


THIRD ELEMENTARY EDUCATION PROJECT  
Department of Education, Culture and Sports



# MAINTENANCE MANUAL



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## **MAINTENANCE OF SCHOOL BUILDING**

As a general guide, the school administrator must secure or have a copy of the As Built Plans and manuals of each facility installed in the building. These documents are very important guides or references in the maintenance and repair of school buildings. Some manufacturer's manuals or brochures contain maintenance procedures for the specified material or unit installed.

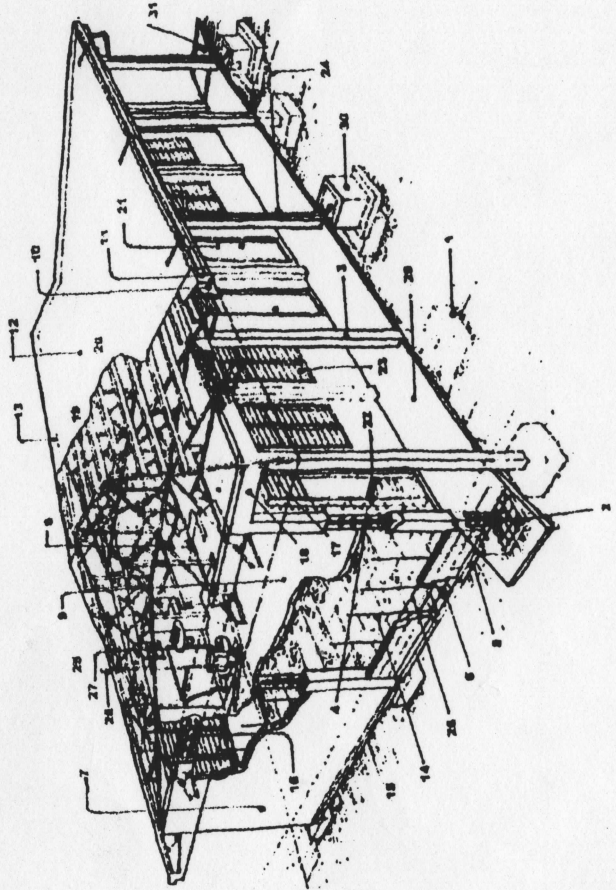
Lack of maintenance of school building results to an early deterioration of the building and eventually requires expensive and extensive repair and rehabilitation work. Hence, maintenance is imperative to prolong the beneficial life of the building so as to be effectively used by pupils/students.

The purpose of this maintenance guide is to help the school administrators/principals decide what work should be prioritized and must be done. It provides information and procedures for routine maintenance. More importantly, the government can save a lot of money when the school buildings and school facilities are properly maintained.

# TABLE OF CONTENTS

<b>Parts of a School Building</b>	1
<b>Maintenance Techniques</b>	2
<i>Part A.</i> <b>Maintenance Procedures</b>	2
Leaking Roof, Gutter	2
Minor Cracks on Concrete Walls	4
Warp or Sag Ceiling Board	4
Deep Cracks on Beams/Columns/Walls	6
Clogged Downspout/Catch Basin	6
Cleaning Water Tanks	7
Clogged Septic Tank	8
Clogged Water Closet	9
Clogged Lavatory Sink	10
Clogged Floor Drain	10
Leaking Faucets	11
Doors	12
Jalousie Windows	14
Steel Casement Window	14
Electrical	15
<i>Part B.</i> <b>Tools and Equipment</b>	17
Ladder	17
Hand Tools	20
Portable Driven Tools	22

# PARTS OF A SCHOOL BUILDING



## LEGEND:

- 1 CONCRETE FOOTING
- 2 FOOTING SET BASE
- 3 CONCRETE OR BRICK WALL
- 4 COLUMN OR WALL
- 5 WALL FOOTING
- 6 WALL FOOTING REBAR
- 7 CHIMNEY
- 8 PLAIN OR FILL
- 9 FASCIA BOARD
- 10 GUTTER
- 11 ROOM ROLL
- 12 ROOFING
- 13 TRUSS
- 14 CHS VERTICAL BALK
- 15 TEMPERATURE BARS
- 16 BEAM MAIN BALK
- 17 WOODEN LOUVER
- 18 CONCRETE BEAM
- 19 CHALKING
- 20 PURLING
- 21 PLUMB TYPE DOOR
- 22 DOOR JAMB
- 23 JALOUSIE WINDOW
- 24 BOWSPRINT
- 25 LAVATORY
- 26 CHS HORIZONTAL BALK
- 27 WATER CLOSET
- 28 VENTILATION STACK
- 29 CORRUGATED
- 30 CATCH BASIN
- 31 CONCRETE BASE



