

Unit 201: Health and safety in building services engineering

Outcome 2

How to handle hazardous situations

Trip



Slip



Dust





Fumes



Sparks



Uneven surface



**Bad
house-
keeping**

**Fire
hazards**



Incorrect manual handling





Damaged
tools

Chemical
storage



Working at
heights

CHATSWORTH FORGE LTD METHOD STATEMENT	
REFERENCE NO.	Rec. No. 092104 srm3 Rev 2
SITE	Watermark place 90-94 Upper Thames Street EC4R 3UB
TASK	Bridge balustrade
PRINCIPAL CONTRACTOR	Sir Robert McAlpine

DISTRIBUTION	
Name	Company
Anthony Cahill	SRM
Ray Price	CFL

LOCATION OF WORK – include sketch plans where possible	
BRIDGE OVER UPPER THAMES STREET	
Start Date	28/05/09
Duration	4 weeks

Supervisor in Charge	Ray Price	Number of Persons	UP TO 4
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LIST ANY SUB CONTRACTORS TO BE USED

PLANT AND EQUIPMENT TO BE USED
Fork lift
Hand tools
110 volt power tools
Niko scaffold runway beam
110 volt minifor winch
0.5 tonne chain hoist

PERMITS REQUIRED	ASSESSMEN
HOT WORKS	YES/NO
CRANE CHECK LIST	No COSHH
EXCAVATION	No NOISE
CONFINED SPACE	No MANUAL HANDL
RISER SHAFTS	No RISK
	HAWS

HOT WORK PERMIT

The Supervisor, in issuing this Permit, certifies that all safety factors have been considered and cleared for satisfactory.

Return this Permit upon completion of the job within 3 to 5 days to the authorising Supervisor. The Supervisor will write "complete", date and initial across the face of the permit.

Area of Hot Work

Work to be done

	YES	NO	NA
1. Read the Hot Work Permit Procedure			
2. Work area and equipment has been made free of flammable, combustible, and hazardous materials			
3. Fire Test team			
4. Is a fire extinguisher on the job?			
5. Smoke alarms covered?			
6. (New documented) under blanket?			
7. Is a fire watch provided?			
8. Adjusting equipment and operations maintained OK from equipment of possible effect on the job			
9. Other necessary precautions, actions			

APPROVAL
I have personally checked the conditions necessary and as specified. I authorize this "Hot" work to begin.
APPROVED BY _____ DATE _____ TIME _____

HOT WORK PERMIT IS GOOD FOR _____ HOURS ONLY.
THIS PERMIT CAN BE ISSUED FOR ONLY ONE SHIFT.
IT BECOMES VOID AT THE END OF THE WORK SHIFT DAY.

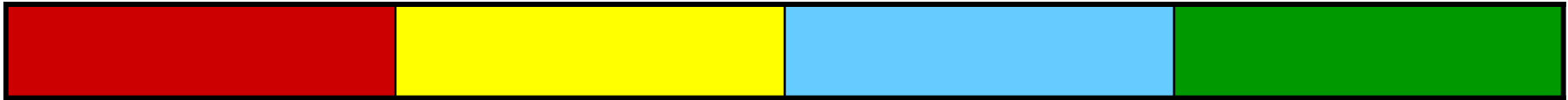
A work method statement (sometimes referred to as a **safe work method statement**) or a safety procedure, is part of a workplace safety plan.

It is mainly used in construction to describe a document giving specific instructions on how to safely perform a work-related task, or operate equipment.

May also include a **hot work permit** or other permits to work.

Safety signs

What are the four colours of safety signs?



What are the categories of safety signs?



Prohibition signs

Do not drink



Do not touch



No naked flames



No access for pedestrians



Warning signs

Corrosive material



Danger electricity



Flammable materials



Obstacles



Mandatory signs

Safety boots **must** be worn



Eye protection **must** be worn



Pedestrians **must** walk this way



Hard hats **must** be worn



Emergency signs

Emergency exit route



Emergency eye wash



First aid



Emergency telephone



COSHH

Control of Substances Hazardous to Health

These regulations were introduced to control exposure to hazardous substances.

- Solids, liquids, dust, fumes, vapours, gases etc.
- Risk Assess
- Precautions
- Control measures
- Monitor
- Training and information
- COSHH data can be found on any container, as well as the data sheet.

A **COSHH** folder needs to be kept. COSHH categories:



TOXIC – Poisons



HARMFUL



CORROSIVE – severe burns



IRRITANT – inflammation




OXIDISING – induces burning



EXTREMELY FLAMMABLE (eg LPG)

Remember: some domestic items can have hazards.

