

HEALTH **AND** **SAFETY** **MANUAL**

POWERWORKS MAINTENANCE SERVICES LTD

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Health & Safety Statement

1. Planning

1.1 Safety Hazards, Risk Assessment and Risk Control

As a company we will identify safety hazards, assess the risks and implements appropriate control measures that are present on site.

The documented risk assessments will include, where appropriate, consideration of the following:

- **Access to site and work area.**
- **Delivery of material to site.**
- **Material handling to point of use.**
- **Build & containment.**
- **Use of access equipment (e.g. scaffold, towers, ladders and step-ladders).**
- **Testing and commissioning.**
- **Maintenance.**
- **PPE.**
- **Fire precautions.**
- **Environmental Hazards**

1.1.1 Responsibilities

The **Managing Director** has overall responsibility as to the management and implementation of the company's Health and Occupational Safety Policy. As such he has delegated the day to day running of the policy to qualified personnel within the company.

The **Service Co-Ordinator** or **Project Manager** must source, review and get safety management approval of all generic risk assessments and method statements before works can take place.

The **Service Director (SD)** must review all generic risk assessments & method statements and for large projects he must source and review before works can take place.

The **Field Service Engineer (FSE)** is responsible for modifying standard method statements and risk assessments to suit on site works, especially regarding environmental and non- standard works. If the work activity deviates greatly from the current method statement it must be approved by the Service director or Project manager.

1.1.2 Corrective and Preventive Action

If the control measures identified during the risk assessment are inadequate then the Service Director or Project Manager will include additional control measures to reduce the risk to acceptable level. Control measures must be put in place when the risk level is greater than 6 based on a maximum risk level of 16.

Hazards

These are conditions, situations or activities with the potential to cause an accident

The typical physical hazards include (but not exhaustive list):

- Electricity
- Manual Handling
- Fire Safety
- Works at Heights
- Same level falls
- Use of Hand Tools

Risk Assessment

Risk assessment is a vital part of the process by which hazards are prevented from resulting in accidents.

Risks are the combination of likelihood of an accident and the severity of the outcome.

Risk evaluation

To evaluate the level of risk, first list the significant hazards for the work process being considered. Then decide upon the likelihood of an accident arising from the hazard, whether it is unlikely, likely, probable or certain to occur (thus, from the table below, giving it a number of 1-4).

Likelihood of Risk:

- 1 = Very Unlikely
- 2 = Likely
- 3 = Very Likely
- 4 = Certain.

Then decide on the severity of injuries that would result, minor injuries, lost time accident, serious, fatal (again, from the table, giving a number of 1-4).

Severity of Risk:

- 1 = Delay Only
- 2 = Minor Injury
- 3 = Major Injury
- 4 = Death

	LIKELIHOOD 1 = Very Unlikely 2 = Likely 3 = Very Likely 4 = Certain to occur			
	1	2	3	4
SEVERITY 1 = Delay Only 2 = Minor Injury 3 = Major Injury 4 = Death	1	2	3	4
1	1	2	3	4
2	2	4	6	8
3	3	6	9	12



By multiplying the two numbers together a risk evaluation is obtained where:

9 – 16 is high risk

4 – 8 is medium risk

1 – 3 is low risk

This evaluation is added to the Work Risk Assessment.

Following review of the control measures, the risk rating is re-evaluated using the same system and adding to the assessment 'after controls' boxes.

Other Risks

Risk assessments should include all significant risks arising at the workplace. These may not always be task specific. Where conditions or other activities on or near the site impose risks to operatives, these should be assessed and controlled where necessary. These might include:

- Residual uncontrolled risks from other trades
- Emergencies, such as fire or bomb threats
- Adjacent road traffic, when un-loading
- Normal site production activities, such as petro-chemical industry
- Weather conditions
- Driving

People at Risk

When assessing risks it is important to consider people not directly involved in the work activity, such as other trade contractors, visitors to the site and members of the public.

Risk Controls

These need to be put in place to deal with the underlying hazard. Only as a last resort should personal protective equipment be used as a control. In general the hierarchy of controls should be:

- Substitution of a safer method
- Design changes to reduce or eliminate the risk
- Segregation by distance or time
- Personal protective equipment

An example of standard risk assessment are contained in appendix X

1.1.3 Register of Legislative, Regulatory, and other OH&S requirements

The Powerworks recognises that all work carried out in the UK is subject to the requirements of Health and Safety at Work etc. Act 1974. Project work throughout the EU is also subject to COUNCIL DIRECTIVE 92/57/EEC. Our procedures have been designed to meet the requirements of both UK and EU Legislation.

References:

Europe - <http://europe.osha.eu.int/legislation/directives/A/1/2/16>

UK - <http://www.hse.gov.uk/legislation/index.htm>

- Electricity at work regulations 1989
- BS7671 Requirements for electrical installations
- Provision and use of work equipment regulations 1998
- Electrical Maintenance: Code of Practice ISBN 0 8529 6769 1
- HSE Publications
 - Using Electrical Storage Batteries Safely
 - Manual handling Assessment Charts
 - Making the best use of lifting and handling aids
 - Working with substances hazardous to health (COSHH)
 - Work with display screen equipment
 - Aching arms (or RSI) in small businesses

1.1.4 Objectives and Targets

The Powerworks Ltd has two safety objectives for 2012-2013:

- 1) To update, create and monitor method statements and Risk Assessments for all works taking place.
- 2) Safety Audits will be carried on
 - a. 100% of FSEs are to be audited, at least once, by the Service Director in the year April 2011 – April 2012.
- 3) Training -
 - a. Programmes to ensure all new employees are properly safety inducted and that all employees are trained to standards in excess of those required by legislation.
 - b. Monthly safety activities will be carried out by the Service Director.

2. Overall Structure and Responsibility

2.1 Service Director Responsibilities

He is responsible to ensure that all day to day activities are carried out in a safe manner, in accordance with all established Powerworks procedures, codes of practices and method statements. He will:-

- Assist the Managing Director in ensuring a full and comprehensive Health and Safety Policy is provided and administrated to ensure a continuous improvement in Health and safety.
- Provide a comprehensive safety Induction package for all new employees and contractors.
- Ensure that all Powerworks staff have been adequately trained (to an appropriate level) in all aspects of Health and safety which they may meet on site and within the home unit.
- Ensure all site staff have current CSCS (or ECS equivalent) or safe contractor cards.
- Ensure a person is nominated to maintain (and record) all plant and equipment condition and calibrations.
- Ensure that risk assessments and method statements are complete for all tasks at base or in the field.
- Review all generic risk assessment and method statements and audit (annually) 10% of completed RAMS post work completion.
- Provide site induction training to all The Powerworks contractors and employees.
- Ensure that method statements are read and understood by all contractors and Powerworks employees involved in the task and this fact has been documented.

