Federal Ministry of Labour
and Employment

Tool Kit for trainers on Occupational Safety and Health for MSMEs

A training guide



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Foreword

The very important and significant role being played by Micro, Small and Medium-sized Enterprises (MSMEs) in the local and global economy in terms of economic activity and employment need not be over emphasized. However, the poor development of Occupational Safety and Health (OSH) in MSMEs is considered a widespread issue in many countries, and it frequently constitutes one of the priorities in the National Policy on OSH. The training manual is aimed at providing a more practical approach on steps to be taken to guide all MSMEs in Nigeria on ways of incorporating Health and Safety in their Workplaces. This is in recognition of how important it is to work in a safe environment and ensure workers' safety, health and wellbeing are not compromised.

In line with its constitutional responsibilities towards the citizenry, the Government of Nigeria and the United Nations system have initiated a project aimed at strengthening the capacity of local MSMEs and manufacturers to produce high-quality PPEs and healthcare-related products. The project, jointly implemented by ILO, the UN Industrial Development Organization (UNIDO), the World Health Organization (WHO) and UN Women, and funded by the UN Basket Fund, supports the capacity of Nigerian MSMEs and manufacturers to meet both domestic and foreign demands.

On 6th June 2022, ILO included Occupational Safety and Health as the 5th pillar of ILO fundamental principle and rights at work. This is because safe and healthy working conditions are fundamental to decent work. This is expected to be applicable in every occupation/sector that create jobs including the MSMEs, which employs a large proportion of the workforce and tend to have higher rates of work-related accidents and diseases. Every MSME is encouraged to regularly carry out risk assessment of the workplace, with a view to ascertain the measures to put in place to ensure the protection, safety and health of its workers and those within the workplace.

Finally, this manual provides easy-to-apply practical solutions in the MSMEs with photographs and illustrations. It should therefore be considered alongside extant public health and safety legislations in Nigeria for the overall well-being of the workforce.

Senator (Dr.) Chris Nwabueze Ngige OON, MD, KSJ
Honourable Minister of Labour and Employment
Abuja, Nigeria.

Acknowledgement

Strengthening the capacity of local Micro, Small and Medium-sized Enterprises (MSMEs) and manufacturers to produce high-quality Personal Protective Equipment (PPEs) and healthcare-related products, is a project jointly implemented by International Labour Organization (ILO), the United Nation Industrial Development Organization (UNIDO), the World Health Organization (WHO) and UN Women, are funded by the UN Basket Fund. The goal is to support Nigerian MSMEs and manufacturers to meet both domestic and foreign demand.

On behalf of the Honourable Minister and Honourable Minister of State for Labour and Employment, I wish to express my appreciation to the Tripartite Plus partners – Nigeria Employers' Consultative Association (NECA), the Nigeria Labour Congress (NLC), Trade Union Congress (TUC), Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), Manufacturers Association of Nigeria (MAN), Nigeria Social Insurance Trust Fund (NSITF), Nigeria Centre for Disease Control (NCDC), Federal Ministry of Trade and Investment and Federal Ministry of Health for their various support that has contributed to the production of the manual and the success of the project, thus far.

My profound gratitude goes to the Country Director and Staff of the International Labour Organization (ILO), Abuja office, for the technical and financial support provided during the project on strengthening the capacity of local MSMEs and manufacturers, to produce high-quality PPEs and healthcare-related products.

I also wish to acknowledge the effort of the Director and Staff in the Occupational Safety and Health Department of the Federal Ministry of Labour and Employment, who worked diligently and tirelessly, to ensure the success of this project.

I sincerely appreciate the approval and goodwill of the Honourable Minister and the Honourable Minister of State for Labour and Employment for creating an enabling environment for this project.

Finally, it is intended that this manual will provide the necessary guidance to successfully implement workplace safety and health interventions in all MSMEs in the Country.

Daju Kachollom S. mni
Permanent Secretary,
Federal Ministry of Labour & Employment

October, 2022

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Action checklist on Occupational Safety and Health in Micro, Small, and Medium Enterprises in Nigeria.

How to use

- Spend few minutes walking around the work area.
- For each action, mark **No** or **Yes**
  - If the action has been applied or it is not needed, mark **No**. ('No' means that existing condition is satisfactory or good)
  - If you propose the action, mark **Yes**. ('Yes' means that it represents the risks that need to be addressed)
- Choose a few urgent actions, and mark **Priority**.

I. Materials Storage and Handling



1- Define passageways by painting visible lines on the floor.

Do you propose action? ☐ No ☐ Yes ☐ Priority



2. Make the surface of passageways clear, even, not slippery and without obstacles

Do you propose action? ☐ No ☐ Yes ☐ Priority



3. Provide ramps with small inclination instead of stairways.

Do you propose action? ☐ No ☐ Yes ☐ Priority



4. Avoid placing materials on the floor but in a special storage.

Do you propose action? ☐ No ☐ Yes ☐ Priority



5. Save space by introducing multi-level shelves or racks near the work area.

Do you propose action? ☐ No ☐ Yes ☐ Priority



6. Use mobile storage racks.

Do you propose action? ☐ No ☐ Yes ☐ Priority



7. Use push carts, hand trucks or other wheeled devices when moving materials.

Do you propose action? ☐ No ☐ Yes ☐ Priority



8. Provide good handholds, grips or holding points for all packages and containers.

Do you propose action? ☐ No ☐ Yes ☐ Priority



9. Distribute the load between several people when the object is too heavy or too large to be handled by one person.

Do you propose action? ☐ No ☐ Yes ☐ Priority



10. Move materials horizontally at the same working height.

Do you propose action? ☐ No ☐ Yes ☐ Priority



11. Use conveyers, hoists and other mechanical means to reduce manual handling of materials.

Do you propose action? ☐ No ☐ Yes ☐ Priority

II. Work station design



12. Place frequently used materials, tools and controls within easy reach.

Do you propose action? ☐ No ☐ Yes ☐ Priority



13. Provide a "home" for each tool.

Do you propose action? ☐ No ☐ Yes ☐ Priority



14. Adjust the working height for each worker at elbow level or slightly below it.

Do you propose action? ☐ No ☐ Yes ☐ Priority



15. Provide sitting workers with good chairs and a backrest.

Do you propose action? ☐ No ☐ Yes ☐ Priority



16. Allow workers to alternate standing and sitting at work as much as possible.

Do you propose action? ☐ No ☐ Yes ☐ Priority



17. Use jigs, vices and clamps to hold materials.

Do you propose action? ☐ No ☐ Yes ☐ Priority



18. Use suspended tools which are easily moved.

Do you propose action? ☐ No ☐ Yes ☐ Priority



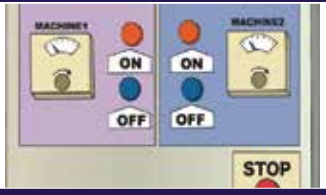
19. Provide hand tools with a grip of proper thickness, length and shape for easy handling.

Do you propose action? ☐ No ☐ Yes ☐ Priority



20. Make displays and switches easily distinguishable.

Do you propose action? ☐ No ☐ Yes ☐ Priority



21. Attach simple local language labels to the controls or switches.

Do you propose action? ☐ No ☐ Yes ☐ Priority



22. Make the emergency switch clearly visible and easily accessible.

Do you propose action? ☐ No ☐ Yes ☐ Priority

III. Machine safety



23. Use safe feeding and ejection devices to avoid danger and increase production.

Do you propose action? ☐ No ☐ Yes ☐ Priority



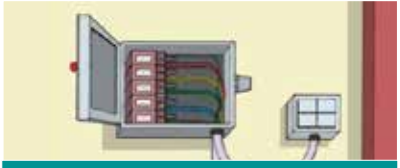
24. Attach proper guards to dangerous moving parts of machines.

Do you propose action? ☐ No ☐ Yes ☐ Priority



25. Use interlock barriers to make it impossible for workers to reach dangerous points when the machine is in operation.

Do you propose action? ☐ No ☐ Yes ☐ Priority



26- Ensure safe wiring connections for equipment and lights.

Do you propose action? ☐ No ☐ Yes ☐ Priority

IV- Work environment and control of hazardous chemicals.



27. Make full use of daylight and provide light colours for walls and ceilings.

Do you propose action? ☐ No ☐ Yes ☐ Priority



28. Relocate light sources and provide local lights for precision or inspection work.

Do you propose action? ☐ No ☐ Yes ☐ Priority



29. Make better use of horizontalair- flow to improve thermal comfort and control humidity.

Do you propose action? ☐ No ☐ Yes ☐ Priority



30. Protect the workplace from excessive outside heat.

Do you propose action? ☐ No ☐ Yes ☐ Priority



31. Improve ventilation systems to increase air flow.

Do you propose action? ☐ No ☐ Yes ☐ Priority



32. Place particularly noisy machines in a separate room, or outside the workplace.

Do you propose action? ☐ No ☐ Yes ☐ Priority



33. Use screens, barriers, enclosures and absorbent materials to reduce noise.

Do you propose action? ☐ No ☐ Yes ☐ Priority



34. Use effective local exhaust ventilation systems against heat, dust and chemicals.

Do you propose action? ☐ No ☐ Yes ☐ Priority



35. Substitute hazardous chemicals with less hazardous substances.

Do you propose action? ☐ No ☐ Yes ☐ Priority



36. Make sure that all chemicals are in covered containers, clearly labeled, and stored properly.

Do you propose action? ☐ No ☐ Yes ☐ Priority



37. Locate safety data sheets (SDS) in an easily accessible and clearly labeled in a written language understandable to workers.

Do you propose action? ☐ No ☐ Yes ☐ Priority



38. Provide enough fire extinguishers near the work area and be sure that workers know how to use them.

Do you propose action? ☐ No ☐ Yes ☐ Priority



39. Mark escape routes and keep them clear of obstacles.

Do you propose action? ☐ No ☐ Yes ☐ Priority

V- Control of COVID-19 and other infectious diseases.



40. Provide adequate hand washing stations or hand sanitizers in convenient places.

Do you propose action? ☐ No ☐ Yes ☐ Priority



41. Encourage workers to wear masks properly and maintain physical distancing while at work.

Do you propose action? ☐ No ☐ Yes ☐ Priority



42. Promote one-way use of paths and use floor markings to reduce gatherings in the shared spaces.

Do you propose action? ☐ No ☐ Yes ☐ Priority



43. Increase the cleaning frequency of commonly touched surfaces, tools or equipment.

Do you propose action? ☐ No ☐ Yes ☐ Priority



44. Increase fresh air circulation by opening doors and windows where possible.

Do you propose action? ☐ No ☐ Yes ☐ Priority



45. Isolate the workers with COVID- 19 symptoms and arrange for safe transfer to health facilities.

Do you propose action? ☐ No ☐ Yes ☐ Priority



46. Provide and maintain good and tidy sanitary facilities for men and women separately.

Do you propose action? ☐ No ☐ Yes ☐ Priority



47. Provide personal protective equipment that gives adequate protection.

Do you propose action? ☐ No ☐ Yes ☐ Priority



48. Provide appropriate personal protective equipment that gives adequate protection.

Do you propose action? ☐ No ☐ Yes ☐ Priority



49. Use important facilities such as canteens, lockers, health services, recreational facilities to attract and retain the best workers.

Do you propose action? ☐ No ☐ Yes ☐ Priority



50. Provide first aid equipment and train a qualified first-aider.

Do you propose action? ☐ No ☐ Yes ☐ Priority



51. Assist persons with disabilities, young workers and migrant workers in performing their job safely and efficiently.

Do you propose action? ☐ No ☐ Yes ☐ Priority



52. Give due attention to the safety and health of pregnant and nursing women.

Do you propose action? ☐ No ☐ Yes ☐ Priority

This manual was developed under the joint project: Strengthening the Capacity of Local MSMEs/Manu acturers to produce High-quality PPEs and Healthcare-related Products

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World Health Organization

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Module 1:
Materials and storage handling

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Workers have to store and handle many kinds of materials. These are heavy, and vary in size and shape. Better organized storage, shorter transport and handling operations, make lifting more efficient are the first condition of productive work.

I. Better organized storage

1. Take unnecessary materials and products out.

Leaving stock around in the production area reduces the space available for production operations



A clusttered shop-floor

The more cluttered your shop-floor is, the more likely tools and materials will be lost. Workers spend valuable time looking for things.

The same shop-floor after removal of all unnecessary items. The change has contributed to

- Efficiency and quality
- Better impression on customers



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2. Improve the transport routes.

Clear and mark the transport routes

Leaving stock around in the production area reduces the space available for production operations









Marking of transport routes is the most simple and effective method to keep them clear.

Leaving stock around in the production area reduces the space available for production operations



Make the surface of transport routes even, not slippery and without

The use of carts and wheeled racks is easier if the surface is even and free from obstacles.



Use ramps, fill-ins platforms by using available materials if uneven surfaces cannot be removed immediately.





Transport surfaces can be covered or painted with high-friction coatings, which reduce the risk of slipping.





Sudden height differences in passageways within the workplace hamper smooth transport of materials tand can cause accidents.

Where there are small, sudden height differences or stairways with just a few steps, replace them by a ramp with a small inclination.



Provide ramps with small inclination instead of stairways within the workplace.

Ramps with a small inclination make it possible to use push-carts and wheeled racks.









Provide ramps with handrails to prevent the danger of falling from the side of the ramp.

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Ensure that the surface of the ramps is adequate and non-slippery.





Ramps with small inclination can encourage the use of carts and mobile racks instead of manual carrying.

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3. Avoid placing materials on the floor but in a special storage.

Materials leaving on the floor reduces the space available for production operations.

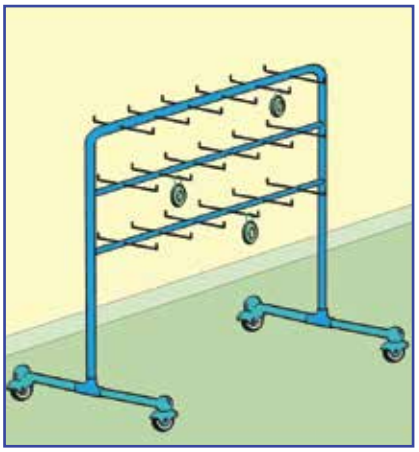
Place materials on the floor is:

- A waste of resources
- A loss of our production area and
- A risk of accident and muscular strain.









A special storage device suitable for each type of article or product allows to:

- Limit the number of handling operations
- Reduce damage to products
- Limit the risk of physical fatigue and prevent injuries











Where possible, use the same containers, pallets or trays for both carrying and storing items. This simplifies handling, and saves time.







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3. Use multi-level racks near the work area for storing materials, tools or products.

The total wall space can be larger than the floor area, multi-level racks help you to use it fully.

This means:

- Savings in floor space;
- Easy accessibility of work items and tools;
- Improved inventory control.





Multi-level shelves and racks allow a better use of space and help to keep things in good order when space available near the work area is limited.







Put labels, or draw shapes of the various items or tools, on the front of shelves or containers to show where each one is kept.

This saves time in searching.























II. Fewer and shorter transport and handling operations.

1. The more you use it, the closer it should be.

Placing frequently used tools or materials within easy reach can avoid unnecessary movements.

Time and energy can be saved.











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2. Use mobile racks.

Carrying work items together on mobile racks means fewer materials handling.

This helps to reduce damage to work items, minimize accidents and use worker's energy for productive operations.



By using carts and other mobile devices the number of trips can be significantly reduced. This means improved efficiency.

Design racks, containers, stands, etc. that have wheels and foot locks where appropriate.

It is then possible to move a number of items at a time. Choose racks that are easy to load and unload.





Racks on wheels specially designed for storage and handling of different work items. that are easy to load and unload.





Design special mobile racks for particular work items. The racks enable many items to be placed on the rack by easy handling operations and moved conveniently to other worksites.











3. Use push-carts and hand trucks.

Moving many materials not only takes a lot of effort, but also often leads to accidents that may injure workers and damage materials.

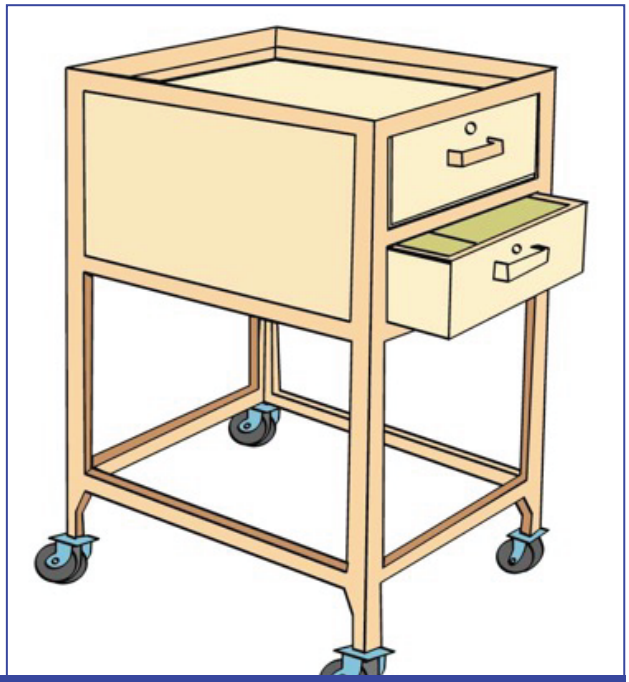
By using carts and other mobile devices the number of trips can be significantly reduced.

This means improved efficiency and safety.



Make your equipment easy to move to where it is needed.





Fit wheels to existing stands, racks or workbenches in order to make them mobile and thus avoid unnecessary loading and unloading operations.

This means:

- Fewer materials handling operations;
- Reduce physical strain and injuries;
- Simple, effective inventory control;
- Reduce damage to work items;

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Fit wheels to existing stands, racks or workbenches in order to make them mobile and thus avoid unnecessary loading and unloading operations.













4. Put wheels on tool stands, containers, work stations and other equipment.

Moving many materials not only consumes a lot of effort, but often leads to accidents which damage materials and may injure workers. All this is avoided by using “wheels”.











Choose wheels of a larger diameter, especially when moving materials a long distance or on uneven surfaces.



Cylinder truck with cylinder retainer chains



Support frame with wheels help reduce the number of trips between workstations and between storage and work areas.





Choose wheels of a larger diameter, especially when moving materials a long distance or on uneven surfaces.







III. Fewer and more efficient lifting operations.

1. Don’t lift loads higher than necessary.

- **Carrying heavy items is strenuous and dangerous.**

  Don’t carry more than you can handle. To reduce the weight of the load, use a smaller container.

  The use of carts and wheeled racks is easier if the surface is even and free from obstacles.



- **Divide heavy weights into smaller lightweight packages.**

  When loads are divided into smaller packages, this may mean increased movements and more trips to carry the same total amount.



However the risk of back injuries is greatly reduced by using light instead of heavy packages and the worker’s productivity is improved.

Instead of carrying heavy weights, divide them into smaller lightweight packages with good handholds or grips





Distribute the load between several people when the object is too heavy or too large to be handled by one person.





A lighter weight is a safer weight.

Note (HSE/UK):
Effective load value
Ex: 30 kg weight lifted
By 2 persons: 30x2/3= 20 kg
By 4 persons: 20x2/3= 13.3 kg



Provide good handholds, grips or holding points for all packages and containers.

Carrying loads is much easier and quicker if they can be grasped easily and firmly.



