

Lead Safe

A renovator's guide to the dangers of lead



LEAD
EDUCATION
PROGRAM

Acknowledgements

*To obtain copies
of this booklet, contact
the EPA Pollution Line
on 131 555
(business hours)*

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Lead and home renovations

Unsafe home renovation is one of the most common causes of high lead levels and lead poisoning among children in NSW. Lead can affect the health of all people, but fetuses, pregnant women, and children under the age of four are most at risk. Pets are also at risk.

Lead becomes a danger to your family's health when maintenance or renovation work disturbs existing lead paint or dust in the home, or creates new hazards.

If lead is present in your house, you can use contractors (builders and painters) experienced in lead safe renovations. If you decide to do the work yourself, get more information and follow the guidelines in this booklet. You can renovate safely if you plan properly, take the necessary precautions and use the right equipment.

The time you invest in doing the job safely is a fraction of the cost of cleaning up a lead-contaminated house – and your family's health is priceless.

Nearly all cases of acute lead poisoning in children admitted to hospitals in recent years have been attributed to unsafe home renovation and maintenance activities.



Sources of lead in houses and buildings

Old lead paint

Old lead paint is one of the major hazards facing renovators. Most homes built or decorated in Australia before 1970 contain lead paint – which can be dangerous, especially if the paint is peeling or breaking down.

Lead was a major ingredient in paint from the late 1800s to 1970. It was used as a base, a drying agent, as colouring (often white, red, orange, yellow and scarlet) and to protect steel or iron from rust.

Most Australian homes built before 1970 contain lead paint. Older houses will usually have more lead paint present because:

- older types of paint contained more lead (up to 50% of the volume of paint)
- lead paint was used on more parts of the house.

The house paint you buy now has only a small amount of lead in it (about 0.25%). Lead paints made before 1970 were used both inside and outside the house.

Lead paint can be dangerous even before renovations start. Paint in good condition can be knocked off or ground into dust as part of normal wear and tear around windows, doors, stairs, skirting boards and other features.

Deteriorating paint can peel off in large pieces, flake off in smaller chips or can 'chalk' (break down into a fine powder). Children and pets can accidentally eat paint chips or dust. These dangers are increased during renovations. Fine dust can be breathed in or can contaminate the house, its contents and surrounding gardens or play areas. Some types of renovation activities can disturb or create new lead paint hazards.

SEE ALSO

PAGE 4 • Lead-contaminated soil

Lead-contaminated dust

Renovations can disturb existing lead-contaminated dust built up over many years in ceiling cavities, behind walls and between or under floorboards. Sources of lead dust include:

- industrial pollution
- car exhaust
- the breakdown of old lead paint
- previous renovations in the house or nearby
- emissions and fumes from burning wood covered in lead paint, or coal (which contains traces of lead and other metals).

Working in places where lead dust is present, or opening up or demolishing walls, ceilings or floors, can quickly spread dust and contaminate the house. Unsafe renovation practices – including sand blasting, burning and dry mechanical or hand sanding old lead paint – can create serious dust hazards.

Lead dust on floors or in carpets may be accidentally eaten by young children when they put hands or toys covered in lead dust in their mouths while playing or moving around.



TIP – Cleaning out ceiling cavities

Do-it-yourself ceiling dust removal is not recommended – it's dirty and dangerous and requires special equipment. Hire a professional (see *Want more information?* on page 26).

Lead fumes

Lead fumes are created when lead or lead containing materials are heated above 325°C by work activities such as burning off old lead paint, soldering electrical cables or melting lead for casting purposes. Fumes are particularly hazardous as they contain extremely fine particles of lead which can penetrate deep into the lungs and are rapidly absorbed into the blood stream. Workers should not create lead fumes if possible, or take the necessary precautions where they are unavoidable.

Lead-contaminated soil

Many sources of lead can contaminate soil. A common source is old lead paint either peeling or being washed off exterior walls, fences, sheds and garages. Undisturbed soil within two metres of the wall or structure is likely to be the most contaminated in the garden. Soil underneath the house or verandahs can also contain high levels of lead due to the breakdown of paint. Other sources of lead that can contaminate soil include:

- nearby industries
- busy main roads
- contaminated fill used in the garden
- hobbies that use lead paint or materials (like making fishing sinkers or car or boat restoration)
- unsafe renovations of the property or neighbouring houses

Contaminated soil can be eaten by small children or animals, or brought into the house on shoes, clothes, toys or animals. Lead is non-biodegradable – it does not break down. Once in the soil, if it isn't moved, it is there forever.

Sheet lead

Sheet lead was used in many places in older houses and is still used now, though to a lesser extent. Uses include:

- damp courses around the base of external walls, on house support pillars, around chimneys and other fittings
- waterproof linings in kitchens, bathrooms, laundries, sinks, cisterns etc
- box and tapered gutters
- cladding, fascias, and as protection against weathering and termites

The burning, cutting, repair, removal and handling of sheet lead structures or products can be hazardous. Lead breaks down over time (called 'oxidisation') forming a fine powder which can be accidentally breathed in or eaten if handled or disturbed.

Lead flashing

Flashing is a strip of sheet lead used to weather-proof gaps around windows, doors and chimneys, or between two roofs or a roof and a wall. Fumes created when soldering lead flashing are very dangerous.

SEE ALSO

Old lead paint • PAGE 3

Lead solder

Solders are special alloys for joining metals and melt at a temperature lower than the metals they are joining. Solder can be used on copper pipes, electrical cables and fittings, rainwater tanks, for fixing leadlight windows, on flashing, in electronics etc.

Tin-lead solders are one of the most common types of solder on the market. A soldering iron, gas torch or heat gun used on lead solders creates dangerous fumes because of lead's low melting point – between 183°C and 250°C. (Melting points of solder will vary depending on what other types of metal are used in the solder, such as tin or silver.)

Note – it is illegal to use solder containing lead on drinking-water pipes.

Lead water pipes and plumbing fittings

Lead water pipes were used in very old houses and, if still in use, may contaminate the water they carry. Antique brass or bronze plumbing fittings can contain high levels of lead. Modern fittings can still contain up to 4% lead.

PVC products

Many modern building products are made from PVC (polyvinyl chloride) – such as pipes, coatings for electrical wire, and fixtures and fittings. A small amount of lead is used in the manufacture of PVC as a pigment and heat stabiliser. PVC breaks down if exposed to UV (ultra violet) light for a long time and the lead can be released into the environment. Lead is known to leak out of the walls of newly installed PVC water pipes, though there is still debate about whether this is a threat to human health and the environment.

Leadlight windows

Leadlight windows are a common decorative feature on older houses. Fumes produced by soldering, handling of lead 'comes' (strips of lead that hold the glass in place) and exposure to lead based glass paints can be dangerous. The comes can also oxidise, forming a fine dust – which can be hazardous when handled.

Unsafe work practices

Unsafe work practices can disturb sources of lead in the house and create lead fumes, lead dust or lead chips. Some of the most hazardous work practices are summarised in *Unsafe work practices*, page 19.