- Ensure day to day compliance with procedures, wearing of PPE, site rules etc.
- Will be the contact for the reporting of any accidents or incidents on site.
- Ensure that suitable access & egress is provided at all times.
- Ensure that first aid facilities are provided.
- Ensure that adequate welfare facilities are provided.
- To ensure that RSS feeds are maintained and recorded where applicable from the HSE website with updates to Legislation and safety bulletin feeds.

2.2 Field Service Manager (FSM) / Senior Engineer

The FSM is designated as the most senior person on site. They are responsible to ensure that all day to day activities are carried out in a safe manner, in accordance with all established The Powerworks procedures, codes of practices and method statements.

They will.

- Ensure that risk assessments and method statements are complete for all phases of the task(s).
- Review all risk assessment and method statements and send to Service director for approval if special hazards are involved – use of crane, scaffolding, etc.
- Ensure that method statements are read and understood by all contractors and Powerworks employees involved in the task and this fact has been documented.
- Ensure day to day compliance with procedures, wearing of PPE, site rules etc.
- Will be the contact for the reporting of any accidents or incidents on site. Reporting all such incidents to the Service Director as soon as possible.
- Ensure that suitable access & egress is provided at all times.
- Ensure that first aid facilities are provided.
- Ensure that adequate welfare facilities are provided.
- Carry out daily site inspections (for projects/tasks over a number of days)

2.3 Field Service Engineers (FSE)

They are responsible to ensure that all day to day activities are carried out in a safe manner, in accordance with all established Powerworks procedures, codes of practices and method statements.

They must.

- Ensure that risk assessments and method statements are completed and understood before any works can take place.
- Carry out work as per risk assessments and method statements, any deviation must be approved by site supervisor/Senior Engineer.
- Ensure that they wear the appropriate PPE at all times.
- Ensure that they have a fully equipped safety bag and tool box in their possession.
- Report all accidents and near misses to their senior engineer or where lone working to the Service Director and local H&S representatives where required.
- Ensure that they are aware of the location of first aid and welfare facilities.

2.4 EMEA Health & Safety Officer

The EMEA Health & Safety Officer is responsible for developing Health and Safety procedures for CDM Projects. This person will be a suitably qualified and contracted officer who will be responsible for monitoring that these procedures are followed.

- Monitor compliance with current H&S legislation
- Developing H&S policies and procedures
- Approve Project site risk assessments and method statements
- Provide training for project managers/supervisors and Powerworks operators
- Audit site work to ensure that all relevant procedures are followed
-

3. Training, Awareness, and Competence

Powerworks is committed to providing H&S training to its employees and will ensure that all contractors have also received the relevant training from their company. We believe that people must be trained to work safely and that safety awareness does not come naturally.

All new employees will undergo a Health & Safety Employee Orientation Programme. This will include manual handling training, fire safety, and electrical safety.

Employees involved in project work will receive a module on project/site safety. All employees who carry out site work will attend CSCS/safe pass training.

Tool box talks are carried out at a nominated time, at least once a month by a nominated member of staff. These talks are to be recorded as completed and those attending.

Risk assessment and method statement training will be included as on the job training to all those involved in the task.

3.1 Consultation & Communication

The Powerworks understands the importance of communicating with employees on H&S issues. Employees will be involved in documenting method statements and risk assessments whenever possible.

All employees will be informed of the H&S policies that are relevant to them through the Service Director and Senior Management.

On projects with 20 or more workers at any time, a Safety Rep must be selected by the workers. The safety rep has a key role in communicating site health and safety issues. The safety rep must have access to risk assessment, accidents data and must be included in site safety meetings.

3.2 Documentation Data Control

General:

Powerworks has established a documented Management System. All top-level policies are contained in this document (Health & Safety Manual).

All H&S documents are approved and controlled by the Service Director.

3.3 Operational Control

The Powerworks has identified, in its core activities, those operations and activities that are associated with significant risks and have put in place control measures. The organization shall plan these activities, including maintenance, in order to ensure that they are carried out under specified conditions.

This will be achieved by establishing and maintaining documented procedures. These will stipulate operating criteria, to cover situations where their absence could lead to deviations from the OH&S policy and objectives.

3.4 Emergency Preparedness and Response

The Powerworks places a lot of emphasis on planning and control procedures in order to prevent emergencies; however it also recognises the role of planning in reducing the adverse effects of an emergency.

The main emergencies identified are fire, chemical spillage, evacuation procedures for working at heights and personal injuries.

Fire: Employees and sub contractors will be notified of the site fire emergency procedure during site induction. The Powerworks will participate in any fire drill that take place on the site.

If someone suffers a personal injury, a member of the first aid team will administer first aid. If the person needs further help they will be sent to the local doctor or hospital.

An accident report will be filled out by the Powerworks Site supervisor. The Powerworks supervisor will then carry out a full investigation. In order to carry out a complete investigation, statement will be taken from witnesses; sketches of the location will be documented and if permitted photos of the accident location will also be taken.

3.5 Purchasing Procedures

Selected sources from where materials, goods or services may be procured are evaluated by The Powerworks Ltd., on the basis of their ability to meet quality and health and safety requirements. To become an approved contractor to carry out project work for The Powerworks, each contractor must complete the following process:

- 1) Supply certificate of valid public liability and product liability insurance to the value over £5,000,000.00.
- 2) Supply certificate of valid employers liability insurance to the value over £10m
- 3) Supply a current safety policy including risk assessments and method statements appropriate to the work to be carried out.
- 4) Provide details of sufficient CSCS training received by employees who perform work on site.

The above will be reviewed by the service director or Project manager and approved if sufficient for the work proposed. Each contractor is reviewed annually

3.6 Method Statements

The Generic and blank method statements are contained within the Health and safety Folder on the network drive.

3.7 Accident and Near-miss Reporting

It is the responsibility of all employees to report all accidents and near misses. This is not to apportion blame but for the company to learn from such incidents and make steps to ensure they are not repeated. All accidents within the Powerworks complex are to be reported and recorded in the accident log which is kept in the drawer under the main office printer. Sheets detailing the reported incident will be removed from the log and retained by the Service director for confidentiality. The remaining information in the log is just a basic name and incident date. All accidents must be reported without delay. Should an investigation be required, a panel of two or more managers will be conveyed and a full report will be given to the Managing Director and retained for record purposes.

3.7.1 Reporting accidents / near-misses on customer sites

Any accident, no matter how minor should be reported to the site contact for recording in the local accident book. RIDDOR accidents are to be reported without delay. Any other accident is to be reported to the office as soon as practically possible. On return to the office the accident book must be filled in with all details of the incident.

3.8 RIDDOR

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995) puts duties on employers to report serious workplace accidents, occupational diseases and specified dangerous occurrences (near Misses). The following are to be reported:

Deaths (work related) or members of the public not at work but taken from a place of work to hospital for treatment.