Ensure that packages have good hand grips so that the load can be kept near the waist while carrying.

Be aware that the worker may be wearing gloves. Grips or handholds must be easily grasped by gloved hands.

Locate handholds so that the load can be carried in front of the body.





4. Put wheels on tool stands, containers, work stations and other equipment.

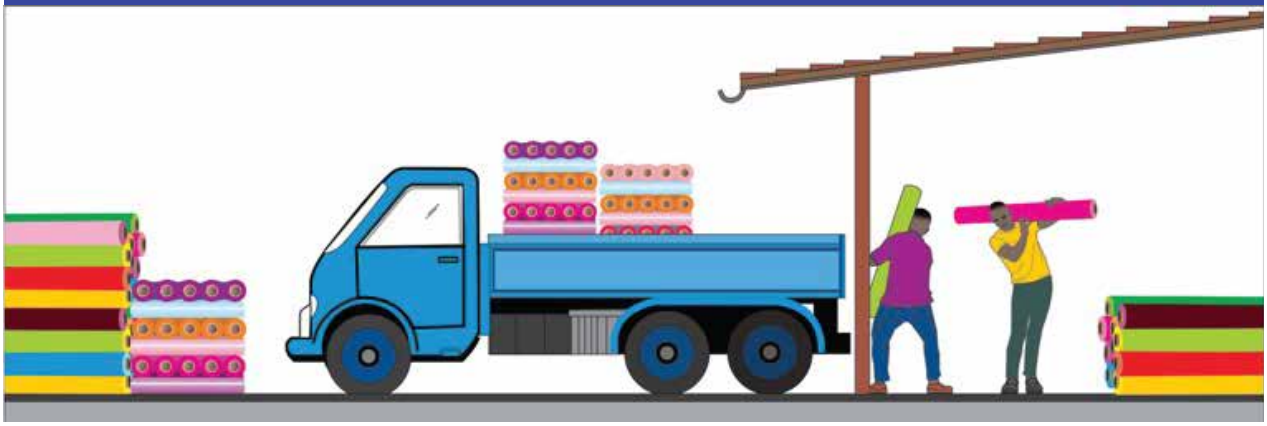
Lifting operations are a prime source of back injuries, property damage and unproductive costs.

It is therefore always better to eliminate lifting whenever possible.

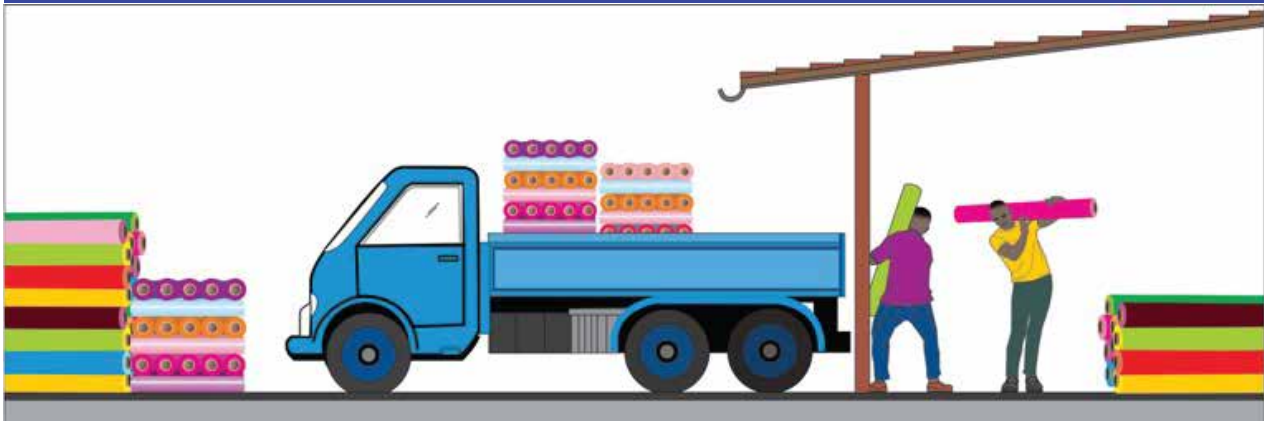
Placing the work surface at the right height so that loading and unloading can be done with minimum height differences



Eliminate or reduce height differences when loads are moved manually.



Match the height of the vehicle bed to the loading area, so that loading and unloading can be done with minimum height differences.



Time and effort can be saved by using platforms or lower vehicles so that materials do not have to be lifted during loading and unloading operations.











Time and effort can be saved by using platforms or lower vehicles so that materials do not have to be lifted during loading and unloading operations.

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Use mechanical lifting devices such as “scissor lift”, then the height for manual materials movement can be adjustable.







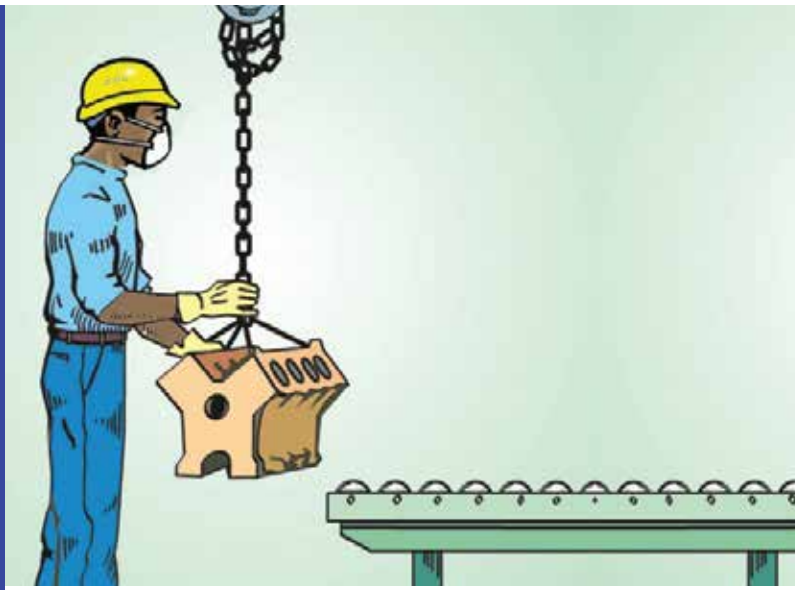


Move materials at working height can avoid lifting and lowering movements.

3. Use mechanical lifting devices for more efficient and safer lifting.

Manual lifting, lowering and moving of heavy materials and work items are some of the major causes of accidents and back injuries.

The best way to prevent these accidents and injuries is to eliminate the manual work by using mechanical devices.





Reduce manual handling of materials by using conveyers, hoists and other mechanical means of transport.

By using mechanical means of transport, the worker's productive hands and energy are released from handling materials and made available for profitable and safer tasks.









Make sure that the maximum safe working load is plainly marked when we use manually powered devices, such as hydraulic floor cranes or chain hoists,

For safety and efficiency, use mechanical lifting devices for the minimum elevation.



Electric chain hoist with butterfly control switch for efficient handling

Lifting heavy loads is usually combined with transport.

Make sure that qualified persons regularly inspect and maintain lifting devices.

Consider to organize the lifting so that the next step of transport is easier.



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4. To raise a heavy load, keep the back straight and use muscle power of the leg.

Manual lifts should be considered as a last resort in special cases when the application of mechanical means is not feasible.

When manual lift is unavoidable, keep the back straight and to raise the load, using the muscle power of the legs and the grip of the hands.





When moving heavy work items from one workstation to the next, keep them at a working height so that there is no need for raising or lowering movements.



When lifting loads heavier than 20 kgs, use two or more people to lift the load.
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Module 2:

Workstation design and work tools.

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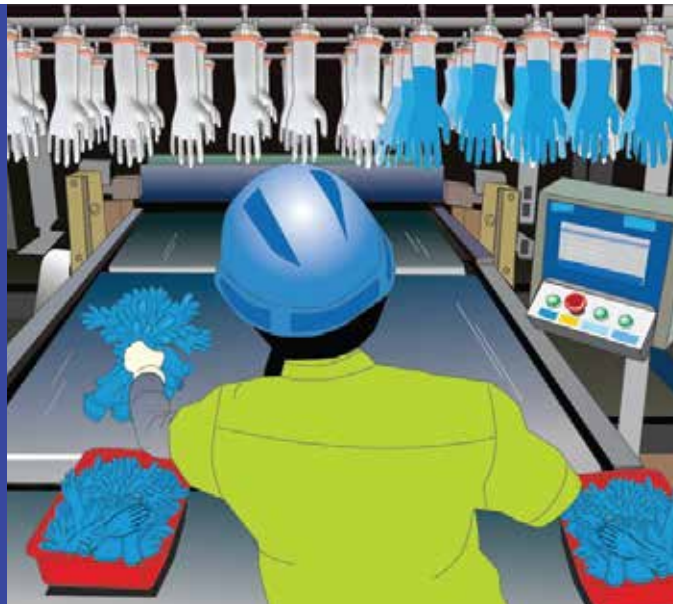
A well-designed work-station is important for productive work. Workers usually repeat similar operations a great many times. If they can do so quickly and easily, productivity will be higher and quality will be better.

I. Easy reach rule.

1. Keep frequently used materials, tools and controls within easy reach.

Long reaches means a loss of production time and extra effort.

Time and energy are saved by placing materials, tools and controls within easy reach of the workers.



The distance which can be reached easily without leaning forward or stretching is quite small. Place frequently used tools and controls within the primary hand movement area.

Long reaches means a loss of production time and extra effort.

Time and energy are saved by placing materials, tools and controls within easy reach of the workers.



The more you use it, the closer it should be.







Materials, tools and controls can be placed not only on the main work table but also on a side table or a rack placed within easy reach











Materials are placed within easy reach and at around elbow height.

Materials, tools and controls can be placed not only on the main work table but also on a side table or a rack placed within easy reach







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2. Put materials in containers, pallets or racks within easy reach.

When materials are supplied in boxes or bins or racks or on pallets, these should be placed within easy reach and at appropriate height.

This solution can avoid the strenuous work posture to pick up materials.















Materials, tools and controls can be placed not only on the main work table but also on a side table or a rack placed within easy reach



Less frequently used items can be placed at the side of the worker.





Place all frequently used containers within the primary hand movement area

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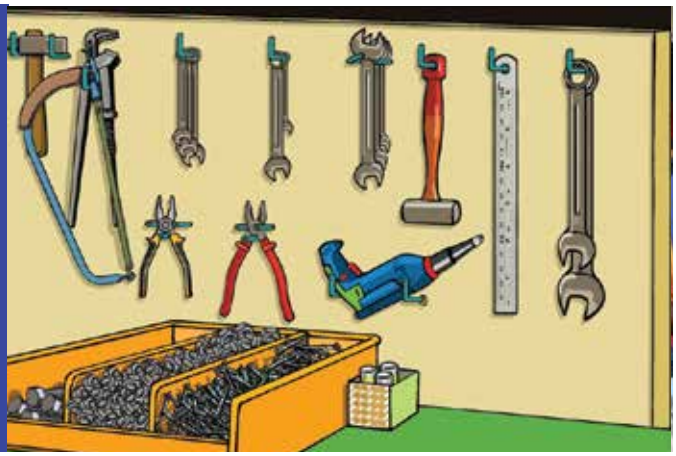
3. Provide a 'home" for each tool.

If each tool has a **special and permanent place or "home"** allocated to it, workers can find the tool quickly and are encouraged to use the right tool at all times.





Draw the outline of each tool on the tool board to show where it goes. This helps maintain order and immediately shows if anything is missing.







Tools stored in their special places can be seen at a glance. Their inventory is therefore easy. This is a great help for good maintenance.


용접용 공구걸이대2







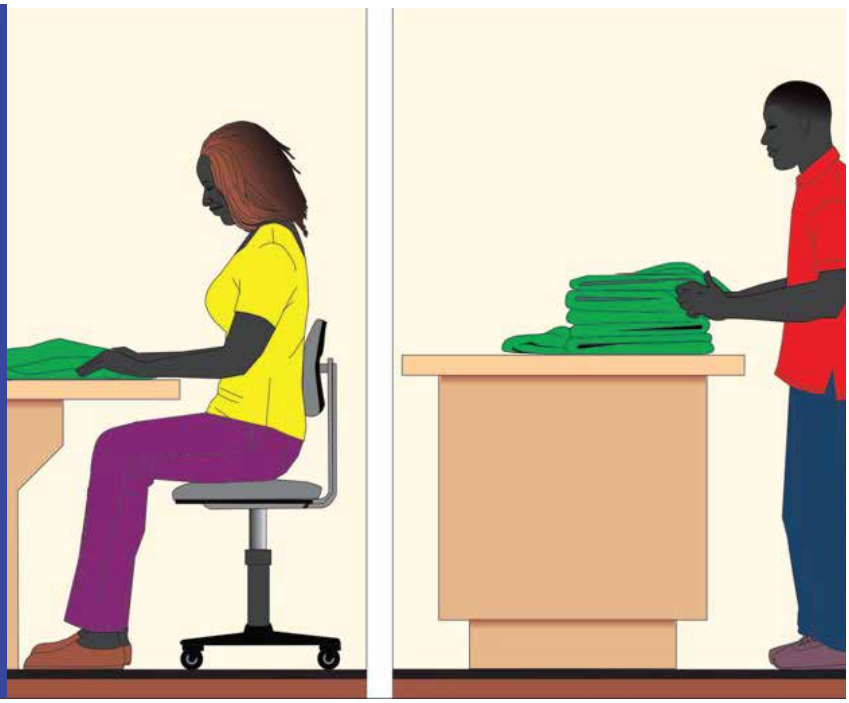




II. Elbow rule.

Most work operations are best performed around elbow level.

If the work surface height is too high, the neck and shoulders become stiff and painful.
If the work surface is too low, low back pain easily develops.







Adapt the work height at elbow level according to the type of task perform.

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Adapt the work height at elbow level for standing workers.











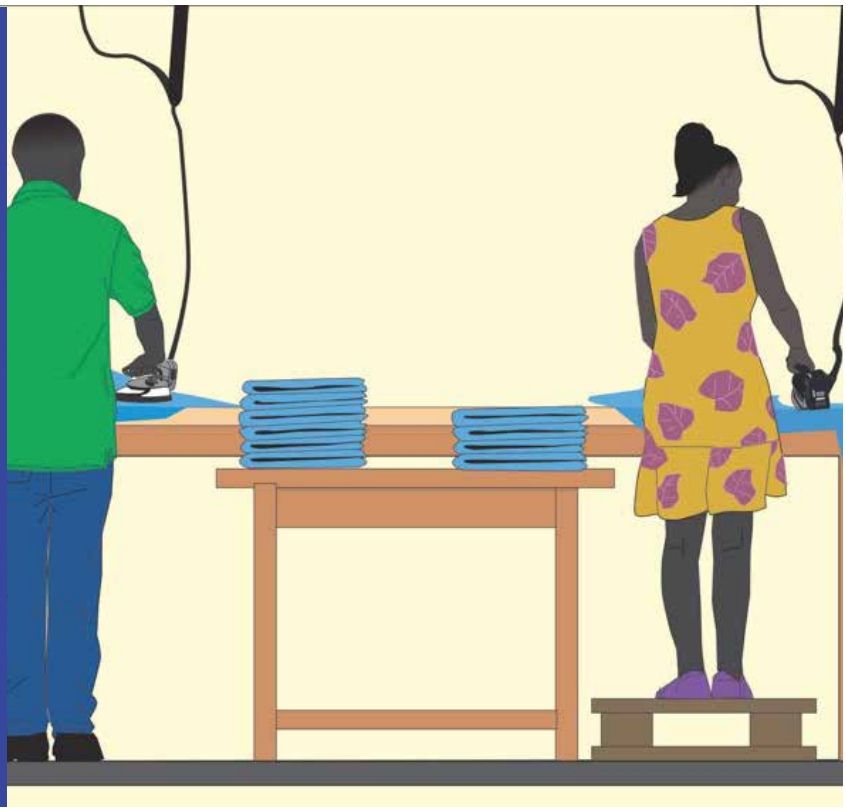
For work requiring accuracy, elbow height can be chosen.



When the use of very strong force is needed, a lower height is appropriate so as to allow the use of body weight



Tasks requiring greater force, adjust the working height slightly below the elbow level



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2. Use foot platform for small workers.

- **Differences in body size of workers are usually very large in any workplace. Special care must be taken so that materials can be reached easily by all workers.**

  Use a foot-stand or a mobile platform to enable workers to reach materials which are difficult for them to reach.







Use a foot platform for smaller worker to ensure an appropriate work height at around elbow level.

3. Use good chairs with backrest for seated workers.

- **Seated work seems comfortable compared with other forms of work.**

However, sitting for long hours is also tiring.

Good chairs reduce fatigue, improve work efficiency and increase job satisfaction.





Provide a good seat surface with some padding, neither too hard nor too soft, so that the worker can easily change the sitting posture in the chair.





Provide “ergonomic chairs” adjustable to each worker for correct seat height and with a good backrest. The chair should allow good mobility in the chair.





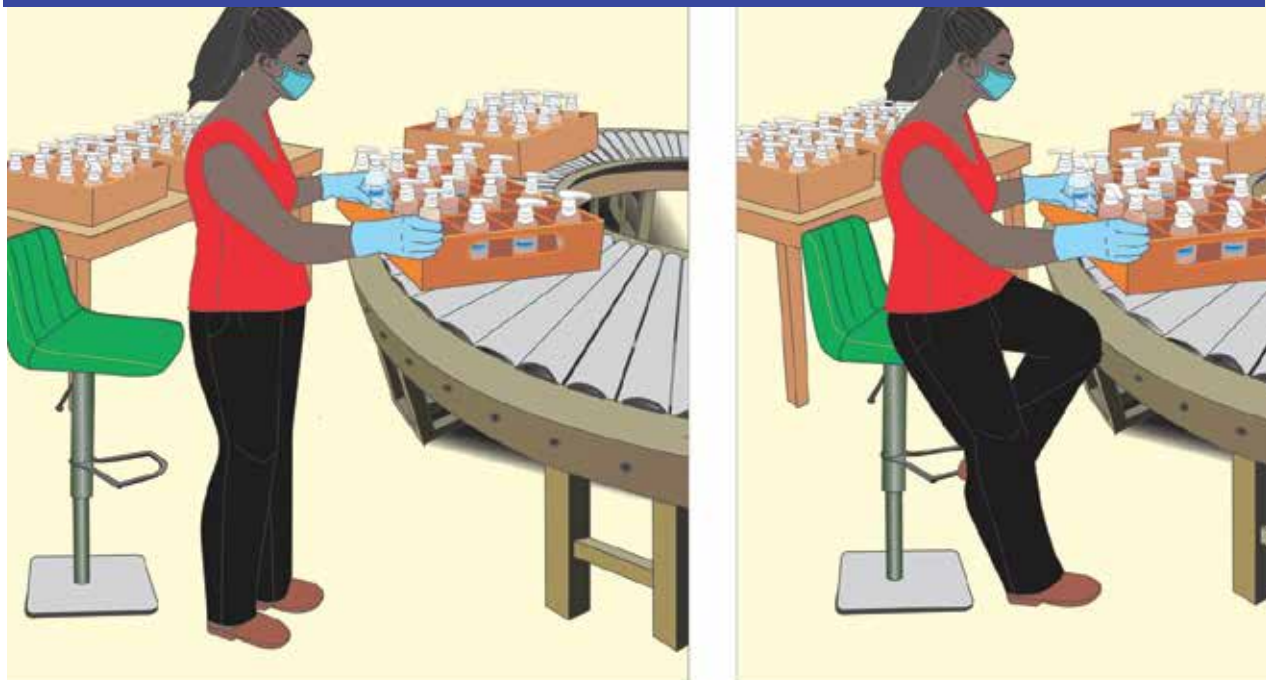




If an adjustable chair is not feasible, use a chair of correct height, or use a footrest in order to attain the correct seat height difference.