SEE ALSO

PAGE 10 • Lead safe work practices

PAGE 19 • Unsafe work practices table

TIP – Removing contaminated carpets

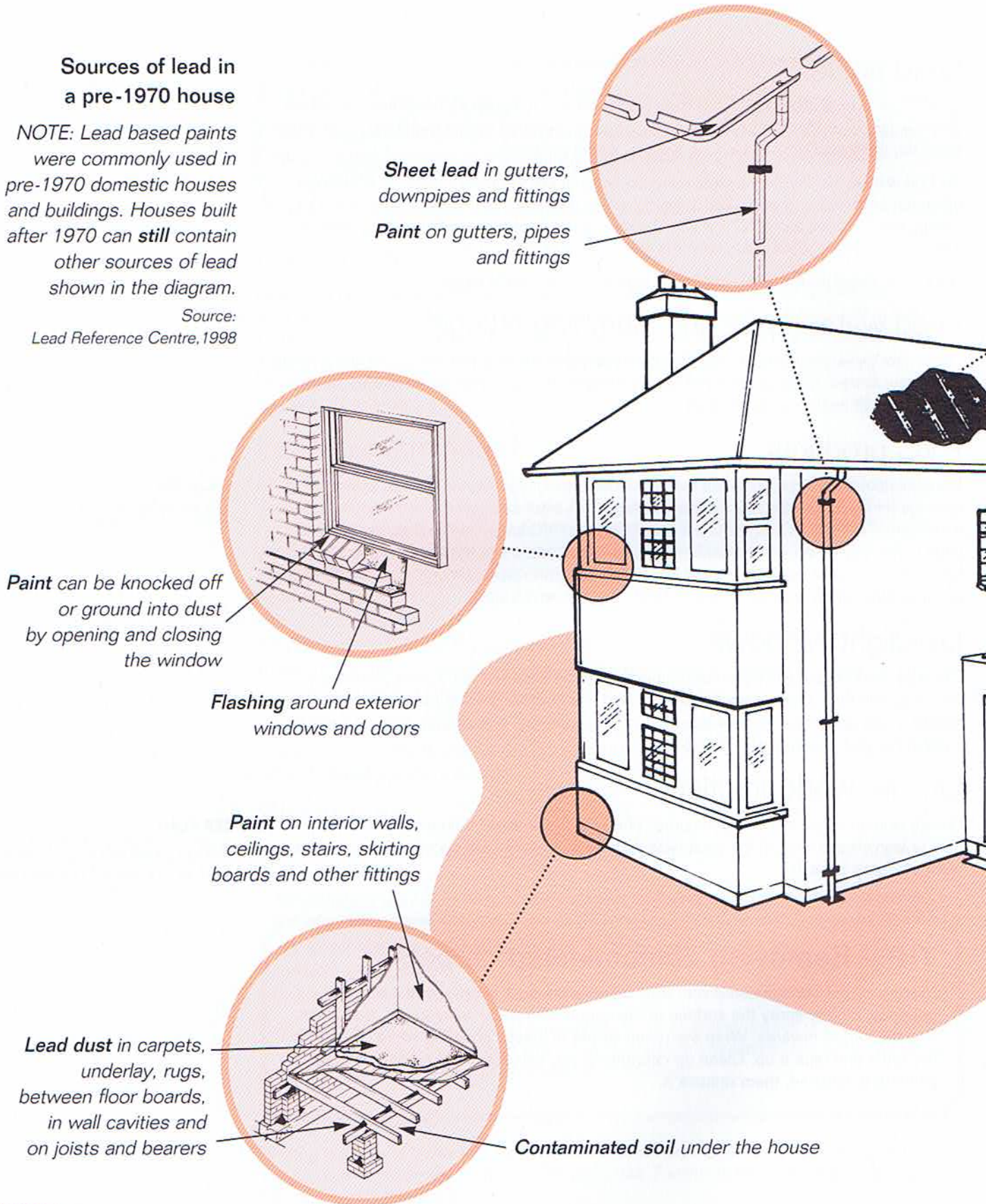
Moving carpet contaminated with lead can release dust trapped in the pile and underlay. Lightly spray the surface of the carpet with water to keep the dust down. Roll the carpet inwards. Wrap the rolled carpet in plastic sheeting while it is still in the room and tape it up. Clean up carefully. If you can, leave old carpet down until painting is finished, then remove it.

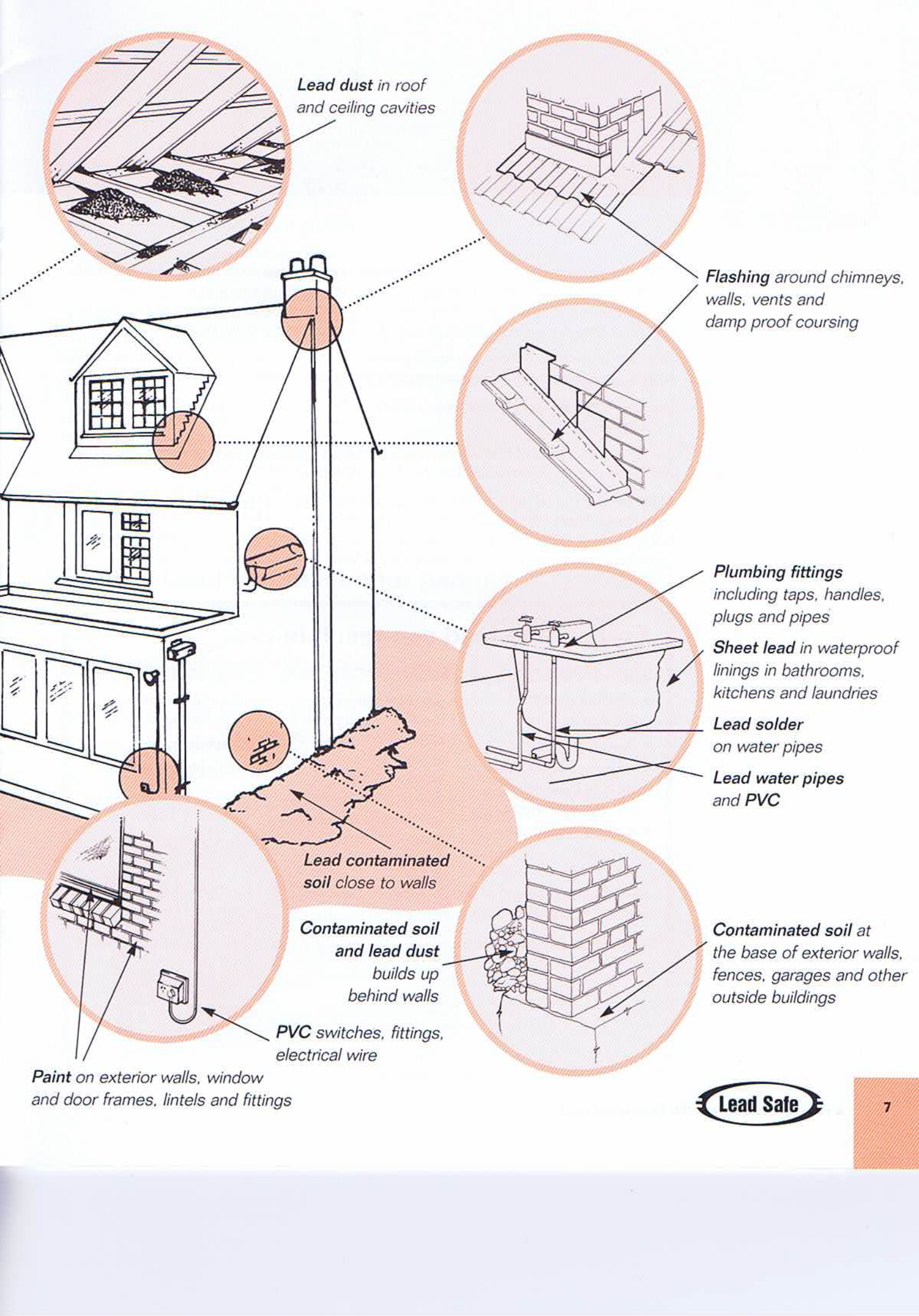


Sources of lead in a pre-1970 house

NOTE: Lead based paints were commonly used in pre-1970 domestic houses and buildings. Houses built after 1970 can still contain other sources of lead shown in the diagram.