- Loft insulation can be an irritant to the skin
- Domestic cleaning chemicals that are either acid or alkali can be corrosive and burn the skin.

The rule is that any item with a COSHH  means you need to wear gloves to protect your hands.



Take care with:

Asbestos

Lead

**Cutting
oils**

LPG

Fluxes

**Oxy-
Acetylene**

**Carbon
monoxide**
from
burning gas

**Welding
fumes**

Cadmium
in plastics

Solvents

**Cleaning
fluids**

**Jointing
compounds**

Sealants

NEWS COVENTRY & WARWICKSHIRE

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21 November 2011 Last updated at 08:43

25  Share    

Coventry man overcome by fumes from cleaning fluids mix

A 51-year-old man from Coventry was taken to hospital after being overcome by chemical fumes while attempting to clean his house on Sunday.

The man brushed a sulphuric acid compound on bathroom tiles at the property in Brays Lane before spraying bleach over the top.

A spokesman for West Midlands Fire and Rescue Service said the two combined to give off a "pungent gas".

Two other people in the house were unaffected by the fumes.

Bill Gough from the fire service said the man, who has since recovered, called them at about 15:00 GMT and that firefighters wearing breathing apparatus had diluted the mixture.

"What we would say to people is read the labels on the tins, bottles and jars of these particular chemicals because they do give in their instructions for use a warning that they shouldn't be used with any other cleaning fluids," Mr Gough added.

Risk assess

A risk assessment needs to be completed:

- To back up the manufacturer's data sheet for COSH
- To assess various activities carried out by employees.

As a plumber, you have to assess the risk to yourself and others when work is carried out. So this becomes the heart of work safety.

A risk assessment will – quite often – result in the use of PPE and the presence of a first aid kit.

Risk assess

There are five steps to risk assessments:

1. Look for hazards.
2. Decide who or what might be harmed.
3. Evaluate the risks, present precautions and take action when needed.
4. Record your findings.
5. Review and revise your findings regularly.

The Management of Health and Safety at Work Regulations 1999 legally require employers to make decisions about the hazards, significant or not, faced in the workplace.

Risk assess

Key definitions:

Accident: an unplanned, undesired occurrence which may result in harm or loss

Hazard: anything that has a potential to cause loss or harm

Risk: how likely it is that a hazard will actually cause harm or loss.

When a risk assessment is put together, you have to identify the work hazard and weigh it up against the likelihood of an accident happening.

Risk assess

Risk element:

Value of likelihood

No likelihood	0
Very unlikely	1
Unlikely	2
Likely	3
Very likely	4
Certainty	5

Value of consequence

No injury or loss	0
First aid	1
Up to 3 days off work	2
Over 3 days off work	3
Major injury	4
Fatality	5

These assessments will always be looked for by the HSE officer on an inspection, or by the insurance company, should a claim be submitted.

GAS HEATING EQUIPMENT	
TEMPORARY ELECTRIC LIGHTING	

Risk assess

Leeds firm fined after worker crushed to death

A Leeds freight company has been fined after a 59-year-old worker was crushed to death by a case of glass.

Alan Fletcher, from Leeds, tried to stop the two-tonne case from falling as it was unloaded at Roadways Container Logistics, Leeds Crown Court heard.



The firm, of Valley Farm Way, Stourton, pleaded guilty to breaching Section 2(1) of the 1974 Health and Safety at Work Act.

Alan Fletcher from Leeds was crushed by a case of glass at work in April 2006

It was fined £250,000 and ordered to pay £100,000 costs in court on Friday.

'Tragic and unnecessary'

The court heard how Mr Fletcher, an admin manager, was with two cargo handlers and a supervisor as several containers of glass were unloaded from an open top freight container on 6 April 2006.

He was crushed as he tried to stop the final case from falling as it was lifted out of the container.

The case had not been properly secured and none of the colleagues had been given the correct training in lifting operations, the court heard. No formal planning or risk assessment had been carried out.

Lead

As part of your job you may have to carry out lead work:
lead is highly **toxic** and heavy.

Absorption:	touch
Ingestion:	mouth
Inhalation:	breathing

Take care over the central nervous system and kidneys:
Always wear barrier cream and weld in well-ventilated
areas.

Lead

- Risk assess
- Systems of work
- Washing facilities
- Training
- PPE
- Measure exposure
- Blood tests.



Fluxes

Fluxes are used daily by plumbers to help solder to adhere to copper tube, but the fumes from soldering are dangerous.



Solvents

Different solvents are used by plumbers to join components together.