## **Maintenance Techniques**

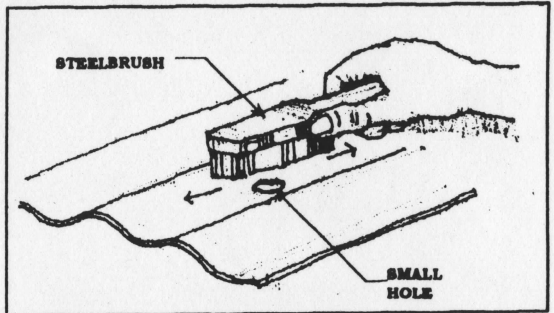
There are several techniques or procedures in the maintenance and repair of school buildings that will be referred to throughout this manual. Application of these techniques will enable the school administrator to effectively administer the maintenance and repair works in their respective school.

### **A. Maintenance Procedures**

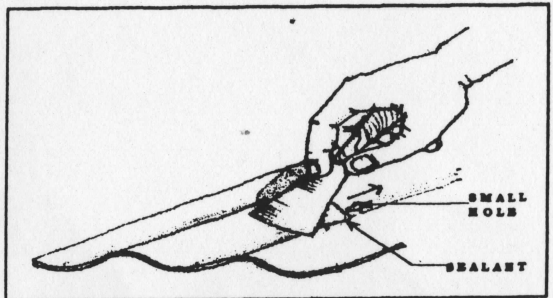
#### **1. Leaking Roof, Gutter**

- Apply sealant on small holes or leaking parts/area. (See illustration)
- Tighten loose bolts or nails.
- Always clean the affected area prior to application of sealant or paint.
- For very large holes, replace affected materials.
- Always follow the specification in the restoration of replaced materials.
- Inspect periodically the roofing materials for leaks, loose connections and material corrosion.

- Apply anti-rust paint at corroded area prior to final coating.
- Clean the gutter and downspout regularly.
- Inspect immediately the roof after any occurrence of force majeure.
- Repaint the roof every five-(5) years.
- Repair immediately defective roofing materials.

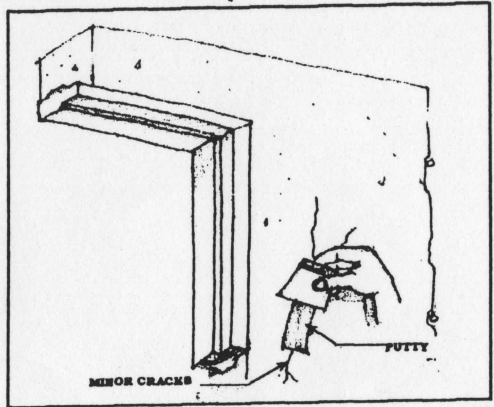


**Step 1:** Clean the affected area with the use of a steel brush.



**Step 2:** After cleaning, apply sealant using a palette. Ensure that the affected area is dry before applying seal

## 2. Minor Cracks on Concrete Walls

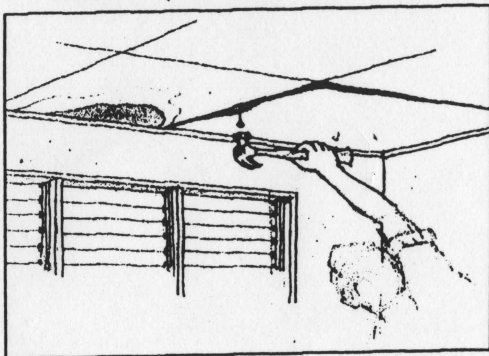


- Apply putty on cracks, and paint the affected portion.
- Always follow the painting procedure prescribed in the manufacturer's instruction/manual.
- Repaint the walls every five-(5) years.

## 3. Warp or Sag Ceiling Board

- Replace totally damaged ceiling board.
- Put additional nail for sag board (if not totally damaged).

- If there is any discoloring of ceiling paint, immediately check the roofing and adjacent wall for possible leaks. (See illustration)



- Check for deteriorated ceiling joists prior to replacement or re-installation of ceiling boards.
- Repair and replace leaking portion and subsequently repair the ceiling board.