Major Injuries:

- Fracture, other than to fingers, thumbs and toes
- Amputation
- Dislocation of the shoulder, hip, knee or spine
- Loss of sight (temporary or permanent)
- Chemical or hot metal burn to the eye, or any penetrating injury to the eye
- Injury resulting from an electric shock or electrical burn leading to unconsciousness, or requiring resuscitation or admittance to Hospital for more than 24 hours
- Unconsciousness caused by asphyxia or exposure to a harmful substance or biological agent
- Acute illness requiring medical Treatment, or loss of consciousness arising from absorption of any substance by inhalation, ingestion or through the skin
- Acute illness requiring medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its toxins or infected material

Over 3 Day Injuries

Where following an accident the employee is away from work or cannot perform their normal work duties for a period of three consecutive days (not counting the day of the accident).

Occupational Diseases

Employers must report any of the listed 72 occupational diseases when they receive a written diagnosis from a doctor that they or their employee is suffering from these conditions AND the sufferer has been doing the work activities also listed.

Full List contained within Annex X

Dangerous Occurrences

A full list of reportable dangerous occurrences is listed in annex X

3.8.1 How and when to report to RIDDOR

In cases of death or major injuries, the enforcing agency must be notified without delay.

Cases of over 3 day injuries must be reported within 10 days of the incident occurring using the appropriate on-line form.

Cases of disease should be reported as soon as the doctor notifies that someone is suffering from a work-related disease using the on-line form.

When on on-line reporting use the following link: <http://www.hse.gov.uk/riddor/report.htm>

Telephone reports: 0845 300 9923

4. SAFETY SPECIFICS

4.1 Manual Handling

Powerworks recognises that many injuries are caused by people simply moving objects from one place to another. Mechanical lifting equipment is used when ever possible to eliminate this hazard. Training in manual handling is given to enable people to lift to a recognized method, emphasizing that **everyone should only lift weight that they can safely carry.**

The following diagram shows the guidelines adapted by Powerworks on manual handling.

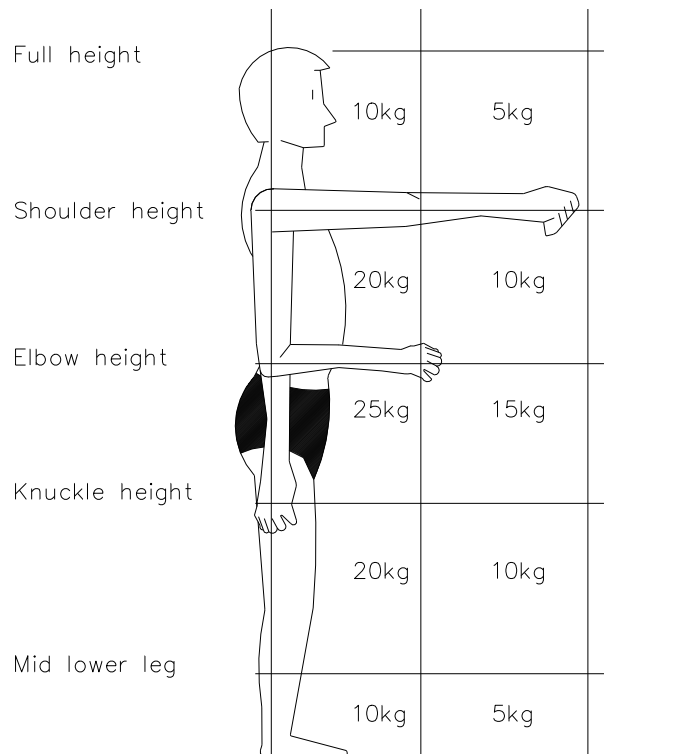


Fig 3.1.1

Lifting or moving any size of object the wrong way can cause serious back injuries, so the first thing you should try to do is see if there is a way of working where the load does not have to be moved at all. If it does have to be moved, avoid doing this manually if you can; see if you can use a piece of equipment, such as a trolley, to do the work for you.

4.1.1 MAC Assessments

Where there is a repeated or dangerous load(s) an assessment utilising the HSE MAC charts should be conducted by a competent person such as the Service director, technical Manager or FSM.

The results chart should be included in the RAMS.

4.1.2 Moving a load by hand

Where you cannot avoid moving a load by hand and there is a risk of injury, an assessment must be carried out so that a way of doing the task safely can be worked out. Although this responsibility rests with your manager, there will be many occasions when you have the necessary information to make an assessment yourself.

4.1.3 Considerations when making an assessment:

Only move something within your capacity. This varies from person to person due to size, fitness etc., but as a general rule if it does not feel comfortable then you should not move it by yourself.

Ask for help if the load is too awkward or heavy.

Always think about the size and shape of the load and how you will have to carry it. Just because something has a handle does not necessarily mean that it is the best handhold for moving it.

Think about where you are going to move the load to; will you need help to open doors and to get in and out of lifts etc.

Before you lift look for protruding sharp edges, notches, grease or anything which may weaken your grip or injure your hands or legs.

Do you need gloves to help you get a better grip? Wear overalls if a load may damage your clothes or make them dirty; carrying things at arms length is particularly bad for your back.

Make sure that you have enough space to carry out a good lift.

4.1.4 The kinetic lift

However, even when you have considered all of this, if you do not know how to lift properly you are far more likely to injure your back. If you adopt the approach detailed below you will dramatically reduce your chances of being injured. This is called the kinetic lifting method and it helps you to make the most effective use of your muscles.

Carrying out the kinetic lift (see diagram below)

Place your feet close to the load with one along side it and the other behind and settle into a comfortable and well balanced position.

Lower your body and bend your knees in a smooth action, keeping your feet firmly on the floor. The angle between your thigh and calf should not be less than 90 degrees because this gives your body greater mechanical advantage.

Tilt the load forward to gain an idea of the weight. If it is too heavy for you stop and ask for help.

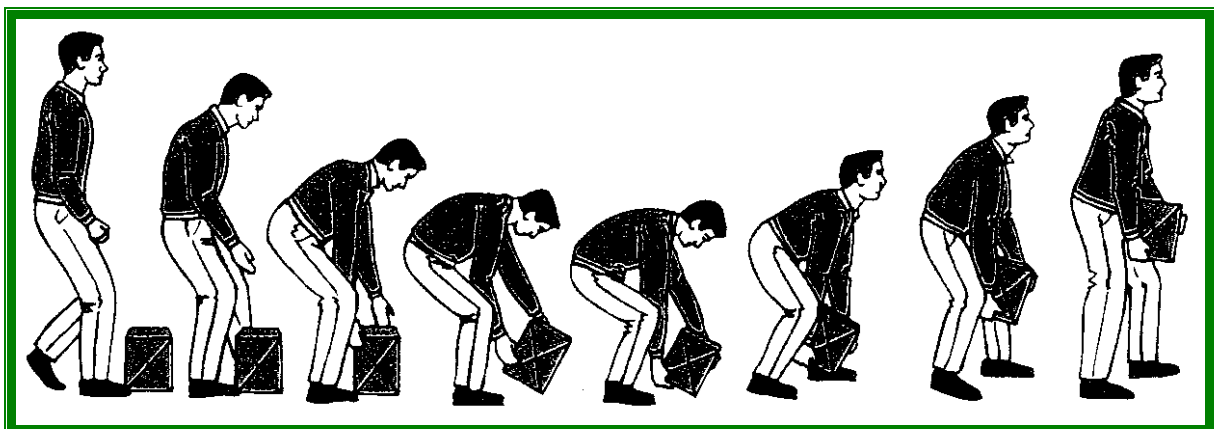
Get a good grip on the load with one hand on the bottom corner nearest to your body and the other hand on the opposite corner on the front of the load. Make sure that your palms and fingers are in contact with as much of the load as possible.