Source: Lead Reference Centre, 1998





Lead dust in roof and ceiling cavities

Flashing around chimneys, walls, vents and damp proof coursing

Plumbing fittings including taps, handles, plugs and pipes

Sheet lead in waterproof linings in bathrooms, kitchens and laundries

Lead solder on water pipes

Lead water pipes and PVC

Lead contaminated soil close to walls

Contaminated soil and lead dust builds up behind walls

Contaminated soil at the base of exterior walls, fences, garages and other outside buildings

PVC switches, fittings, electrical wire

Paint on exterior walls, window and door frames, lintels and fittings



Health effects

Lead gets into your body when you breathe in lead dust or fumes in the air, or if you accidentally swallow food or water that contains lead. Children can rapidly pick up lead through normal hand-to-mouth activity (thumb sucking, chewing on contaminated objects such as toys and so on). Small amounts can gradually build up in the body and cause health problems.

Lead can cause serious long-term health problems. It can harm almost every part of the human body, especially the brain, kidney and reproductive organs of men, women and children.

Lead can affect anybody, but foetuses, children under the age of four and pregnant women are most at risk.

The poisonous effects of lead can damage the developing brain and nervous systems of unborn and young children much more easily than those of adults.

Many children and adults with increased levels of lead in their bodies may show no symptoms, even though their health is being affected. When symptoms do become obvious (usually at higher levels of exposure) they include lethargy, pain in the abdomen or constipation, headache and irritability. Children show these symptoms at lower levels of exposure than adults.

Exposure to lead can result in...

CHILDREN

- impaired growth
- reduced hearing
- slowed growth
- behavioural problems such as hyperactivity and aggressiveness
- learning disabilities

PREGNANT WOMEN

- pre-term delivery and low birth weight and stillbirth are more likely at high levels of exposure
- Low levels of exposure can damage the foetus, as lead easily passes through the placenta

ADULTS

- joint and muscle pain
- loss of libido
- infertility
- higher blood pressure

Severe lead poisoning of both children and adults due to very high exposure can cause memory loss, nerve problems such as paralysis and even fits.

Check your lead levels

If you think you or your family may have been exposed to lead, ask your doctor or health-care professional for a blood test. This test shows how much lead is in the blood. The cost of the test is covered under Medicare if you are at risk.

The National Health and Medical Research Council (NHMRC) recommends a blood test if children...

- are aged up to four years and live in or frequently visit older dilapidated houses, or if they have been present during renovations of pre-1970 houses
- have brothers or sisters with high blood lead levels
- live with people who work in a lead industry
- have pica (the constant eating of non-food items such as soil), particularly if living in pre-1970 housing
- are aged up to four years and live near an active lead mine, smelter, battery recycling plant or other industry likely to release lead
- live near heavy road traffic areas
- have developmental delays

As an adult, you may want to have a blood test if you are renovating a pre-1970 house, if you work in a lead industry, have hobbies which involve lead, or suspect you may have been (or are being) exposed to lead.

SEE ALSO

PAGE 26 • Want more information?

TIP – Lead information for parents



Parents can get more information on reducing their family's exposure to lead hazards from another Lead Reference Centre publication – *Lead Safe: A guide to keeping your family safe from lead.*

Copies of this booklet are available by calling the NSW Environment Protection Authority's Lead Pollution Line on 131 555.



Lead safe work practices

To protect yourself and your family during renovations, make sure you follow the guidelines below to reduce the possibility of being exposed to lead dust or fumes or contaminating your home.

The best way to prevent lead hazards during renovations is not to renovate areas that can cause hazards unless it is absolutely necessary – and then do it safely. If a painted surface is in good condition (not peeling, flaking or chalking), leave it alone. If a wall doesn't need to be knocked down, don't knock it down.

There are increasing numbers of products on the market, such as lead-free solders and electrical cable and dust-free tools, which can assist in undertaking lead safe renovations.

SEE ALSO

Want more information? • PAGE 26

Hiring a contractor • PAGE 28

TIP – Hiring lead professionals

Don't take a risk if a source of lead is suspected; it is important to get professional advice and more information. Do-it-yourself solutions could be more dangerous than leaving the source of the lead hazard alone. Specialists are available to:

- check the lead content in paint
- assess the risk of lead exposure, such as peeling paint and lead dust
- manage or remove lead hazards

For more information see page 26.

Before you start

SEE ALSO

Want more information? • PAGE 26

Testing for lead

Assume that paint, dust and soil in and around pre-1970 houses contains lead unless tests prove otherwise.

If you do test, test paint in all the areas that will be worked on **before you start renovating**. Hire a professional lead assessor or collect samples yourself for testing by a laboratory. Do-it-yourself lead test kits are available at some hardware stores and trade centres, but results are not reliable if the kits are not used properly or the right places are not tested.

Develop a simple lead safe work plan

A simple work plan will help to do the job safely. Taking the following steps will save you time and money...

SEE ALSO

Hazard levels • PAGE 11

STEP 1 – Determine the level of hazards present

You must determine if the job is a Level 1 or Level 2 hazard. Consider the factors that determine level of hazard outlined on page 11.

Hazard levels

Different renovation activities and work practices can generate different levels of lead hazards. The level of hazard depends on the following factors:

- the sources of lead present in the work area
- the size or scale of work (is it a small or large job?)
- the types of renovation work practices to be used

These factors affect the amount of lead dust and fumes generated by the work.

HAZARD LEVEL	HAZARDS CREATED	ACTIVITY EXAMPLES
<p>LEVEL 1 Small jobs</p>	<p>DUST Small amounts of fine dust created or disturbed. Dust will not spread far from the work area and should be captured by drop sheets under the work area.</p> <p>FUMES May occur if a heat gun, soldering iron or other tool is used to heat up a lead surface. Protective equipment or lead free solder should be used.</p>	<ul style="list-style-type: none"> • patching broken plaster • painting small areas • removing chipped or peeling paint • replacing a broken window • replacing an electrical fitting • fixing a broken piece of window moulding • soldering electrical connections
<p>LEVEL 2 Medium to large jobs</p>	<p>DUST Moderate to large amounts of clearly visible dust and debris created or disturbed. Dust can spread beyond the work area and must be contained by plastic sheeting.</p> <p>FUMES Moderate to large amounts produced from heat guns and soldering irons. Like dust, fumes must be contained within the work area and proper protective equipment used.</p>	<ul style="list-style-type: none"> • chipping away rendering on a wall • painting an entire wall, ceiling, window frame, door, room or house • removing old contaminated carpet from a room • demolishing a wall • remodelling a kitchen or bathroom • installing a roof ladder or skylight • replacing floor boards • installing a hot water cylinder

The work area needs appropriate preparation, and protective equipment, and lead safe work practices and clean-up procedures must be used, depending on the level of potential hazard created. Preventing the creation of hazards is essential.