**Note:**

Never repair or replace the board until cause of damage is detected and repaired.

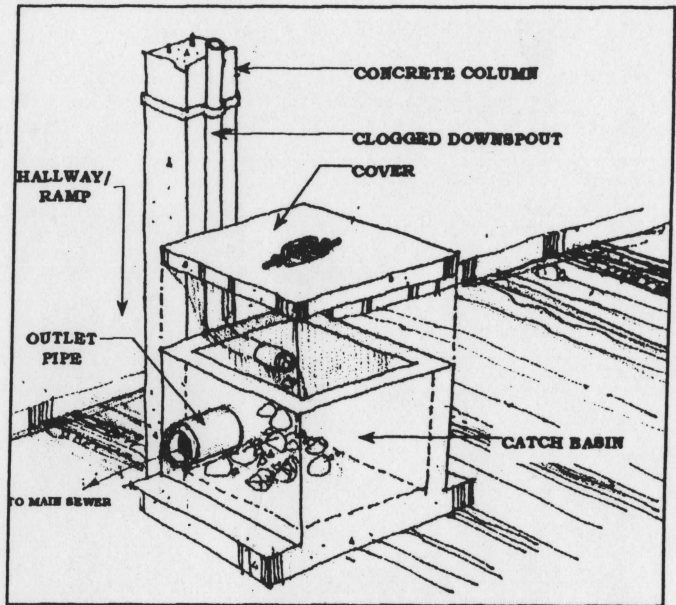
#### **4. Deep Cracks on Beams / Columns / Walls**

- Consult a professional Civil/Structural Engineer to get his/her opinion on the extent of the damage, before any repair is to be done.
- Demolish the damaged portion.
- Ensure to put sufficient shoring/support before demolishing the member subject for repair.
- Apply structural adhesive when advised by the engineer.

#### **5. Clogged Downspout/Catch Basin**

- Remove clogged materials or waste at the opening of the downspout.
- Clean catch basin regularly including the drainage pipe or canal to have a continuous flow of rainwater.

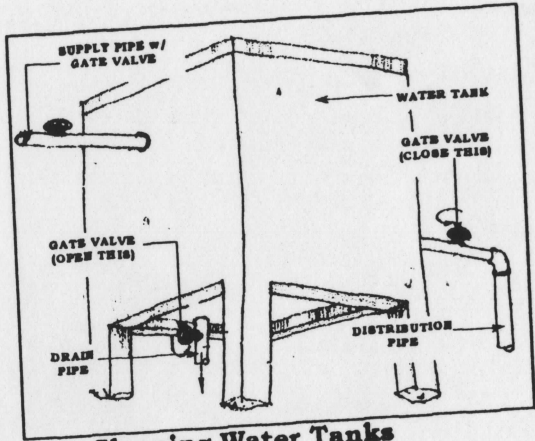




- Step 1:** Remove/Lift cover with appropriate tools.
- Step 2:** Remove clogged materials or waste.
- Step 3:** Clean catch basin regularly.

## 6. Cleaning Water Tanks

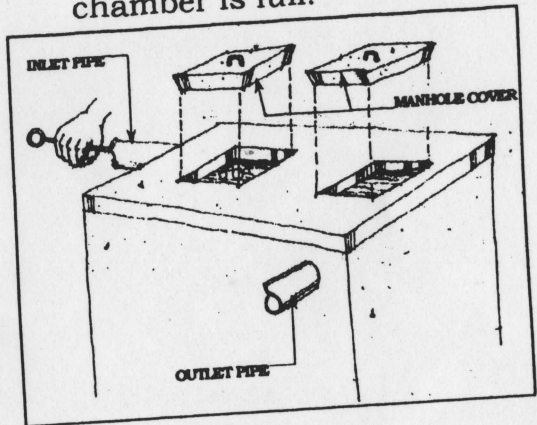
- Close the gate valve at the supply pipe.
- Open the gate valve at the drainpipe.
- Drain the water and clean the tank.