3b. Use stools for occasional sitting for standing workers.

Standing all the time is very tiring. It increases pain in the back, legs and feet, and affects work quality. Occasional sitting helps to reduce fatigue.



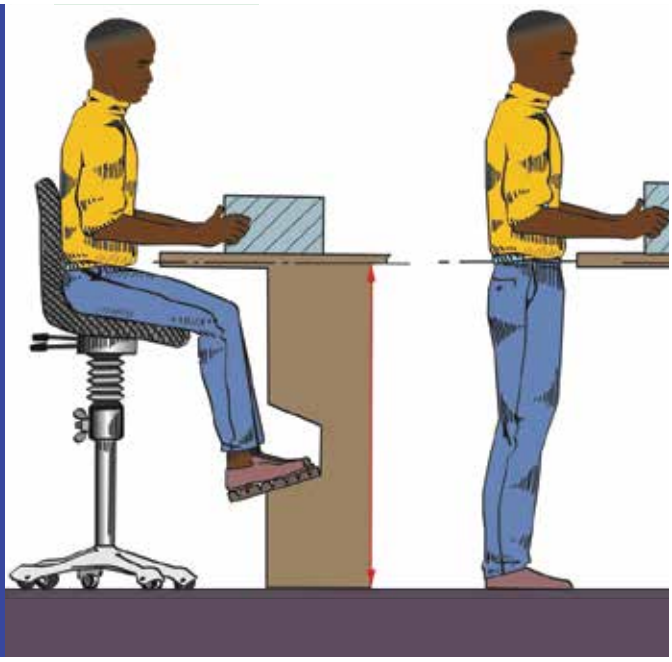
Standing all the time is very tiring. It increases pain in the back, legs and feet, and affects work quality. Occasional sitting helps to reduce fatigue.



4. Provide enough leg space for both sitting and standing work.

- **It is important to provide adequate space under the chair and under the table in front of the worker. This allows workers to change the position of their feet. Foot room under the chair is most important for getting out of the chair.**

Adequate leg room becomes a special concern when worker must remain seat for long time periods.







Flat footrest is needed for long term seating (however rounded foot rest with a small diameter can cause leg cramps).

Space should be provided under the seat and in front of the person for their feet.

5. Allow workers to alternate sitting and standing.

By providing chances for occasional sitting or standing, the work become better organized.

Standing for long periods is also thought to negatively affect the leg muscles, tendons and other connective tissue, and may even cause varicose veins. This can be avoided by simply alternating between sitting and standing.



Assign work tasks in order to create opportunities to alternate standing and sitting for greater efficiency and comfort.





Arrange multi-skilled work. This allow worker to combine standing and sitting while at work.





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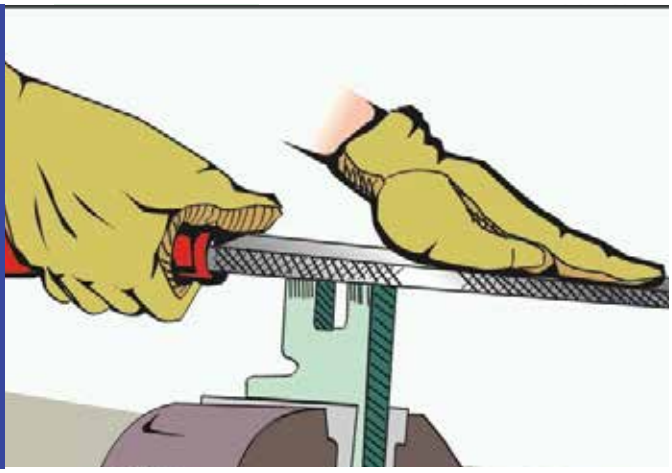
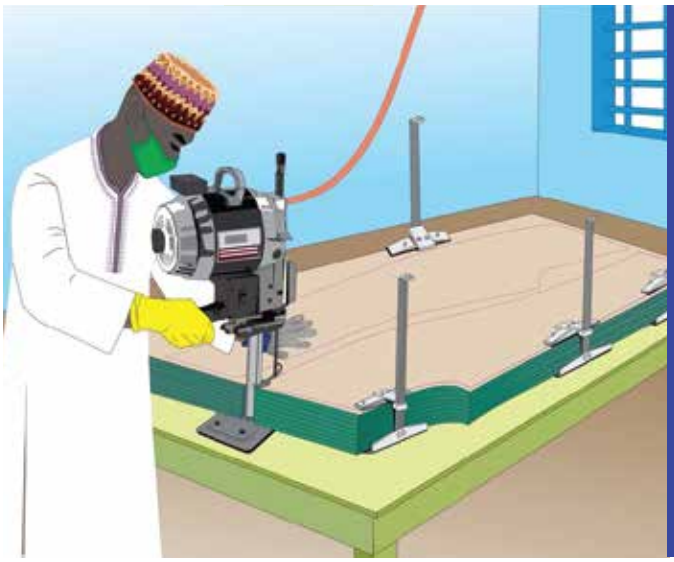
III. Jigs and hand tools rule.

1. Use jigs, clamps or others fixtures to hold work items.

The use of vices, jigs and clamps allows the workers to use both hands.

Manual operations greatly improve when the materials or work items are firmly fixed.





Holding strongly unstable piece takes effort, time, and can cause injury.

Vices and clamps reduce accidents, as they prevent slippage of material, reduce the need for maintaining a bad posture and provide better control over the work item.

Manual operations greatly improve when the materials or work items are firmly fixed.





Standing all the time is very tiring. It increases pain in the back, legs and feet, and affects work quality. Occasional sitting helps to reduce fatigue.





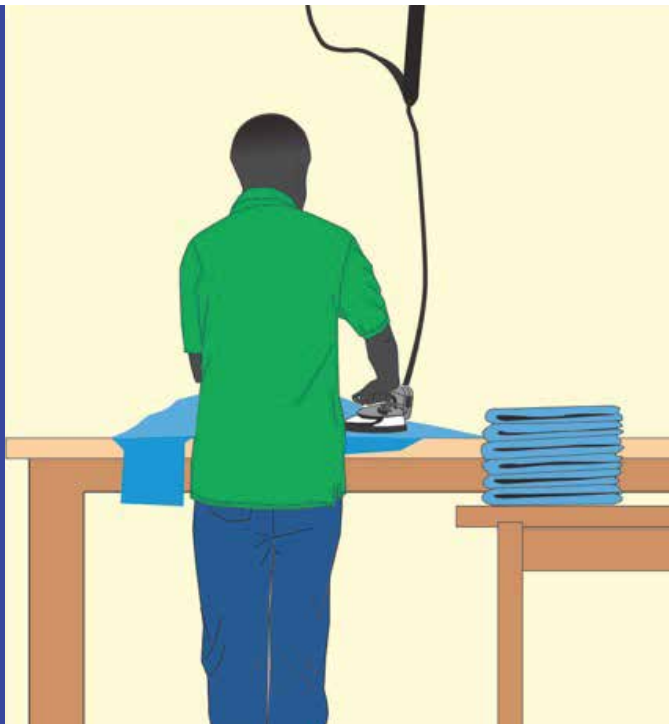
Design appropriate “pocket flap” (or jig device) to gather the work pieces into one operation.



2. Use hanging tools for operations repeated in the same place.

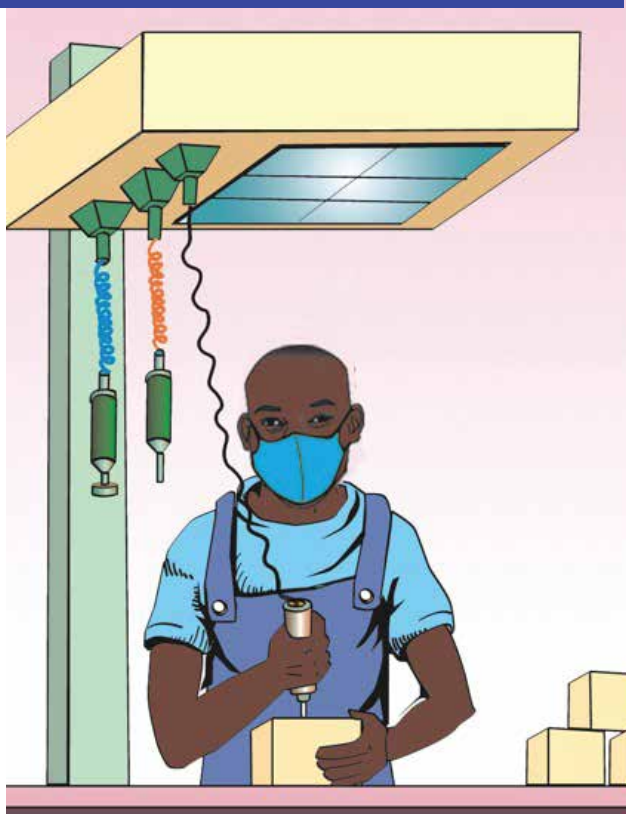
Hanging tools can be grasped easily near the point of operation. We can save the time needed to put the tool down and to pick it up again

Hanging tools provide a good solution for storage and easy operation, while increasing the worker's efficiency and productivity.



Provide a special frame for each hanging tool so that the tool is placed at the front of the worker and can easily be brought nearer to the worker while in use.





When operations are repeated in the same place, hanging tools help organize the workplace, thus increasing the worker's efficiency.





- **Make sure that hanging tools are within easy reach of the worker. Also when not in use, hanging tools do not interfere with the worker's arms and movements.**





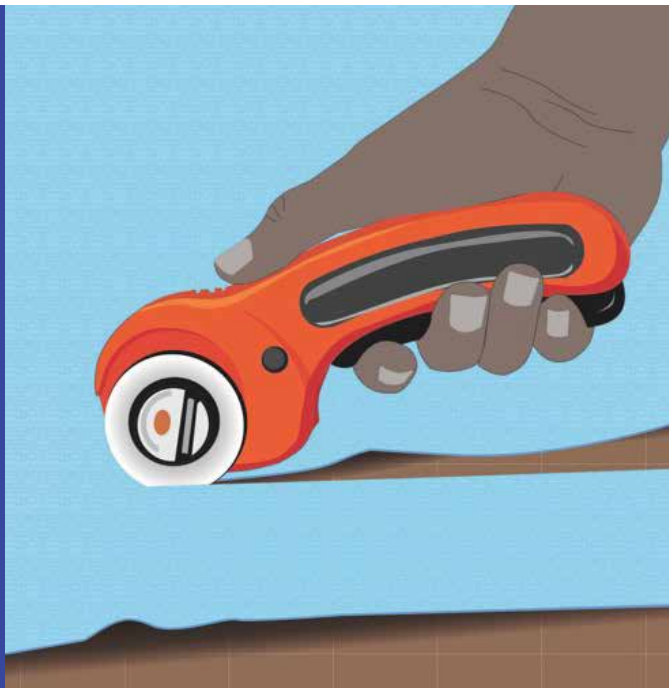


2. Use hanging tools for operations repeated in the same place.

- **Slipping or pinching of the hand while using tools cause injury.**

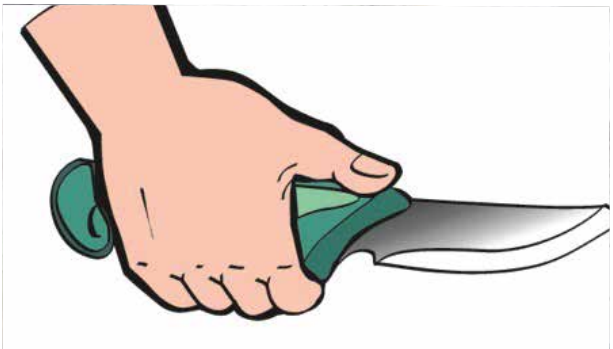
  A good grip allows the workers to use the tool with firmer control and less force.

  Loss of control of the tool may cause damage and injury. Fear of slips and pinches reduces the quality of work.









When operations are repeated in the same place, hanging tools help organize the workplace, thus increasing the worker's efficiency.

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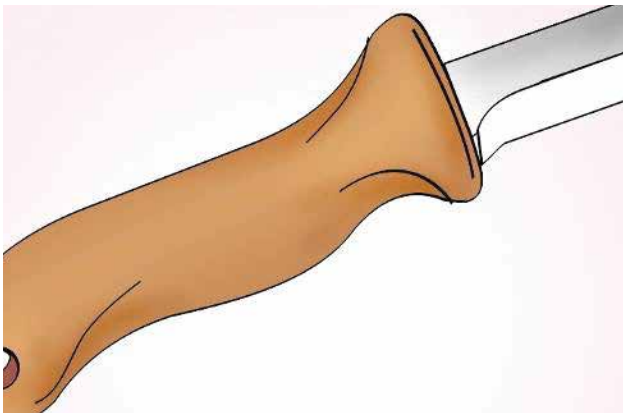
A good grip allows the workers to use the tool with firmer control and less force















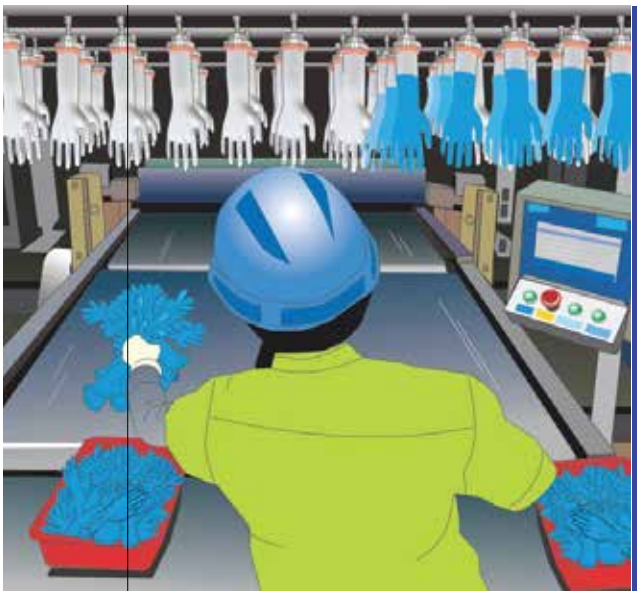
IV. Easy to distinguish rule.

1. Make the emergency switch clearly visible and easily accessible from the natural position of the operator.

Accidents and mistakes could happen unexpectedly. Immediate action is needed when someone is caught in dangerous machine parts.

Emergency controls needs to be well designed so that everybody, including visitors and outsiders, can easily see them and understand how they work.





Emergency situations are very stressful. Even trained workers may make mistakes.

Emergency controls must be designed so that there is no chance of mistakes in activating the controls.

Make emergency controls large and easy to activate





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Emergency controls should be labelled and colored red







Prevent unintentional operation

Unintentional operation of controls can caused serious injuries or damage and lower productivity.

Design the layout of the controls to separate those that could be unintentionally activated.

Position emergency controls away from other frequently used controls, thereby reducing the risk of inadvertent activation.







Cover or “cage” controls that are likely to be turned on or off unintentionally.

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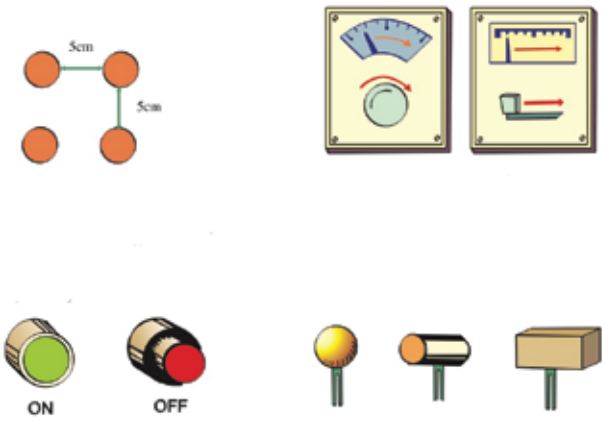
2. Make controls and switches easy to distinguish from each other.

- **Incorrect reading of displays or signals is sometimes critical, as this may lead to operate failures and accidents.**

Controls that are quick and easy to find will save time and reduce operator errors.

If controls look similar, people will make mistakes. Activation of a wrong control may lead to an accident.





Coding of controls (by colour, size, shape, label and location) can prevent operator errors and reduce the time for operation

By adding another feature, such as colour, size, shape or labels, controls are much easier to distinguish from each other.

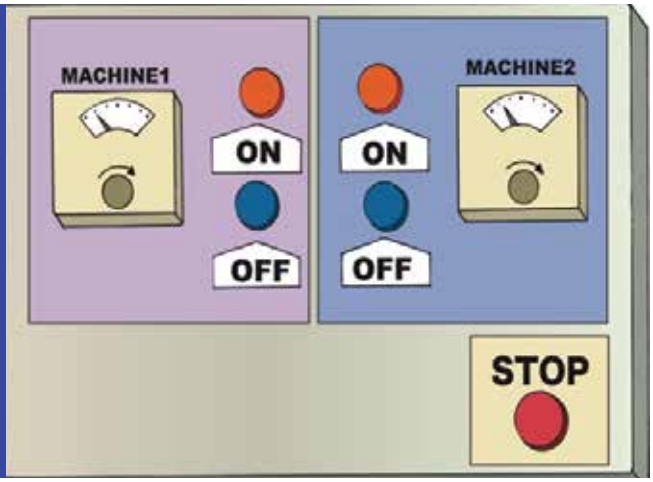




3. Attach simple worded labels written in local language to the controls or switches.

- **The various switches and displays can be easily identified with suitable labels.**

  Make the lettering large enough to be easily read at a distance.







Put labels indicating the types or functions of operation or work process near the corresponding switches or displays

Make sure that labels and signs use language that can be understood by the workers.





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Module 3:

Safe use of machines and electrical equipment.

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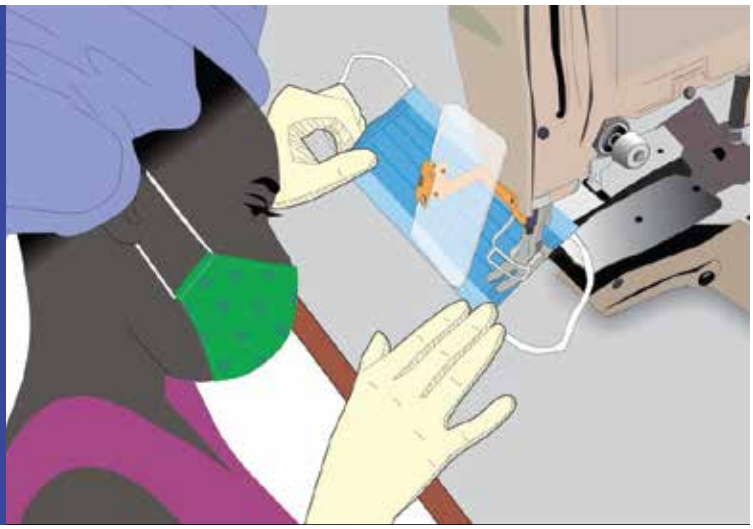
Machines are essential to modern production. However, along with increased productivity, they have brought hazards into the workplace. Proper control of machine hazards has traditionally been seen as costly and a constraint on productivity. However, it is often possible to eliminate a machine hazard while at the same time increasing production.

