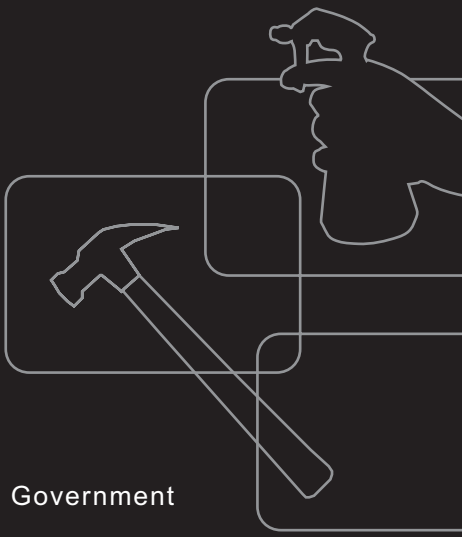
DANGER

DUST AND FUME HAZARD

Do-it-yourself Safely



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Introduction

Buildings contain many types of materials and associated chemicals. Unless managed and handled properly some of these can affect the health of people doing renovations, their families, neighbours and the environment.

Hazards posed by some materials, such as lead and asbestos, are fairly well known. However, dust and fumes from apparently 'safe' materials such as timber products, manufactured timber (e.g. MDF) paint or cement can also potentially affect people's health and the environment.

Being aware of these hazards will help renovators to minimise or eliminate their potential impact. This booklet provides information on how proper planning, safe work practices, and a thorough clean up will help to reduce the risk from dust and fumes created by hazardous materials during renovations.

Important

Materials such as lead paint or asbestos that are in good condition, (not peeling or creating dust), or are sealed behind non-hazardous materials (e.g. new paint or plaster board) are **relatively** safe. If the material is in good condition LEAVE IT ALONE. Disturbing or removing it unsafely can create a greater hazard.

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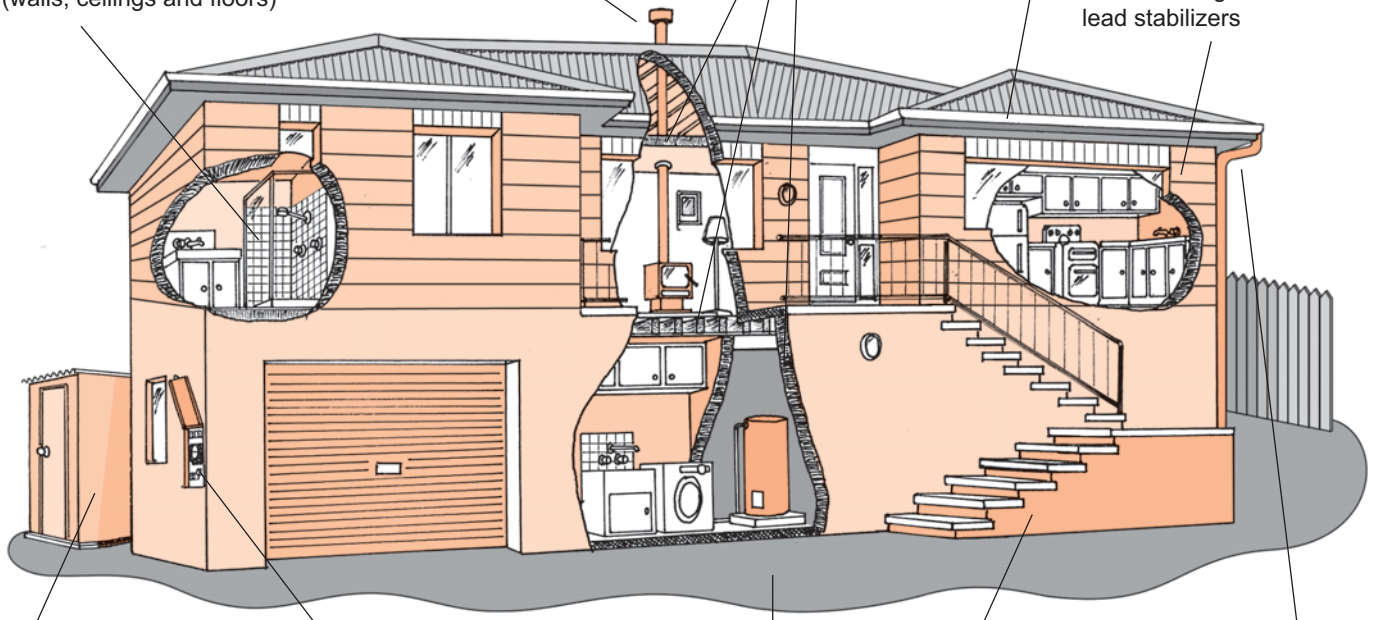
Hazardous materials found in houses