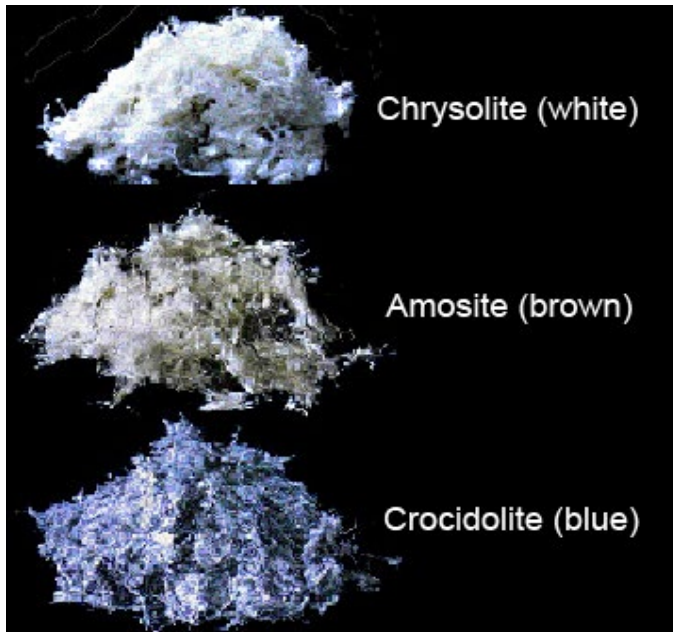
Care should be taken when joining PVCu pipes in confined spaces when using solvents, due to the vapours given off.



Asbestos

Asbestos at Work Regulations:

It is a chrysotile material: blue, brown and white.



Asbestos work should be carried out by a **specialist** licensed company, which has a workforce trained in this area.

Video link:

<http://www.hse.gov.uk/asbestos/videos/cmorganlong.htm>

Asbestos

Asbestos is dangerous to health, and failure to wear proper protective equipment can lead to chronic illnesses. Plumbers must be aware of properties built before 1980 – insulation, soffits and facias.

Any asbestos waste should be double-bagged, sealed, labelled and put into lockable containers.



Asbestos

If asbestos is thought to be on site, you stop work and inform your supervisor.

- 7kg rule on domestic waste
- Mesothelioma is cancer of the lining of the lungs



Asbestos

Asbestos is sometimes identified by it being a fibrous cement material found in older buildings.

If it is disturbed and the needles become airborne, the risk of breathing the particles in is **high**.

The golden rule: do not disturb asbestos and leave alone. If the needles enter the body, it can lead to long-term illness.



Asbestos

If you come across any material that you think may be asbestos, you have to stop work and ask your supervisor for advice.

Other than minor work on asbestos – like a small gasket – asbestos has to be disposed of by a licensed contractor, as the disposal is regulated by the Control of Asbestos Regulations.

Double-bagged and labelled.



Personal Protective Equipment

PPE

- Provided by employer
- Designed to protect against hazards.



PPE

Personal Protective Equipment is to be provided and worn at work whenever there is a risk to health and safety. Self-employed people also have a duty to obtain and wear PPE.

Eye protection should be worn to conform to the Eye Protection Regulations 1974.

Head and neck protection should be worn to conform to the Construction Head Protection Regulations 1989.

Risk to breathing with hazards from dust, vapour, noxious gases, oxygen-deficient air – solid fuel boilers.

PPE

Risk to body from heat, adverse weather, splashes, leaks and general knocks.

Risk to hands from abrasion, heat, cuts, punctures, impact, chemicals, electric shocks.

Risk to feet from slipping, falling objects, chemicals, heat.

Risk to ears from noise. A level of 85dB is set in the Noise at Work Regulations 1989 – noise level is measured in dB (decibels).

PPE

If working in sewers, Weil's disease can be caught from rats, so wear gloves.

Occasionally, air samples may have to be taken.

When lead burning, use barrier cream, gloves and goggles with point of use extraction, to protect against noxious fumes.

If copper pipe bending around your knee, your knee will need **additional** protection against damage.



PPE

Think about various plumbing situations:

- Moving loft insulation to find pipes

Gloves and dust mask

- Creating dust when using a hand-held concrete grinder

Respirator and goggles

- Using a pneumatic drill to chase a wall for pipes

Ear defenders

- Drilling a hole to put some clips up

Goggles

- Working near to moving traffic

High visibility jacket

- The main responsibility for wearing PPE is the employee's

Manual handling

Part of the COSHH procedure is the area of manual handling. Before you lift an item correctly, consider:

- Can the load be lifted safely without exceeding the maximum load from the given position?
- Can a mechanical aid eliminate the risk of injury?
- Is the route clear of obstructions? Plan the route.
- Is any specialist training required to lift this?
- Have I read the risk assessment documentation regarding this item?

