LSTA
Lead Sheet Training
Academy

Working with Rolled Lead Sheet in construction

A guide to health, safety and environmental care

www.leadsheet.co.uk

Training at the Lead Sheet Training Academy

The Lead Sheet Training Academy is at the forefront of training for those using lead or hard metals in the construction industry.

A nationally recognised training centre

The LSTA operates from a state of the art, purpose-built training facility at East Peckham in Kent with full scale training rigs in a well-equipped environment, recreating real-life situations.

The centre is a **CITB Approved Training Organisation** and with experienced trainers who are all CITB-approved assessors. CITB grants are available for CITB-registered construction businesses to help with course fees.

An overview of LSTA courses

Specialist Applied-skills Programmes (SAP) in Lead or Hard Metal (Level 2 and Level 3)

The LSTA has been appointed by CITB as the UK's sole provider of these courses. The courses are a mixture of attendance at the training centre and on-site experience and assessment. Each of these courses will take up to 18 months to complete, including 30-days attendance at the LSTA centre.

LSTA's City & Guilds Accredited Programmes

These courses provide a natural progression for those who want to gain a recognised qualification in **leadwork or hard metal** craft. All courses are **approved CITB short-duration courses** and grant funding is available for registered construction businesses.

- **Traditional Basic Leadwork Craft**
- **Traditional Intermediate Leadwork Craft**
- **Traditional Advanced Leadwork Craft**
- **Traditional Basic Hard Metal Craft**
- **Traditional Intermediate Hard Metal Craft**
- **Traditional Advanced Hard Metal Craft**

Specialist Upskilling Programme (SUP) and On-site Assessment and Training (OSAT)

These options are designed for experienced lead or hard metal workers without formal qualifications who want to obtain recognition of their skills by obtaining an NVQ Level 2 or Level 3 qualification without the need to spend significant time on off-site training.

Bespoke Training

LSTA can offer bespoke training in lead and hard metals to meet your specific needs. Please call us to discuss your specific requirements.

Choosing the right course, fees and timings

For more detail on course content, timings, cost and the potential grants available visit the LSTA website or contact the Training Team who will be happy to provide advice and guidance on the most suitable courses. **www.leadsheet.co.uk** Tel: **01622 87243** or email: **info@leadsheet.co.uk**

Working with lead

A guide to safe working with lead sheet in construction

Introduction

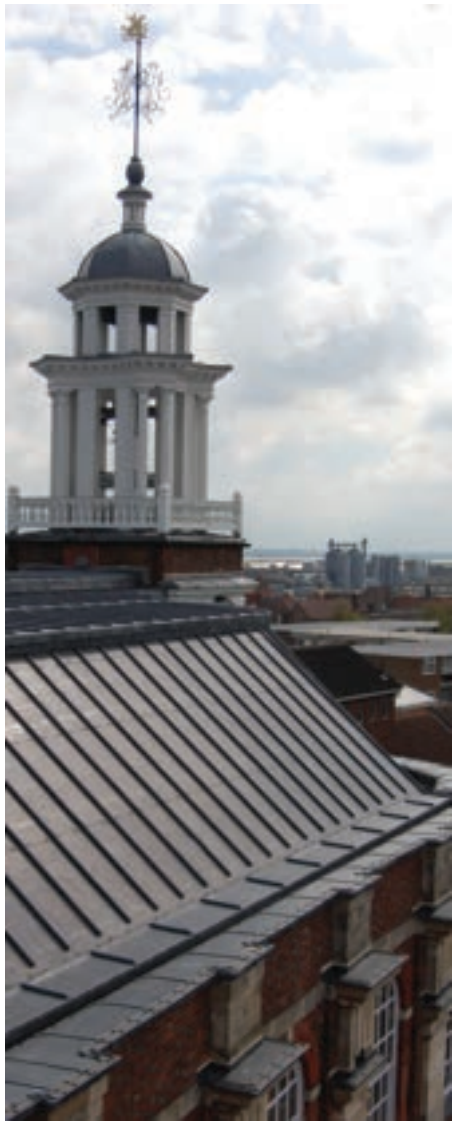
This booklet is intended as a brief guide, advising on health, safety and environmental procedures for those working with lead sheet in construction. It does not provide a substitute for any legislative guidance documents such as the Control of Lead at Work Regulations (2002) nor the related Approved Code of Practice.