Some of the hazardous materials that can be found in a building's structure include:

- **Lead** in the form of domestic lead paint, damp coursing, flashing (waterproofing), solder, tap fittings and water pipes.
- **Asbestos** most commonly as flat or corrugated sheets ('fibro') for walls, ceilings and roofing. Other products include water and drainage pipes, electrical conduit and guttering.
- **Treated timber** (contains chemicals to prevent rot and insect attack) used in a variety of structural applications, landscaping, decking and in wet environments such as bathrooms or kitchens.
- **Volatile organic compounds** (VOCs) are organic chemicals that are used in paints, varnishes, glues, cleaning products, paint thinners, fuels and manufactured timber. Their fumes (or vapours) can be toxic. All paint products contain many different chemicals.

See page 10 and 15 for more information on these and other sources of hazardous materials.

Hazardous materials found in houses



Roofing
- Corrugated asbestos sheet
- Lead paint and flashing (waterproofing)

Roof, wall and floor cavities
- Dust containing lead, asbestos and heavy metals

Heat insulation
- Asbestos used around flues, pipes and inside appliances

Wet areas
such as bathrooms and kitchens
- Asbestos linings (walls, ceilings and floors)

Exterior cladding materials
- Asbestos fibro sheet
- PVC cladding can contain lead stabilizers

Sheds and outbuildings
- Fibro sheets
- VOCs in stored chemicals

Gutters and downpipes
- Asbestos
- PVC can contain lead stabilizers

Electrical meter boxes, conduit and wiring insulation
- Asbestos fittings
- Lead fittings and solder

Exterior structures
- Treated timber (stairs, decks, fences, landscaping etc.)

Contaminated soil
- Can contain lead, asbestos fibres and heavy metals

Diagram adapted from ACT Government publication 'Managing Asbestos: a guide for tradespeople'.

Materials in or around the house

Dust contaminated with lead, arsenic and other heavy metals can accumulate in ceilings, wall and floor spaces and in soil. Sources include past renovations, exhaust fumes and industrial pollution. The dust can be hazardous if disturbed.

Repeated past treatments with pesticides in and around buildings can contaminate large areas. Older pesticides such as organochlorines that may have built up over time can be hazardous if disturbed.

Materials used during renovations

VOCs are found in paints, varnishes, glues, paint thinners and other products. They are easily inhaled as fumes. Dust particles from construction materials such as cement, plaster, adhesives, fibreglass insulation, wood (sawdust) and fillers (e.g. 'builders bog') can also be hazardous.

Health impacts

Exposure to some materials and associated chemicals can potentially cause a variety of health impacts ranging from short-term problems (lethargy, headaches, nausea and skin rashes) to more serious conditions (respiratory problems, nerve damage, allergies, severe poisoning and possibly cancer).

Pregnant women, babies and young children may be more susceptible to the effects of hazardous materials at lower levels of exposure. Animals can be affected too.

Health impacts (continued)

Chemicals enter the body through three main pathways:

- Inhalation: where dust or fumes are breathed in and absorbed into the lung tissue and blood;
- Ingestion: where dust contaminates hands, food, eating utensils and cigarettes and is then accidentally eaten;
- Absorption: where chemicals are absorbed through the skin into tissues and circulated around the body in the blood.

Remember: dust and fumes are the main sources of hazards. Safe renovation practices aim to avoid creating hazards in the first place and to manage any that are created.

Safe renovation practices

Protecting yourself and others from hazards is easy if you use the following steps:

1. Identify hazards
2. Prepare the work area
3. Use safe work practices
4. Clean up properly

If possible, plan to have pregnant women, children and pets move out or away from work areas until clean-up is finished. Also, tell your neighbours about the renovations so they can take steps to protect themselves if necessary.

1. Identify hazards

The most accurate way to find out if there are hazardous materials present is to have them tested by a qualified specialist, (see page 14 for details).