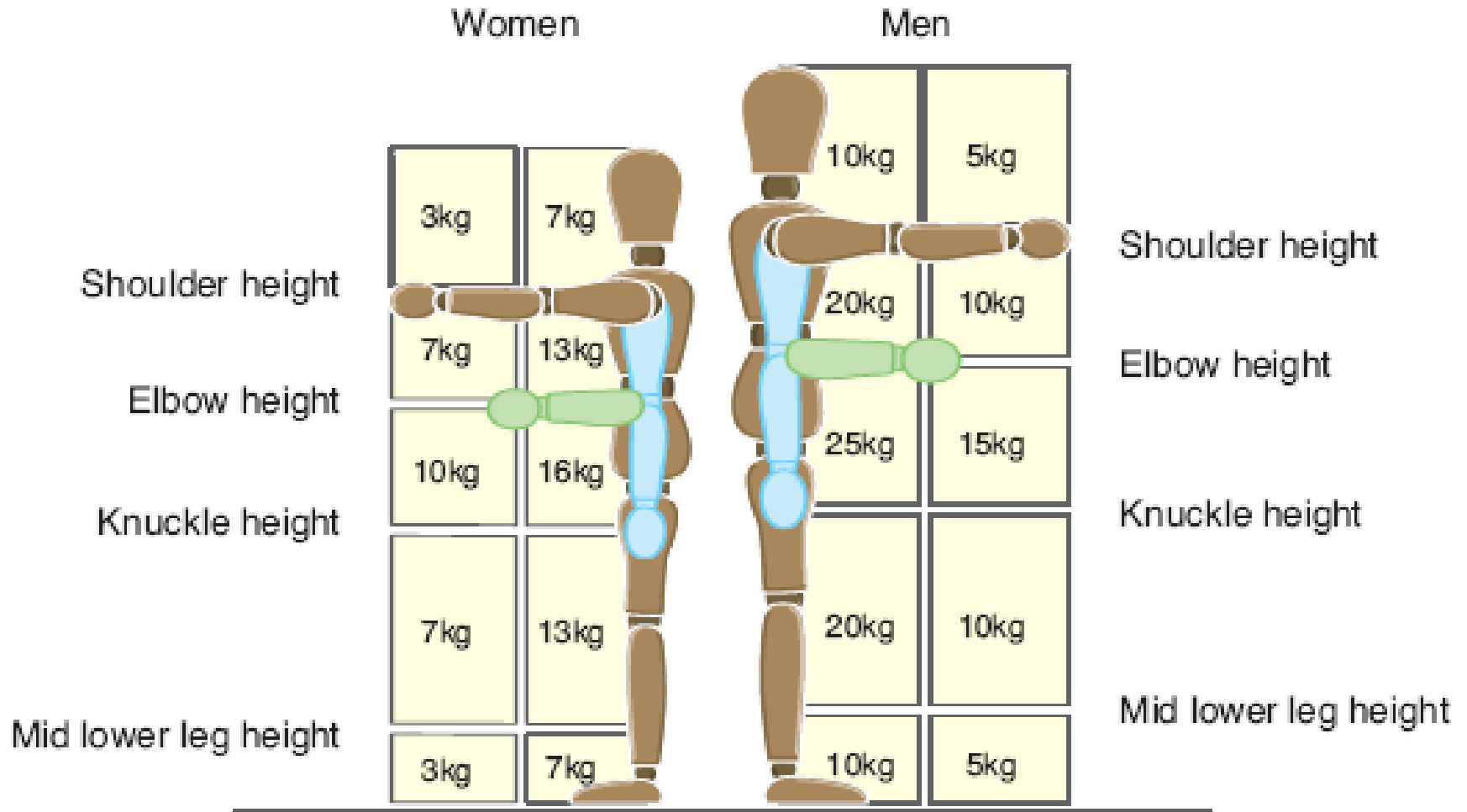
Manual handling

All plumbing activities that use mechanical lifting equipment are covered by the Lifting Operations and Lifting Equipment Regulations 1998.

If an item or object is too heavy or unstable, always use a mechanical lifting aid.

You can lift an object as a team with an identified leader. The team should be made up of people similar in height and strength.

