real-time monitoring and documentation:** To detect compliance deviations promptly, companies should implement real-time monitoring systems. This may include surveillance cameras, sensors, and software tools that track various aspects of production, from workplace conditions to supply chain processes. These systems generate real-time data, which is crucial for documenting deviations as they occur.

**4. Incident reporting:** Employees should be encouraged and empowered to report compliance deviations they observe or suspect. Establishing an anonymous whistle blower hotline or email can help protect employees from retaliation and facilitate the reporting process. An incident report should capture essential details such as the date, time, location, individuals involved, and the nature of the deviation.

**5. Investigation process:** Upon receiving a report of a compliance deviation, a structured investigation process should be initiated. A dedicated compliance team or officer should conduct a thorough review of the incident, gather evidence, interview relevant parties, and determine the root causes.

**6. Documentation of investigation findings:** The results of the investigation should be documented comprehensively. This documentation should include a summary of findings, recommended corrective actions, and any disciplinary measures taken, if applicable. Proper documentation is essential for accountability and future reference.

**7. Corrective actions:** Once a compliance deviation is confirmed, corrective actions must be implemented promptly. These actions should address the root causes of the deviation and prevent similar incidents in the future. The specific actions taken should also be documented to ensure transparency and accountability.



**8. Reporting to regulatory bodies:** In cases where compliance deviations involve regulatory violations, it is essential to report such incidents to the relevant authorities as required by law. Accurate and timely reporting can mitigate legal risks and demonstrate the company's commitment to compliance.

**9. Continuous improvement:** To prevent future compliance deviations, companies should engage in a continuous improvement process. Regularly review and update compliance policies and procedures, conduct internal audits, and assess the effectiveness of corrective actions.

**10. Transparency and communication:** Transparent communication with stakeholders, including employees, customers, suppliers, and investors, is vital. Companies should publish annual sustainability reports and compliance updates to showcase their commitment to responsible business practices.

In conclusion, managing compliance deviations in the apparel industry requires a proactive approach, robust documentation, and effective reporting mechanisms. By establishing clear policies, promoting a culture of compliance, and taking swift corrective actions when deviations occur, apparel companies can uphold their commitment to ethical, legal, and sustainable business practices while safeguarding their reputation and market position.

### Identification and reporting of any possible deviation

Social compliance audits conducted as per the code of ethics of different buyers are based on the following steps:

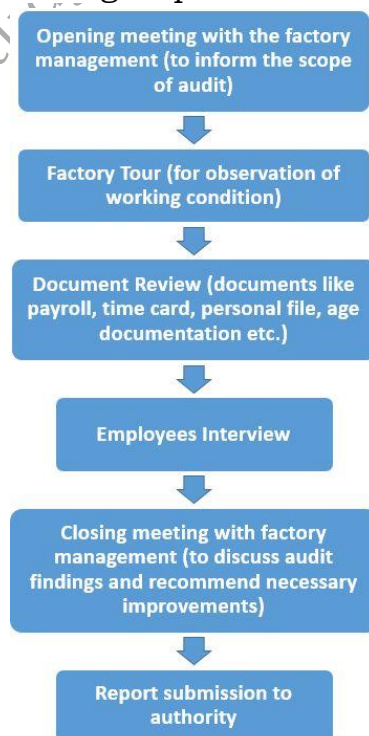


Fig: 5.8 Social compliance audits



No.	Compliance Clusters	Compliance points
1.	Child labour	<ul style="list-style-type: none"> <li>• Child labourers</li> <li>• Documentation and protection of young workers</li> <li>• Hazardous works and other worst forms</li> </ul>
2.	Discrimination	<ul style="list-style-type: none"> <li>• Gender</li> <li>• Other grounds</li> <li>• Race and origin</li> <li>• Religion and political opinion</li> </ul>
3.	Forced labour	<ul style="list-style-type: none"> <li>• Bounded labour</li> <li>• Coercion</li> <li>• Forced labour and overtime</li> <li>• Prison labour</li> </ul>
4.	Freedom of Association and Collective bargaining	<ul style="list-style-type: none"> <li>• Collective bargaining</li> <li>• Freedom to associate</li> <li>• Interference and discrimination</li> <li>• Strikes</li> <li>• Union operations</li> </ul>
5.	Compensation	<ul style="list-style-type: none"> <li>• Minimum wages</li> <li>• Overtime wages</li> <li>• Method of payment</li> <li>• Wage information, use and deduction</li> <li>• Paid leave</li> <li>• Social security and other benefits</li> </ul>
6.	Contrasts and human resources	<ul style="list-style-type: none"> <li>• Employment contracts</li> <li>• Contracting procedures</li> <li>• Termination</li> <li>• Dialogue, discipline and disputes</li> </ul>
7.	Occupational safety and health	<ul style="list-style-type: none"> <li>• Osh management systems</li> <li>• Chemicals and hazardous substances</li> <li>• Workers protection</li> <li>• Working environment</li> <li>• Health services and first aid</li> <li>• Welfare facilities</li> <li>• Workers accommodation</li> <li>• Emergency preparedness</li> </ul>
8.	Working time	<ul style="list-style-type: none"> <li>• Regular hours</li> <li>• Overtime</li> <li>• Leave</li> </ul>

These are 8 major compliance cluster which are divided into compliance points.

These points are required to be checked during audit. The audit checklist may vary from organisation to organisation but a suggestive checklist is shown below:

**A. Checklist for child labour and young workers:**

1. Employer having a reliable system to check age of worker before hiring.
2. Employer complying to guidelines regarding fitness of worker
3. Maintenance of a register of workers below 18 years of age
4. Workers below 18 years of age performing work which is hazardous by nature.
5. Workers engaged for more than permissible working hours.
6. Engagement of employer in child labour.

**B. Checklist regarding wages and working hours:**

1. Workers are paid their wages on time
2. Worker's wages are paid correctly as per norms and minimum standards.
3. Women workers are paid for maternity leaves.
4. Workers are paid correctly for annual leaves
5. Workers are paid correctly for festival holidays.
6. Workers are paid correctly for sick leaves.
7. Workers are paid correctly for casual leaves.
8. Workers are paid correctly for duration of work stoppages.
9. An accurate pay-roll record is maintained by the employer.

**C. Checklist for social security and other benefits:**

1. Employer has provided compulsory group insurance for workers
2. Employer pays correct compensation in case of worker's death.
3. Workers are paid correct compensation for work related accidents and diseases.
4. Employer has established a provident fund and deposit employer's share for workers as per norms.
5. Festival bonuses are paid to workers as per norms.
6. Workers are provided with wage slips.

7. Any unauthorized deduction is not made by employer from worker's wages / salary.

**D. Checklist for worker working with chemical and hazardous substances:**

1. Workers engaged for working with chemical or hazardous substances are effectively trained.
2. Employer has taken action and precaution to prevent exposure to chemicals or hazardous substances.
3. All chemicals or hazardous substances are properly labelled.
4. Employer maintains an inventory of chemicals and hazardous substances at workplace.
5. All chemicals and hazardous substances are properly stored.
6. Availability of adequate washing and cleaning facility in case of exposure to hazardous substances.
7. Employer possesses license for storage and use of chemicals.

**E. Checklist for emergency preparedness:**

1. Workers are trained for firefighting and rescue.
2. Availability of emergency exit window and doors.
3. Availability of alternative stairs.
4. Availability of firefighting equipment.
5. Availability and functioning of fire detection and alarm system.
6. Emergency exists and escape routes are clearly marked.
7. All flammable materials are safely stored.
8. Possible sources of ignition are appropriately safeguarded.
9. Periodic emergency drills are conducted.

**F. Checklist for health services and first aid:**

1. Availability of required health facility and staff.
2. Employer complying with medical check-ups of workers.
3. Workers are trained for first-aid and first-aid team is formed.
4. Availability of readily assessable first-aid boxes.

**G. Checklist for welfare activities:**

1. Availability of adequate day care facility
2. Availability of adequate lunch room/canteen.

3. Availability of adequate rest rooms
4. Availability of adequate washing facility
5. Availability of clean and safe drinking water
6. Accessible toilets and washrooms.