At the point of lifting, raise your head. This action naturally puts your spine in the best position to carry out the lift and allows your legs to take the strain. It also means that you can see where you are going.

You should then move upwards in a smooth continuous action.

You must never lift and twist at the same time. If you want to change direction wait until you are upright and then move your feet first, your body will follow naturally.

Hold the load close to your body at waist height and keep your elbows tucked in.



4.2 Control of Substances Hazardous to Health (COSHH)

The Service Director will ensure that up to date information on potential hazards and toxicity are obtained for all hazardous substances used by the Company. This information will be made freely available to those in need of it. The Company will limit exposure to and where necessary monitor the use of hazardous substances as an ongoing priority. Particular care will be taken to assess new substances prior their to introduction.

Do not use hazardous substances unless they have been assessed.

Assessments of all hazardous substances used on a project will be kept on site and made available.

4.2.1 A guide to using hazardous substances

- Avoid using hazardous substances or find a safer alternative
- Consider the ways to reduce amounts used.
- Reduce exposure by good ventilation or by increasing the distance between you and the source.
- Read any instructions on packaging and follow any guidance.
- Follow the safeguards detailed in the COSHH assessments.
- Only store the minimum necessary quantities of solvents or chemicals and make sure that they are stored in suitable cabinets.
- Make sure substances are properly labelled especially if they are not in their original containers.
- Dispose of empty containers and any residue in accordance with the manufacturer's instructions.
- Stop chemicals coming into contact with eyes, skin or clothing. Use any protective clothing or equipment specified. In the event of contamination, soak the affected area with lots of cold water and seek medical advice without delay.

4.3 Dealing with Asbestos

Breathing in asbestos dust can lead to asbestos-related diseases, mainly cancers of the chest and lungs, for which there is no cure.

Asbestos, in various forms, is found either on its own or mixed with other materials in many situations in the construction industry, e.g.

Lagging on pipes.

Insulation boards.

Fire protection for steelwork.

Ceiling tiles.

Stipple coatings (such as 'Artex').

Electrical fuse-boxes.

Drainage pipes.

Roof and cladding sheets.

Brake linings.

Modern products for the above are now supplied asbestos free.

All work involving asbestos must be carried out in accordance with the current Asbestos Regulations and the Asbestos (Licensing) Regulations. Removal of insulation and lagging, can only be carried out by a contractor licensed by the HSE.

Asbestos waste, even small quantities must be disposed of in accordance with the Special Waste Regulations. Double bagged in heavy polythene bags, labeled asbestos and transported to a licensed site.

When planning work, clients and building managers will be asked to provide all relevant information on asbestos within the work-area. This should be part of an asbestos register.

If asbestos is present and in a poor condition or is likely to be disturbed during the work, the area should not be entered until it is made safe by a specialist. Only where it is in good condition and not likely to be damaged should the area be regarded as safe.

If during demolition or refurbishment works any materials suspected of being asbestos are found then work must be ceased immediately, and the area cordoned off until it has been checked and made safe by a competent person.

All Powerworks staff who may visit sites will be trained in asbestos awareness during their induction period.

4.4 Site Welfare

It is the Company's policy to ensure that adequate welfare facilities are provided for its employees and sub-contractors. We will provide adequate sanitary and washing facilities; a supply of drinking water; facilities for changing and the storing of clothing, where appropriate drying rooms; and areas for rest and meal breaks.

4.5 Fire Safety

Fire can cause disasters for both people and premises. It is produced when the ingredients fuel, oxygen and heat (and in some cases chemical self-sustaining reactions) are mixed together under the right conditions. Fire prevention must concentrate on keeping these ingredients apart.

The primary fuel that Powerworks staff will bring on site is cardboard, pallets and packaging. We will follow our customers waste removal policy and remove packaging as soon as it is generated.

The heat source generated by Powerworks is primarily electrical energy. This is in the form of battery energy and mains energy. Batteries delivered on site will be packaged so as to prevent short circuit. The method statement for installing batteries gives special attention avoidance of short circuit.

When a system is commissioned and powered up, exposed electrical work is minimised in order to prevent the risk of electric shock and short circuit. Again the method statement for this stage of the project gives step by step details of these controls.

Fire extinguishers must be provided on site during the installation stage of the project.

The customer's instruction in the event of a fire will be communicated to all Powerworks employees and contractors by the customer before work commences. This is normally achieved in the form of a site induction. If a site induction is not conducted then Powerworks employees should seek emergency instructions.

4.6 Electricity

The electrical hazard can be divided into 3 categories:

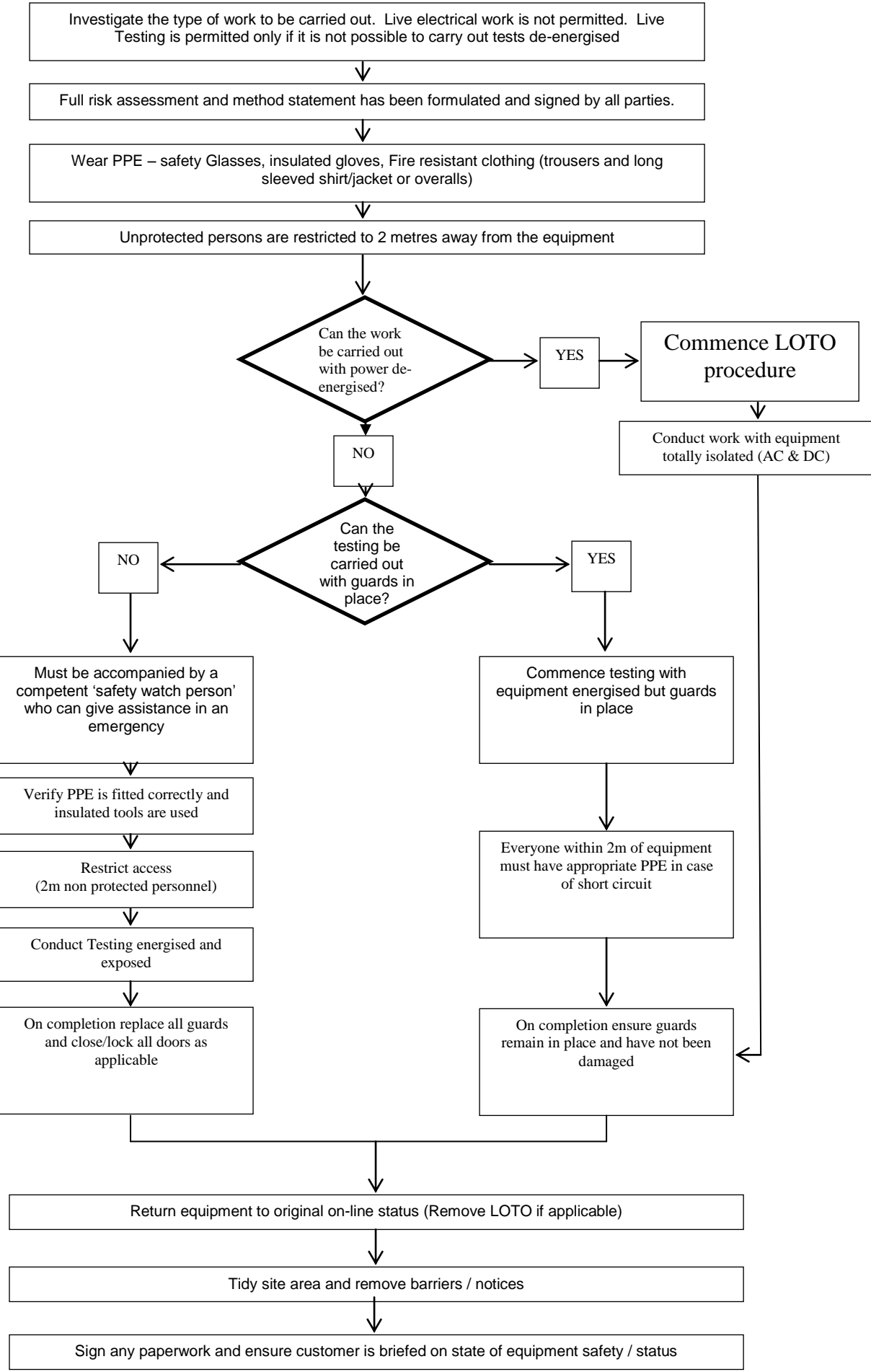
- **Work on battery systems**
- **Work on de-energised systems**
- **Work on energized and exposed systems**

When working on battery installations the principle hazard is short-circuiting of a battery or battery string. The control measures detailed in the method statement focus on insulating terminals, using insulated gloves and insulated tools.

Electrical work will be carried out on de-energized systems whenever possible. A lockout tagout system will be used to protect against accidental re-energizing of the system.

However, in some circumstances, work cannot be carried out de-energized and hence energized and exposed work must take place. The controls concentrate on reducing the risk of contact with an energized conductor and eliminating the second point of contact.

Lone work is not permitted, as a competent person must be available to provide assistance in the event of an emergency.



4.7 Working at Heights

Working at heights is extremely unusual for Powerworks staff. In the event that this is required then approval of the Service Director must be sought before work can commence. The need to work at height must be identified at the survey stage and RAMS are to be very specific on risks and control procedures.

General notes on working at Heights:

4.7.1 Working with Ladders

Secure ladders against slipping by tying at the top and bottom where possible, secure with a weight at the bottom or by having a person stand at the foot of the ladder.

Ladders should extend above the landing by one meter unless there is suitable handhold to provide equivalent support.

Never stand on top steps of a step ladder.

Where possible use a tool belt or equivalent to allow both hands free to climb up and down the ladder.

Be careful never to drop any tools or equipment when working on ladders.

Protect the base of the ladder from moving vehicles and people.

Set ladders at most stable angle. A slope of four units up, to each unit from the base.

Carry out visual check on ladders before use: Are all rungs secure, does the ladder have anti-slip feet and are they intact and are there signs of any cracks in the ladder.

Remember aluminium ladders do conduct electricity so if there is a risk of contact with overhead conductors use a non conductive ladder. (Wood or fibreglass).

Beware of overhead cables when using ladders.

4.7.2 Mobile Scaffolding

The height of mobile scaffolding is restricted by the area of the base. A base: height ratio of one: three is often used.

Mobile scaffolding used outside in windy condition should be tied in and on top and supported using riggers.

Guardrails and toe boards are necessary all round.

Use safe means of access to the platform

Only use on ground that is firm and level.

The platform should be clear of people and materials when it is being moved and should be moved by pulling and pushing at the base only.

Do not overload the platform or apply pressure that could tilt the tower.

Beware of overhead cables when using mobile scaffolding.

4.7.3 Fixed Scaffolding

Fixed scaffolding is erected and dismantled only by competent persons. If you have concerns regarding the safety of fixed scaffolding contact the Facilities Manager and never work on scaffolding which you do not consider safe.

Scaftags are to be within date (7 days max) and no modifications are to have been completed to the scaffolding since the date of the scaftag inspection.

4.8 Hot Work Procedure

4.8.1 Purpose

Inform anyone carrying out hot work in the Powerworks premises, employees or contractors, the correct procedure to perform hot work without causing damage to people or property.

4.8.2 Scope

Contractors, Electricians, Fitters, Engineers, may carry out hot work.

4.8.3 Policy

Hot Work is defined as any temporary operation involving open flames or producing heat and or sparks. This includes, but is not limited to: Brazing, cutting, grinding, soldering, torch applied roofing and welding.

4.8.4 Procedure

Before Permission for hot work is given

1. There are specific areas of the workshop (all benches) where hot work such as soldering is allowed at any time. Should more intense hot work such as welding, cutting/grinding etc. be required then a suitable area must be cleared and Fire Safety checks be conducted. If possible it should be investigated to see if an alternative to Hot Work can be used.

If Hot Work is required

1. Requirements within 35ft(11m)

- a. Flammable liquids, dust, lint and oily deposits removed.
- b. Explosive atmosphere in the area eliminated
- c. Floor swept clean
- d. Combustible floors wet down, covered with damp sand or fire resistive sheets.
- e. Remove other combustibles where possible otherwise protect with fire resistance tarpaulins or metal shields.
- f. All wall and floor openings covered.
- g. Fire resistive tarpaulins suspended beneath work.

2. Work on walls or ceilings

- a. Construction is non-combustible and without combustible covering or insulation.
- b. Combustibles on other side of walls moved away.

3. Work on enclosed equipment.

- a. Enclosed equipment cleaned of all combustibles.
- b. Containers purged of flammable liquids/vapours
- c. Pressurised vessels, piping and equipment removed from service, isolated and vented.