I. Machine safety.

1. Purchase safe machines in which all points of operation are free from danger.

Safe machines are machines in which dangerous parts are situated in a position where they cannot harm the workers.



Using these safe machines is the best way to prevent accidents.



Check all machine parts carefully, particular care is needed for rotating parts, detachable guards and electrical wires.

Check whether all feeding and ejection parts work safety.

Switch the machine on and test it to see whether it runs well and safety.

Ensure that your hands are free from danger while the machine is in motion



It is better to purchase machines in which all necessary guards are already in place.

You may be offered a machine without guards or unsafe versions at a lower price. Such machines can cause you many problems and cost you more in long run. Save yourself a lot of trouble and expense by choosing the right machine.

Make sure that all moving parts are well guarded and electrical wires are well protected



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2. Use safe feeding and ejection devices to avoid danger and increase production.

Workers' hands are at great risk when feeding materials into machines. Safe feeding devices can significantly reduce the risks and help prevent serious accidents

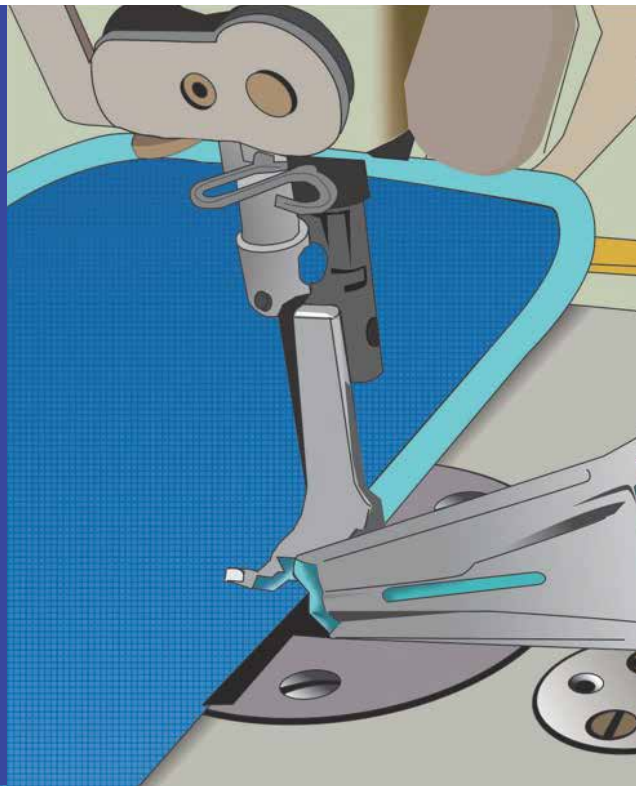
Appropriate feeding devices can also speed up your work. Repetitive motion while feeding make your work slow, simple gravity feeding mechanisms make the work much easier, productivity will consequently increase.



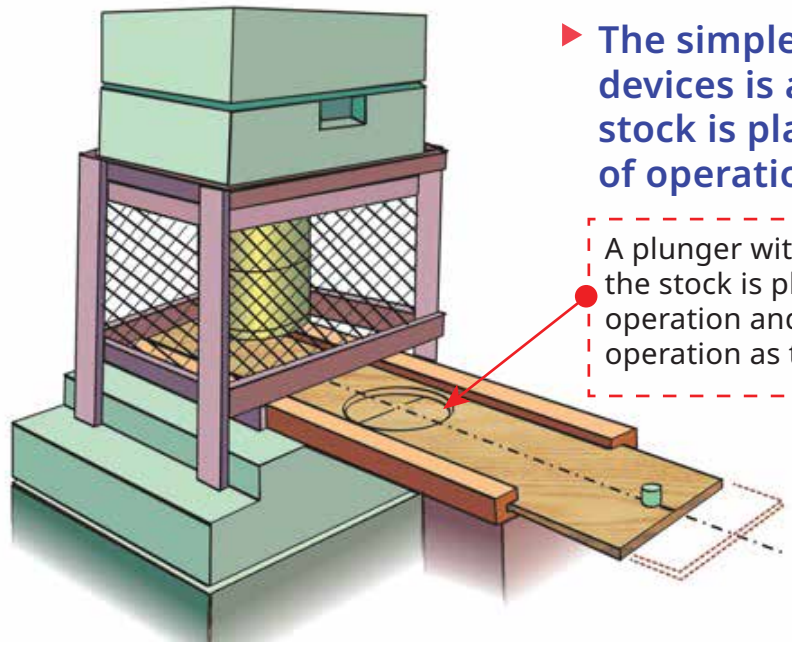
The basic idea of manual feeding is to make the operator perform the task without his or her hands entering into a dangerous zone.

The basic idea of manual feeding is to make the operator perform the task without his or her hands entering into a dangerous zone.

i. Plunger feeding
ii. Carousel feeding.
iii. Gravity feeding and simple chutes.

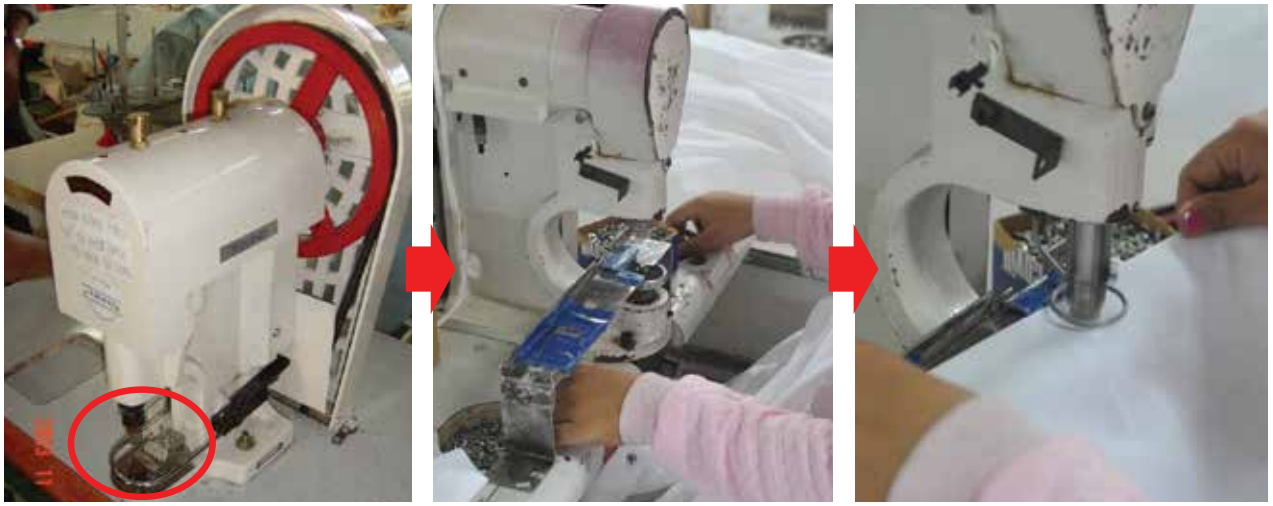


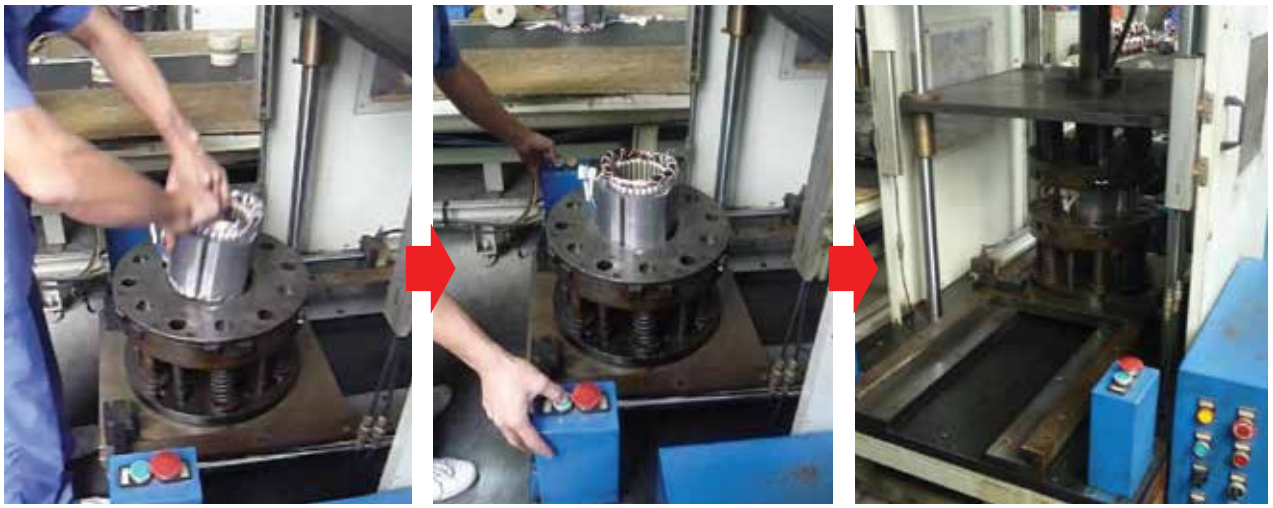
i. Plunger feeding



- **The simplest form of such feeding devices is a plunger in which the stock is placed outside of the point of operation.**

A plunger with a die (a slot or nest) into which the stock is placed outside the point of operation and then pushed into the point of operation as the machine is cycled;





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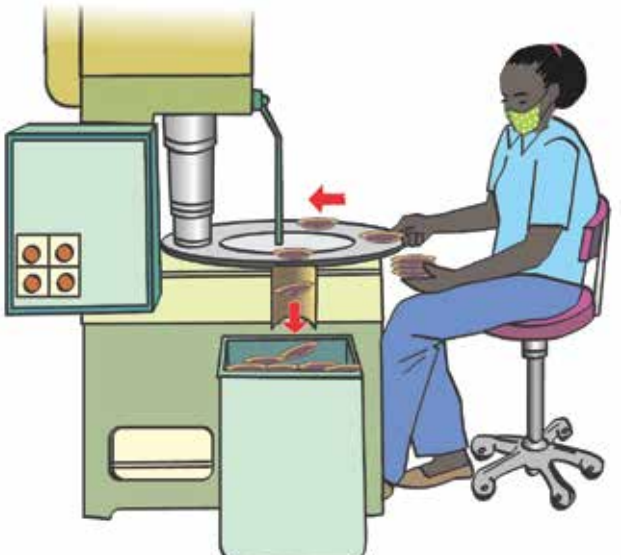
ii. Carousel feeding.



- A carousel type of feeder is one in which the stock is placed outside the point of operation and put under the point of operation one item at a time, combined with automatic ejection and collection of finished stock.

A carousel type of feeder can considerably increase the productivity.



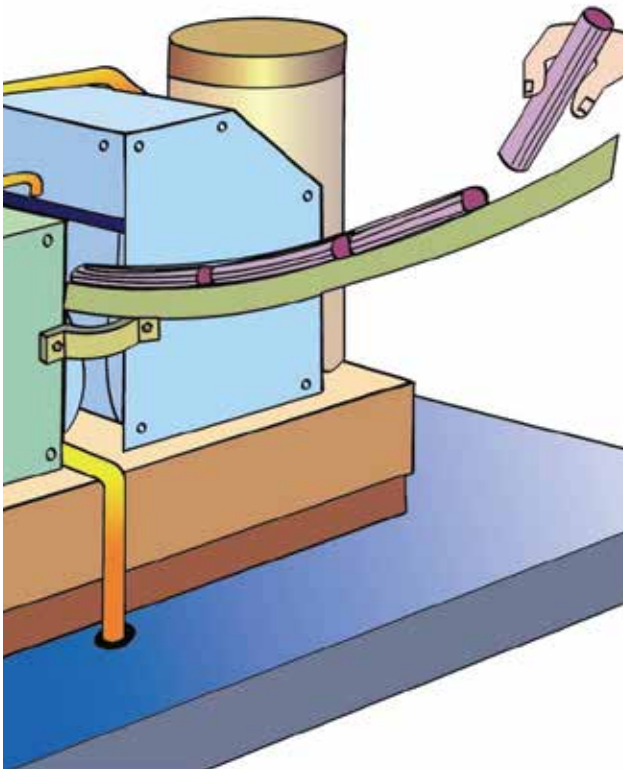




iii. Gravity feeding and simple chutes.

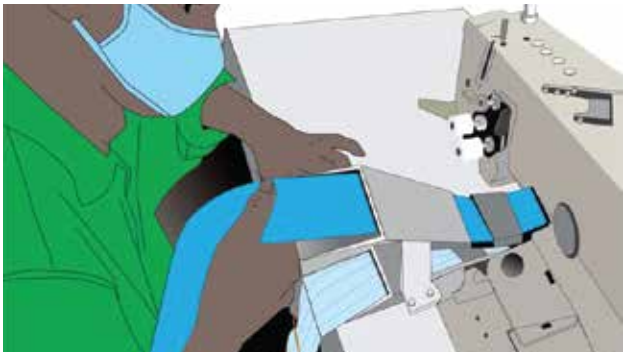
- **Some of the easiest to design and install are the use of simple chutes (or gravity feeding)**



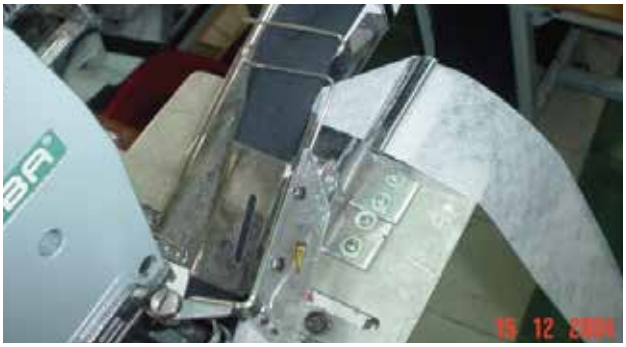


The use of tube foot





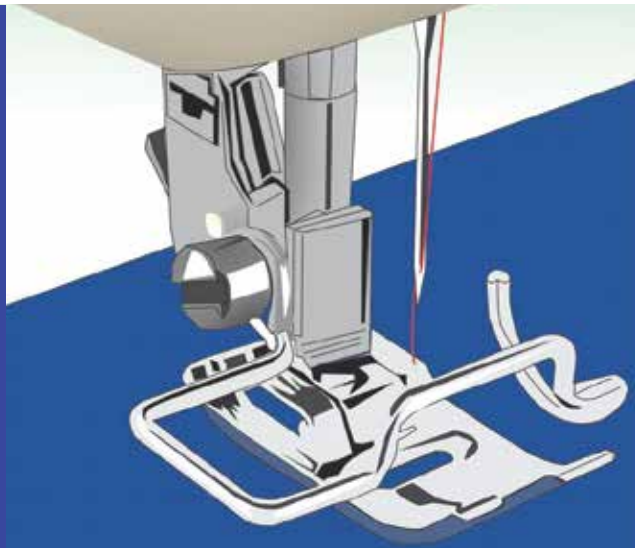




3. Attach proper guards to dangerous moving parts of machines.

When working near moving parts of a machine, workers are at risk.

The best protection against the risk is by preventing contact through mechanical means, not by instructing workers to avoid it.

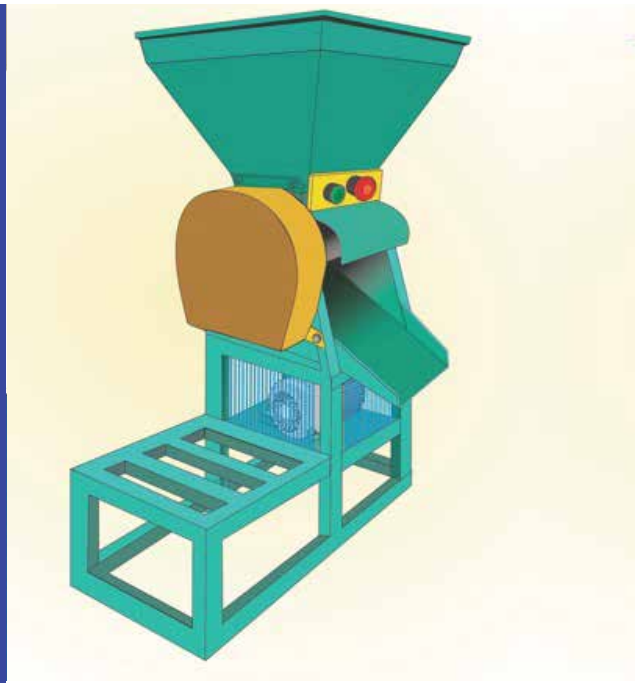


Types of machine guard.

i. Fixed Guards

Fixed guards are simple guards attached directly to the machine or to a stable surface such as a wall or floor. They should be made of strong material and provide protection against flying fragments.

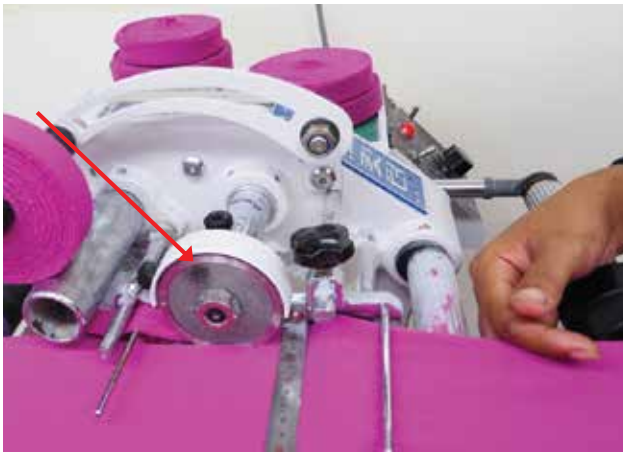
Fixed guards should be removable only by using tools.












Before


After




15 2:24 PM


Before

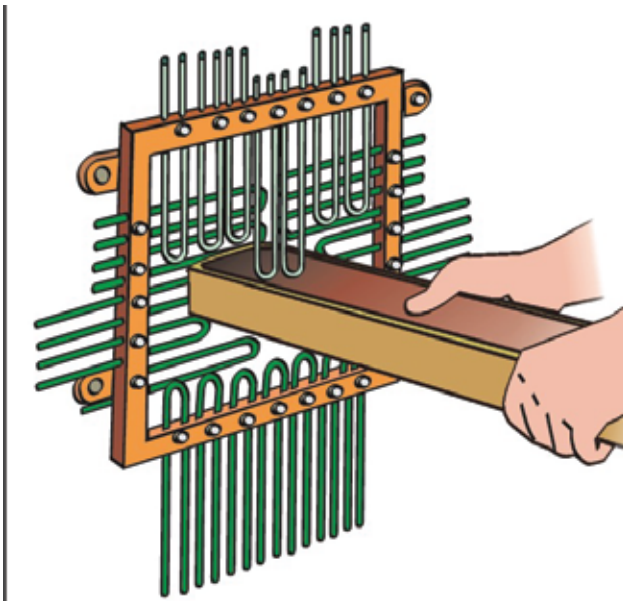

After

ii. **Adjustable guards**

Adjustable guards are guards that can be adjusted to suit the size of stock being introduced into the point of operation and still provide a high degree of protection.









iii. Interlock guards

Interlock guards interrupt the electrical or mechanical cycling of the machine as soon as the guard or cover is opened or removed.