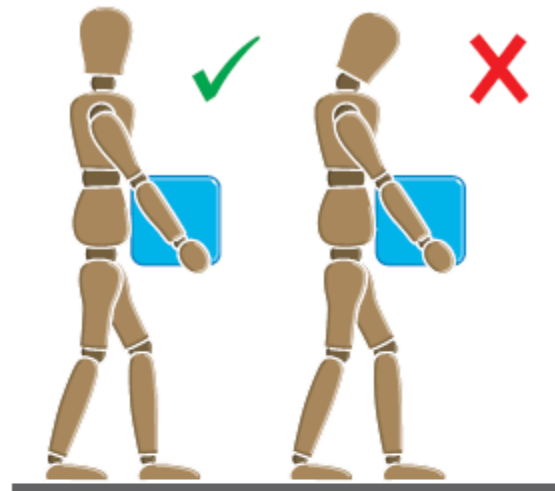
Manual handling



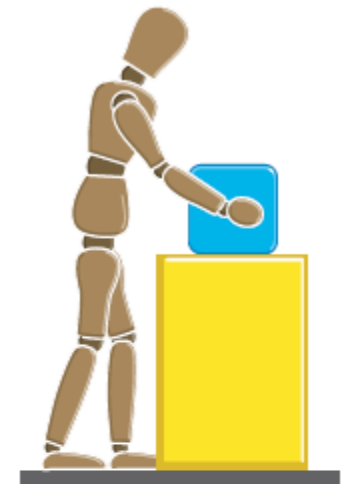
Manual handling



Adopt a stable position with feet apart and one leg slightly forward to maintain balance



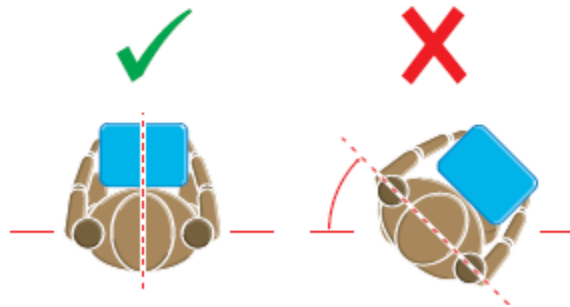
Keep the head up when handling



Put down, then adjust



Start in a good posture



Avoid twisting the back or leaning sideways, especially while the back is bent

Kinetic
lifting

Manual handling

Always risk assess before you lift. Even if your supervisor asks you to carry a heavy object from a van, ask for help or use a mechanical lifting aid.

If a customer asks you to lift an item outside for them, you may have to wait for some help.



Manual handling

There are numerous pieces of small lifting equipment available for plumbers:



RIDDOR

Reporting of Injuries, Diseases or Dangerous Occurrences Regulations

If a worker is off work for **seven or more days** due to a workplace accident, it has to be reported to the HSE.

All minor accidents are logged in the accident book.

- Human error
- Forgetfulness
- Ignorance
- Recklessness
- Neglect

RIDDOR

With RIDDOR, all fatal accidents have to be reported immediately so the HSE and police might be involved.

If a worker is seriously injured, this has to be reported within 15 days.

If a worker is off work for five or more days, this too has to be reported.

First aid

Immediate and appropriate action prior to emergency personnel arriving.

Health and Safety Regulations:

- Adequate equipment
- Adequate facilities
- Appointed person

No medicines to be kept in first aid box.

Plumbers are likely to incur minor injuries:

- Minor cuts
- Minor burns
- Grit or dust in eyes
- Exposure to fumes.

First aid

Minor cuts: cleaned thoroughly, stem bleeding with bandage or plaster.

Burns: cool area with cold, running water for about 10 minutes.

Objects in eyes: potential damage to eye. Wash loose bits. Do not remove objects that have penetrated eye.

Exposure to fumes: care that you do not become affected by fumes. Ventilation and fresh air, recovery position, CPR.

Serious injuries: simple or compound fractures. Support area.

Unconscious: check breathing; recovery position, if victim is feeling faint. Stop from falling.

First aid

Electric shock: be careful – isolate source or remove from source, remove victim, check breathing, CPR.

CPR: keep blood circulating until emergency services arrive.

Recovery position: best position for unconscious victim.

- Raise alarm
- Dial 999 and ask for particular service
- State location and situation
- Colleague to wait at entrance
- Always stay with victim.

First aid

If there is a very serious injury or fatality at work, the emergency services **must** be called straight away.

- Loss of limb
- Fall from height
- Major burn
- Being trapped



First aid

Chronic illness: long-term, more serious condition that could, but not always, end in death.

Acute illness: rapid onset of a condition that may be curable.

Fire evacuation

In the case of a fire:

1. Sound the alarm.
2. Call 999.
3. Evacuate building.
4. Only deal with small fire if safe to do so
5. Meet at assembly point.
6. Role call.

It is the responsibility of each employee to follow the emergency procedure should a situation arise.