1. Maintenance of Hand Tools

(a) A system should be established by management to examine conditions of hand tools, whether they are well-constructed and free from defects. If the worn or damaged parts cannot be repaired, the whole tool should be discarded immediately.

(b) Hand tools should be inspected every time before use. Special care should be paid to the cleanliness of tools. Blunt cutting edges or deformed working part should be redressed.

2. Selection of Hand Tools

(a) Hand tools selected for the job should be suitable. The handle of a tool should fit the hand of an operator to avoid slipping out from the hand during use.

(b) Hand tools should not be used for purposes other than they are designed for. Their material strength is always designed according to the nature of work to be performed. Tools being misused may lead to fracture, causing danger to persons.

3. Housekeeping of Hand Tools

(a) Hand tools should be systematically kept or stored at tool-racks or toolboxes after use. Those having sharp corners or edges should be protected by sheaths before they are stored.

(b) Every hand tool should be kept in an orderly manner at a workroom or workshop designated for the purpose.

(c) Hand tools that are broken or require repair should be kept separately and labelled with a warning notice “DANGER! I DO NOT USE FOR WORK!”.

(d) Periodic examination, repair and maintenance of hand tools should be carried out only by persons who are experienced and competent.

(e) Precautions should be taken when using hand tools.

(f) Hand tools should be operated in correct posture and strength.

4. Safe Operating Procedures

(a) Hand tools should only be carried to work area in a proper tool-box or with a handle of a tool-box.

(b) Careful use of hand tools is to be taken to prevent persons or objects from being injured by hand tools.

(c) When flying fragments, particles or noise are generated during the operation of hand tools, suitable personal protective equipment such as helmets, aprons or gloves should be used when necessary.

(d) One should concentrate on the job when using a hand tool.

(e) The operator should use clamps to secure a workpiece that is liable to move into a stable position.

(f) The mode of operation should fit the nature of work to be performed. Tools being misused may lead to fracture, causing danger to persons.

(g) Proper steps and procedures should be followed when operating a hand tool, e.g. the face of the hammer head instead of the peen should be used for hammering nails; the handle of a spanner should not be hammered or extended by tubes for applying greater strength in screwing of bolts or nuts.

(h) When hand tools with sharp corners or edges are used, their direction of movement should be away from the body. Suitable personal protective equipment such as helmets, aprons or gloves should be used when necessary.

(i) When flying fragments, particles or noise are generated during the operation of hand tools, suitable personal protective equipment such as helmets, aprons or gloves should be used when necessary.

(j) Hand tools should be operated in correct posture and strength.

(k) Hand tools should be operated in correct posture and strength.

(l) Hand tools should be operated in correct posture and strength.

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(x) Hand tools should be operated in correct posture and strength.

(y) Hand tools should be operated in correct posture and strength.

(z) Hand tools should be operated in correct posture and strength.

{disclaimers}
Introduction

Manually operated tools (commonly known as hand tools) are used by workers in many trades at work. An analysis of the accident statistics for the past few years reveals that the number of accidents involving the use of hand tools contributed to as high as 10% of the total number of occupational accidents. The analysis also indicates that the majority of such accidents were attributable to overlooking safety precautions in using hand tools. There were instances where either persons in the vicinity were struck and injured by tools flying out. Repetitive use of hand tools for a prolonged period or using unsuitable tools for work could also cause musculo-skeletal disease, e.g., tenosynovitis.

This safety leaflet aims to convey safety information on the use of hand tools, including types of operation, potential hazards and safety precautions that should be adopted by employers and employees for the purpose of avoiding accidents.

Working safety with Hand Tools

Types of Operation

- **Hammering and breaking**
  - Impact force produced by vertical motion of a tool towards point of operation

- **Cutting**
  - Impact force created by reciprocating motion in vertical direction or traversing motion of a tool

- **Drilling**
  - Rotating action of a tool to create holes

- **Rotating**
  - Rotating action of a tool to produce torque on fixed or clamped workpiece

- **Pulling**
  - Forward and backward action of a tool after clamping the workpiece by the same tool

- **Supporting or lifting**
  - Support, or lift the load, from its base

- **Fixing position**
  - Clamping workpiece

Function

- **Hammering and breaking**
- **Cutting**
- **Drilling**
- **Rotating**
- **Pulling**
- **Supporting or lifting**
- **Fixing position**

Mode of Operation

- **Impact force created by reciprocating motion in vertical direction or traversing motion of a tool**
- **Rotating action of a tool to create holes**
- **Rotating action of a tool to produce torque on fixed or clamped workpiece**
- **Forward and backward action of a tool after clamping the workpiece by the same tool**
- **Support, or lift the load, from its base**
- **Clamping workpiece**

Example

- **Hammer, chisel**
- **Hand saw, axe, chisel, knife**
- **Hand drill**
- **Screwdriver, pliers, wrench**
- **Pliers, locking pliers**
- **Jack**
- **Clamp-on vise, pipe vise**

Potential Hazards

The following are factors contributing to hazards associated with using hand tools by workmen:

- **Hazard Factor**
  - Dangerous parts of hand tools
  - Defects in hand tools
  - Workmen sustaining musculo-skeletal injuries or strain injuries
  - Repetitive actions in use of hand tools for a prolonged period
  - Large impact force on workpieces by tools
  - Displacement of loads from tools

- **Example of Injuries**
  - Workmen cut by sharp corner or edge
  - Workmen by defective or broken parts of a tool, or person nearly hit by fragmented parts flying out from a tool
  - Workmen sustaining musculo-skeletal injuries or strain injuries
  - Broken fragments or particles flying out causing injuries to eyes or face; excessive noise causing hearing loss
  - Improper alignment of loads on a jack causing load displacement and injuries to workman