Use interlock barriers to make it impossible for worker to reach dangerous points when the machine is in operation.







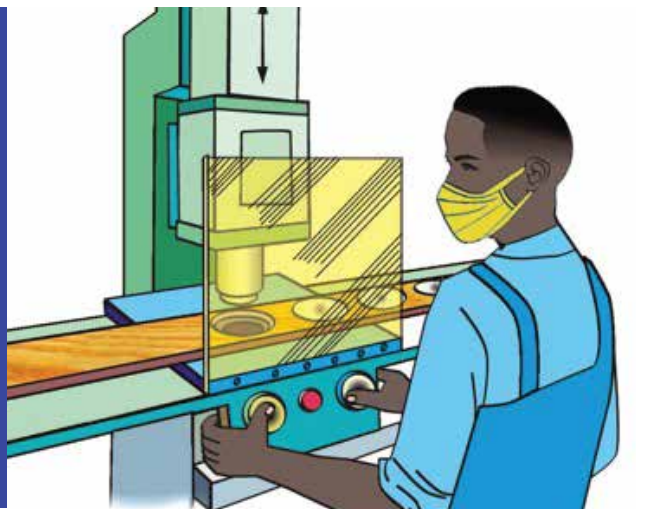




iv. Two hands control

Two hand controls require that two switches or levers must both be operated at the same time with both hands.

In this way the worker's hand are always outside the machine while it operates.







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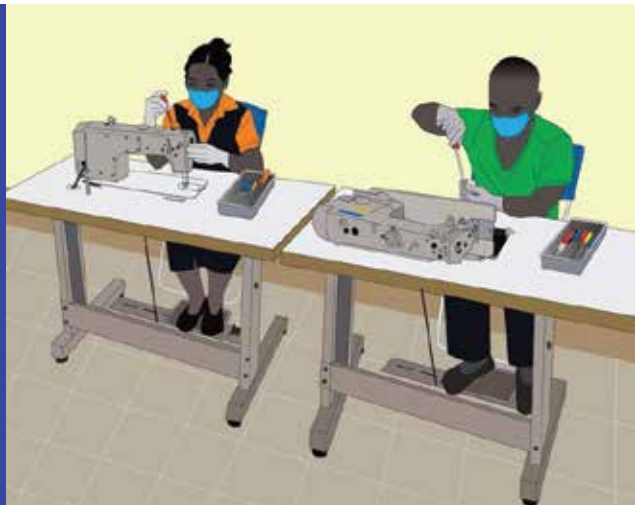
4. Keep good maintenance of machines

Even with guards in place, a poorly maintained machine can be dangerous. It will also have more breakdowns and quality problems.

Proper maintenance is not lost production time, it is an investment in higher productivity and lower repair costs.



4.1. To be done by qualified and trained personnel



A machine maintenance programme, carried out by qualified personnel, will reduce the frequency of repairs and reduce the need of the worker to remove guards.

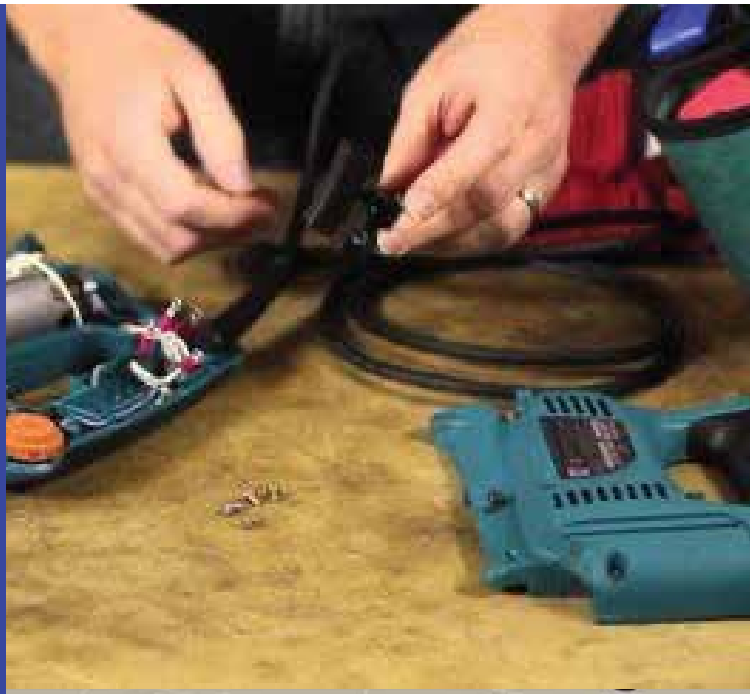




4.2. To include machine guards

Frequently a worker will remove a guard to clean a machine, change a die, or perform maintenance tasks and lubrication.

A guard is also frequently removed because the visibility at the point of operation may be decreased by the guard and the worker cannot monitor the quality of the product. These guards should be inspected, cleaned and replaced





Guards should leave the operation easy to see. Any guard that reduces productivity should be redesigned.

4.3. To lock control mechanisms of machines with a tag saying “Danger, do not operate”

When machines are being repaired or when maintenance tasks are being performed, the control mechanisms of the machines should be locked and have a tag stating "DANGER, DO NOT OPERATE".







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III. Electrical safety and fire prevention.

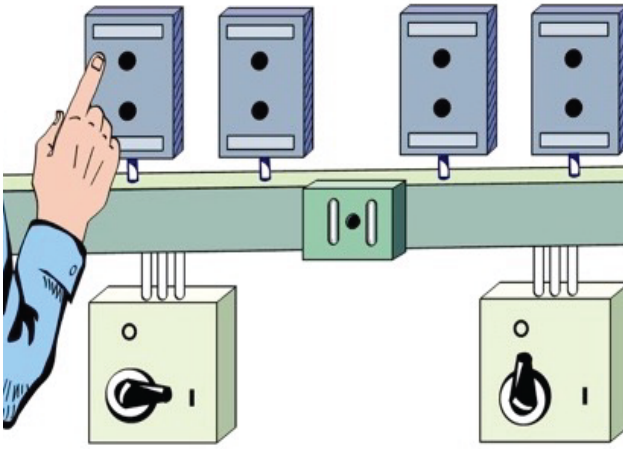
1. Ensure safe wiring connections for equipment and lights.

Workers use many kinds of machine in which majority are operated in the wet and humid workplaces. In such an environment the risks from damaged or faulty electrical of machines are high.

Check that the electrical circuits are enclosed and protected by circuit breakers.



Protect all circuits with circuit breakers or fuses.





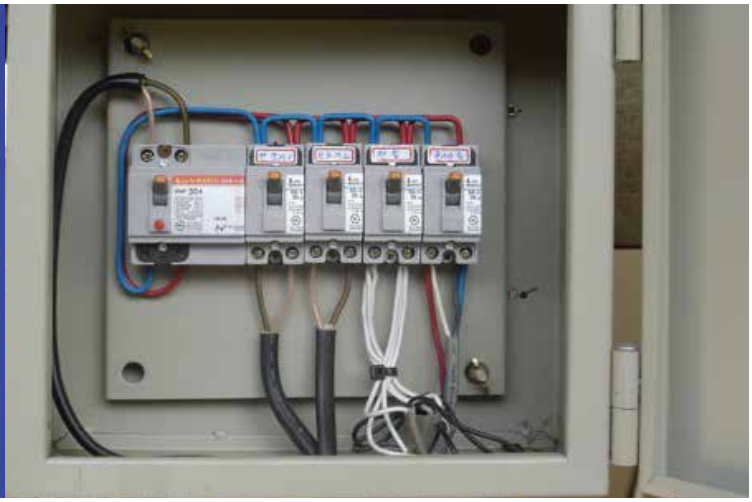
Well-protected electrical connections will ensure the safety of the machine operators and visitors.

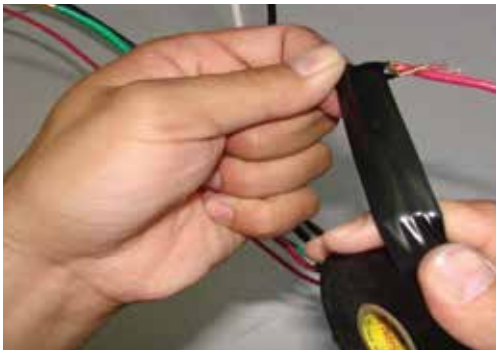




Check all electrical wire junctions. Wrap them carefully with electrical adhesive tape. Never leave any wire junctions uncovered.

Ensure prompt replacement of the electrical adhesive tape if it becomes loose or is worn out.

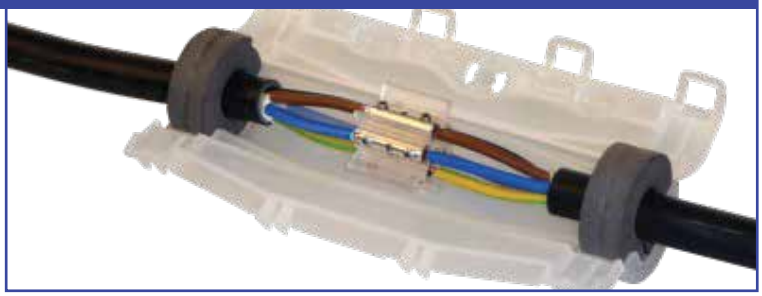






Insulate the electrical wire junctions into a special junction box.





Good electrical cables and connections that comply with standards reduce the risk of fire and electric shock and the loss of time due to machine failure.

Provide a sufficient number of socket outlets for wiring connections in order to minimize contacts of workers with cables. If necessary, use an additional multi-plug socket block.

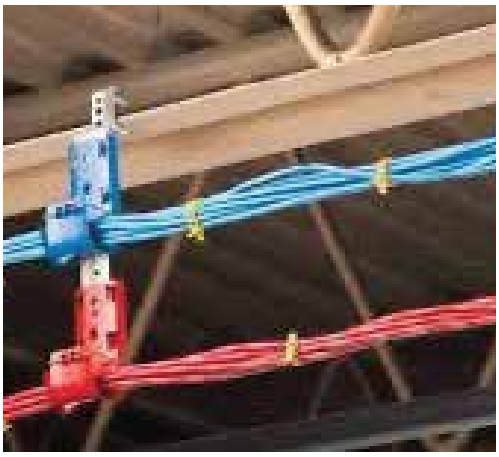


On work place, electrical cables intermingled on the ground often pose a risk of falling and electrocution.

Protect cables, especially those temporarily placed on the floor, from being stepped on by workers or wheeled equipment.

It is recommended to suspend or protect electrical cables to prevent damage







Proper maintenance and control of the connectors between electrical cables and machines are very important to prevent electrocution or machine breakdown.

Appropriate insulation of all electrical cables connected to machines, and their proper maintenance, can prevent electrical accidents and machinery damage.



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2. Keep flammable materials away from hot sources and flames.

- **Ensure that the area is clear of flammable or combustible materials including dusts, liquids, and gasses.**

Fire in your work area can ruin your whole business and cause serious injuries or even deaths. Fire protection should always be a priority.

Store flammable materials away from heat sources.









3. Provide enough fire extinguishers within easy reach and make sure that all workers know how to use them.

A sufficient number of fire extinguishers placed in designated areas and clearly marked can greatly reduce the risk of large fires.

Early detection of a small fire and the use of portable fire extinguishers are among the most important fire- protection measures.



Portable fire extinguishers are effective only in the early stages of a fire. It is necessary to place a sufficient number of extinguishers so that they are easily reached and used as soon as possible.





Provide appropriate fire-fighting equipment near the sources of potential fire







Maintain a sufficient number of fire extinguishers, clearly marked and placed within easy reach.







Maintain fire extinguishers regularly. Make sure that pins, nozzles and nameplates are intact and no extinguishers are missing or empty.



Maintain fire extinguishers regularly. Make sure that pins, nozzles and nameplates are intact and no extinguishers are missing or empty.





Mark escape routes and keep them clear of obstacles



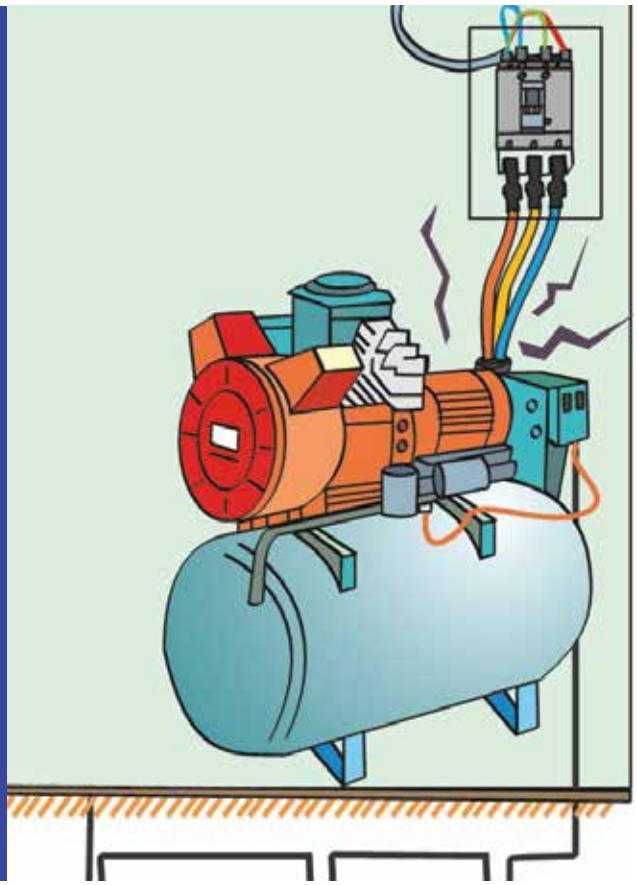


4. Make sure all equipment is earthed.

The purpose of the ground wire is to act as a safety valve removing any excess or undesirable electricity.

Basis concept of ground wire :
The positive charge of the electrical system is attracted to the negatively charged energy in the ground, therefore, creating a safe space for the discharge of excess energy.

In the absence of a ground wire, when there is an excess electricity build up within the system and there is no place for this energy to go to, there are increased chances of electrocution or fires.



Keeping in mind that electricity excesses are quite common not just in commercial settings but also in homes, grounding is essential.







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Module 4:

Work environment and control of hazardous chemicals

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A polluted working environment is often harmful to production. High levels of noise, dust, heat, humidity etc., interfere with efficient production, and may spoil materials or final products . Bad lighting leads to low productivity and poor quality as well as eye strain, fatigue and headaches for the worker.

Exposure to many chemical substances causes fatigue, headache, dizziness and irritation of eyes and air passages, resulting in a reduction of productivity. Certain chemical substances can be found to be associated with diseases ranging from mild skin rashes to chronic health impairment and fatal cancers.

When these conditions are improved, labour output goes up.

I. Improve indoor workplace lighting.

1. Make full use of daylight and use light colors for walls and ceilings.

1.1. Make full use of daylight.

Daylight is the best and cheapest source of illumination. The use of daylight reduces energy costs.



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Provide skylights, for example by replacing roof panels with translucent ones.





As skylights provide heat in hot weather and cause heat loss in cold weather, -> install skylights with semi-transparent material at proper intervals.





Using daylight improves morale and it is free.



Natural lighting is most effective in improving illumination.









1.2. Use light colours for walls and ceilings

Paint ceilings and walls in a light colours create more reflection than dark colours.

Light colours make it easier to keep ceilings and walls clean.



Light-coloured walls reflect more light and provide better lighting conditions and a good workplace atmosphere.



Light-coloured walls and ceilings are energy saving as they produce higher room illumination with fewer lights.



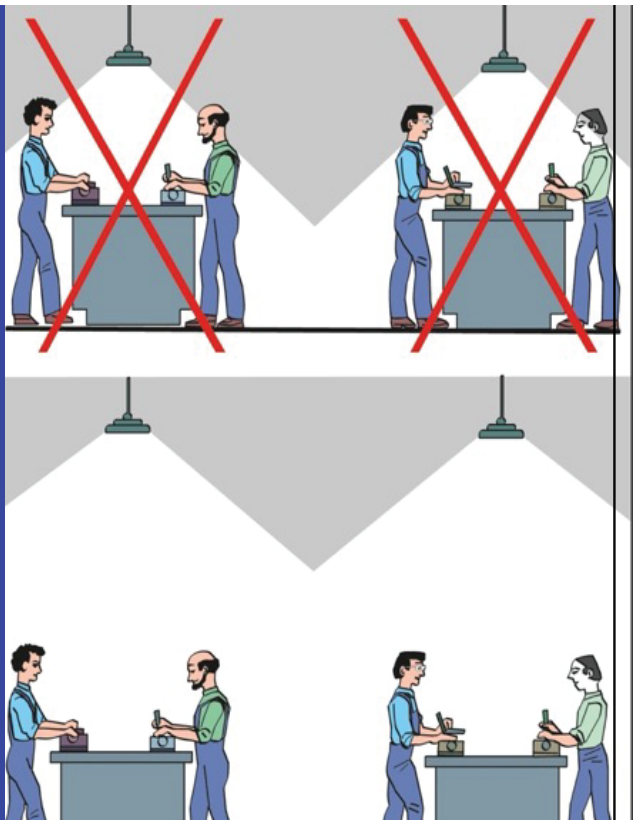
2. Find the best place for light sources.

- **Sufficient lighting improves worker's comfort and performance.**

Sufficient lighting reduces work errors. It also helps to reduce the risk of accidents.

It is also essential that lights are positioned in the correct place so that workers do not have to adopt poor working postures to see the task at hand.

Higher lighting gives better dispersion.









Ensure that lights are positioned correctly for each task;

it is essential for the light to focus on the work at hand and not directly, or indirectly in the workers' eyes.



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3. Use local lights for precision work.

More light is required for precision work than for normal or office work.

Properly arrangement of local lights not only contribute in quality and productivity but also help to keep lighting expenses low.

For close-up work it is essential to have local lighting where the light shines directly on the task and not into the workers' eyes.



Appropriately placed local lights greatly improve the safety and efficiency of precision work. Place and direct light the way it seems best for the work being performed.









Appropriately placed local lights greatly improve the safety and efficiency of precision work.







The more detailed the task, the more light that is needed for the workers to carry out the job efficiently.



Consider whether changing the height or positions of some existing lights to create more illumination of the workplace or adjust lighting levels at specific locations using local and general lighting



4. Relocate the light sources to avoid glare.

- Direct glare greatly reduces everyone's ability to see.
- Glare at work is a cause of discomfort, annoyance and eye fatigue.
- Glare also reduces the worker's performance, causing low work quality and low productivity.



Direct (reflected) glare reduces visibility



Direct (reflected) glare reduces visibility





Consider to use lamps with a movable stand or a flexible arm to easily change the direction of light.



5. Ensure regular cleaning and maintenance of lights and windows.

Lamps give off less brightness when they are dirty, but still consume the same amount of electricity.

If lamps , skylights, windows, ceilings, walls and work areas are maintained in good condition, lighting can be improved without increasing the number light bulbs



Clean windows and well-maintained light sources help to increase lighting.



Periodic maintenance is important for productivity and cost-savings.



II. Eliminate or isolate the source of pollution.

1. Make better use of horizontal air-flow to improve thermal comfort and control humidity.

Let natural air-flow improve ventilation.