**Cleaning Water Tanks**

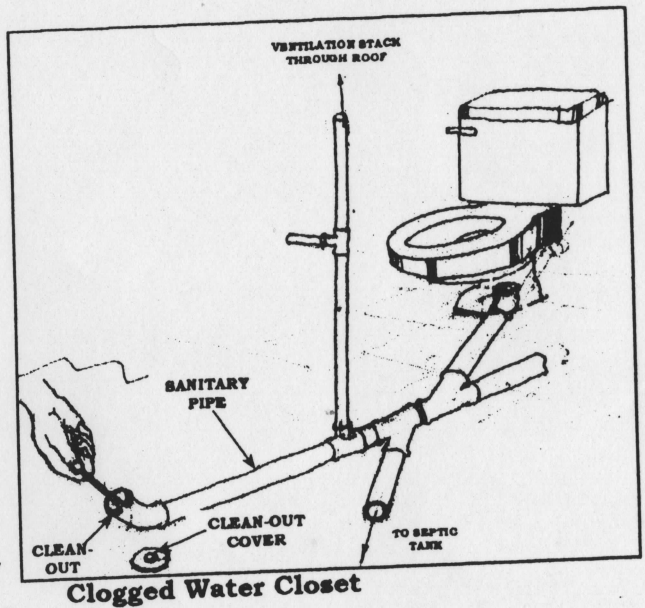
## 7. Clogged Septic Tank

- Open the cover of the manhole.
- Remove solid materials at the inlet and outlet pipe.
- Dislodge solid and human waste if the digestive chamber is full.



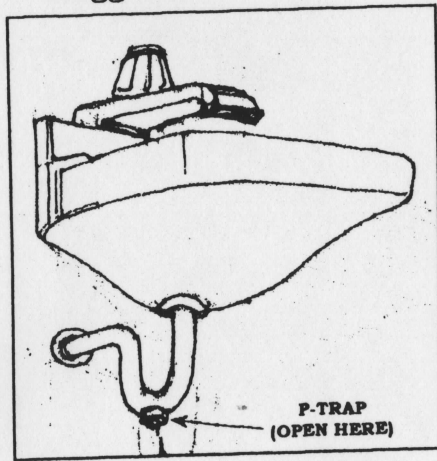
## 8. Clogged Water Closet

- Open the clean-out pipe of the building sewerage pipe system.
- Insert appropriate flexible steel bar into the clean-out to reach the end of the inlet pipe of the septic tank.
- Flush the water closet.
- If it is still clogged, check the condition of the ventilation pipe or check if the septic tank needs to be cleaned or dislodged.



## 9. Clogged Lavatory Sink

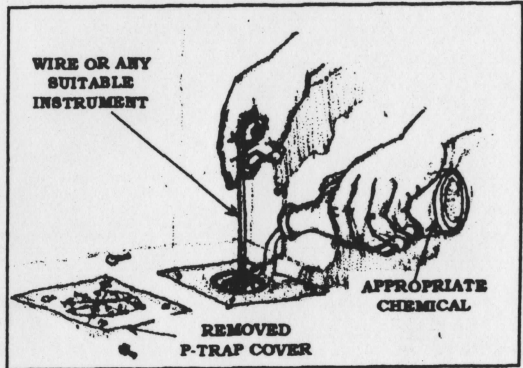
- Open the P-Trap located under the sink.
- Clean the P-Trap using plastic brush.
- Clean the cover or cup and check the rubber washer.
- Replace defective cup, cover and washer.
- Tighten the cup properly until no leakage is observed.
- Clean the P-Trap regularly.
- Use appropriate chemicals for cleaning and removing clogged materials.



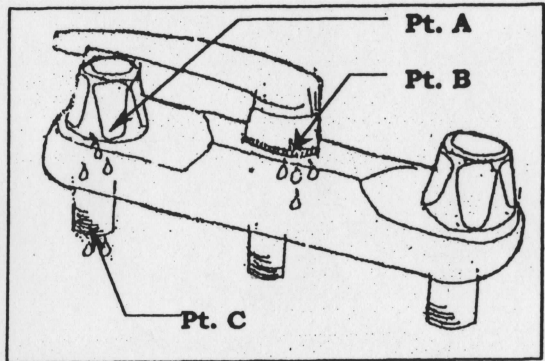
## 10. Clogged Floor Drain

- Remove the cover of the floor drain.

- Clean the pipeline using wire and other suitable instruments/tools.
- Apply cleaning solution or chemicals regularly.



