



A coat of many hazards

Designers now avoid lead-based paint, because of the health risks associated with it. But it was used in the past – so it pays to be aware of the dangers when working on existing structures.

Lead can seriously damage human health, whether it is ingested or inhaled. Exposure can result in a range of symptoms, such as nausea, headaches, kidney damage or problems with the nervous system and brain. If an unborn child is exposed to lead, it can result in a stillbirth.

This issue is serious enough to warrant its own set of regulations, known as the Control of Lead at Work Regulations 2002 (CLAW 2002). While designers do not specify lead in projects now, its use was sufficiently widespread in the past to make it a significant hazard when working on existing structures.

That means designers should be aware of the dangers associated with lead-based paint. They should consider the aspects of a project where the risk of exposure to lead is high, and be certain to minimise the hazard.

Life outside the tick box.



Gathering and sharing information

Strict controls have governed the marketing and use of lead-based paint since 1992, so it is unlikely to feature in a building project. If you are designing for works on any structure built before this time, however, you should keep in mind the high likelihood that lead-based paint surfaces will be present. Lead paint has been used until quite recently in some sectors to protect structural members. An example here is the rail industry

Lead surveys

Information is of uppermost importance during projects where lead paint maybe present. Designers and contractors need to be aware of the location and extent of lead-based paint on any demolition, renovation or refurbishment. That way, they can ensure the project proceeds in a fashion that minimises the hazards associated with lead poisoning.

Clients have a statutory duty to advise designers and contractors about the whereabouts of lead-based paint prior to the commencement of a project. You may therefore need to advise clients to conduct a lead survey prior to the start of any work on the fabric of the building.

A lead survey should indicate the exact location of lead-based paint surfaces, as well as the lead content of those surfaces and details of any areas that could not be accessed for surveying.

The findings of this survey should be communicated to contractors, and inform your approach to the design. Specifically, information should be included in the pre-construction information.

Sharing information

Once a lead survey has been carried out, designers are able to provide contractors with the information needed to minimise the risk of exposure. At the very least, you should:

- **Describe the work area, including full details of the amount of lead-based paint present. You should also state the number of doors/windows, the number of other ventilation points, and the number of other penetrations (e.g. ducts or pipes) in the fabric of the work area**
- **Estimate the areas of lead-based paint to be removed and/or retained**
- **Analyse the physical condition of the lead-based paint. You should clearly state whether it is badly degraded and likely to become airborne, or completely intact**
- **Develop a schedule for turning off ventilation systems if they have to be left active while the work takes place**

Leaving lead-based paint undisturbed

This is the most effective way to eliminate the risks associated with lead-based paint, as it reduces the chances of harmful lead particles being inhaled or ingested.

If a lead survey indicates that lead-based paint surfaces are in a degenerated state, you should refer to an expert before making a decision about their retention.

Covering lead-based paint surfaces

If it is possible to retain a lead-based paint surface, the most effective ways of protecting it are:

- **Using an overcoat of modern paint to seal it, or**
- **Applying a panel or wallpaper covering**

If your design adopts either of these approaches, you should ensure that the lead-based paint surface is covered as early as possible in the works schedule. You should also keep a full record of its location in the health and safety file.

Life outside the tick box.



If a lead-based paint surface is already covered, you should ensure that it continues to have sufficient protection. If the coating is degraded or damaged, a new one should be specified. It should be installed at the earliest opportunity, and a record kept in the construction phase plan and file.

Working near lead-based paint

If a design requires contractors to carry out activities near to lead-based paint surfaces, this may increase the risk of the surfaces being damaged. If this happens, lead particles may become airborne or produce harmful fumes. So, where this elevated risk exists, you should consider alternatives.

Working on lead-based paint surfaces

Where a design requires contractors to work on a lead-based paint surface, there should be no risk of the surface, or its protective barrier, sustaining damage. This rules out aggressive operations to the surface, such as:

- **Cutting**
- **Sanding**
- **Hammering**
- **Drilling**
- **Burning**

Removing lead-based paint

If lead-based paint is to be removed because it is too damaged to be retained, the contractor should be given full information about its location, condition and scope. Only specialist contractors should be used for the removal of lead-based paint from a work area.

Designers should advise contractors in advance of any restrictions that apply to the site, such as restrictions on transportation routes. You should also provide information about other features of the site that will have an impact upon the work. For example, contractors need to be made aware of any ventilation systems that cannot be shut off while the removal work takes place. Contractors who work with asbestos are most likely to have the skills, knowledge and experience required to do this kind of work. You will need to check they have lead specific training.

Keeping records

The position and condition of all lead-based paint present on a site must be recorded for future reference, and plans must be put into place to manage it safely. This information should be made available to anyone who needs it, including occupants, contractors, maintenance staff, and anyone else who needs to work on the structure in the future. Its presence must be recorded in the health and safety file.

Lead-based paint poses an ongoing hazard to anyone working on buildings that pre-date the restrictions imposed on its use. By following the advice in this Guide, designers can play a part in reducing the risks associated with lead poisoning, and protecting both the workforce and the general public from unnecessary exposure to potential harm.



Where you'll find lead-based paints

Paint containing lead pigments was widely used in domestic and industrial projects until the 1960s. On buildings constructed prior to the mid-1980s, lead-based paint can commonly be found on:

- **Windows, doors and interior woodwork in domestic structures**
- **Exterior woodwork**
- **Iron and galvanised metalwork, including radiators, railings and structural steelwork**
- **Other surfaces that are covered by oil-based paint**

You will also find lead-based paints being used until very recently on civil engineering structures e.g. railway structures.

Taking a lead on lead at work

CLAW 2002 places a duty on employers not to carry out work that exposes employees to lead, or a substance or material containing lead, without fulfilling certain requirements. The duty extends, so far as is reasonably practicable, to any other person who might be affected by such work. This list includes:

- **Another worker (including those employed by another employer) not engaged in work with lead, such as maintenance staff and cleaners**
- **Visitors to the work site**
- **Users of the structure who may be exposed to residual dust or, if not properly segregated from the work, to fumes and dust generated during work with lead-based paint**
- **Families of those who are exposed to lead at work, and who may be affected by the unintentional carrying-home of lead on clothing and footwear**

New technology

Technological advances have made the identification and removal of lead-based paint easier.

Portable XRF-i (X-Ray Fluorescence, isotope) lead paint analysis enables comprehensive surveying and outperforms traditional paint testing.

Use of infrared (IR) technology is an effective means of removing lead-based paint, and avoids the production of hazardous fumes and dust.

Useful resources

The Control of Lead at Work Regulations 2002