STEP 2 – Plan the job

The level of hazard present determines what you need to do the job safely. This includes:

- what materials and equipment are needed
- how to contain dust in the work area, particularly when workers are entering and leaving it
- where children, pregnant women, and other occupants (including pets) could stay for the duration of the work
- what protective equipment you need to protect yourself
- how to clean up the work area and what to do with any waste
- what council or other government approvals may be required

Equipment and materials for the job

Collect all equipment and materials before work starts. Most of the equipment listed in Table 1 can be purchased at any good hardware store. The few special tools you may need can be hired.

Protect your family and neighbours

Pregnant women, children, and pets should move out of the home during renovations until the clean-up is complete. If this is not possible, they must stay as far from the work area as possible and not enter the work area itself. **Every effort must be taken to prevent dust being created during the works.** Strict control of any lead dust will prevent the rest of the house and its contents being contaminated.

Let your neighbours know that you're using the right work practices, particularly if the work is outside.

SEE ALSO

On the job • PAGE 18

TIP – Minimum preparation/maximum safety

If you need to paint, the safest option is painting straight over old lead paint if the surface is in good condition and only requires minimum preparation.

Dry sanding any lead painted surface can create a major hazard. A light *wet* sanding followed by a wash with sugar soap and rinse down with clean water will create a good surface to paint on once it has dried. Remember that the lead is still there under the top coat if you plan to paint or renovate again in the future.

TIP – A taste for lead

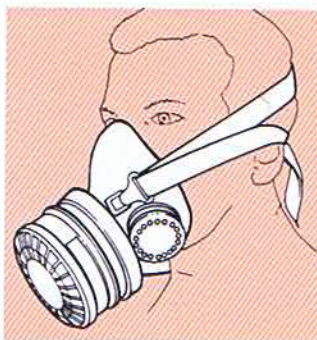
Lead has a sweet, metallic taste and smell. If you can taste or smell this during work (especially if using a heat gun or torch) you are being exposed to lead.

TABLE 1 – Equipment and materials required

- An approved (to Australian Standard AS-1716) half-face respirator or dust mask with a 'P1' (dust) or 'P2' (dust and fumes) protection rating.

Cheap paper dust masks do not protect against fine dust and fumes.

A half-face respirator (see picture at right) fitted with replaceable cartridges is an excellent investment which will last many years if used and maintained properly



- Work clothes that do not catch dust or flakes in pockets or cuffs. Consider using disposable overalls and plastic boot covers

- An industrial vacuum cleaner fitted with High Efficiency Particulate Air (HEPA) filters, **not** a domestic vacuum cleaner. Some new domestic vacuum cleaners are fitted with HEPA filters, but these are **not suitable** for heavy duty work like renovations

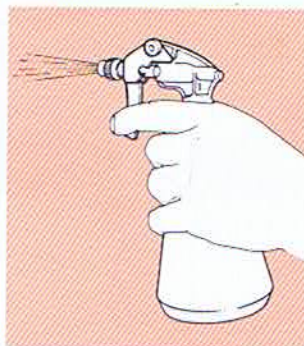
- Heavy-duty plastic sheeting to seal off work areas, protect household items and collect debris

- Rolls of heavy-duty tape to hold plastic in place

- Wet-and-dry sandpaper and wet-sanding sponges

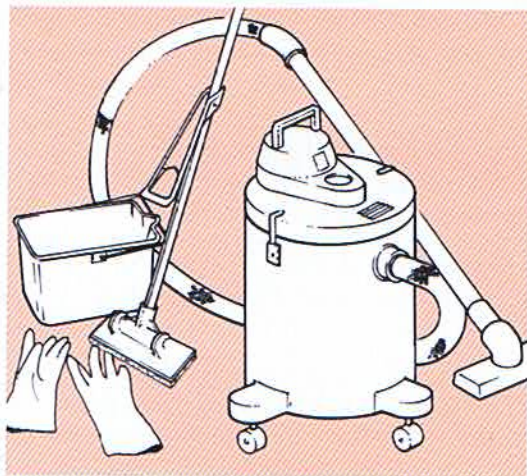
- Spray bottles to wet surfaces and stop dust from spreading

- Isolating transformer or earth leakage device if using a power tool



- Rubber household or dish-washing gloves for cleaning

- Cleaning products such as sugar soap



- Mops and buckets for cleaning hard surfaces

- Plenty of disposable rags, sponges and lint-free towels

- Heavy-duty plastic rubbish bags and ties

Level 1 Preparation – Small jobs

Properly preparing the work area and using the right equipment will significantly reduce lead hazards.

Source:
Lead Reference Centre, 1998



Preparing the work area

Working inside

SEE ALSO

Hazard levels • PAGE 11

Lead safe renovation • PAGE 23
projects

LEVEL 1 Preparation – Small jobs

Move soft furniture, curtains, carpets, rugs and other household items as far from the work area as possible and loosely wrap or cover them in plastic sheeting. Ideally they should be removed from the room altogether. Cover surrounding carpet as extra protection.

Place a plastic drop sheet under the area to be worked on. It should be large enough to catch any debris or dust produced. Fold the edge of the plastic nearest the wall up onto the wall and secure it with tape. This will prevent any dust falling between the edge of the plastic and the wall.

If working on a wall, tape one side of a plastic bag to the wall directly under the spot to be worked on as an added precaution. This will form a 'pouch' to capture any debris created by the work.



Level 2 Preparation – Medium to large jobs

Time taken to prepare the work area will prevent other parts of the building being contaminated and make clean-up easier.

Source:
Lead Reference Centre, 1998

LEVEL 2 Preparation – Medium to large jobs

Remove soft furniture, curtains, carpets, rugs and other household items. If this is not possible, fully enclose them with plastic sheeting and seal with tape. Once wrapped, cover them in a plastic drop sheet.

Cover the floor with plastic, ensuring it extends a minimum of five metres from the edge of the work area. Tape to walls and overlap drop sheets as outlined previously.

Seal the work area off from the rest of the house and outside. Dust is kept in the work area by covering doors with two pieces of plastic sheeting taped to the door frame. Overlap the edges of the plastic vertically (but do not tape them together) so they form a slit through which workers can pass. This will also discourage people who should not be there from entering the work area.

Cover all openings such as gaps around pipes and between floorboards with plastic sheeting and tape to prevent dust seeping into other areas of the home.

Close and seal windows if dust may be disturbed or created (unless using chemical strippers – see *Work site safety – using chemical strippers* box on page 16). Cover air-conditioning or central heating vents with plastic sheeting and tape to prevent contamination.

SEE ALSO

PAGE 11 • Hazard levels

PAGE 27 • Renovator's checklist

Work site safety – using chemical strippers

Chemical strippers can be an effective, dust-free method of removing old lead paint. But they do have some disadvantages...

- Strippers are dangerous to people and must be used with extreme caution – follow the manufacturer's directions **exactly**
- The fumes created by strippers can be highly toxic. Ensure proper ventilation of the work area by **not** sealing off windows and doors. If possible remove the component and take it to a professional stripping factory.
- Some types of softwoods will absorb small amounts of the stripper and lead mixture. Sanding the wood containing the paint/stripper mixture can create dust hazards. Small quantities can be disposed of in sealed containers in the rubbish. Large quantities must be taken to approved waste facilities. Contact the Environment Protection Authority – see *Want more information?* for details.