## 11. Leaking Faucets

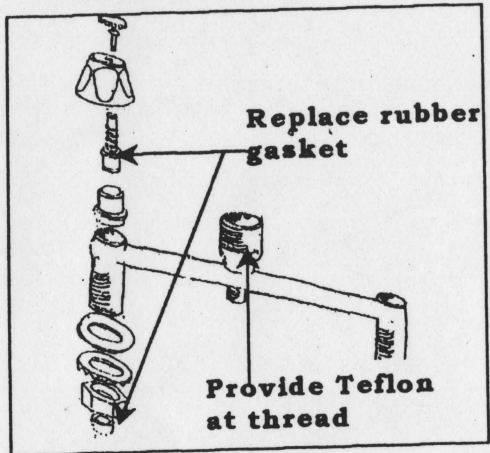


- Periodically check lavatory faucets for possible leaks.
- If leakage is at pt. A or pt. C, rubber gasket may be worn



out and needs to be replaced.

- If leakage is at pt. B, provide Teflon at thread.

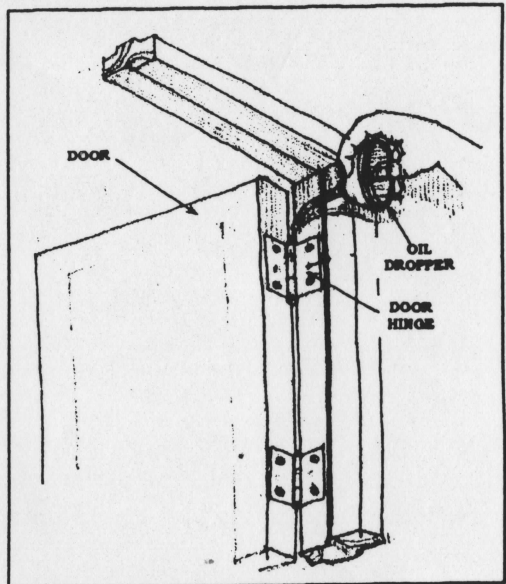


## 12. Doors

- Check the alignment of door butt hinge pins.
- Apply oil or lubricants to door hinges every six (6) months or every time you hear a hissing sound when you close and open the door. (see illustration)
- Check if the door stopper is still functioning.
- Check for plywood ply separation on flush doors

and provide additional nails along detached edges.

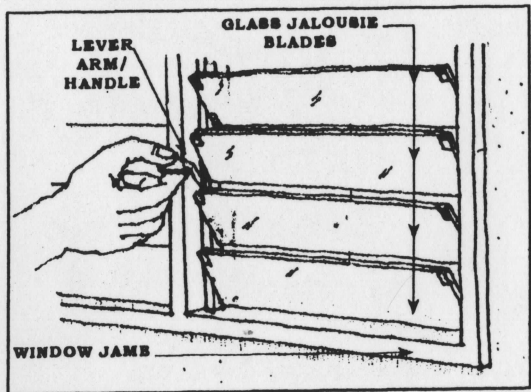
- In cases of malfunctioning or stolen doorknobs, replace the doorlock set or attach steel plates to the door and the doorjamb and provide a padlock.
- Instruct the pupils/students to carefully and slowly close the door.



**Maintenance of Doors**

## 12. Jalousie Windows

- Use the lever arm when opening and closing the window. Do not push the glass when opening and closing the window.
- When it is hard to close, put lubricants or oil at the window glass joints.
- Replace immediately broken glasses or warp/sag wooden jalousies.
- Familiarize the pupils/students on how to open and close the windows.

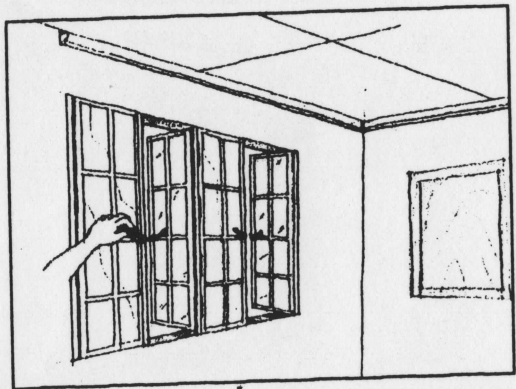


## 13. Steel Casement Window

- Use the handle when closing and opening the

windows. Do not push the glass when opening and closing the windows.

- Apply lubricants at hinges every six (6) months or when the window is hard to open.
- Replace immediately broken glasses.
- Familiarize the pupils/students on how to open and close the windows.