It is the responsibility of all users of lead sheet whether they are employees or employers to take account of all pieces of legislation including but not limited to the **Control of Substance Hazardous to Health (COSHH) Regulations (2002), the Manual Handling Regulations (1992) or the Construction Design and Management (CDM) Regulations (2014).**

This publication may be used as part of the Health and Safety File under CDM.

About lead sheet

Used in UK construction for centuries, lead whilst a toxic material, is only harmful if inhaled or ingested. The risk of inhalation arises where lead is being melted, or through breathing in dust particles contaminated with lead. With regard to ingestion, this might occur through poor personal hygiene, when a user does not follow a few simple rules and procedures.



Duties of employers, employees, sub-contractors and self-employed persons

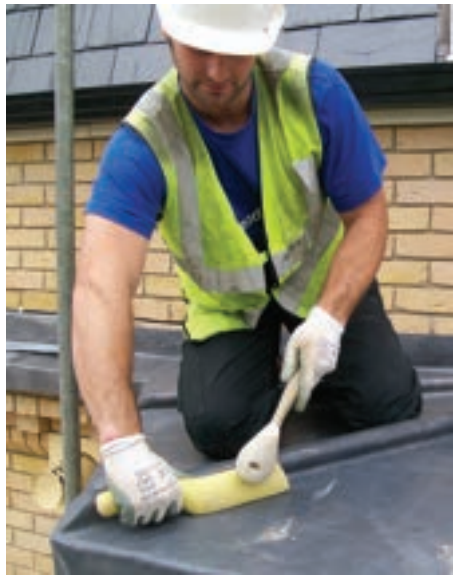
The Control of Lead at Work Regulations applies to work in which a person is exposed to lead in a form that may be inhaled or ingested.

An employer also has a duty to protect other persons on premises where such work is being carried out or who are liable to be exposed to lead from that work.

An employer must:

- **Make every employee and sub-contractor aware of any health and safety risk, which may be encountered**
- **Advise the correct procedures and precautions to be taken**
- **Ensure that staff should be competent and adequately trained for their assigned tasks**

It is the employees' responsibilities to take due note of any possible risks, follow procedures and take notice of the necessary and simple precautions as advised. A level of competence and training adequate to perform the various tasks is required.



Assessment of exposure

This is a key area, to be considered before lead work commences, and reference should be made to the Approved Code of Practice.

The Regulations state that an "employer shall not carry on any work which is liable to expose any employees to lead at work unless he has made a suitable and sufficient assessment of whether the exposure of any employees to lead is liable to be significant."

If there is a risk of exposure, correct working practices, proper controls and the appropriate safety equipment should all be established and available before work proceeds.

Significant or not significant risk of exposure

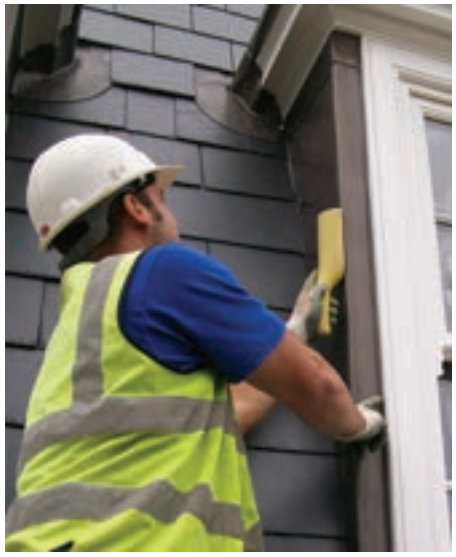
The degree of protection required by the Regulations is determined by the Assessment, being either **'Significant Risk of Exposure'** or **'Not Significant Risk of Exposure'** that is the main question.

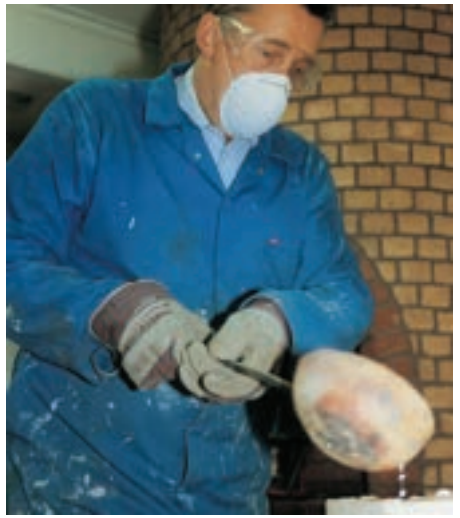
The Code of Practice provides further information as to the types of work likely to be covered by each category of risk.

