

Improved Work Station Design for Improved Productivity

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"The wealth of business is best founded on the health of its workers."

Introduction:

A work station is a place occupied by a worker when performing a job. The place may be one occupied all the time or may be one of several places where work is design. An example of a workstation is the area covered by a sewing machine, a chair, containers with incoming parts and finished pieces and the nearby space in which the workers need to move.

In case of sewing work station design the floor space is around four square metres. In case where larger products are manufactured such as curtains, tents or rugs, this floor space can be as high as 6 to 8 square metres. A well designed workstation is important for productive work. Most workers in factories producing garments repeat the same or similar operations for the entire production lot which, if performed efficiently and quickly, can result in greater productivity.

Features in garment industry that could be improved to prevent injuries include; communication, involvement of employees in decision making, education and training of employees and management on prevention strategies, and the ergonomic conditions at the plant. The physical characteristics of the job are an important risk factor for muscle pain and injury. The risks for sewing machine operators have been linked to conditions such as poor workstation design and chairs, and organizational factors such as the piecework system.

Factors such as repetition, force, posture and vibration are associated with higher rates of injury. So in order to reduce these injuries there should be a good design of the work place that helps the workers to work efficiently and effectively to manufacture good quality garments and increased productivity. A well organised workplace minimises material handling, improves efficiency and reduces worker fatigue.

Placing the tools, materials and controls within easy reach:

Search and select time can be saved by placing the materials, tools and controls within easy reach of the worker. Long reaches require additional time and effort from the worker. Therefore, "the more you use it, the closer it should be".

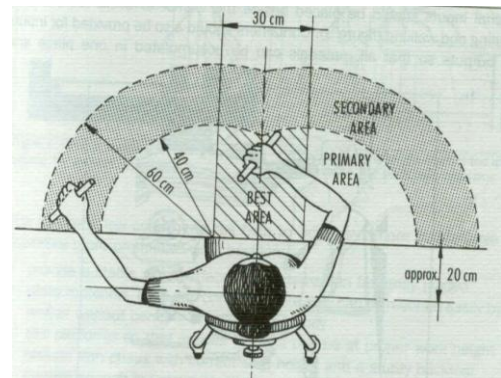


Fig .1 Normal and extended reach areas at table top height for a worker

The distance that can be reached easily without leaning forward or stretching is quite small. Any object that is frequently grasped or used should be located between 15 to 40 cm from the front of the work surface. Fixed locations assist the worker to develop good working habits, thereby reducing the search and select time required to grasp an object to achieve improved efficiency and productivity.

Improved work posture for more efficiency:

Awkward bodily positions can quickly lead to fatigue and possible injury. For example, tasks necessitating raised arms lead to fatigue and possible injury. For example, tasks necessitating raised arms tire the shoulder muscles rapidly. Operations performed while bending forward or twisting the body can easily cause back strain. As a consequence, the time it takes to complete a job increases and the worker becomes more likely to have accidents or damage goods.

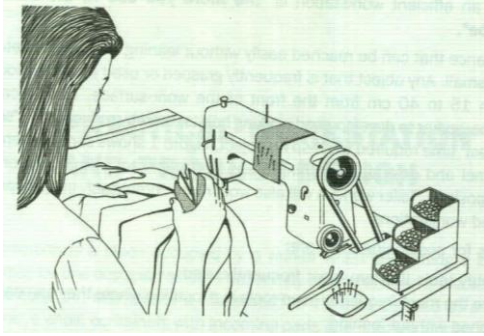


Fig.2 Nippers, measuring tapes and small boxes with buttons, pins on a pad or magnet to make the work more productive

There should be a provision for a stable work surface where items can be firmly fixed and place the materials tools and controls that can be easily reached without bending or twisting the body. Usage of plat forms so that smaller workers can be at proper work height and firm chairs with correct seat height and a sturdy backrest.