#### 14. Electrical

As a general rule, keep away electrical controls such as switches, fuses, outlets and circuit breakers from flammable gases or liquid, water, and from pupils.

### ***Lighting Fixtures***

- Periodically check for any malfunctioning lighting fixtures.
- Ensure that power is switched off before replacing any fluorescent or incandescent bulbs.

### ***Switches***

- Ensure that switches are properly enclosed with cover and insulators
- Defective or physically damaged switches should be replaced immediately by a competent electrician.
- Keep children/pupils away from the location of the main switch.

### ***Fuses***

- Always keep the safety boxes close.
- Defective fuses should be removed and replaced immediately by a competent electrician.



## ***Outlets***

- Electrical outlets should be enclosed by a cover.
- Avoid octopus connections.
- Defective outlets (i.e. convenience outlets without power, outlets with physical signs of burned plates due to sparks,...) should be removed and replaced immediately by a competent electrician.

## ***Circuit Breakers***

- Defective circuit breakers should be replaced by a competent electrician.
- Request inspection from an electrician if interrupted electrical current is observed.

## **B. Tools and Equipment**

### ***Ladder***

#### **1. Maintenance**

- Keep the ladder under cover when not in use.

- Check periodically wooden ladder for possible wood defects or termite infestation.
- Check periodically steel ladder for possible loose connection, corrosion and deflection.
- Replace defective parts.

## 2. Precautions

- No wooden ladder having any rung which depends for its support solely on nails, spikes, screws or other similar fixing should be used.
- Wooden ladders should be constructed with uprights or adequate strength free from visible defects and having the grain of the wood running lengthwise.
- Rungs made of wood should be free from defects and should be mortised or rabbeted into the uprights.
- Uprights and rungs of metal ladder should have a cross section adequate to prevent dangerous deflection.

- The intervals between rungs should not be less than 25 cm (10 in.) and not more than 35 cm (14 in.).
- Rungs of metal ladders should be perforated or corrugated to prevent slipping.
- Wooden ladders should be provided with sufficient steel cross ties to ensure rigidity.
- Portable ladders should not exceed 9m in length.
- Ladders should stand in firm and level footing to have a balance weight for each uprights.
- Ladders should be securely fixed so that it cannot move from its top and bottom points of rest.
- If the ladder cannot be secured at the top, it should be fastened at the base.
- If fastening at the base is impracticable, there should have a man stationed at base to prevent slipping.
- Persons using ladder should leave both hands free for climbing up and down.
- Avoid wearing slippery shoes or boots.

- Avoid carrying heavy and bulky loads.
- If heavy objects have to be carried on top, other suitable means should be used such as pulley and other equipment for the purpose.
- A ladder should not be placed in front of the door unless the door is locked or guarded.
- Metal ladders should not be used in the vicinity of electrical wire/equipment.

## ***Hand Tools***

### **1. Maintenance**

- Hand tools and implements should be tempered, dressed and repaired by a competent person.
- Cutting edges of cutting tools should be kept sharp and clean.
- Heads of hammers, wedges and other shock tools should be dressed or ground to a suitable radius on the edge as soon as they

begin to mushroom or crack.

- When not in use, tools should be cleaned and kept in sheaths, shields, chests or other suitable containers.
- Tools especially sharp tools should be out of reach by pupils or students.
- Store and secure the tools properly so as to prevent from falling and cannot cause danger to the person keeping and removing them.

## 2. Precaution

- Wooden handles should be hard, straight-grained wood, free from cracks and knots.
- Handles should have projections to prevent the hand from slipping on to the blade or sharp edges.
- Hand tools and implements should be used only for the specific purposes for which they were designed.
- Hand tools and implements should not be left lying in places where pupils/students pass or work.



- Open-jawed wrenches should be pulled, not pushed.
- Stakes or chisels being driven with a sledgehammer should be held by tongs and not by hand.

### ***Portable Driven Tools***

#### **1. Maintenance**

- Power tools should be inspected before using to ensure that it is safe to use.
- Check if the safety devices are in proper working order.
- Ensure that the power tool is clean.
- Check that all the moving parts work easily.
- Check if the barrel is unobstructed.
- At intervals recommended by the manufacturer, the tool should be completely dismantled and inspected for wear and tear on the safety devices by a competent person.
- Power tools should only be repaired by the manufacturer's service

center or a competent person.

- Tools found to be defective should be taken out of use.