

# Photocopiers, Printers and Faxes

---

Last Update: 5 May 2009

## Introduction

1. A wide variety of copying machines, including photocopiers, laser printers and faxes are used in offices.
2. The electrostatic process is used in all photocopiers. Light is reflected from the original documents so that an image is projected on to an electrically charged drum or belt. The surface of the drum is photoconductive, that is, it loses the electrostatic charge when exposed to light. In this way, reflected light leaves a pattern of charges on the photoconductive surface, which corresponds, to the dark print of the original. This remaining charge attracts a special toner chemical.
3. Laser printers and copiers take digitised (electronic) signals, translate them via a laser beam to a light-sensitive surface, and a copy is then made from the image produced, in the same way as a photocopier.

## Responsibilities

4. Each faculty, division and other area is responsible for the maintenance and safe operation of office copying machines.
5. Information Technology Services are responsible for providing with each machine the appropriate Product Safety Data Sheet and Material Safety Data Sheets.

## Purchasing a Photocopier or Printer:

6. Suppliers should provide a Product Safety Data Sheets (PSDS) relating to their machines and, by law, they have to provide, on request, Material Safety Data Sheets (MSDS) relating to the products used with the machine e.g. toner.
7. The PSDS will give details of siting requirements for the particular machine e.g. minimum volume of the room required for natural ventilation situations, noise emission levels, ozone emission levels, etc.
8. The MSDS will give information on the health risks of the product, if any, e.g. route of entry to the body, symptoms, first aid measures, waste disposal, etc.
9. It is advisable to ask for the PSDS before placing the final order for a machine in order to highlight any siting problems. Whilst the health hazards from the associated products, if they are used correctly, are insignificant. It may be prudent to ask for a copy of the MSDS to allay user concerns.

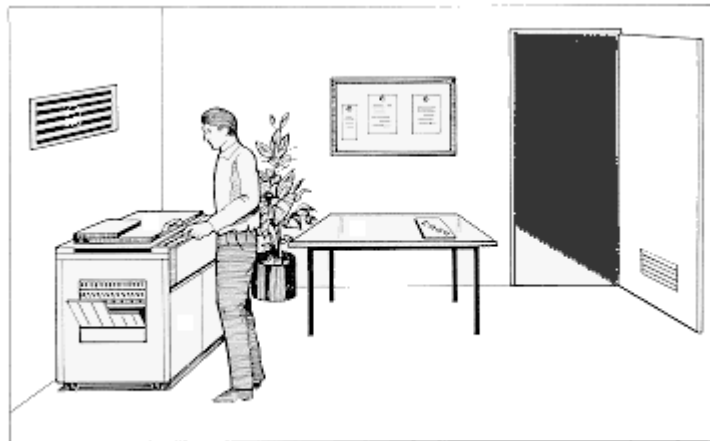
## Guidelines for the safe use of office copying machines

10. **Design of Equipment and Workplace:** The copying machine design, the workplace design and the work schedule should be such that they allow operators and maintenance personnel to work without risk of musculoskeletal discomfort. That is, the positioning and height of various components should be such that sustained and repetitive postures are avoided.
11. Photocopying and collating should form only a part of a person's duties, and should not be carried out continuously for long periods. Automatic collators and electric stapling machines are recommended if a significant amount of collating is necessary. There should be adequate space around copiers, to allow for good airflow and to facilitate maintenance.
12. The working surface of the copier should be at a comfortable height for the operator. Where necessary, a collating table at a comfortable working height should be provided.
13. There should be adequate space around copiers to allow for good airflow and to facilitate maintenance.
14. **Adequate Ventilation:** Equipment should be installed in an adequately ventilated area to facilitate safe removal of any dusts, gases or vapours.
15. All copying equipment should be located in well-ventilated areas. Where several photocopiers are adjacent to each other, they should be located in a large open space. If located in an enclosed space then the room should be fitted with adequate dilution ventilation, usually in the form of an extraction fan (refer to Australian Standard AS 1668). A dilution ventilation rate of 6 room air changes per hour is recommended.

## Photocopiers, Printers and Faxes

---

16. Where a single photocopier is operated continuously for more than 2 hours each day, or operated for an average of 4 hours in a day, then it should be in a room away from work areas with adequate dilution ventilation.
17. **Maintain the equipment:** Office copying machines should be cleaned and maintained regularly. A maintenance log should be kept for each machine and should be available to staff for inspection.
18. Most office copying equipment has a recommended maintenance schedule. Regular maintenance is the most effective method of improving the level of health and safety and life of the equipment.
19. **Solvents and Toners:** Material safety data sheets on any chemicals involved should be obtained from the supplier or service contractor, and readily available for perusal by all. Advice may be sought from the [OHS Unit](#).
20. Should any toner be spilt, it is best to vacuum up, rather than brush off, as much as possible to avoid raising a dust cloud. The remainder should be removed using a damp cloth rinsed in cold water. Hot water should be avoided as it may cause the toner to partially melt and become sticky. Toner may be disposed of as normal waste, though it should be placed in a sealed bag to contain the fine powder.
21. **Noise:** Noise produced by office copying machines should be minimised as far as practicable. The [OHS Unit](#) may carry out an evaluation.



*A healthy working environment*

### Health Hazards associated with Office Copying Machines

22. **Ozone:** Photocopiers produce small amounts of ozone. If present in sufficient concentration this odorous gas is irritating to the eyes, the lungs, throat and nasal passages. Under normal circumstances, the concentration of ozone around photocopiers is not sufficient to cause symptoms. Ozone is readily decomposed back to oxygen. However, a combination of heavy use, poor maintenance and inadequate ventilation can result in excessive ozone levels.
23. **Ultra-Violet (UV) Radiation** that may be generated in the photocopy process is absorbed by the glass platen on which the original is placed. The operator will not be exposed to UV radiation during normal photocopy operations.
24. **Intense Light** used in photocopying may cause eye irritation and after-imaging, if viewed directly. The photocopier cover should routinely be closed before copying or, if not practicable for an unusual job, the operator should avert their eyes from the light source.
25. **Selenium and cadmium:** The photoconductive material in photocopiers is usually selenium. Cadmium sulphide, zinc oxide and organic polymers are also used. Trace amounts of these materials can become airborne. However, investigations have shown that under normal operating conditions the resultant concentrations of these pollutants are well below those concentrations associated with health effects.
26. **Toner materials:** Toners contain carbon black. In the past, potential health effects associated with carbon black have been linked to the presence of impurities. Pure carbon black has not been associated with adverse health effects. As currently manufactured, carbon blacks contain extremely low levels of impurities and do not warrant concern regarding health effects.

## Photocopiers, Printers and Faxes

---

27. **Physical factors:** Possible discomfort from the light, heat and noise generated by office copying machines should be considered.
28. **Ergonomics:** Musculoskeletal discomfort may arise from continuous photocopying, collating copies and attention to equipment. Sustained and repetitive postures may lead to muscular fatigue.
29. **Electrical:** Copying equipment is powered, with ready access to the internal workings of the equipment.

### Related Documents

30. Safe Work Australia - [Workplace layout and design fact sheet](#)
31. WorkSafe Western Australia (Western Australian Government) - [Photocopiers, Laser Printers And Other Office Copying Equipment](#) :