If there is **Significant** risk, **Control of Lead at Work Regulations** will apply, including:

- Provision of protective clothing
- Adequacy of washing & changing facilities
- Possible air monitoring requirements
- The need for medical surveillance
- Possible provision of respiratory equipment

If there is **Not Significant** risk, then some elements of the Regulations, including air monitoring and medical surveillance, will not apply.





Level of risk affected by conditions

When handling and working with **clean solid lead sheet**, risk of exposure to lead is likely to be **'Not Significant'.**

BUT - If stripping existing lead sheet from a roof where the underside may be corroded then dust might be present that could be inhaled. In such cases, the operation could be assessed as being a **'Significant'** risk of exposure, depending on the state of the lead and the time taken in its removal.

Melting down of lead (e.g. for caulking joints) should be carried out at low temperatures (certainly below 500°C) and can be assessed as **'Not Significant'.**

PROVIDED - The quantities of lead are small and the melting operation is carried out on open site and/or in a well-ventilated area.

However, even in these situations it is recommended that leadworkers wear appropriate personal protective equipment including a suitable face mask and gloves.

Lead welding

At temperatures above 500°C lead begins to fume and the risk of inhalation could increase substantially. In most on-site building applications lead welding is carried out only for short periods and in open-air conditions.

However, if welding lead-containing materials in close proximity (see photo right) this could still result in exposure to a high concentration of lead fume before it has had a chance to disperse. This therefore could be assessed as 'Significant' risk of exposure.

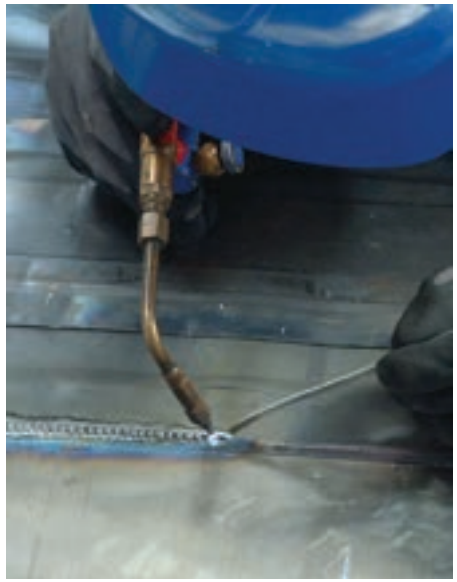
Furthermore, within a workshop area lead-in-air measurements should be taken and monitored to assess exposure, as air movement will be more restricted and exposure times longer.

Lead-in-Air standard measurement is a time-weighted average. Refer to the **Approved Code of Practice.**

Control measures

The employer and employee must ensure, as far as is reasonably practical that all measures are taken to restrict and control exposure and that respiratory equipment, protective clothing, etc are:

- Properly used and maintained in an efficient state
- Are in an efficient working order and
- Provided in adequate supply (particularly on remote sites)



Legislation

The Control of Lead at Work (CLAW) regulations sets out the permissible levels of Lead in Blood. The current permissible levels as at the time of publication are:

- Blood Lead Concentrations
- Women of reproductive capacity 30ug/dl (action level 25ug/dl)
- Young persons 50ug/dl (action level 40ug/dl)
- Any other employee 60ug/dl (action level 50ug/dl)

In order to meet these limits "action levels" (as shown above) have been built into the legislation whereby employers are required to take appropriate action and measures in order to reduce the exposure. Copies of the regulations Control of Lead at Work: Approved Code of Practice and Guidance (COP2) (Third Edition L132) can be obtained from HSE books T: 0870 600 5522 or at www.tso.co.uk.

Respiratory equipment, ventilation and protective clothing

Exposure to airborne lead, fume or contaminated dust requires suitable masks or respiratory equipment to be provided and used. Masks may not be necessary when lead welding in a workshop environment if there is adequate mechanical ventilation at the point where the welding is taking place.