#### **H. Checklist for working environment:**

1. Noise levels are acceptable.
2. Temperature and ventilations are acceptable.
3. Workplace is clean and tidy.
4. Workplace is adequately lit.

#### **Procedure to follow in case of deviation**

Compliance deviations in the apparel industry can have significant repercussions, both ethically and legally. This academic paper outlines a comprehensive procedure that apparel industry stakeholders, including manufacturers, suppliers, and brands, should follow when confronted with compliance deviations. This procedure emphasizes the importance of ethical standards, legal regulations, and corrective actions to maintain the industry's integrity and ensure sustainable and responsible practices.

The apparel industry plays a pivotal role in the global economy, providing clothing to consumers worldwide. However, this industry is often criticized for ethical and legal compliance deviations, such as labor rights violations, environmental concerns, and supply chain transparency issues. To address these challenges, it is essential to establish a robust procedure for handling compliance deviations. Following points outline a comprehensive approach to address these issues effectively.

1. **Initial assessment:** When a compliance deviation is suspected or reported, the first step is to conduct a thorough initial assessment. This assessment involves:
  - a. Gathering information: collect all available data, including reports, photographs, and witness statements.
  - b. Identifying the deviation: determine the nature and scope of the compliance deviation, such as labor rights violations, environmental breaches, or safety concerns.
  - c. Evaluating severity: assess the potential impact of the deviation on workers, communities, and the environment.
2. **Legal and ethical framework:** To address compliance deviations effectively, companies in the apparel industry should ensure that they are adhering to relevant legal and ethical frameworks, which may

include International Standards And Local Regulations. These frameworks include:

- a. International Labor Organization (ILO) conventions.
  - b. United Nations guiding principles on business and human rights.
  - c. National labor laws and regulations.
3. **Communication:** Transparency and communication are crucial when dealing with compliance deviations. Stakeholders must be informed promptly, and a clear communication plan should be established to:
- a. Notify affected parties, including workers, suppliers, and local communities.
  - b. Update relevant government authorities and regulatory bodies.
  - c. Inform customers and consumers about the situation and actions taken to rectify the deviation.
4. **Investigation:** An independent and impartial investigation should be conducted to determine the root causes and responsible parties. This investigation should:
- a. Be conducted by a dedicated compliance team or external auditors.
  - b. Involve interviews, site visits, document reviews, and data analysis.
  - c. Establish a timeline of events leading to the deviation.
5. **Corrective action plan:** Based on the investigation findings, a corrective action plan should be developed to rectify the compliance deviation. The plan should include:
- a. Immediate measures to address urgent issues and mitigate harm.
  - b. Long-term actions to prevent recurrence, such as improving training, monitoring, and supplier relations.
  - c. A timeline for implementation and regular progress reporting.
6. **Stakeholder engagement:** Engaging with stakeholders is critical to rebuilding trust and ensuring that compliance deviations are not repeated. Stakeholder engagement includes:
- a. Dialogue with affected workers and communities.
  - b. Collaboration with suppliers to improve working conditions and sustainability practices.
  - c. Engaging with industry associations and NGOS for guidance and support.
7. **Monitoring and verification:** Continuous monitoring and verification are essential to ensure that the corrective action plan is effectively implemented. This includes:
- a. Regular audits and inspections to assess progress.

- b. Third-party verification to validate compliance.
  - c. Reporting on improvements to stakeholders and the public.
8. **Reporting and transparency:** Transparent reporting is vital to demonstrate accountability and commitment to rectifying compliance deviations. Companies should:
- a. Publish regular reports on compliance progress.
  - b. Share lessons learned and best practices with the industry.
  - c. Provide channels for whistle-blowers to report future concerns.
9. **Continuous improvement:** The final step in the procedure is a commitment to continuous improvement. Companies should:
- a. Regularly review and update their compliance policies and procedures.
  - b. Invest in training and capacity-building to prevent future deviations.
  - c. Foster a culture of ethics and sustainability throughout the organization.