SEE ALSO

Lead safe renovation • PAGE 25
projects

Working outside

Lay plastic sheeting under the work area and over nearby ground and plants to protect the backyard, garden and children's play area. The sheeting should extend two metres from the base of the wall, plus an extra metre for each storey being worked on. Remove plastic sheeting as soon as clean-up is finished so plants and grass are not damaged or killed.

Use bricks or rocks to hold the sheeting in place and avoid working in windy conditions. Place lengths of wood underneath the edges of the plastic to create a small (100 mm high) ridge, which will prevent contaminated water from flowing off the plastic and onto the garden.

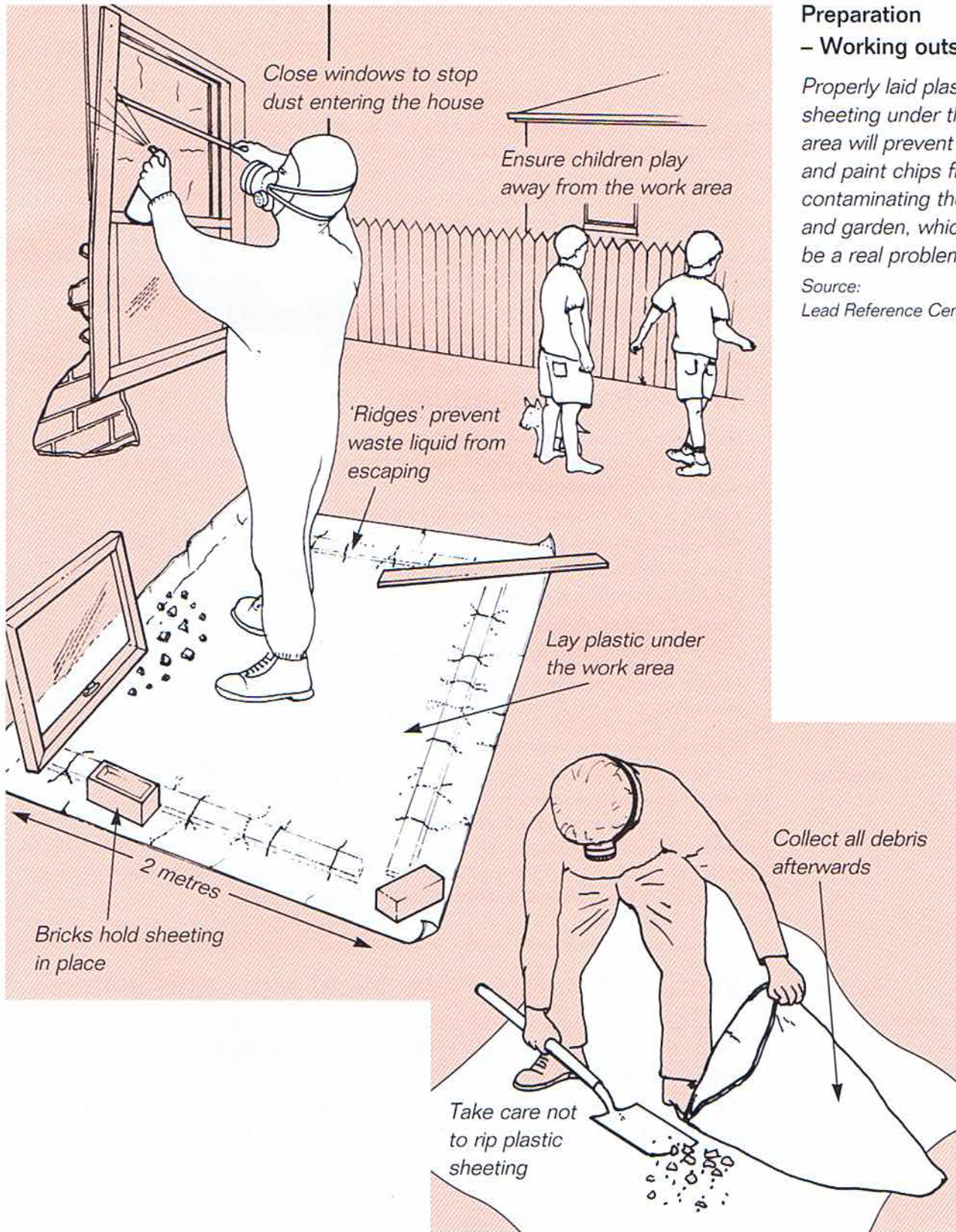
Cover and move children's sandpits and play equipment to at least ten metres away from the work area.

Close all windows and doors so that any dust accidentally produced does not float inside. Warn neighbours so they can protect themselves if dust blows their way.

**Preparation
– Working outside**

Properly laid plastic sheeting under the work area will prevent lead dust and paint chips from contaminating the soil and garden, which can be a real problem.

Source:
Lead Reference Centre, 1998



On the job – using lead safe work practices

Using these lead safe work practices can significantly reduce the risk of exposure to lead. The main unsafe and safe practices are summarised in Table 2.

Wet sanding and wet scraping are the safest methods of preparing surfaces for repainting. Use the spray bottle to wet the surface with water during sanding or scraping. Wet the surface frequently – or whenever it becomes dry – to prevent creating dust. Removal of old paint by sand-blasting, scraping and power-tool sanding releases fine particles of dust into the air and contaminates surrounding furnishings, carpets, gardens and soil.

Do not use open-flame torches on lead paint as they create lead fumes – which are a danger to workers, house occupants and others nearby. Minimise the amount of fumes produced when using a heat gun. (see *Tip – using heat guns* below)

TIP – Using heat guns

Heat guns are like high-performance hair dryers and are used mainly to soften paint when scraping off. If you're using a heat gun on what may be lead paint, avoid creating dangerous fumes by...

- using the gun's lowest heat setting to keep the heat down
- not staying on one small section of paint for too long – keep moving the gun
- keeping the gun at a good distance from the surface (10-15cm) – the closer it is to the surface the hotter the paint becomes
- collect paint scrapings as you go, otherwise the hot strips of removed paint become very brittle as they cool and turn to dust

Always wear a respirator with a 'P2' (dust and fumes) protection level when using heat guns.

Do not use power sanders as they can produce large amounts of fine dust when used to prepare surfaces for painting. If lead paint is present you should avoid using sanders; or consider using tools with vacuum attachments, which can capture most of the dust produced. If power tools are used, use them carefully (See *Work site safety – electrical tools and water* below). Prepare the work area and use protective equipment.

Work site safety – electrical tools and water

Using power tools around water can be extremely dangerous. Use water sparingly and do not spray water on power tools (e.g. drills) if wetting the wall to dampen down the dust. Do not clean electrical tools in water.

Always use an isolating transformer or earth leakage device to protect yourself and others from electrocution.