Melting clean scrap sheet in a workshop, or other internal environment for casting should be carried out in a properly ventilated area with good fume extraction. Even then, the initial exposure risk assessment may be **'Significant'** and additional forced extraction equipment may be required to reduce exposure to a **'Not Significant'** level.

NB - Melting of lead should be carried out at temperatures below 500°C to avoid fume. Respiratory masks and equipment should be HSE approved.

Each employee should be provided with and should wear adequate protective clothing.

Washing & changing facilities

Adequate washing facilities should be provided preferably to include barrier cream and nail brushes to assist proper hand cleaning.

Washing (of hands in particular) is essential before eating, drinking or smoking and before leaving the workplace. Hands and arms should be washed thoroughly, with particular attention to scrubbing under the nails.

Changing facilities and a storage area for clean clothes should be available for those employees provided with protective clothing. Employees should remove working clothes, overalls, gloves etc, before washing.

Eating, drinking & smoking

These have the potential to increase the risk of lead ingestion and inhalation. Employers should make suitable arrangements for employees to eat, drink or smoke in a separate area not liable to be contaminated by lead. Food and drink should not be consumed in any area where lead work is being carried out.

Employees should not smoke when working with lead. Lead contamination is transferred to the cigarette from the fingers and then to the mouth; this risk is further increased with hand-rolled cigarettes and pipe smoking.

Similarly the habit of chewing fingernails must be avoided.

Cleaning

A clean working environment should be established and maintained, including:

- Working areas
- Clean premises
- Vehicle passenger areas
- Respiratory protective equipment
- Work wear protective clothing

Particularly with regard to workshops, dust should be swept up carefully preferably with an industrial vacuum cleaner. Applying a fine water spray on very dusty areas will assist in reducing the dust becoming airborne.

Protective clothing and towels should preferably be cleaned on the premises where lead work is being carried out. If this is not possible and/or outside agencies are used for cleaning, employers should ensure all persons likely to handle contaminated clothing for laundry should be alerted to the nature of the contamination and extent of the risk if necessary.

Protective clothing or equipment should not be taken home by employees for cleaning.

Lead in air

Where the degree of exposure is assessed as **'Significant'**, it might be necessary to measure and monitor the concentrations of lead-in-air. This should be conducted by a suitably qualified occupational hygienist.

Prevention of contamination

Both employer and employee should take such steps as are reasonably practicable to prevent lead contamination spreading beyond the workplace or storage area.

Employer and employee have a duty to protect any other person liable to be exposed to contamination on the premises where lead work is being carried out.

Medical surveillance

Where the degree of exposure is assessed as **'Significant'**, each employee is required to be provided with medical surveillance, including regular lead-in-blood monitoring.

Even in cases where exposure is deemed **'Not Significant'** it is advisable to periodically check leadworkers blood lead levels.

Patination oil

Consult the manufacturers' guidance leaflet on the safe use of Patination Oil. Normally protection for the skin and eyes should be provided and used, with adequate precautions also taken against the risk of fire.

Recovery and recycling of scrap and waste

Lead sheet has one of the highest recycling rates of all non-ferrous metals used in building and construction. Research has shown that the level of recycling is between 90 – 95% and by recycling at these rates it avoids the material being sent to landfill sites reducing potential environmental burdens.

In addition, as the metal melts at low temperatures recycling provides an effective method of providing a raw material that can be converted to new products with minimal energy requirements.

Off cuts generated during the fitting of lead sheet should be collected in suitable containers and then sold to scrap metal merchants. Similarly, when removing old lead sheet during building refurbishment work the lead should be collected and stacked either in containers or on pallets and then sold to scrap metal merchants. The following list provides a simple code of practice to follow with regard to both off cut retrieval and old lead sheet recovered from building and construction work:

- Ensure that all your lead waste is segregated from other materials.
- Recognise that separating and collecting redundant lead sheet has both an environmental and financial benefit.
- Ensure that sufficient time has been allowed to strip the building of old lead sheet before refurbishment or building work commences.
- Allocate suitable areas and containers for the storage of scrap lead.
- Off cuts from fixing lead can be saved and used to make clips, lead wedges and other items to assist with the fixing requirements of new lead sheet installations.
- Scrap lead should not be conveyed in an open-backed vehicle unless adequately covered.
- Scrap and dust should be taken to approved scrap metal merchants to facilitate the initial stages of the recycling process.
- Vehicles transporting scrap and dust should be thoroughly washed and cleaned after use.