5. Fire Watch/Hot Work area monitoring.

- a. Fire watch will be provided during and for 60min after work, including and coffee or lunch breaks.
- b. Fire watch is supplied with suitable extinguishers, and, where practical, hose reel.
- c. Fire watch is trained in use of this equipment and in sounding alarm.
- d. Fire watch may be required for adjoining areas, above, and below.
- e. Monitor hot work area for four hours after job is completed.
- f. No major hot work is to be conducted within 90 minutes of the premises being closed and locked.

All employees must look out for other hazards that are present but are not listed above.

During Hot Work

a. The Fire watch keeps a constant vigil throughout the entire job watching for stray sparks, ignition and other fire hazards; is trained to provide fire response; has fire fighting equipment on hand, i.e., **a suitable fire extinguisher**.

After Hot Work

b. Once the work is done, the Fire Watch must remain in the area for one hour and carefully inspects the work for smoldering fires or other Hot Work hazards. This inspection extends to floors above and below the hazard as well as adjacent rooms.

c. The fire watch then signs the permit and leaves it posted.

d. The Fire Watch or designee periodically inspects the area for a further three hours.

e. When the four-hour monitoring is completed, the Fire Watch, or designee inspects the area once more.

4.9 Confined Spaces

There are no confined spaces in the Powerworks Premises.

4.9.1 Scope

The policy applies to Contractors, Electricians, Fitters, and Engineers

4.9.2 Policy

A Confined Space is defined as an area where access or egress is restricted, where inadequate ventilation, oxygen deficiency and/or the introduction of hazardous gasses and vapors may present conditions that could produce asphyxiation or injury.

Confined spaces include but are not limited to water, gas and diesel tanks, boilers, vessels, sewers, manholes, working on cable tray, above ceiling voids and in excavations four feet deep or more

4.9.3 Procedure

The procedure listed below is the minimum standard allowed when working on any customer site. Full investigation must be conducted at the risk assessment stage before any work can commence.

It must be noted that Powerworks staff are not routinely trained in the use of any breathing apparatus or atmospheric monitoring equipment. Should there be a requirement then full training and certification must be completed before any such work can commence.

1. All work in confined spaces requires a "PERMIT TO WORK". Which list a number of precautions that must be taken before anyone is allowed to enter a confined space.
2. The overall on site project supervisor, who issues the "PERMIT TO WORK" will decide if specially trained contractors are required and will take the following into account when making the decision:
 - a. Are there any hazardous materials that need to be removed from the space? This may involve purging the space with water; air; or other means.
 - b. Are all input lines which discharge into the space disconnected and blanketed or isolated?
 - c. All electrical or mechanical devices within the space must be tagged and locked in the "OFF" position. (Follow Lock out Tagout Policy)
 - d. Will respiratory protection and rescue procedures be required?
 - e. Does the area need to be tested for sufficient oxygen and for the presents of hazardous concentrations of air contaminants.
3. When issuing the "PERMIT TO WORK" the following checks must take place.
 - a. Is the access and egress equipment used correct and sufficient?
 - b. Is the required PPE available (Footwear, Goggles, Respiratory protection etc.)

- c. Are there at least two people working together at all times and are rescue procedures adequate.
- 4. When the permit is issued one part of the permit remains in the permit pouch in Facilities while the other part if connected in a visible location outside the confined space entry,
- 5. Contractors who specialize in “Confined Space Entry” must use a procedure that fully complies with Health and Safety Executive and The Powerworks requirements. This includes the use of approved respiratory protection, exhaust ventilation, life lines, and stand by personnel. Appropriate atmosphere monitoring must be available at all confined space entries.

4.10 Maintenance

Powerworks recognises the importance of maintenance in its safety management system. Although the amount of machinery in the control of The Powerworks is small, never the less, the equipment such as testers, meters, etc must be maintained or they could directly lead to a failure in the safety system.

A register of the equipment and machinery that requires maintenance is kept up to date by the Technical Manager.

The frequency of maintenance and the person responsible for carrying out the maintenance is also detailed.

4.11 Personal Protective Equipment (PPE)

In circumstances in which it is not reasonably practicable to eliminate or control the hazards in the workplace PPE will be provided and maintained by Powerworks.

PPE is the last line of personal protection. It must not be the sole reliance, substitution of safer methods and controls are the mains means of protection for all concerned.

The type of personal protective equipment depends on the hazards to which the worker is exposed. Powerworks keeps abreast of new information on hazards which require personal protective equipment and only purchase equipment to the highest standard. All equipment bought is manufactured to CE standards.

All subcontractors must provide their own employees with the required PPE.

The most suitable and comfortable PPE can vary from individual to individual and hence a variety of safety gloves; safety glasses, etc are available. It is everyone’s responsibility to discuss the suitability of the PPE chosen for any particular task and to enquire and try out different PPE.

4.11.1 PPE Replacement

As soon as the PPE is damaged, worn or needs replacement, the employee is to immediately notify the Technical Manager and it will be replaced.

The following is a list of PPE that give protection to specific areas of the body.

Part of Body	Equipment	Tasks
Head	Protection helmets	Building work, on or underneath scaffolding, under elevated work, in tanks or containers, in pits and trenches, on mobile elevator platforms and when working at height on ladders or steps.
Foot	Safety footwear oil	All construction, installation and maintenance work

	resistance	
Eye	Goggles	When working with chemicals, steam ovens, hot liquids, dust
Eye	Safety glasses	Drilling, using a disc or bench grinder, chop saw or bench saw, soldering, using a hammer.
Ears	Ear plugs or ear muffs	When noise level exceeds 85dB or when two people standing one meter apart have to raise their voice to talk.
Respiratory System	Dust masks	To be used in a dusty environment.
Respiratory System	Respirators	To be used to protect against harmful vapors.
Hands	Rigger Gloves	Rigger gloves are worn to protect against sharp edges and rough objects.
Hands	Solvex Gloves	Solvex gloves are worn to protect hands when handling any chemicals.
Whole Body	Overall	Overalls are worn to protect clothing and body against cuts, abrasions and general dirt.

The above list does not attempt to include all PPE that may be required, it simply concentrates on the more common PPE.

4.12 Vehicle safety

Driving is a large part of the life of an engineer. As such there are basic rules which will ensure your safety:

1. Never Drive tired. Take routine breaks at least every 2 hours when travelling. Ensure that you remain alert. When driving long distances, do not rely on caffeine or glucose drinks to keep you awake. They have very short term affect and once the energy drink stops working then you will be more tired than before.
2. Never drink under the influence of Alcohol or drugs. Any employee caught driving under such influences will have disciplinary action taken against them and consequent dismissal may occur. The previous nights 'drinking' should be taken into account when deciding if you are fit to drive in the morning. Driving under the influence of drugs/Alcohol will not be tolerated.
3. Never use a mobile phone when driving unless it is connected to a hands free system. Even then choose when to answer the phone after assessing the traffic and road conditions. A momentary lack of concentration on the road can result in fatal consequences.
4. Always carry a basic first aid and recovery warning pack.
5. Always ensure you are fully conversant with any hire vehicle operation.