- Carefully examine the worksite for materials (including soil or dust) that could contain hazardous chemicals. It may be difficult to identify hazards by eye alone.

- Seek professional advice or get suspect materials tested if unsure. If in doubt, assume a hazard is present and take the appropriate precautions.

2. Prepare the work area

Outside

- Lay plastic sheeting under the work area to prevent dust contaminating the ground. Move children's play equipment away from the work area and keep kids and pets away until after clean up.

- Close windows and doors and seal vents to stop dust going into your house.

  Ask neighbours to do the same. Seal off other places where dust can get in such as under doors.

Proper preparation is essential.

Inside

- Seal the work area off from other rooms inside the house to prevent contamination of non-work areas. Close doors and use tape and sheets of plastic. Tape plastic over the floor. Cover vents, air conditioning and central heating ducts.

- If using VOCs (paint, glues etc) open outside windows and doors for ventilation to prevent fumes from concentrating in the work area.

- Remove soft furnishings, rugs and curtains from the work area or seal them in plastic if they can't be moved.

3. Work safely

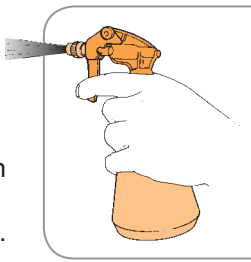
- Don't eat, drink or smoke in the work area as you may inhale or eat the dust. Wash your hands and face with soap and water before meal breaks and when finished work for the day.

- Use practices that minimise dust and fumes.

  For example:

  - use paint strippers rather than sanding or abrading the surface (strippers can be dangerous if used improperly – follow safety information carefully);
  - gently remove and stack demolition materials (no smashing or throwing);
  - use non-powered hand tools if possible as they generate less dust;

- Use a pump spray pack to lightly dampen and keep down the dust. Be careful using water around electrical fittings.



- Use the appropriate Australian Standard (AS) approved respirator or dust mask recommended for the job (see manufacturer's information when selecting and using this equipment). Also wear a hat, gloves, coveralls, and safety glasses or goggles to protect the eyes.

- Keep dust within the work area. It can be carried out on shoes, clothing, tools, demolition materials etc. Never shake off dust cloths to clean them – instead clean them with a High Efficiency Particulate Air (HEPA) industrial vacuum cleaner.

Note: it is illegal to water-blast asbestos cement materials.

When shopping for safety gear look for the Australian Standard logo.

4. Clean up properly

- Clean up the work site at the end of each day or work session. Remove waste from the work area immediately.

- Avoid dry sweeping which stirs up dust. Dampen dust with a 'mist' of water from a spray pump pack. Wash plastic sheeting using sponges and buckets. Waste water not containing VOC wastes should be poured down the sewer, not stormwater drains or on the ground.

- Wrap waste materials in plastic and tape while still in the work area. Clearly label lead and asbestos waste.

- Dispose of waste at an approved waste facility (see 'Help and Advice' on page 14 for more information). It is illegal to put asbestos in domestic rubbish bins.

- Remove contaminated clothes in the work area and wash yourself. Wash work clothes separately from non-work (family) clothes. Rinse out the machine when finished.

Dampen down any dust and keep it in the work area.

Hazards

Lead

Lead paint and asbestos were widely used in the construction of houses and domestic building stock in NSW. Lead paint was used domestically up to 1970 with some types containing up to 50% lead. The paint you buy now contains very small amounts of lead. Lead is still used in industrial coatings and some specialist paints. For more sources of information see page 14.

Asbestos

A wide range of building and construction products containing asbestos were available up to 1987. Asbestos was banned from being used in 'fibro' or sheet asbestos cement products made after 1982; corrugated products (mainly roofing materials) in 1984; and all other products by 1986. Its use was completely banned in 2003. For more sources of information see page 14.

Treated timber

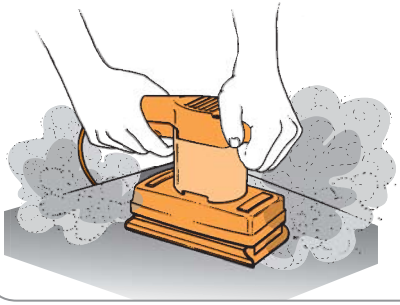
'Treated timber' is wood treated with chemicals to prevent decay from damp rot and insect attack. While the chemicals used are toxic, they pose little risk to human health and the environment if used properly. They can become a risk if used in a way (sawing or burning) that exposes people to high quantities of dust and fumes. For more sources of information see page 14.