TABLE 2 – Unsafe/lead safe work practices

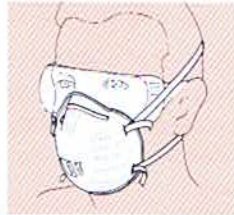
UNSAFE WORK PRACTICES

Not using a respirator or using cheap paper dust masks or a cloth tied around your mouth and nose



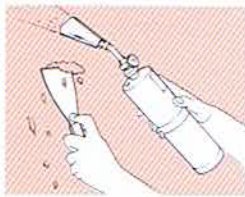
LEAD SAFE WORK PRACTICES

Use a half-face respirator (below left) or dust mask with Protection Level 1 ('P1 – dust') or Protection Level 2 ('P1 – dust and fumes') filters



SEE ALSO

PAGE 13 • Equipment and materials



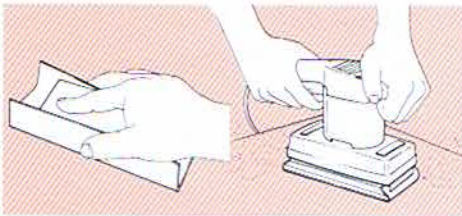
Using open-flame burners to strip paint, solder, or bend pipes

Do **not** use open-flame burners on lead paint. If soldering, wear protective equipment and use lead-free solder

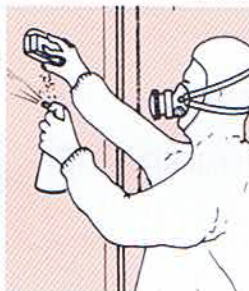
SEE ALSO

PAGE 13 • Equipment and materials

Using dry hand-sanding or power sanders on old lead paint



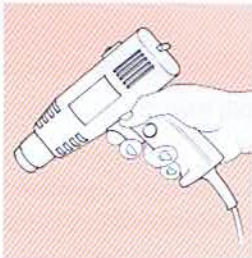
Use a spray pack to wet the surface to be sanded and hand sand the surface using wet-and-dry sandpaper



SEE ALSO

PAGE 18 • On the job – using lead safe work practices

Using heat guns on old lead paint or PVC products

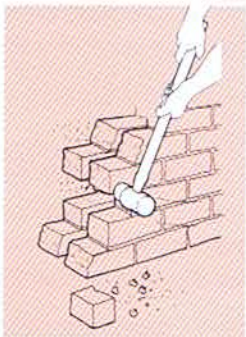


If you must use a heat gun, use it on the lowest heat setting and don't linger in one spot too long

SEE ALSO

PAGE 18 • Using heat guns

Demolishing walls or other structures without removing or containing dust



Wet the area to be demolished, contain any dust produced and clean up carefully

SEE ALSO

PAGE 20 • Cleaning up

TIP – Dust on your shoes?

Dust can be 'walked' out of the work area on the soles of your shoes. An old towel dampened with water and placed inside the entrance to the work area will trap any dust on the bottom of your shoes. Rinse it out when it gets too dry or dirty.

If part or all of a structure is to be demolished, you should try to vacuum out as much of the existing dust as is possible before work starts. Prepare the work area to contain any dust you may have missed. Lightly wet the area down to reduce the spread of dust once the demolition is under way. If a large structure like a shed is to be demolished try to do it right after a rain shower.

SEE ALSO

Hazard levels • PAGE 11

Equipment and materials • PAGE 13

Wear full protective equipment and protective clothes when working on Level 2 jobs. Always put on protective equipment (respirator and work clothes) when entering the work area. Leave them in the work area when you need to go out.

Don't smoke or carry cigarettes in the work area, as lead dust that settles on cigarettes and hands can be breathed in when smoking. Wash hands and face before smoking to keep lead off the cigarette and out of your mouth.

Wash hands and face before meals and always eat and drink away from the work area. Shower and change clothes when work is finished. Store contaminated clothes safely until wash day or wash them straight away. Wash work clothes separately from all other family clothes, and rinse the washing machine out with a phosphate detergent afterwards.

Cleaning up

Cleaning the work area is very important. Once the work is finished, it's important to make sure the house is completely free of contaminating lead dust and debris. Clean up daily to reduce the chance of contaminating other areas and when the job is finished. **Always** clean up before pregnant women and children return – this is especially important if lead hazards have been created during renovations.

SEE ALSO

Hazard levels • PAGE 11

LEVEL 1 Clean-up – Small jobs

Start the clean-up from the cleanest point and work towards the dirtiest area. Clean from the highest point first, then walls, rails, skirting boards and floors.

Use one cloth to wet-wash the entire work area where dust may have settled, using sugar soap or other suitable phosphate detergent. Replace the washwater frequently. Use another cloth to rinse the cleaned area with clean water.

Don't sweep the drop sheet or floor, as this can spread the dust. Wipe it off with a rag or mop and rinse with clean water using another cloth or mop. Dispose of waste cleaning materials in sealed plastic bags and put the drop sheet away for future use.

SEE ALSO

Hazard levels • PAGE 11

LEVEL 2 Clean-up – Medium to large jobs

Start by removing all large debris by hand or with wet rags. Clean work surfaces **other than** the floor as described under *Level 1 Clean-up*.

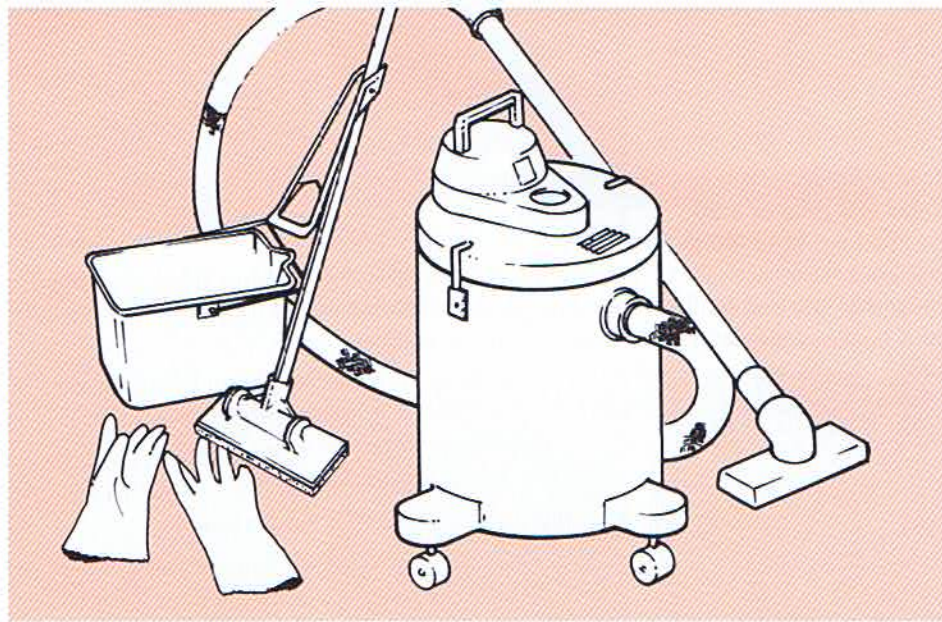
Mop the drop sheets on the floor using the three bucket method. You will need a mop bucket, a cleaning solution bucket and a rinse bucket. (See diagram on page 22 for the procedure.)

After cleaning, rinse the area using the same system – except the cleaning solution is replaced with a second rinse bucket, so you have a clean rinse bucket and a dirty rinse bucket.

TIP – Vacuuming the work area

If you can, hire a special industrial High Efficiency Particulate Air (HEPA) vacuum cleaner to suck up any visible dust on fittings, walls and the floor. HEPA cleaners can be hired. Do not use a domestic vacuum cleaner, as fine dust particles will pass straight through the machine and spread throughout the work area and beyond. If you can't hire a HEPA vacuum, clean up as much of the visible dust as you can using wet rags.