Horizontal air-flow helps to improve thermal comfort and remove pollution.

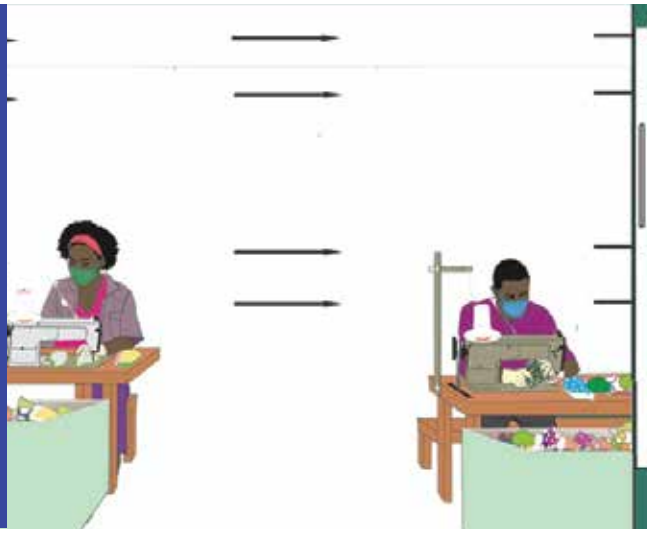
Open windows are a popular and simple way of providing cross-ventilation.

Natural air flow serves as a very powerful ventilator.



Winds bring fresh air and takes away hot and polluted air.

Choose a place for work where there is a strong natural air flow, such as establish a practice of doing work in the natural ventilation from adjustable openings on opposite sides of a room.







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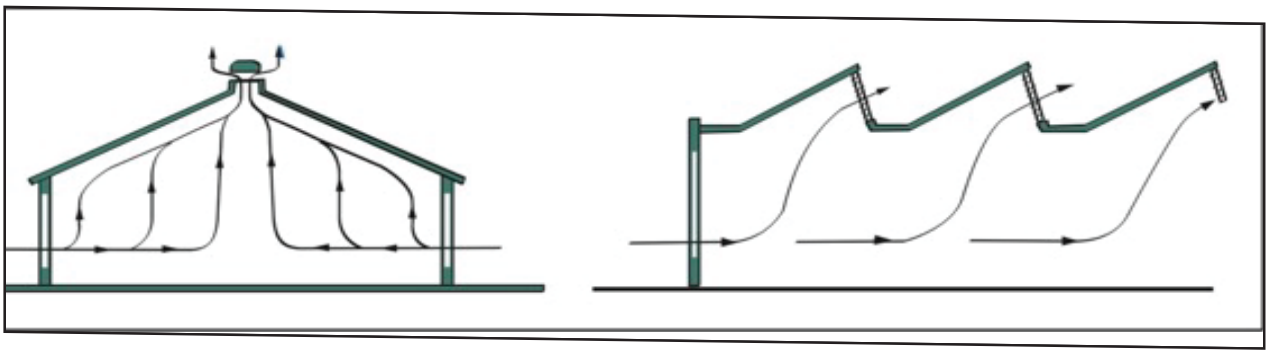
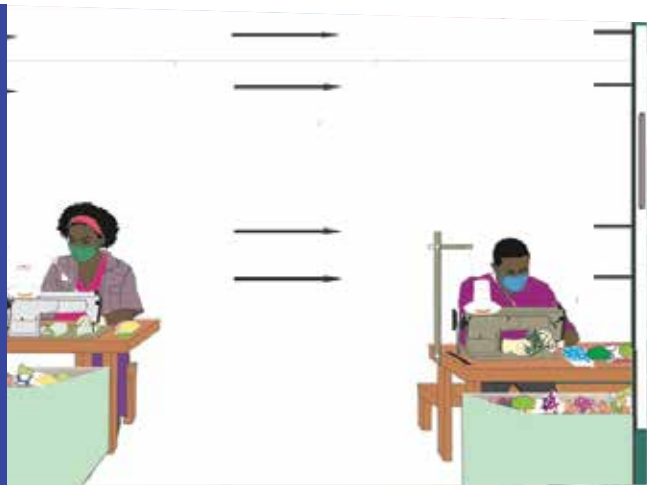
1.1. Utilize the tendency of hot air to rise.

Usually it is not possible to provide sufficient ventilation in a large production area by opening windows or using fans.



- **This problems can be resolve by using the natural upward flow of heated air or "chimney"effect.**

Provide sufficient openings in the roof such as adjustable louvers or roof venting system for proper attic ventilation.



A proper attic ventilation system facilitates continual flow of outside air though the attic in order to protect the insulation from humidity and help lower temperatures in the working space.

A ridge venting system is highly recommended.



Install the turbine vent for proper attic ventilation A turbine vent draws air from inside the attic as wind turns the turbines.

As the ventilation helps moderate the temperatures in the attic, this may also help moderate the temperature in the rest of the premises.



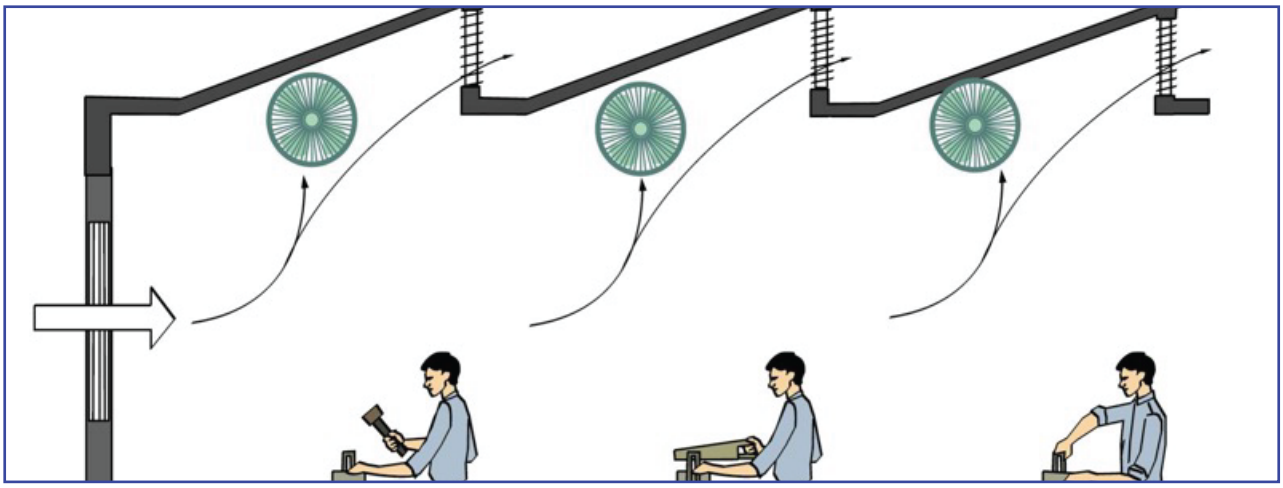
1.2. Improve ventilation systems to increase air flow.

Good air flow in a workplace is very important for productive and healthy work.

Adequate ventilation can help control hazardous substances and prevent accumulation of heat.



Hot air rises, so the use of ceiling fans and windows in higher positions can improve ventilation efficiently.



A combined ventilation system (a) Exhaust fan (b) Louvered skylights.



To achieve efficient ventilation, use push- and pull-type ventilation properly.









Use “misting fans” that produce a spray of fine water droplets to make the work environment cooler



When working near the heat sources, the position of the worker should be such that air blows from the worker to the heat sources (and not in the opposite direction).



1.3. Protect the workplace from outside heat.

If the heat from outside is too strong, as during a hot summer, one of the first things to do is to reduce the amount of sunlight coming into the workplace.





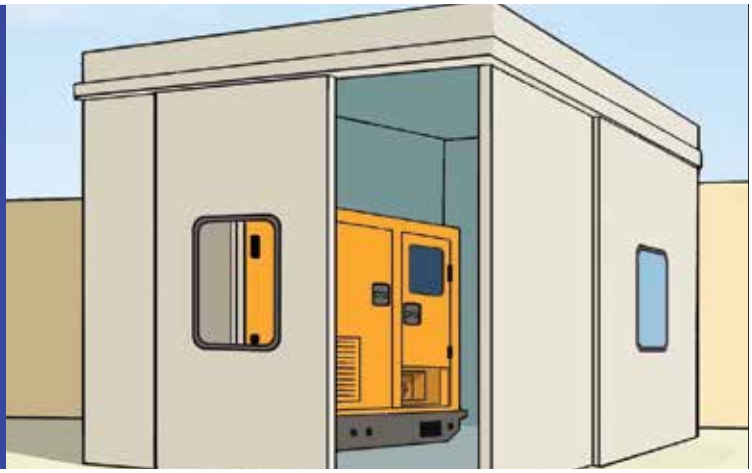




2. Move the sources of pollution from the general work area.

The best method is to eliminate the source of pollution. If you cannot eliminate the source, move it outside. If the source must be inside the workshop, isolate it from the general work-area.

In case of noise, the best way to reduce noise is to enclose entire machines or particularly noisy parts of machines.

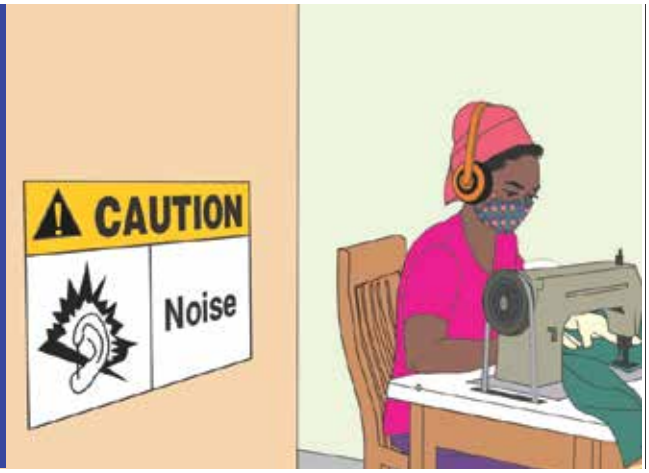


Move the source of noise from general work area.

Relocate particularly noisy machines so that they are at a distance from the place where most of the workers are working.



Provide ear protectors such as ear plugs and earmuffs, and train workers in the proper use of the ear protectors when engineering control of noise at the workplace is not sufficient.



Eliminate the source of pollution from the general work area



Moving the source of pollution outside the workroom helps to improve working conditions.



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3. Use partitions to screen heat and noise.

Provide screens or partitions to isolate noisy machines from other workers in the same workplace.

For a noisy machine, providing a booth that can cover the whole operating site, or ceiling-high partitions, can be quite effective. If this is not possible, enclose particularly noisy parts of machines.

List such sources of noise and discuss with workers whether these noisy parts can be covered without disturbing their operations.







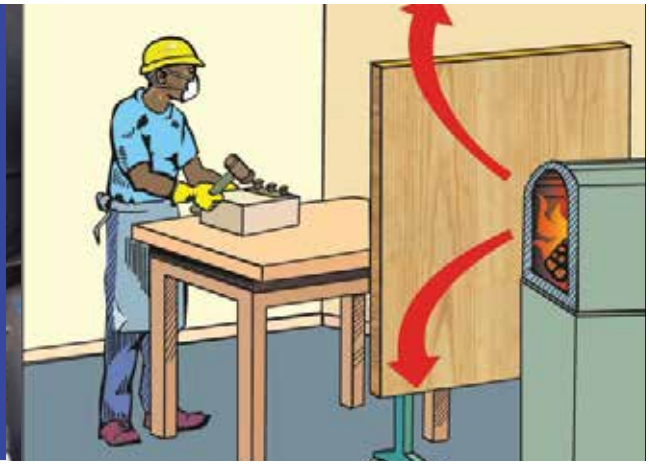
Enclose entire machines that produce excessive levels of noise





Reflective/absorbent shields to redirect radiant heat

In case of heat sources, use shields (heat barriers) between a hot oven or other radiant heat source and the worker.





Use Refractory Fire Clay Brick in lining furnace kilns to withstand high temperature and also to retain the heat for greater energy efficiency.

A good shield is made of reflective or absorbent material (Heat Resistant Furnace Fireclay Brick Refractory)







Use absorbent materials (Aluminum foil cotton heat insulation mat) to control heat and eliminate the steam leaks.

4. Use local exhaust ventilation systems against heat, dust and fumes.

The harmful effects of heat, dust, fumes generated inside the work environment are the source of ill health.

Removing heat, dust, fumes at source, before they reach workers, is usually the most cost-effective way to prevent their inhalation. Use effective local exhaust systems if enclosing systems cannot be applied



Use local exhaust steam extraction systems such as high-powered vacuums fitted to the tool to help extract the steam at the point of ironing.



Industrial steam press iron machine with local exhaust systems





Noxious fumes can be drawn into a local exhaust system to prevent workers being exposed to chemical hazards.

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If the substances are very harmful or the area to be ventilated is narrow, use an enclosing-type exhaust system.











Fumes from welding are drawn into an exhaust system.

III. Control of hazardous chemicals.

1. Replace a dangerous chemical with a less dangerous one.



The most efficient way to reduce chemical hazards is to avoid using toxic substances.

Examples of substituting for toxic substances are:
- Using water-based paint or glues instead of those with an organic solvent base
- Using water detergent solutions instead of solvents

Try to reduce the risk by replacing the chemical with a less hazardous one for example use water-based paint instead of those with an organic solvent base.



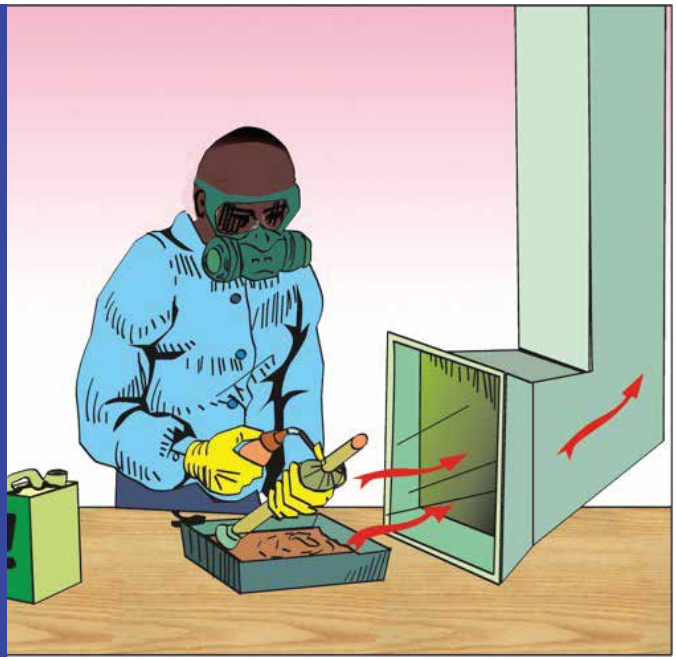


Try to reduce the risk by replacing the chemical with a less hazardous one for example use water-based paint instead of those with an organic solvent base.

2. Protect workers from chemical risks by installing local exhaust ventilation system.

- **To restrict the spread of air contaminants to the workplace and isolating the source of hazardous chemicals.**

  Locate the hoods as close as possible to the source of pollution to draw the contaminants into the exhaust system.







Noxious fumes can be drawn into a local exhaust system to prevent workers being exposed to chemical hazards

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3. Ensure that all chemicals' containers are properly labelled.

Every chemical substance in the workplace should be known and accompanied by an appropriate label using GHS (Globally Harmonized System of Classification and Labelling of Chemicals) for the safe handling.

Ensure that the labels and signs comply with safety regulations and standards (using GHS - Globally Harmonized System of Classification and Labelling of Chemicals), including wording and colour.





Label containers of all hazardous chemicals



The purpose of labelling is to warn workers of the potential hazards of the chemicals, necessary precautionary measures and what to do in case of an emergency.

Ensure containers for hazardous chemical product's are correctly labelled.

Drums, bags and any other containers holding chemicals should be frequently checked for proper labels.



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Relabel chemicals that have been dispensed into smaller containers to prevent accidents due to mixing incorrect substances or improper disposal.



Educate workers on the labels and signs if the containers and products are not readily understandable in the local language.

Safety Data Sheet (SDS)

SDS is a document that tells you what the chemical and physical properties of a material are. A SDS also provides advice on how to safely store, handle and dispose of hazardous chemicals. Included is information on what protective equipment to wear and what emergency procedures should be followed.

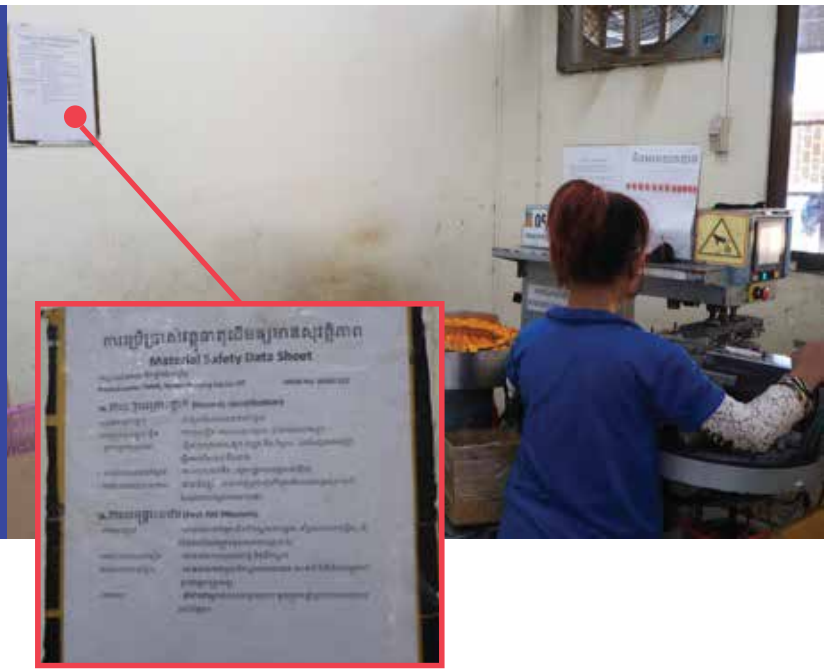
Every chemical substance in the workplace should be known and accompanied by an appropriate label and an up-to-date chemical safety data sheet.



To obtain this information, the employer should first request it from the supplier of the chemical. If the supplier does not have the information, employer should then seek advice from the government, laboratories, universities or other specialized institutions.

3. Ensure that all chemicals' containers are properly labelled.

Locate safety data sheets (SDS) in an easily accessible and clearly labeled in a written language understandable to workers.



The data sheet provides basic information about the safe use of chemical including proper PPE as well as emergency procedures.

Provide chemical safety data sheets (SDS) in local language and easily accessible to workers.



4. Store chemicals in cool, well-ventilate areas away from possible sources of ignition.

Proper Ventilation is Key

Flammable and combustible chemicals should be stored in an area with proper ventilation.

This will help to avoid health issues or even fires.



Store Chemicals In Labelled Containers

Look for properly labelled approved containers for storing hazardous chemicals.

Make sure they are stored in secure shelves and out of direct sunlight. Don't store chemicals that could interact, such as acids and bases, close to each other.



Segregating Chemicals

Chemicals that have the same hazard classification can usually be stored together safely.

Incompatible chemicals can cause fires, explosions or the formation of toxic or flammable gasses if they mix.

