

## CMPT305 PAINTING TOOLS AND EQUIPMENT MAINTENANCE

Maintenance can be defined as working on something to keep it in a functioning and safe state and preserving it from failure. The “something” could be tool equipment.

1 Always disconnect powered tools before servicing, adjusting, oiling, cleaning or repairing them, sharpening or changing accessories such as blades.

2 Follow the manufacturer’s instructions in user’s manual for maintenance and servicing (e.g. lubrication, cleaning) and changing parts and accessories

3. Use appropriate tools and equipment while carrying out maintenance

4. Don’t modify or alter tools. Never remove guards. Don't tie them back or modify them either. Don’t modify safety features built into switches

<b>Checklists</b>		
<b>General questions</b>	<b>Yes</b>	<b>No</b>
Is there a maintenance plan?		
Are portable tools periodically tested and labelled with the date of test?		
Are instructions and operating manuals available?		
Are damaged tools labelled “do not use”?		
Are maintenance records kept of all tools that are used on the site?		
Are all tools used at the workplace in good condition and clean?		
Are all tools properly lubricated?		
Are blades, bits, and other cutting parts sharp and well fixed, and not worn, cracked or loose?		
Are tools stored in a dry and safe place?		
Are blades removed when tools are being transported, stored or not in use?		
Are maintenance workers trained in safe working procedures?		
<b>Electric power operated tools</b>	<b>Yes</b>	<b>No</b>
Are tools disconnected from the power source?		
Are the cables or plugs damaged?		
Have the electrical tools been put to unsuitable conditions (wet or dusty)?		
Are flexible extension cables in safe condition?		

Are there signs of overheating?		
Do all tools have safety guards on their blades, bits, rollers, chains, gears, sprockets, and other dangerous moving parts?		
<b>Pneumatic power tools (AIR)</b>	<b>Yes</b>	<b>No</b>
Is the air supply stopped?		
Are hoses in a good condition and appropriate for the tool?		
Are the tools always pointed in a safe direction away from the operator's body and at no time pointed towards any person?		
<b>Hydraulic power tools(OIL)</b>	<b>Yes</b>	<b>No</b>
Are there any signs of external damage on hydraulic hose assemblies, such as cuts, abrasions, cracks, and other?		
Is the pressure released before working on the system?		

### LO.1.1. Identify tools and equipment

**What is a tool?** A piece of equipment which you use with your hands to make or repair something or a tool is something you need to use to do your job easily e.g. *Power tools or machine tools.*

Classification of tools and equipment

**Mechanical**

**Electrical**

**Manual**

**Manual:** is described as the work done or operated with the hands rather than by electricity or a motor.

**Mechanical:** is described as a machine that is operated with the help a motor.

**Electrical:** is described as a machine that is operated with the help of electricity.

#### Painting tools and equipment used in painting.

Compressor

Brush

Bucket

Handle roller

Extension pole

Plastering trowel

Putty knife

Wheelbarrow

Glue knife

Polythene sheet

Paint scraper

Masking tape

Spade

### Types of paint mixers:

Pneumatic machines	Fertilizer mixing machine
Electric machines	High speed low machine
Automatic paint machine	Manual paint mixer
Dispenser machine	Plastic mixing color machine
Compound mixer	Automatic ink machine
Paint mixer machine	Industrial gyroscopic
Homogeneous machine	Hand held machines

## 1.2. Operate painting tools and equipment

Painting tools and their use

Manufacturer's specifications and manuals

### What are manufacturing specifications?

The specification records the stages of the production process, with details of all the characteristics (shape, size, texture, color, etc. required in the final product.

### Reasons why specification is crucial / important to construction.

Let's look at the main reasons why the specification is so important to the construction process:

1. It provides clear instructions on the performance and construction of the project.
2. It can reference the quality and standards which should be applied.
3. Materials and manufacturers' products can be clearly defined.
4. The requirements for installation, testing and handover can be identified.
5. Classification in the specification can be used for the running machine.
6. The machine does not need to be overloaded with detailed information, which can sometimes be difficult to identify.
7. It can be used to support the costing of a project: not only the materials and products but also the performance and workmanship
8. The specification should be used by all the project team throughout the construction phase; it should be a living document and not stop being used at the design phase.

**Manuals** are written to provide guidance for new people to an organization or specific work activity. These manuals are designed to be self-contained, providing all the policies, procedures and instructions that a worker needs on the workplace.

## **Operate sanding machine, paint mixers and compressor**

**Sanding machine or sander** is a power tool used to smooth surfaces by abrasion with sandpaper. Sanding machine has means to attach the sandpaper and a mechanism to move it rapidly contained within a housing with means to hand-hold it or fix it to a workplace.

### **Why do you have to mix paint?**

Separation is common in paint as it sits; stirring blends all the components together so that when you put it on the surface, it all behaves properly. Too much binder will give you thin coverage, and too much pigment can cause the product to fail.

Using an air compressor to paint can save money and time while bypassing pollution caused by a metal container in which liquids are kept under pressure and forced out in a spray.