If you are unsure if the machine you have is safe to use, ring the manufacturer and ask what size particles the vacuum will capture. It should capture particles down to 0.1 microns in size.



Dispose of waste safely in sealed heavy-duty plastic bags in the household rubbish or at an approved waste facility (See *Want more information?* page 26). If working inside, avoid carrying waste bags through clean areas of the house – pass bags out through a window instead. Once finished, give all surfaces of furniture and fittings a final wipe.

When working outside, collect larger pieces of debris and wet-mop plastic sheeting. Avoid dry sweeping as it spreads dust. Shovel small pieces of paint debris, used rags and other cleaning materials into heavy-duty plastic bags and seal.

Clean non-electrical tools thoroughly with water and sugar soap.

Clearance testing

Clearance testing is checking to see if precautions to prevent contamination and final clean-up of the work area have been effective. If the area is clear it is safe to move back into; if not, further cleaning and decontamination is required. Professionals are available to do testing.

SEE ALSO

PAGE 26 • *Want more information?*

SEE ALSO

PAGE 26 • *Want more information?*



Three bucket method

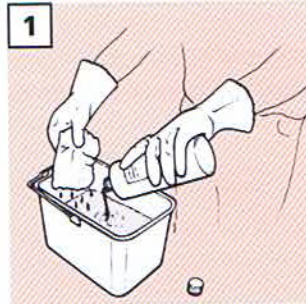
Source:
Adapted from the
US Department of Housing
and Urban Development
Lead Paint Management
Guidelines, 1994

The three bucket method

This cleaning technique is a lot simpler than it looks and, if done properly, will effectively remove lead dust and debris from the work area.

You need three buckets and two mops (one for wash, one for rinse).

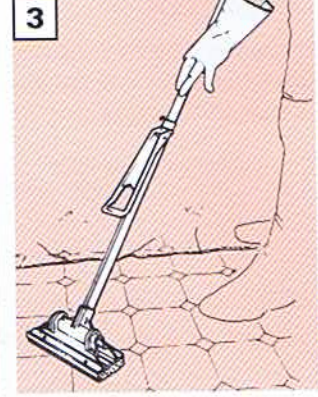
WASH PROCEDURE



1. Mix the detergent and water at a ratio of 1:20 (or 50ml per litre) in the first bucket, leave the second empty and fill the third bucket with water



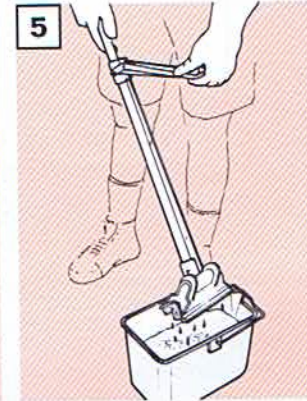
2. Dip the wash mop in the detergent bucket and wring off excess liquid



3. Mop small sections of the work until the mop is dry or dirty



4. Wring the mop into the empty bucket



5. Rinse the mop in the third bucket and wring off excess liquid

6. Repeat steps 2 to 5 until the floor is clean. Change the detergent solution periodically

RINSE PROCEDURE

After washing, use the same system as above except that no detergent is used in the first bucket, just water. So now you have a clean rinse bucket and a dirty rinse bucket.

- 1.** Fill the first (clean rinse) bucket with water, leave the second bucket empty and fill the third (dirty rinse) bucket with water
- 2.** Dip the rinse mop in the clean rinse bucket and wring off excess liquid
- 3.** Mop small sections of the work until the mop is dry or dirty
- 4.** Wring the mop into the empty bucket
- 5.** Rinse the mop in the third dirty rinse bucket and wring off excess liquid
- 6.** Repeat steps 2 to 5 until no wash residue is left. Change the water in both clean and dirty rinse buckets periodically



Lead safe renovation projects

Many different renovation activities can create lead hazards. Table 3 lists many common renovation activities, the hazards they can create and key work practices to reduce or prevent the hazard. Refer to the previous section for details on specific work practices.

TABLE 3 – Lead safe renovation projects
Indoor projects



ACTIVITY	EXAMPLES	HAZARD SOURCES	KEY PRACTICES
<p>Roof and ceiling work</p> 	<p>Adding a second storey extension Demolishing ceilings or cavity walls Putting in an attic ladder, skylight or ceiling ventilation fan Installing insulation or new electrical wiring</p>	<p>Lead dust in the ceiling cavity which can contaminate living areas Old lead paint on ceilings, roofing iron and other roof fittings</p>	<p>Test dust for lead or assume it contains lead. Children and pregnant women should move out or stay away from the work area. If possible, hire a professional to remove dust before work begins. Prepare the work area to contain any dust. Cover soft furnishings and the floor around access hatches with plastic. Avoid taking dust into living areas when leaving the ceiling cavity. Use the right protective equipment. Wash before meals and after work. Clean up using wet wiping and mopping. Dispose of waste carefully.</p>
<p>Indoor repairs, renovations and alterations</p> 	<p>Repairing or replacing door and window frames Removing wall sections Demolishing partitions Remodelling the kitchen or bathroom Drilling a wall</p>	<p>Lead dust in wall cavities, behind architraves, appliances and other fittings, in old carpets and under the floor Old lead paint on interior walls, fittings and furniture</p>	<p>Test dust for lead or assume it contains lead. Children and pregnant women should move out or stay away from the work area. Prepare the work area to contain any dust disturbed or generated. Move out or enclose soft furnishings in plastic. Dampen down work areas to reduce dust. Use the right protective equipment. Wash before meals and after work. Clean up using wet wiping and mopping. Dispose of waste carefully.</p>

TABLE 3 – Lead safe renovation projects
Indoor projects


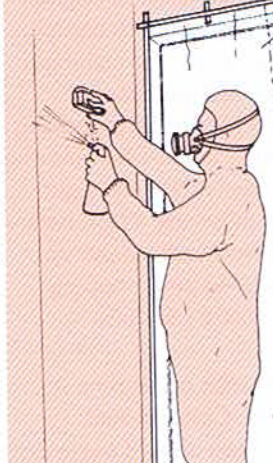



ACTIVITY	EXAMPLES	HAZARD SOURCES	KEY PRACTICES
<p>Services (plumbing, gas and electrical)</p> 	<p>Rewiring an old house Fixing broken wiring and electrical fittings Installing a new hot water cylinder Replacing a gas appliance</p>	<p>Lead dust in ceiling cavities and under floors where pipes and wiring is often located. Dust is often created when channels are cut into walls or holes drilled when wiring is installed</p> <p>Lead in PVC-coated electrical wire and other PVC products</p> <p>Fumes from soldering</p>	<p>Prepare work areas to contain any dust. Be careful moving old lead-soldered pipes as solder can break off inside the pipes contaminating drinking water. Provide the best possible ventilation if soldering in confined spaces. Use lead-free solder. Use a respirator fitted with P2 (dust and fumes) filters. Flush the pipes by running taps when finished to remove any lead in the water.</p>
<p>Painting and decorating</p> 	<p>Preparing small or large areas for painting, such as a window, door, roof or house Removing chipped paint Tiling a bathroom Wallpapering a room</p>	<p>Old lead paint when removed by burning or dry sanding and scraping can produce large amounts of hazardous lead dust</p> <p>Lead dust when fittings are moved to paint walls and ceilings</p>	<p>Test dust for lead or assume it contains lead. Children and pregnant women should move out or stay away from the work area. If possible, hire a professional to do the work. Otherwise, prepare the work area to contain any dust. Move out or cover soft furnishings in plastic. Use wet scraping and sanding to prepare the surface. Don't use open flame torches or power sanders on lead paint as they create lead fumes and dust. Use the right protective equipment. Wash before meals and after work. Clean up and dispose of waste carefully.</p>