4.13. Smoking

The choice to smoke is an individual's decision. Everyone is fully aware of the risks involved in the practice. But there are rules laid down in legislation. You are not to smoke within the Powerworks or any other public/company building. Smoking may only take place in dedicated areas.

Smoking is not permitted in any company vehicle.

The smoking area for Powerworks is adjacent to the entrance to unit A. The cigarette extinguisher and tray should always be used. Dropping cigarette ends on the floor is not acceptable.

4.14 Working with VDU's

VDU's or Display Screen Equipment (DSE) have often been wrongly blamed for a wide range of health problems. On very rare occasions there may be a problem but it is because of the WAY the VDU is used and not the VDU itself. In accordance with the latest changes (2002) to the Display Screen regulations 1992, Powerworks is required to minimize the risks in VDU operation.

There are basic rules that should be followed:

1. Each workstation should be assessed and made fully compatible with the operator at that station.
2. Each operator should and is given the opportunity to take short breaks away from the monitor to reduce the chances of headaches caused by concentrating on the screen.
3. All operators are encouraged to report any ill health that they may associate with their work and that risk assessments and reduction controls are working. Reporting ill health is covered in the operator's induction.
4. Ambient lighting and shading to prevent reflections/glare should be maintained at a suitable level for working on DSE.
5. Fatigue and stress should be avoided by the use of software that is appropriate to the task. Proper provision is made to ensure that the operator is trained in such software, especially noted when there may be upgrades in the program.

Managers are aware of the need to assess continually the operators under their control. Simple observations such as a person sitting abnormally to prevent reflections on his/her screen could cause long term stress and harm. Simple techniques could be applied to ensure that the operator is comfortable and that his/her posture is good throughout the working day.

Employees are offered the chance to have eyesight tests (in accordance with section 36(2) of the opticians act 1989) when they become an employee or at regular intervals throughout their employment. Powerworks will also provide specialist corrective equipment should normal corrective equipment not be available.

4.15 Alcohol and Drugs

The use of alcohol and drugs is not tolerated under any circumstances. Any employee found to be under the influence of either drugs or alcohol will be immediately suspended and will face disciplinary action that may result in dismissal.

5. Projects

5.1 Projects Procedure

Everyone working on a construction project has health and safety duties and responsibilities. These duties vary dependant on the level of involvement in the construction project:

Designer,
CDM Co-ordinator,
Principle contractor,
Contractors.

Deciding if the CDM regulations apply:
The CDM regulations apply in

1. **New building construction**
2. **Alternations, maintenance and renovations**
3. **Site clearance**
4. **Demolition and dismantling of a structure**
5. **Temporary work**

The CDM regulations do not apply if the work will last for 30 days or less and involves four or less people on site at any one time.

Flow chart detailing the process for deciding if the CDM reg's applied and are they to be notified to the HSE

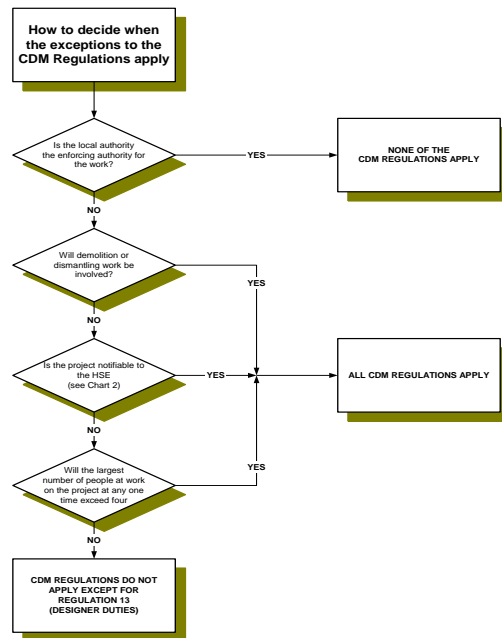


Chart 1 - How to Decide When CDM Regulations Apply

5.2 If CDM Regulations apply

A suitably qualified CDM Health and safety advisor will be appointed by Powerworks.

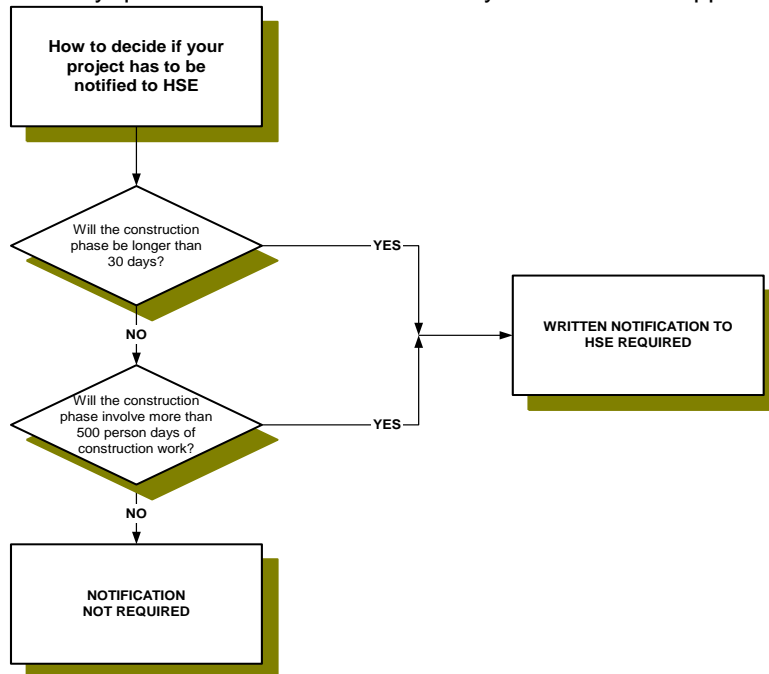


Chart 2 - How to Decide When HSE Notification is Required

5.3 Competencies

The client has to be satisfied as well as they reasonably can that the designer is competent and has made adequate provision for health and safety. The client may seek professional advice to determine the competency of the designer.

5.4 Requirements of the Designer

- a) Take adequate steps to avoid foreseeable risks to health and safety of those involved in construction or cleaning of the structure at any time.
- b) To combat at source risks to health and safety
- c) Give priority to measures which will protect all persons at work.
- d) Must co-operate with the planning supervisor and other designers in avoiding and combating health and safety risks
- e) Must make the client aware of their duties under CDM if required.

5.5 Site Safety Rules

Powerworks employees and contractors will comply with the clients site safety rules. The site supervisor will communicate site specific safety rules at induction to both Powerworks employees and sub-contractors. In the absence of site safety rules, Powerworks will comply with the following rules when appropriate.