Separating them reduces risk by preventing the chance of mixing



Leaking containers

Place leaking containers in a secondary containment and ensure that empty containers are placed upright and tightened with caps.







Chemical spills

Decide whether the chemical spill has minor or major property or personal risk

In case of minor, immediately clean up the spills and the area is safe to continue work.



In case of major risk, evacuate all personnel from the area or pull the fire alarm to evacuate the area

Eye-wash points and emergency showers

Eyewashes and safety showers are emergency systems to protect an employee from injury in case of contact with hazardous chemicals, chemical compounds or fire.







Accidents involving hazardous chemicals can be especially severe. Emergency showers and eyewash stations provide on-the-spot decontamination. They allow workers to flush away hazardous chemicals that can cause injury.

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Module 5:

Preventive measures to COVID-19 and other infectious diseases.

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Over the past two decades, the world has witnessed a number of infectious disease outbreaks that have shown a high rate of spread. Currently, concern is growing over the continuing spread of COVID-19 in some parts of the world. Inform and instruct workers on how to limit infection can help reduce the risk of spreading COVID-19 and other infectious diseases. The purpose of this is to create understanding among workers of the importance of each individual protecting themselves from infection. This will contribute not only to protecting the health of the workers but will help maintain business continuity and promote recovery during the pandemic.

I. Form a joint team to plan and organize preventing measures to control infectious diseases.

1. Develop an infectious diseases preparedness and response plan.

Develop, implement and monitor preventive measures, early detection and awareness raising to COVID-19 and other infectious diseases.

Create a response team

Team members: managers, safety and health officers and workers' representatives .

Main tasks:
Implement and monitor the preventive measures, early detection and awareness raising.

It is important for all employers in collaboration with workers' representatives to plan for infectious diseases.





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Focal point

Appoint a company member as focal point.

Respond to workers' concerns on COVID-19 and other infectious diseases.

Verify that appropriate measures have been implemented and guidance from local health authorities is followed.



Medical facilities

Furnish with necessary first-aiders and medical equipment including, when applicable,

- Isolation rooms and
- Arrangements for a safe transfer to nearby hospitals or local health clinics at no cost.



Primary health-care services should be made available with qualified health personnel.

In case the enterprise is too small for such services (MSMEs), several enterprises may be able to establish or contract one together.

It is also necessary to keep contact with a nearby clinic or hospital.





Vaccination

Schedule the major infectious diseases vaccination to maximize employee participation as a business priority.

If your business cannot offer infectious diseases vaccine clinics onsite, encourage employees to seek vaccination in the community.



Making annual infectious diseases vaccinations part of your workplace wellness program offers many benefits to you and your workers.

Assist workers in having necessary vaccination for infectious diseases .

Use incentives for infectious diseases vaccination to increase participation, such as

- Offer vaccine at no or low cost,
- Allow workers to attend on-site vaccination clinic as part of their workday
- Provide refreshments at the clinic.



2. Prompt identification and isolation of potentially infectious individuals.

This is a critical step in protecting workers, customers, visitors, and others at a workplace

Inform and encourage workers to self-monitor for signs and symptoms of COVID-19 or other infectious diseases if they suspect possible exposure.





Move potentially infectious people to a location away from workers, customers, and other visitors.

Designate areas with closable doors serve as isolation rooms until potentially sick people can be removed from the workplace.

Take steps to limit spread of the respiratory secretions of a person who may have COVID-19 or other respiratory infectious diseases.

Arrange for a safe transfer potentially sick people at no cost to nearby hospitals or health facilities.



3. Develop, implement, and communicate about workplace flexibilities and protections.

Actively encourage sick workers to stay home.

Ensure that sick leave policies are flexible and consistent with public health guidance and that workers are aware of these policies.

Talk with employers about the importance of sick workers staying home and encourage them to develop non-punitive leave policies.



Workplace flexibilities.

Recognize that workers with ill family members may need to stay home to care for them.

Maintain flexible policies that permit workers to stay home to care for a sick family member.

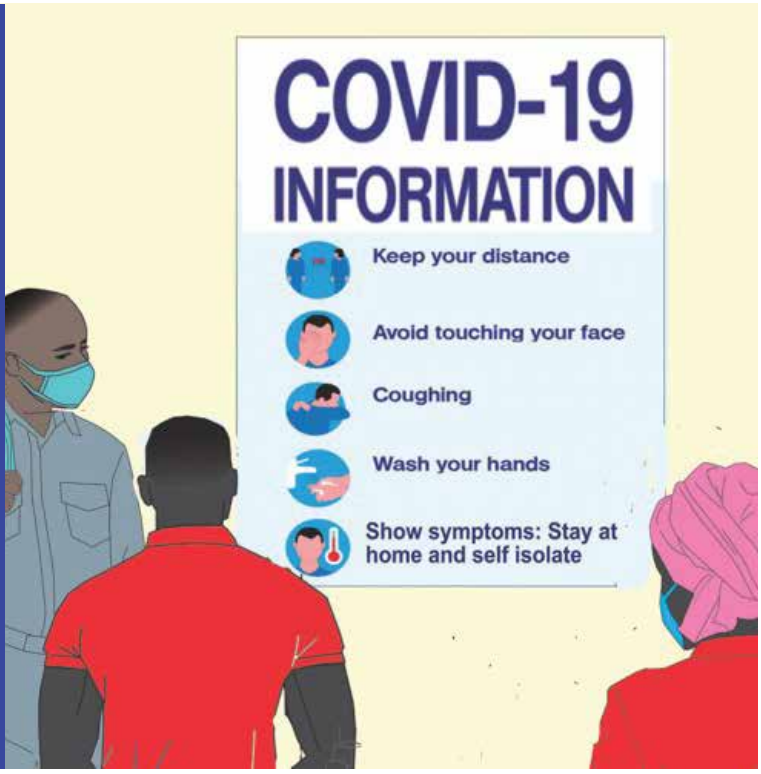
Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than usual.



4. Conduct training on Occupational Health and Hygiene and develop practical training materials.

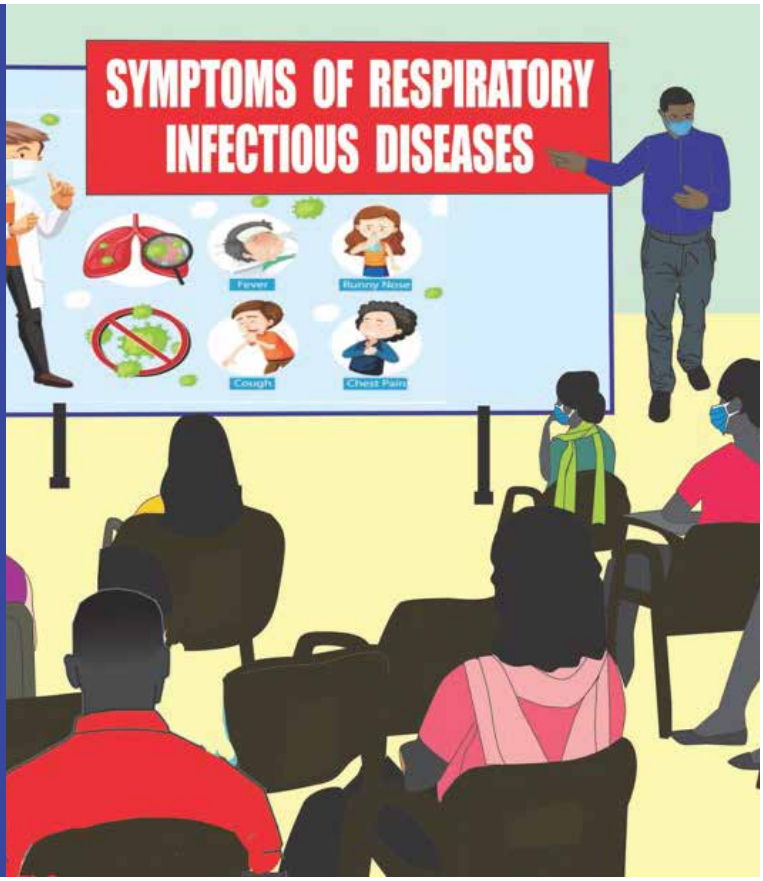
- **Provide training and display the prevention measures for infectious diseases using images and clear messaging at entrances and in the workers' rest areas.**

  Be aware of workers' concerns about health, hygiene and other issues that may arise during infectious disease outbreaks.



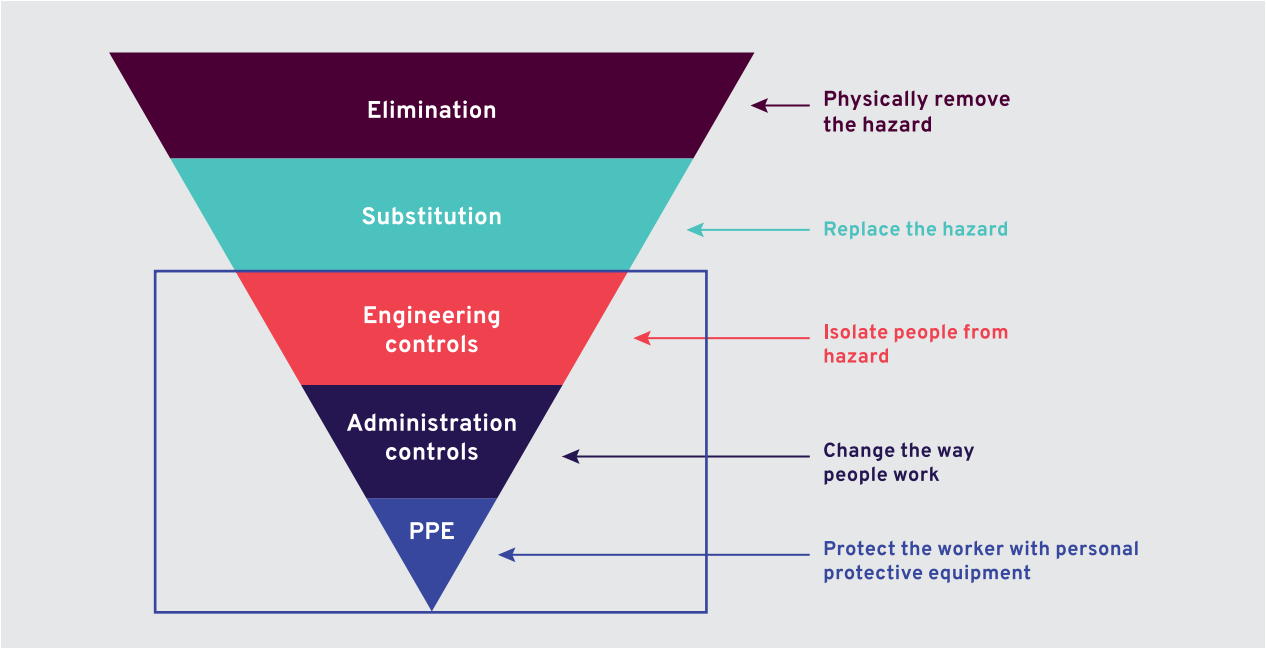
- **Work with local health agencies to provide information to workers and customers about about the symptoms of infectious diseases.**

  Work with local health agencies to provide information to workers and customers about about the symptoms of infectious diseases and necessary precautions such as personal hygiene, workplace hygiene and physical contact.



II. Adopt effective engineering, organizational, administrative measures.

1. Apply a framework of hierarchy of controls and safe work practices to select ways of controlling workplace hazards.



Hierarchy of controls

During a pandemic, when it may not be possible to eliminate the hazard, the most effective protection measures:
1. Engineering controls,
2. Administrative controls,
3. PPE.

In most cases, a combination of control measures will be necessary to protect workers from exposure to COVID-19 and other infectious diseases.



1. Engineering Controls

Engineering controls involve isolating workers from work- related hazards.

In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement.

1.1. Increasing ventilation rates

Open windows and doors, when weather conditions allow, to increase outdoor air flow. Even a slightly open window can introduce beneficial outdoor air.

Increase fresh air circulation by opening doors and windows where possible to reduce the airborne spread of the virus in the workplaces.





Indoors, the concentration of viral particles is often higher than outdoors, where even a light wind can rapidly reduce concentrations.

When indoors, ventilation mitigation strategies can help reduce viral particle concentration.

Protective ventilation practices and interventions can reduce the airborne concentrations and reduce the overall viral dose to workers.

Use window fans to increase the effectiveness of open windows



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Consider to keep exhaust fans running as much as possible to introduce fresher outside air into the occupied space like changing, washing and sanitary facilities.



Install exhaust ventilation to increase overall ventilation within the occupied building.

Ensure ventilation systems operate properly and provide acceptable indoor air quality for the current occupancy level for each space.





1.3. Maintain physical distancing while at work.

Carry out adaptations to the workplace layout by creating additional space between workers to help maintain physical distancing



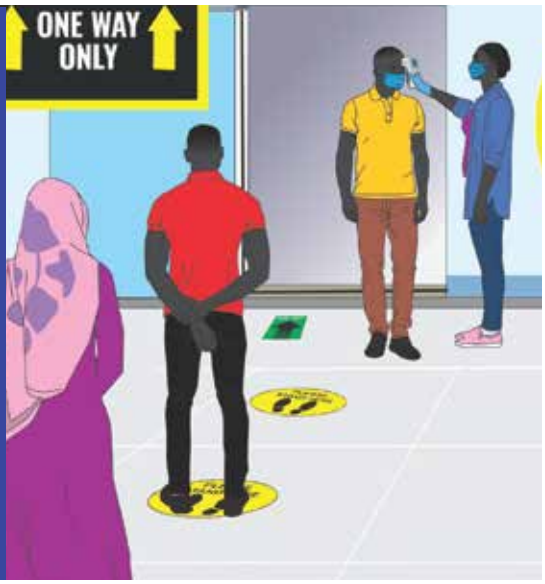




1.4. One-way use of paths, foot traffic patterns

Promote one-way use of paths so workers do not have to pass each other closely.

Designate separate entrance and exits and use visual cues like floor marking to indicate where workers should stand



Staggering break times for staff to reduce congestion in communal areas.

Use floor markings to provide minimum physical distancing guides between workers.



Use an entry and exit system that is as contactless as possible and quick to enter and exit.





Mark physical distancing spaces so they are clearly identifiable.





1.5. Hands-free or foot-pull devices

Replace door handles, taps, paper towel dispensers and garbage cans where possible with hands-free or foot-pull devices.









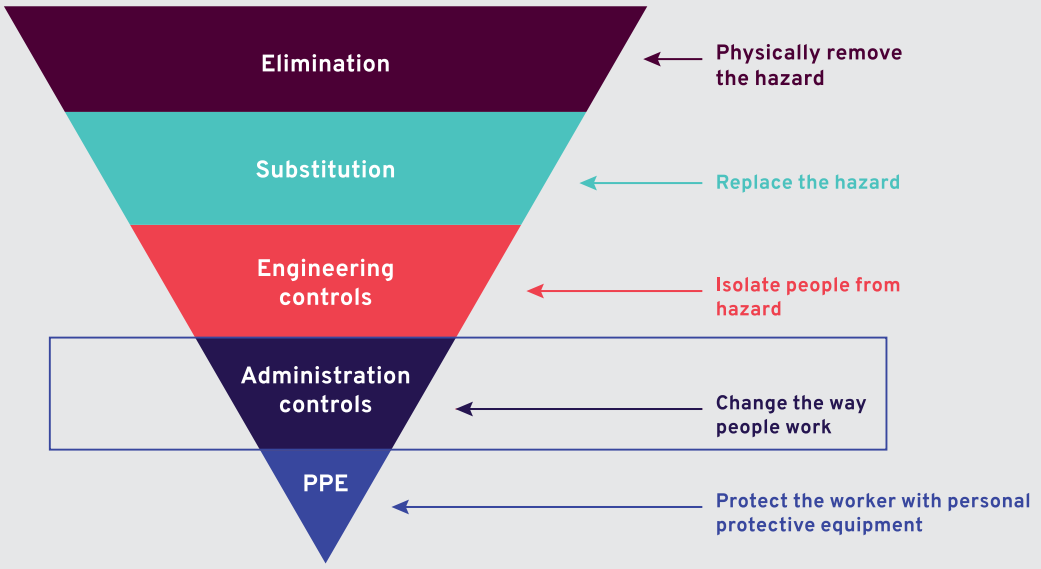


Install a food pedal for hand washing device.





2. Administrative Controls



Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard. Administrative controls require action by the worker or employer.

2.1. Staggered hours scheme

Under staggered hours schemes, workers or groups of workers start and finish work at slightly different times.

Adopt staggered arrival and departure times or alternating workdays to avoid large concentration of workers in the workplace at any given time.



Rotate crew accessing to a designated area during a shift .



Limit overlap of work crews to keep different groups of workers physically separated as much as practical



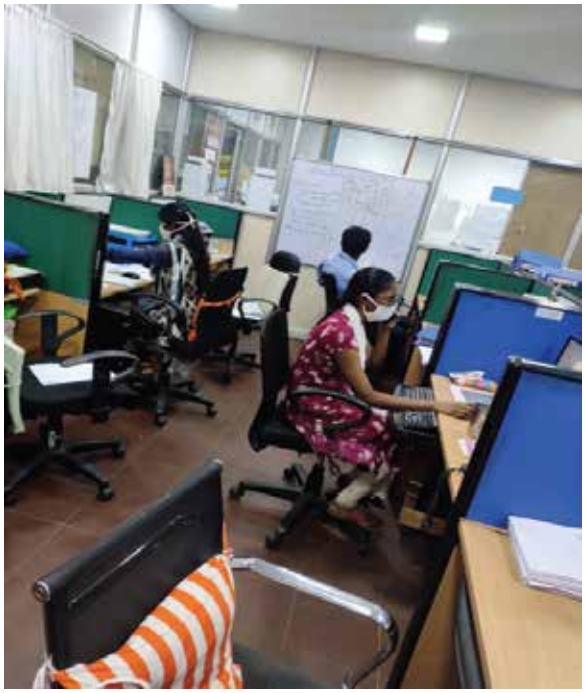
Assign workstations to single individuals. Where this is not practical, ensure they are shared by the smallest possible number of people.



Adopt a smallest number of people if workers have to work in close proximity







2.1. Staggered hours scheme

Conduct thermal screening practices to identify possible infectious persons at the entry points of the site and allow enough space for people to queuing in a safe manner.







2.3. Encouraging sick workers to stay at home

Encourage workers to do daily self-health checks and to to seek medical attention if they have a fever, cough or difficulty breathing



Encourage workers to stay home and follow the directions of the local health authorities.

2. Implement effective basic infection prevention measures.



Provide resources and a work environment that promotes personal hygiene.

Promote regular hand washing or using of alcohol-based hand rubs.

Post handwashing signs in restrooms.

2.1. Basic Infection Prevention measures

Promote frequent and thorough hand washing to all workers, customers, and visitors.

Promote frequent and thorough hand washing to all workers, customers, and visitors.





Access to hand sanitizer may also be helpful in certain areas as an additional hygiene measure prior to entering production areas.

2.1. Basic Infection Prevention measures

Encourage workers to wash their hands frequently and correctly.

Be sure that visibly dirty hands must be washed with soap and water and remove jewellery while washing.



If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.



Encourage respiratory etiquette, including covering coughs and sneezes with tissues, and easy access to tissues and trash cans.