TABLE 3 – Lead safe renovation projects

Outdoor projects

ACTIVITY	EXAMPLES	HAZARD SOURCES	KEY PRACTICES
<p>Walls, fences and outbuildings</p> 	<p>Repairs or painting exterior walls, verandahs and outbuildings</p> <p>Demolishing walls, sheds, garages etc</p> <p>Painting a fence, verandah or roof</p>	<p>Lead paint may have been used on any of these structures</p> <p>Lead dust may have accumulated in cavities or be created during work</p> <p>Lead flashing can be hazardous if soldered or handled</p>	<p>Lay plastic sheeting under the work area to contain dust and debris. Use wet sanding and scraping techniques if painting. Wet down the work area to reduce dust. Don't work on a windy day. Use protective equipment. Inform the neighbours. Clean up using wet wiping and mopping. Dispose of waste carefully. Remove plastic sheeting as soon as clean up is complete so plants and grass don't die.</p>
<p>Exterior windows, doors and fittings</p> 	<p>Painting a window or door</p> <p>Replacing rotten cladding or architraves</p> <p>Dismantling a window to fix a broken sash cord</p>	<p>Lead dust may have accumulated in insides frames and sash wells, above lintels and on windowsills</p> <p>Lead paint may have been used on any of these structures</p>	<p>As above</p>
<p>Backyard and garden</p> 	<p>Working in lead contaminated soil</p>	<p>Soil can be contaminated from a number of sources. This can be particularly serious if children frequently play in areas where contaminated soil is present</p>	<p>Cover contaminated soil with clean topsoil, new turf, plants or paving. Turn over and mulch soil. Cover or move children's play areas to uncontaminated parts of the yard. Try to keep children from playing in bare soil areas. Wash before meals and when work is finished.</p>



Want more information?

Contacts

Call your **local council** for information on lead in houses and buildings in your area and how to protect yourself during renovations.

For information on lead and the environment call the **NSW Environment Protection Authority's** Lead Pollution Line on 131 555 or visit the Lead Safe internet site www.epa.nsw.gov.au/leadsafe

For information on approved waste facilities contact the **NSW Environment Protection Authority's** Regulation and Audit Branch on 9795 5000 (switchboard during business hours).

For further information and advice about protecting yourself from lead, about qualified paint inspection and removal services, and other guidelines for safe home renovation, call the **Lead Advisory Service (NSW)** on 1800 626 086 or (02) 9716 0132

The **NSW WorkCover Authority** information line on 131 050 can provide information to tradespeople on lead safe work practices and occupational exposure to lead.

Ask your doctor if you want to know more about the effects of lead on health or how to get a blood lead test.

Further reading

- Interdepartmental Lead Taskforce
NSW Lead Management Action Plan, NSW Environment Protection Authority, 1994
- *Lead Action News*, Newsletter of the Lead Group Inc.
Contact the Lead Group's Lead Advisory Service – 1800 626 086
or check in your local library
- *Lead Safe Fact Sheet: Lead, Your Health and the Environment*
Lead Reference Centre, 1997 (English)
- *Lead Safe Fact Sheet: Lead, Your Health and the Environment*
Lead Reference Centre, 1997 (Arabic, Chinese, Korean, Macedonian, Spanish, Turkish, and Vietnamese)
- *Lead Safe Fact Sheet: Lead Safe Housekeeping*, Lead Reference Centre, 1997
- Worksafe Australia
Control of Inorganic Lead at Work [NOHSC:1012 (1994)]
Australian Government Publishing Service, 1994
- *Lead Safe: a guide to keeping your family safe from lead*
Lead Reference Centre, 1998 (English)

Lead safe renovator's checklist

BEFORE WORK

- Pregnant women, children, and pets must stay away from the work area or move out until the clean-up is completed
- Determine the level of hazard (Level 1 or Level 2) and develop a simple lead safe work plan
- Test, or assume lead is present if you don't test. If you do test, look for lead in paint and ceiling, wall, window and floor dust.
Follow all safety precautions, particularly on pre-1970 homes

PREPARE THE WORK AREA

INSIDE...

- Seal or cover floor, doors and windows with plastic and tape
- Move soft furnishings, carpets, curtains, clothes and other items out of work area or cover with plastic and seal with tape

OUTSIDE...

- Lay plastic sheeting under work area and over plants and secure down
- Cover or move children's play equipment away from the work area
- Keep people and animals away from the work area

DURING WORK

- Wear protective equipment, including:
 - approved AS1716 respirator with a 'P1' (dust) or 'P2' (dust and fumes) protection level
 - protective work clothing, gloves and shoes
- Do not eat, drink or smoke in the workplace
- Wash hands and face before eating and smoking
- Wet-sand and scrape old lead paint
- Do not use open flame torches on old lead paint
- Avoid using heat guns and power sanders if possible – they can create lead hazards. Use them safely by preparing the work area, minimising dust and using protective equipment

WHEN FINISHED

- Wet-wipe and mop the work area – avoid dry-sweeping
- Use an industrial vacuum fitted with High Efficiency Particulate Air (HEPA) filters or check with the manufacturer if HEPA filters can be fitted to the vacuum
- Carefully wrap dust and debris; bag it and seal before disposing in the rubbish
- Change out of work clothes; store and wash them separately from other clothes
- Shower when finished for the day

SEE ALSO

Want more information? • PAGE 26

Hiring a lead safe contractor

If you are using contractors to work on your house, hire one that has been trained in the use of lead safe work practices (see *Want more information?* for organisations which can provide contractor's details).

A contractor may tell you that 'lead paint is not used any more' or 'lead is not a problem'. Modern paint does contain only a small amount of lead (though lead paint is still used in some special commercial and industrial applications). However, your house will almost certainly have old lead paint or contaminated dust in it if built before 1970. This can be disturbed if safe work practices are not used.

A contractor who assures you that lead is not a problem, knowing your house was built before 1970, will probably use unsafe work practices and may contaminate your house. Always use a contractor who is aware of lead hazards and who will take the necessary precautions to do the job safely.

To assess whether or not a potential contractor knows about lead, ask some simple questions:

- Do you think this house contains any lead paint or lead contaminated dust?
- Do you think this work may create lead hazards?
- Have you ever done any jobs where lead was a problem?
- How are you going to prevent lead hazards on this job?

When comparing quotes between contractors, see if the following have been included in the cost to do the work:

-
- Cost associated with lead tests (if required)

PREPARING THE WORK AREA

-
- Moving furniture
-
-
- Sealing and covering surfaces and items
-
-
- Cost of equipment and materials

PREPARING SURFACES FOR PAINTING USING...

-
- Wet sanding or scraping
-
-
- Chemical stripping
-
-
- Power sanding using dust extraction equipment or water
-
-
- Low temperature heat guns

CLEANING UP

-
- Wet washing and mopping equipment and labour
-
-
- Hire of a HEPA vacuum
-
-
- Safe disposal of waste and debris
-
-
- Clearance testing

Having the work done safely is an investment. The cost of decontaminating your house may be many times the cost of the original work done.