1. Eye protection (Safety glasses/prescription safety glasses) must be worn as soon as the operator enters the site or premises. Exceptions to this rule are the site office, welfare facilities, and canteen facilities.
2. Safety footwear (Steel toe cap boots or shoes) must be worn as soon as the operator enters the site or premises. Exceptions to this rule are the site office, welfare facilities, and canteen facilities.
3. Hi-vis jackets must be worn on all construction sites and all other areas where required by the customer. Exceptions to this rule are office environments where no building is taking place, welfare facilities, and canteen facilities.
4. Safety helmets must be worn on all construction sites and areas where required by the customer/client. They must also be worn where overhead works are taking place and where possible dangers are visible. Exceptions to this rule are office environments where no building is taking place, welfare facilities, and canteen facilities.
5. Operators must be in possession of 4343 gloves and must wear them for all manual handling tasks.
6. Hearing protection is required when the noise level exceeds 85dB (general rule is if you have to shout to be heard at 2m then hearing protection will be required)
7. DO NOT attend site under the influence of alcohol or drugs.
8. Accidents must be reported to the acting site supervisor, filled in on the site accident book and also reported to the Powerworks site supervisor / Senior engineer.

Construction sites are defined as a location where any building work is taking place.

5.6 Permit to Work Policy

Powerworks staff will always (without exception) comply with any local permit to work system in use by a customer. No deviation from any local safety controls is permitted. Should any Powerworks FSE feel that the local regulations are not sufficient to ensure his safety then he is to discuss the situation with the permit officer. Should he still feel the system puts him in danger then he is to not commence work but is to report back to the service director with his concern(s).

5.7 Lockout Tagout Procedure (LOTO)

5.7.1 Purpose

Should there be no local safety lockout/tagout procedures then Powerworks will adopt its own. This is not a substitute for any local tagout lockout system. The Powerworks' Lockout/Tagout (LOTO) procedure ensures the appropriate utilization of suitable danger tags and lockout devices when: working on electrical equipment or systems; or when cleaning, repairing, servicing and adjusting prime movers, machinery and equipment.

5.7.2 Scope

All maintenance, installation, test work carried out by electricians and Engineers.

5.7.3 Policy

The hazardous energies covered in this policy are electricity, pressurized fluids and moving machinery.

A LOTO is necessary when ever you perform service, installation or maintenance on or around any machine or equipment where you could be injured by an unexpected start up or release of stored energy

5.7.4 Procedure

Before you LOTO any equipment you must know:

- The type and amounts of energy that power it
- The hazards of that energy
- How the energy can be controlled

1. Equipment shutdown and Isolation. Shut the equipment down using the operating controls and follow whatever procedure is right for the equipment so that you don't endanger anyone during shutdown.

Operate all energy- isolating devices so that the equipment is isolated from its energy sources. Be sure to isolate **all** energy sources. Be sure to look for secondary power supplies, UPS, by pass systems and back up systems.

Never pull an electrical switch while it is under load.

Never remove a fuse instead of disconnecting.

2. Prevent reconnection

All energy isolating devices are locked and tagged.

When more than one operator are involved a multi clasp lock is used and each operator must fit their own lock to the multi clasp lock.

When multi clasp locks are used the supervisor is the first per to fit their lock and the last person to remove and must inspect the work carried out to ensure that it is safe to re-energize the equipment.

If it is not possible to use a locking device then the energy source must be disconnected and tagged out.

3. Preparation

Review all schematic drawings and locate emergency shut off.

4. Equipment isolation Verification

Make sure all danger areas are clear of personnel

Verify that the main disconnect switch or circuit cannot be moved to the on position.

Press all start buttons and other activating controls on the equipment itself.

Shut off machine controls when the testing is finished.

Verify absence of voltage using a meter tested on a known voltage source.

5. Control of stored energy. The following are examples of how energies can be controlled.

The list is used as a memory jogger and is not a complete list

Inspect the system and make sure that all parts have stopped moving.

Install ground wires

Relieve trapped pressure

Block or brace parts that could fall because of gravity.

Bleed lines and leave vent valves open.

If stored energy can re-accumulate, monitor it to make sure it stays below hazardous levels.

Protect against contact with adjacent live parts - replace any guards that have been removed, use insulated sheeting to protect conductors that cannot be guarded against

6. Control Access.

Use barriers to control access.

Use signage to inform people of restrictions

5.7.5 Performing the Work

- Look ahead and avoid doing anything that could reactivate the equipment.
- Don't bypass the lockout when putting in piping or wiring.

5.7.6 Removing LOTO

- Make sure the equipment is safe to operate remove all tools and be sure the system is fully assembled.
- Safeguard all employees. Conduct a headcount to make sure that everyone is clear of the equipment. Notify everyone working in the area that the LOTO is being removed.
- Remove the lockout devices. Everyone must remove the device they fitted.
- If more than one lock is used, the supervisor is the last person to remove their lock.

5.7.7 Special situations

- If energy has to be restored temporarily, then step 5.7.6 above must be followed and the energy must be locked out again as soon as possible using the eight steps above.
- If the work carried out spans over two shifts, then the employees leaving do not remove their locks until the employees starting work have fitted their locks.
- When the operator who applied the lock is not available to remove it, the lock can only be removed if the supervisor over the energy source being locked out.

6. Checking and Corrective Action

6.1 Performance Measurement and Monitoring

The Powerworks will monitor and measure the performance of the OH&S system. The following areas will be measured:

- Review and monitoring of objectives and targets;
- Review and analysis of accidents, incidents (and near misses), ill-health and complaints;
- Review of compliance with legislation and regulations;
- Review of compliance with operational procedures;

6.2 Records and Records Management

The Powerworks will ensure that records will be kept to demonstrate compliance with the requirements of the Occupational Health & Safety Management System.

The records will include but are not limited to the following:

- | | |
|---|-------------------|
| 1. Register of H&S legislation. | Service Director |
| 2. Record of accidents and incidents reported | Service Director |
| 3. Record of accidents reported to the HSE. | Service Director |
| 4. Maintenance records. | Technical Manager |

6.3 Audit

The Powerworks will carry out a full system audit once a year. This audit will include the documented safety management system.

The Service director will conduct Audits on FSE's on a random basis, but each FSE will be audited at least once per year on H&S procedures.

Sample Audit form found in appendix

6.4 Management Review

Powerworks will conduct site management reviews of its Occupational Health & Safety system on an annual basis.

These reviews are documented and examine such areas as:

- results of systems audits,
- corrective and preventive actions,
- objectives and targets,
- plans and relevance of the policy,
- Continual improvement.

7 Useful Abbreviations

<i>Abbreviation</i>	<i>Meaning</i>
<u>OH&S</u>	Occupational Health and Safety
<u>FSM</u>	Field Service Manager / Senior Engineer
<u>FSE</u>	Field Service Engineer
<u>CSCS</u>	Construction Skills Certification Scheme
<u>LOTO</u>	Lock Out Tag Out
<u>PPE</u>	Personal Protective Equipment
<u>COSHH</u>	Control Of Substances Hazardous to Health
<u>CDM</u>	Construction Design Management