Assign cleaning staff to sanitize frequently touched work surfaces between users and make sure there are adequate disposal arrangements.



Sanitize tools, equipment, gloves, boots, shoes, etc. at the end of the work day and encourage workers to use their own work tools and PPE.



Read the product label and Safety Data Sheet for the cleaning products before using.

Make sure workers follow safe practices regarding dwell times for effective disinfection.

2.2. Personal Protective Equipment (PPE)



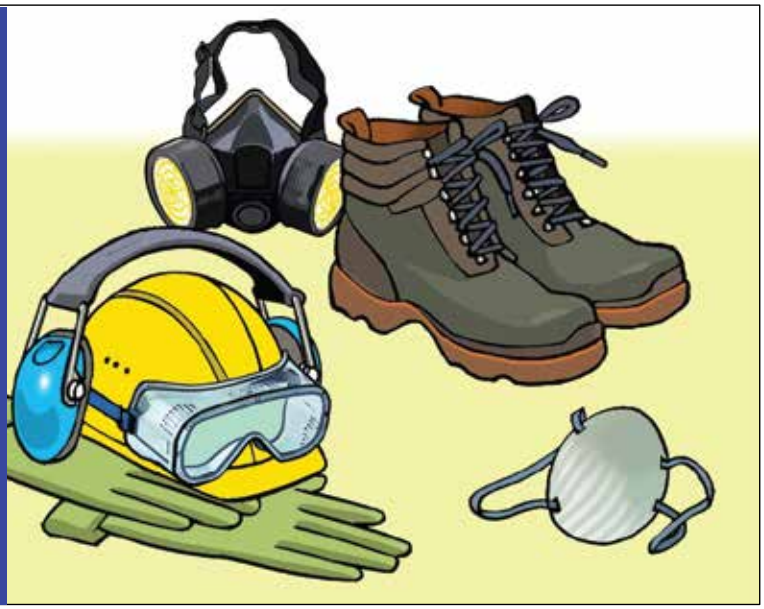
Use PPE can help prevent some exposures however it should not take the place of other prevention strategies.

All types of PPE must be:
Selected based upon the hazard to the worker.

Properly fitted and worn when required.

Regularly inspected, maintained, and replaced, as necessary.

Properly removed, cleaned, and stored or disposed of, as applicable.





Provide and encourage workers to wear masks at all times and in all areas of the workplace and to avoid touching their eyes, nose and mouth as much as possible.



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Module 6:

Welfare facilities and work organisation.

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The basic necessities for healthy work are safe drinking water at the workplace, nutritious food, hygienic toilets, short breaks and rest areas. These can all be improved by using inexpensive local resources. Pregnant women need special care. Workers with disabilities can work actively when suitable adjustments are made to their workstations.

I. Make sure essential facilities serve their purpose.

1. Provide drinking facilities, hygienic eating areas, rest facilities and regular working hours for recovery from fatigue.

Workers spend a substantial part of their everyday life at the workplace.

Just as they do at home, they also drink, eat and rest comfortably.

Drinking water, eating corners, and relaxation areas in good condition are very useful for reducing fatigue and maintaining a good level of productivity.



Provide hygienic drinking water near the work areas





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Working > 55 hours per week is a serious health hazard," (Source WHO)



Long working hours:

- Fatigue, lack of rest, workplace stress
- Family imbalance
- Errors, accidents and ill health

Establish regular working hours, avoid excessively long working days and insert adequate weekend break.

The ILO International standards provide some minimums and maximums that workers should:

- Work a maximum 48 hour week (no more than 10 hours a day);
- Have at least a day's rest (24 hours) per week;
- Get a minimum of 3 weeks of paid annual leave per year.

Short breaks

Rest time is needed by everyone. Breaks provide an opportunity to move away from the work station, go to the toilet or have a snack to boost your energy. Workers usually start the day alert and productive, but their activity level decreases as the day goes on. If the worker rests before he shows signs of being really tired, recovery is much faster.

Short breaks taken frequently are much better than infrequent but long breaks





Short breaks taken frequently are much better than infrequent but long breaks

Rest area

Provide a place for workers to rest away from their work station with access to nutritious food, drinking water and toilets.





Worker has the right to an uninterrupted break of at least 20 minutes if they work more than 6 hours in a day. A good rest area also helps to reduce fatigue. Workers are not just idle during rest breaks, but recovering from fatigue and getting ready for continued productive work.

2. Provide and maintain good washing and sanitary facilities to ensure good hygiene and tidiness.

In the absence of hygienic toilets, human excrement pollutes our environment, increasing the diseases caused by fecal contamination.













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3. Wash basins

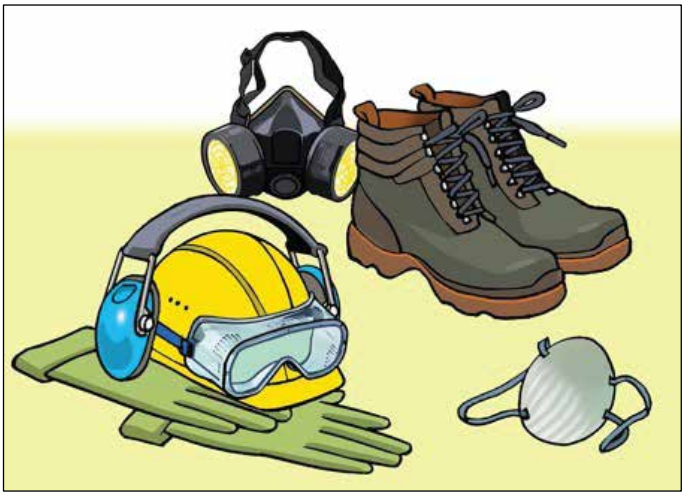


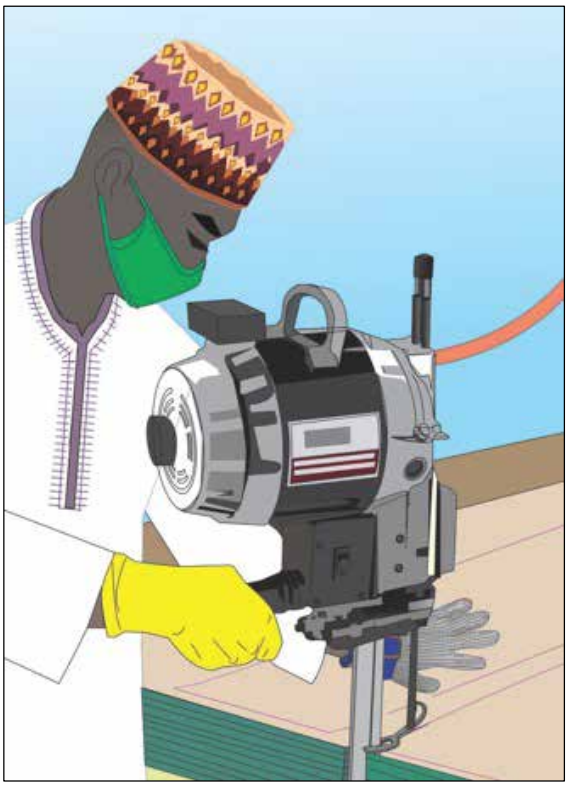






4. Provide personal protective equipment that gives adequate protection.





Each type of PPE is designed to protect against certain hazards only. Using the wrong kind of protective equipment gives the worker a false sense of security. This is very dangerous.





For hazards that cannot be eliminated, proper personal protective equipment must be selected and used.
is very dangerous.





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Avoid using the wrong kind of PPE that would cause a false sense of security.
Consult the manufacturer for any selection and use of PPE.





Provide proper storage for personal protective equipment

Workers feel responsible for the appropriate use
of protective equipment when storing it in a proper
place after its use.



II. Use important low-cost facilities to attract and retain the best workers.

Small enterprises have a great difficulty to retain the best workers due to the higher pay and better benefits from large enterprises.

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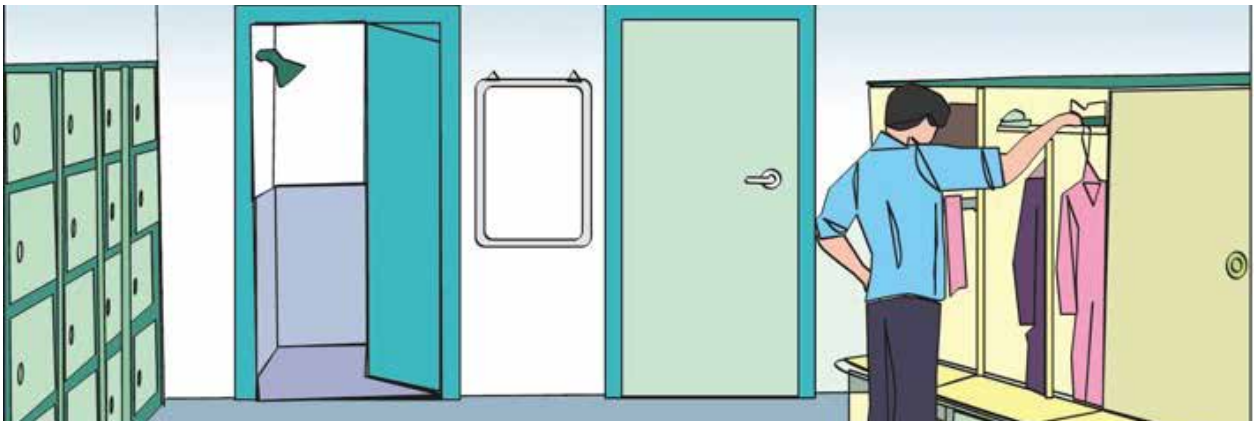
Lockers and changing rooms







Canteens

Provide healthy canteen food and sufficient time to eat.









Transport facilities







Recreational facilities







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Onsite Creches

Having a creche on-site means parents aren't missing out on time with their kids because of their commute. It also means they are on hand if a child becomes ill.







III. Be ready for emergencies and take special care of pregnant women and workers with disabilities.

1. Provide easy access to first-aid equipment.

Visible and easily accessible first-aid equipment increases the comfort of workers and their sense of safety.











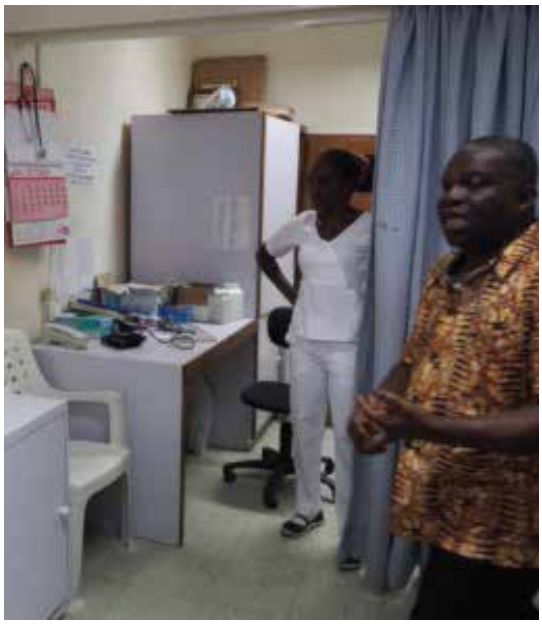


Train the first-aider













Establish health promotion program to prevent occupational diseases





Provide periodic health examination for all workers







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Monitor the work environment

Routinely monitor the sources of pollutants to optimize the quality of the work environment.







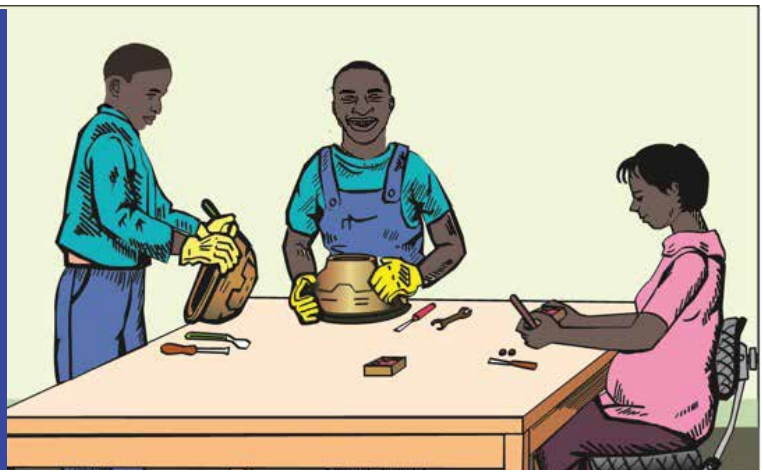
Worker health monitoring

Carry out regularly medical surveillance programs for the early detection of adverse health effects to ensure that measures to protect the worker from workplace hazards are effective.



2. Give due attention to working mothers and pregnant women.

As women actively participate in all occupations, it is important to make sure that the safety and health of pregnant women are given due attention.



Take special care for pregnant workers

Appropriate measures should be taken accordingly such as flexible work hours or provide sitting facilities for pregnant women or do not assign pregnant women to tasks requiring prolonged standing or sitting.





Accidents can happen to anyone. However, the consequences can be more serious for pregnant workers.

1. Remove tripping hazards;
2. Provide a good chair for sitting while working. Standing for long periods is not comfortable for pregnant women, it can cause swollen feet, make walking painful and increase the risk of slips, trips and injuries.
3. Avoid shifts that have non regular patterns, long hours, or missed rest periods, as they increase the risk of malnutrition, dehydration, and exhaustion.

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Breastfeeding arrangements at work.

The need to accommodate breastfeeding in the workplace is an important equal employment opportunity and anti-discrimination consideration for employers.

Sometimes working moms take longer periods of maternity leave to breastfeed because their workplaces do not accommodate breastfeeding.



Basic breastfeeding facility is simply a small, clean space near the workplace with a chair. A curtain or door for privacy and secure storage space for expressed milk.

Breastfeeding breaks.

In general, mothers have two 30-minute breaks per day in every eight-hour working day for a period of approximately 6 to 12 months.

Breastfeeding area: This does not need to be a fancy space. A weather protected, screened area, with a chair, access to drinking water, and hand washing facilities, is better than nothing at all.



3. Help all workers understand the challenges that persons with disabilities face and contribute to solutions.

Create a mutually supportive work environment where every worker can contribute to help workers with disabilities and reduce the stigma of being disabled.



Everyone should know about tools and accommodations that are available to persons with disabilities, so that the burden is not solely on the person with the disability.

Adapt tools and equipment to facilitate optimal job performance in consultation with the disabled workers and worker representatives.



Disabled workers can work safely and efficiently if adequate support is provided to meet their needs.



3. Help all workers understand the challenges that persons with disabilities face and contribute to solutions.

By providing adequate support, disabled workers can work safely and efficiently.





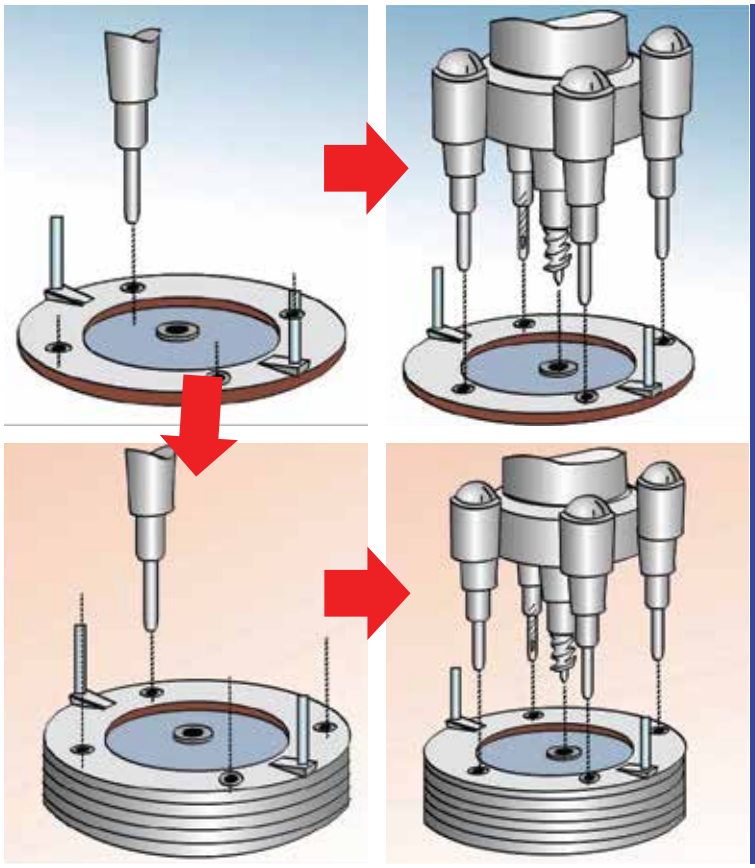




Work organisation.

Improving work organisation is one of the best ways to increase productivity, especially since it can often be done without additional capital investments.

1. Get rid of extra tasks and operations.



Each work operation is an extra cost, it takes space, machine and operator time and energy.

Examine every production task and eliminate it by introducing changes into the design of the product or performing a number of tasks in one operation.



Design appropriate “pocket flap” (or jig device) to gather the work pieces into one operation.

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Use a simple ” tube foot”











2. Set up small stock of unfinished products to make the work flow smoothly

Small supplies of unfinished work pieces in front of or behind each work station (so called buffer stock) eliminate time spent waiting for the next work piece.

They also help to eliminate time pressure as the next worker or machine will not have to wait either.











3. Take frequent short breaks and physical exercise.

Prolonged work increased mistakes.

Short rest pauses can recover attention and concentration.



Regular physical activities help workers maintain a healthy state of mind and body. Make small changes to working styles like walk around the workplace, stretch or take part in physical activities offered at the workplace







Encourage workers to take short breaks to stretch and walk around the workplace.

4. Encourage workers to exchange ideas for good team work and productivity.

Involve workers in making changes in product design or work processes and consult workers when improvements are needed for better and more efficient work.



It's worthwhile to develop regular walk-through with the action checklist to identify operational hazards, observe worker work methods and collect good practices.





A walk-through of the workplaces with the action checklist to identify good points and improvement points

This exercise helps participants take a fresh look at the different risk exposure points and find practical improvement actions



Celebrate Successes

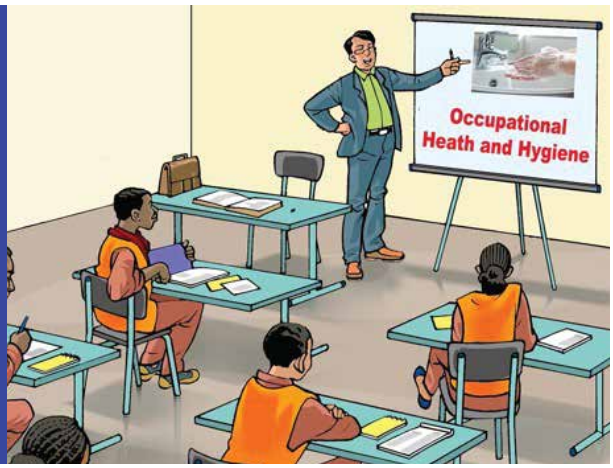
Ensure that all improvements should be celebrated so everyone can see the benefit.



Provide OSH training to all workers

It's a good idea to provide training regularly for workers of all experience levels and to have a training calendar to support those efforts.

In training, use good examples (pictures, videos, demonstrations) as models for others to learn from.







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