Volatile organic compounds (VOCs)

VOCs are organic chemical compounds emitted from some fabrics, carpets, fibreboard, plastic products, glues and solvents, some spray packs, paints, varnishes, wax, cleaning products, disinfectants, fuels and manufactured timber. Examples include benzene, acetone and formaldehyde. The rate of emission (off-gassing) from products may decrease over time as they evaporate away. For more sources of information see page 14.

Powdered materials

Many commonly used construction materials can be inhaled when in their powdered form. Examples include cement, fillers, adhesives, plaster, paint and fertiliser. They can severely irritate skin and eyes and damage lung tissue and the respiratory tract.



Dry sanding generates large quantities of hazardous dust.

Safety checklist

Identify hazards

- ☐ Carefully survey the site for potentially hazardous materials.
- ☐ Seek professional advice or have suspect materials tested.

Prepare the work area

- ☐ Pregnant women, young children and pets should move out or be kept out of work areas.
- ☐ Seal the work area off from the rest of the house to stop dust and fumes spreading.
- ☐ Open windows to ventilate the work area if using paint, glues etc (VOCs).
- ☐ Cover the floor and soft furnishings with plastic.

Work safely

- ☐ Avoid creating dust and fume hazards where possible.
- ☐ Use Australian Standard (AS) approved safety gear.
- ☐ Lightly wet down areas to be worked on – beware of electricity.
- ☐ Avoid dry sweeping – wet down dust or vacuum it up using an industrial (HEPA) vacuum (not a domestic model).
- ☐ Wash hands and face before breaks. Do not eat, drink or smoke in the work area.

Clean up properly

- ☐ Clean up as you go and remove debris immediately.
- ☐ Wrap debris in plastic in the work area.
- ☐ Dispose of materials at a Department of Environment and Conservation (NSW) approved facility. Contact the Environment Line on 131 555 for a list of facilities.
- ☐ Wash yourself at the end of the day and wash work clothes separately from the family wash.

Help and advice

For information on the **use of chemicals**, read labels or supplied instructions carefully. Contact the product manufacturer for more information if needed (ask for Materials Safety Data Sheets or MSDS).

To find **professionals who can identify hazards** in the home, look in the Yellow Pages under 'Asbestos Removal' and 'Environmental and Pollution Consultants'.

For advice on **transport and disposal of waste materials** in NSW, contact the Department of Environment and Conservation (NSW), Environment Line on 13 15 55 (www.environment.nsw.gov.au) or your local council.

For advice on the **health impacts** from exposure to hazardous materials, contact your local NSW Health Public Health Unit (www.health.nsw.gov.au/public-health/phus/phus.html) or talk to your GP.

For advice on **working with fibro** and other hazardous products and who can legally remove it, contact the WorkCover Assistance line on 13 10 50 or visit the WorkCover website: www.workcover.nsw.gov.au.

Copies of this publication can be downloaded from www.diysafe.nsw.gov.au.

Other sources of information

Lead

Leadsafe
www.environment.nsw.gov.au/leadsafe
- Information on general lead issues.

NSW Department of Environment and Heritage
www.deh.gov.au
- Lead in paints, stained glass and other materials. Search for ‘lead’.

Asbestos

NSW Government Fibro website
www.nsw.gov.au/fibro
- A brochure for renovators and homeowners on managing fibro (bonded asbestos sheet).

Workcover Authority website
www.workcover.nsw.gov.au
- Guidelines for occupational situations.
Look under ‘Publications’ then ‘Safety guidelines’.

ACT Government Asbestos website
www.asbestos.act.gov.au
- A comprehensive list of publications for renovators, tradespeople and others.

Treated timber

Australian Pesticides and Veterinary Medicines Authority
www.apvma.gov.au
- Report on timber treatments under ‘Chemical reviews’ then ‘Arsenic timber treatments’.

Volatile Organic Compounds (VOCs)

USA Environment Protection Authority
www.epa.gov/iaq/voc.html
- Information from the United States on VOCs and indoor air quality.

Notes

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