### Exit meeting with management

The exit meeting with management takes place at the end of the factory visit. The aims of the exit meeting are:

- To get management on board to implement the process- to improve labour practices.
- To present the main audit findings to management, check whether management agrees with the findings and ask a response from their end with respect to findings thereby unveiling the possible causes of the problems which are identified.
- To propose corrective action plans for improvements, discuss with management whether improvements are feasible and within timeframe.
- To present main audit findings to factory level trade union representatives or elected worker representatives.

The apparel industry must take compliance deviations seriously and adopt a systematic approach to address them. This procedure outlines the steps that industry stakeholders should follow when confronted with compliance issues, emphasizing the importance of legal adherence, ethical standards, transparency, and continuous improvement. By implementing this

procedure, the apparel industry can move toward more responsible and sustainable practices, ultimately benefitting workers, communities, and the environment.

### Activities

#### Activity: 1

Visit a garment manufacturing unit and make a report on corrective action plan which they follow in case of compliance deviation.

#### Materials required:

1. Writing material
2. Ruler
3. Adhesive

#### Procedure:

1. Make a visit to any nearby garment export unit.
2. Enquire about the countries where they export their product.
3. Enquire and prepare a report about the corrective action plan followed in case of compliance deviation.

### Check Your Progress

#### A. Fill in the blanks:

1. Regular ..... can help raise awareness and understanding of compliance requirements, reducing the likelihood of deviations.
2. To detect compliance deviations promptly, companies should implement ..... systems.
3. Once a compliance deviation is confirmed ..... must be implemented promptly.
4. .... in the apparel industry can have significant repercussions, both ethically and legally.

#### B. Write answers for the following:

1. Discuss the significance of reporting compliance deviations
2. Explain identification and reporting of any possible deviation
3. Discuss about the audit checklist.
4. Describe the procedure to follow in case of deviation.



**ANSWER KEY****MODULE – 1****SESSION: 1****Fill in the blanks:**

1. Pressing, Folding
2. Sale
3. Production Process
4. Needs & Requirements
5. Spot Removing Section

**SESSION: 2****Fill in the blanks:**

1. Garment On Container
2. Brand, Recognition
3. Folding Fabrics
4. Belt Conveyor
5. Liftgate
6. Forklift

**SESSION: 3****Fill in the blanks:**

1. Paperboard, Corrugated Fiberboard
2. Straight Tuck, Reverse Tuck
3. Large Heavy Duty Cartons
4. Flame Retardant Finish
5. Wrinkle Free Finish

**SESSION: 4****Fill in the blanks:**

1. Non Conformity Report
2. Overstocking Or Understocking

3. Barcodes
4. Third-Party Inspector
5. Spoiling

## **MODULE – 2**

### **SESSION: 1**

#### **Fill in the blanks:**

1. Buyer, Product
2. Informative
3. Care Labels
4. Contents Of A Package
5. Identification
6. Brand Label

### **SESSION: 2**

#### **Fill in the blanks:**

1. Packing List
2. Letter Of Credit Inspection
3. Standard Operating Procedure
4. Packing Inspection
5. Wood cases and crates
6. Loading

### **SESSION: 3**

#### **Fill in the blanks:**

1. Overall Appearance, Aesthetics
2. Softness, Comfort
3. Enzyme Washing
4. Stone Washing, Pumice
5. Excess
6. High-Capacity Operations
7. Front Loading

**MODULE – 3****SESSION: 1****Fill in the blanks:**

1. Industry Standards
2. Wrapping, Compressing, Filling
3. Wrinkles, Creases

**SESSION: 2****Fill in the blanks:**

1. Ergonomics
2. Eye Strain, Enhance Visibility
3. Back Injuries
4. Space
5. Dyes
6. Air Pollution
7. Environment
8. Packing