Note that old lead sheet being replaced must be removed with care. A white dust sometimes gathers on the underside and could be hazardous when disturbed. A dust mask and gloves should be provided and worn by all persons in the vicinity of such material when it is moved not just those concerned with its removal.

If possible, any dust should be removed with an industrial vacuum cleaner, placed in sealed bags or containers, and appropriately marked. The scrap sheet should ideally be placed in covered containers before being loaded onto transport for removal.

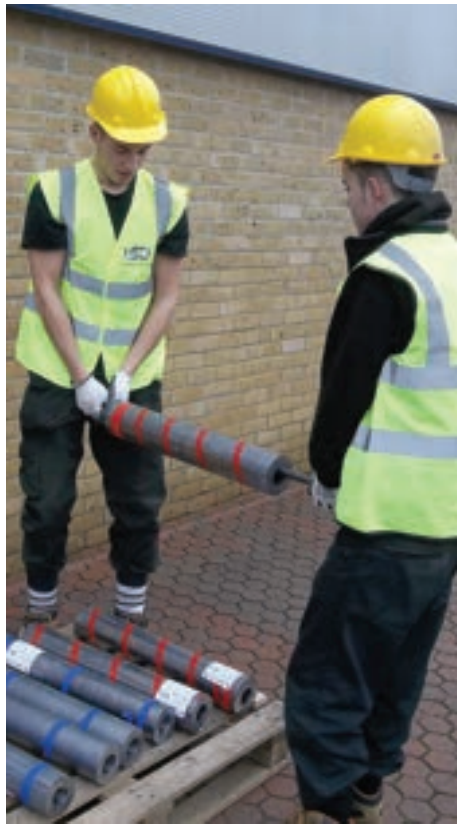
Lifting lead

Due to the density of the material, even the smallest rolls are unusually heavy, to an extent completely disproportionate to their size.

Proper lifting equipment and additional staff should be available and always used to ensure the safety of operatives and to fulfil the requirements of the "Manual Handling Operations Regulations 1992".

The law does not identify a maximum weight limit. It places duties on employers to manage or control risk; measures to take to meet this duty will vary depending on the circumstances of the task. Things to be considered will include the individual carrying out the handling operation, e.g. strength, fitness, underlying medical conditions, the weight to be lifted and distance to be carried, the nature of the load or the postures to be adopted or the availability of equipment to facilitate the lift.

There is no universally safe maximum weight for any load, however, there are varying degrees of risk. The Manual Handling Operations Regulations guidance gives basic guideline figures for lifting and lowering, which indicate when a more detailed risk assessment should be carried out.



Maintenance of records

It is the duty of the employer to provide and maintain adequate records, which show details of:

- The work activity and location of lead work
- The information, training and instruction given
- Assessment of level of exposure to risk
- Precautionary measures and control procedures
- Equipment provided for safe working
- Details of in-situ "hot working" where permitted
- Respiratory equipment supplied and details of use
- Mechanical ventilation provided for workshops
- Personal protective clothing and washing facilities provided
- Lead-in-air monitoring where required
- Medical surveillance where required
- Blood lead levels where required
- Health and safety data sheets on hazardous materials (COSHH)

An entry in the records must be retained for TWO YEARS from the date on which the entry was made.

Further information

More information is available through your works safety representative or direct from the local office of the Health and Safety Executive or from The Stationery Office.

HSE publications

Control of Lead at Work: Approved Code of Practice, Regulations and Guidance (COP2) Revised 2002 ISBN 978 07176 2565 6

ELSIA

The European Lead Sheet Industry Association also offers Health and Safety Advice, www.elsia-web.org

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Technical enquiries

As the LSTA is focused solely on delivering high quality training for the industry it will not able be able to handle individual technical enquiries. Users wanting more help or advice on the specification, installation or maintenance of rolled lead sheet should contact the technical department of one of the LSTA's sponsors or visit the LSTA website where there is a limited amount of further information.

The contact details are:

BLM British Lead: Telephone 03303 333535 or email technical@britishlead.co.uk

Calder Lead: Telephone 01244 393710 or email technical@calderlead.co.uk

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