To paint with a compressed-air sprayer, follow these instructions.

### **Preliminary Steps**

- 1. Select your paint and thinner.**
2. Prepare the area where you will paint.
3. Put on a mask or respirator, safety glasses, and gloves.
4. Prepare the surface to be painted.
5. Prime the surface if necessary.

### **Prepare the Compressor**

1. Turn on the air compressor.
2. Adjust the regulator on the compressor (used to control the speed).
3. Attach the air hose coupling to the sprayer.
4. Pour a small amount of paint thinner into the paint cup
5. Open the metering valve slightly
6. Prime the sprayer.
7. Empty the spray cup of any remaining thinner.

### **Things you will need**

1. Mask (or respirator)
2. Safety glasses
3. Gloves
4. Masking tape
5. Newspaper or drop-cloth
6. Air compressor with regulator.
7. Air hose and couplings

8. Spray gun
9. Paint and thinner
10. Sandpaper

### **2.1. Perform cleaning of painting tools and equipment**

The painting job is not over just after painting. Cleaning up after painting is another big step in the whole painting process. Cleaning of painting tools is an equally important step because a clean and tidy brush lasts for many more painting jobs. Whether it is an oil based paint or water based paint, there are proper techniques to clean painting tools.

The cleaning process starts immediately after the use. Cleaning techniques depend upon the type of tools and type of paint that is used for the painting job. Getting the paint brush as free of paint as possible fast forward the entire cleaning process. Washing a paint brush immediately after the paint job with solvent or water. Cleaning of paint brushes which are used for both oil-based and water-based paints is difficult therefore using different painting toolsets for different types of paint saves the efforts.

Different methods of cleaning any tool and equipment

#### **By water**

Dipping the paint roller immediately after painting gets over, is the easiest way to clean it. Washing of rollers in soapy water clear the paint roller.

The best part of cleaning the water-based paint is that it does not require any additional thinner. Scraping off the excess paint is the most obvious and essential step in cleaning. Washing the brush in another pail of clean water cleans the brush completely. Drying the brush makes it compatible for the next paint job.

#### **By drying**

Dry and store your roller covers with care. String roller covers on rope or dowels to aid in drying the sleeves. Don't stand the paint roller on its end or lay it on its nap.

#### **Greasing**

Greasing is done to make free movement of machine parts when it is working oil is also put on machines or tools to prevent rusting on them.

### **2.2. Perform checking of painting tools and equipment**

#### **Normal state of painting tools, machine and compressor**

It is strongly recommended that the machines and compressors be equipped with adequate safety warning system to give early detection if the machine malfunctions and to prevent the misuse of the machine.

#### **Different defects of painting tools, machine and compressor**

Any piece of equipment can be dangerous if not operated properly. You are responsible for the safe operation of this equipment. The operator must carefully read and follow any warnings, safety signs and instructions provided with or located on the equipment. Do not remove any of the safety devices or warnings on this equipment.

If any safety devices or warnings have been removed **DO NOT USE THIS EQUIPMENT!!!WARNING!**

This product contains or produces one or more chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. The air produced by this compressor is Not breathable. Do not breathe compressed air. Always wear eye protection when operating this equipment! Provide adequate ventilation when operating this equipment. Internal combustion engines consume oxygen and give off deadly carbon monoxide gas. Use extreme caution whenever operating, moving, loading or unloading this equipment. During and after operation the Muffler and other components are Extremely Hot and will cause Serious Burns..

**SAFETY PRECAUTIONS:**

1. Do not under any circumstances point air at or in the direction of someone. Discharging air at this pressure is capable of putting out eyes, bursting eardrums, causing serious skin burns, and other injuries.
  2. For safety's sake, never attempt to refill with fuel while engine is running. If engine is hot, allow it to cool off first.
  3. Never attempt to do any maintenance on the compressor with the engine running. This is particularly true if you intend to work on an area near the pulley or belts.
  4. Be sure hose is secure to prevent injury from hose whipping back and forth.
  5. Avoid contact with hot engine or muffler as these can cause severe burns.
  6. Do not run in an enclosed building as the exhaust gasses can kill you.
  7. Be careful when starting engine as it may back fire and injure you, if it is a hand starting engine and you have the rope wrapped around your hand. **USE HINTS: BEFORE STARTING**
1. Check oil level in engine and compressor at least every 4 hours.

**2.3. Apply storage procedures**

Storage procedures

Selection of storage area for tools and equipment

☐☐Prioritize tools and equipment

☐☐Separate tools and equipment

☐☐Discard unused tools and equipment

**Storing**

That hard work spent getting the last specks of paint out of investment tools will be wasted unless you take care to store them properly for the next use. Our experts agree that it's essential to store paintbrushes in their original protective covers. If you lose a cover, you can make your own using duct tape and cardboard with the cover of a similar-size brush as a guide.

## Store Your Tools Properly

You have to work with the space you have. Maybe you hang them on pegboards, maybe you store them in boxes, bags, or maybe you keep them in drawers or on shelves in your shop. Whatever works for you is best.