**SESSION: 3****Fill in the blanks:**

1. Sustainability, Ethical Packaging
2. Reduce Waste
3. Ethical Packaging

**SESSION: 4****Fill in the blanks:**

1. Power operated folding machine
2. Brand
3. Care
4. Solid, solid

**MODULE – 4**

**SESSION: 1****Fill in the blanks:**

1. Writer And The Reader
2. Sender
3. Written Message
4. Leadership

**SESSION: 2****Fill in the blanks:**

1. Potential Hazards And Accidents
2. Yellow Lines
3. Exit Signs
4. Standard Operating Procedures

**SESSION: 3****Fill in the blanks:**

1. Emergency
2. Workstation
3. Routine Audits
4. Adjustable Chairs
5. Preventive Actions

**MODULE – 5****SESSION: 1****Fill in the blanks:**

1. Compliance
2. Social Responsibility
3. Audit
4. International Labour Organisation
5. Common Compliance Code

**SESSION: 2****Fill in the blanks:**

1. Code Of Ethics

2. Apparel Export Promotion Council
3. International Compliance Standards

### **SESSION: 3**

#### **Fill in the blanks:**

1. Training Sessions
2. Real-Time Monitoring
3. Corrective Actions
4. Compliance Deviations

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## GLOSSARY

- ❖ **Apparel:** Clothing of a particular kind.
- ❖ **E-commerce:** e-commerce (electronic commerce) is the buying and selling of products Over an electronic network, primarily the internet.
- ❖ **Merchandising:** It is the activity of promoting the sale of products, especially by their presentation in retail stores.
- ❖ **Export:** An export is a component of international trade. It is a product produced in one country which is sold into another country.
- ❖ **Import:** An import is a product bought in one country which was originally produced in another country.
- ❖ **Freight:** Freight is the general term for the products transported from one place to other.
- ❖ **Gross Weight:** It simply means the total weight of the load (product + packing).
- ❖ **Net-Weight:** It is the weight of the product without the addition of its packing or container.
- ❖ **Shipper:** A person or a company whose job is to organize the sending of end products from one place to another.
- ❖ **Shipment:** A shipment is a large amount of goods sent together to a place.
- ❖ **Hazardous:** Hazardous material is a dangerous material which involves risk.
- ❖ **Warehouse:** Warehouse is a large building where raw materials or manufactured products are stored prior to their distribution for sale.
- ❖ **Logistic:** It is the process of planning and organizing to make sure that resources are in the places where they are needed, so that the process happens effectively.
- ❖ **Photovoltaic:** Photovoltaic (PV) simply means electricity from the energy of the sun.
- ❖ **Cargo:** Cargo refers to products carried by a large vehicle, like a plane, ship, train and truck.
- ❖ **Conveyor:** AN apparatus for moving articles or bulk material from place to place (e.g. a moving belt or a chain of receptacles).
- ❖ **Fluting:** A groove or set of grooves which forms the surface appearance of a carton.

- ❖ **Liner:** A surface that will withstand wear or corrosion, fixed inside or outside a carton or packing box.
- ❖ **Calibration:** The process of checking and measuring the equipment to see if it is correct or not.
- ❖ **Manual:** Kind of booklet giving information or instructions for a particular product or process.
- ❖ **Distribution Center:** A distribution center is a warehouse or other specialized building with some facilities, where the products are stocked to be redistributed to retailers, wholesalers, or directly to consumers.
- ❖ **Supply Chain:** It is network between a company and its suppliers to produce and distribute a specific product to the final buyer.
- ❖ **Barcode:** It is a printed series of parallel bars or lines of different width which is scanned to enter data into a computer system.
- ❖ **Invoice:** A document issued by a seller to a buyer listing the products supplied and stating the sum of money due.
- ❖ **Ergonomic:** It is the study of how equipment and furniture can be arranged in order that people can do work or other activities more efficiently and comfortably.
- ❖ **Recycle:** Convert waste or discarded material into reusable material again through some processes.



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Ashish Kathane (DTP Operator)

Fig: 1.7, 1.34, 1.35, 1.36, 1.37, 1.60, 2.19, 2.24, 2.27, 2.28, 2.29, 2.34, 3.15, 3.16, 3.17, 4.2, 4.3, 5.2, 5.7, 5.8,