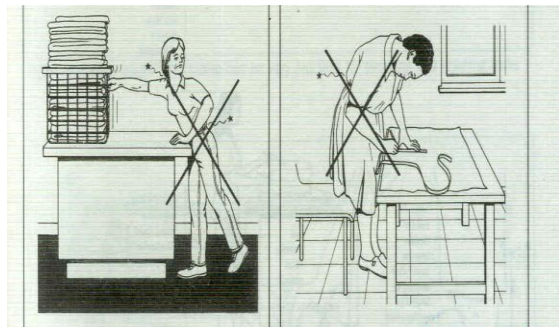


Fig.3 Difficult reaching for containers and working height which is too low can quickly cause low back pain problems.

There should be enough leg space for easy movement of legs and a footrest, particularly for seated workers. By providing all these improvements productivity and quality of the goods can be improved.

Keep repetitive motions to minimum:

Workstations or tasks can often be redesigned to reduce the number of repetitive motions that must be performed. Using a power-driven screwdriver or tools with a ratchet device can reduce the number of twisting motions with the arm. To prevent ergonomic injuries workers should be encouraged to rotate tasks or take frequent, short breaks to stretch and relax muscles. Work stations should allow enough space for the tasks have appropriate working height, and provide proper seating. Manufacturing tools and machinery should

incorporate ergonomic design principles and should not require an excessive amount of force to operate.

Some tasks can be automated or redesigned to eliminate repetitive movements and musculoskeletal injuries.

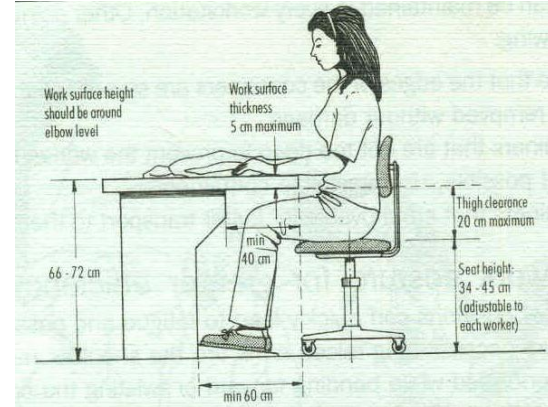


Fig.4 Recommended dimensions for most seated workers

The height of the places where work is done with the hands is also important factor. The elbow rule should be applied to determine the correct height. Most operations are best performed around elbow level.

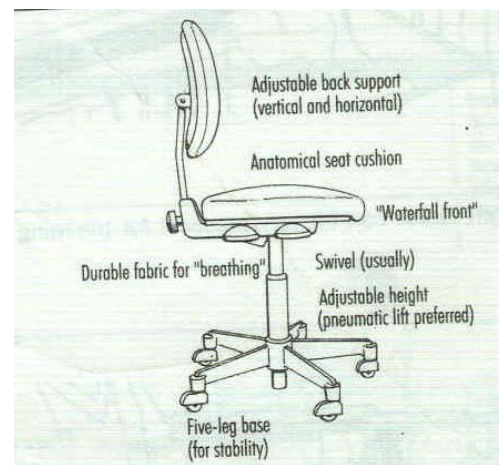


Fig.5 Adjustable chairs.

Suggestions:

These interventions made in the units would help to improve the work environment of the garment manufacturing units and in addition would also be of use to units seeking certification under international standards like OHSAS 18001 or national standards like IS 18001:2000. However, compromises are often necessary in actual practice; and

these guidelines which are normative, will be in relevance of reducing strain of the workers.

The garment industry should focus and develop good working conditions to reduce the injuries created to their workers since there is ample room for ergonomic improvements in the clothing industry. With proper training and instruction, machine guarding, personal protective equipment and ergonomically designed work systems, garment workers can manufacture products in safe and healthy workplaces. The garment industry needs to continuously identify the problems and, more importantly, implement solutions to reduce the risk of injuries in situations where they know problems exist.

Conclusion:

A well organised work station minimises material handling, improves efficiency and reduces workers fatigue. The existence of your enterprise relies on an efficient supply to the market. Survival and future growth is very much linked to your product, design, quality and service. By implementing this work station design productivity and efficiency of the worker can be improved in terms of quality and quantity. Consistently manufacturing high quality goods usually leads to repeat orders.

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