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Introduction

This Manual has been produced as a tool that can be used when managing a Project and details the requirements needed to support the CLIENT Engineering Health and Safety Plan.

The intention of the Manual is to establish the minimum standard of safety that we require on our projects and within our premises, and is specifically aimed at improving the safety procedures and practices of our contractors / vendors. To this end, a project is seen as ranging between a simple maintenance contract or installation of equipment, to major refurbishment of production equipment or a structure, and new construction works.

In many cases it is apparent that the safety procedures of some contractors / vendors are not sufficient or adequate to meet our and legal requirements, consequently their adoption of this Manual may be a way of improving the situation.

The manual is a flexible document, in as much as sections that are not required, or not seen as pertinent to the situation, may be removed or adapted suit the needs of the work, task or project. Also, there is the matter of local customisation, as it is impossible to produce a single document of this type that complies with the detailed rules and regulations of every country. Therefore, it is the responsibility of the user to ensure that the specific details contained in this document and all its appendixes are suitably amended to comply with all Local Laws and Regulations.

Obviously, some projects and locations will have their own established procedures and these will supersede / replace the duplicated sections existing within this Manual.

Please consider this document a foundation, on which you can build and improve.

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1. SAFETY REGULATIONS

1.1 GENERAL

Accident prevention is a Process responsibility of everyone. Each team member is directed to use maximum initiative in communication, training, motivation, and monitoring techniques to ensure that every reasonable precaution is taken to prevent accidents.

The Contractor shall comply with the health, safety and environmental requirements of any law, any instrument, rule or order made. Any regulation or bylaw of any local authority or any statutory undertaking, which has any jurisdiction with regard to its Work or Services in respect of, or upon the Site or with whose systems the same are or will be connected.

The Contractor shall comply with the relevant and applicable Guidance Notes, Standards, Codes of Practice and other like documents.

Note: There are restrictions imposed on certain areas within CLIENT facilities that may require the issue of a Cold Works Permit (Appendix32)

1.2 CONTRACTOR RESPONSIBILITIES

Pre-Qualification of Subcontractors

- Each Contractor must ensure that his pre-qualification procedures for his Subcontractors fully take into account the ability of the proposed Subcontractor to comply with the Project Safety Plan, CLIENT requirements and the local regulations related to safety, health, welfare and security.
- The Contractor(s) will advise the CMS/Clients project management of the arrival on site of any Sub-Contractor Company by completing and submitting Appendix 8 (Incoming Sub-Contractor notification form) at least one working day in advance.

Contractor's Safety Representative

- The Contractor shall employ a suitably qualified full time Safety Adviser / Manager (this includes subcontractors unless otherwise agreed) and shall have safety cover for all overtime and shift works.
- All Contractors and Sub-contractors will inform the CLIENT/CMS of their nomination for Safety Adviser / Manager; by submitting Appendix 35 (Safety Provision Undertaking Form) and Appendix 36 (Application for Safety Officer to work) this position is subject to approval by CLIENT/CMS.
- An up to date list of safety personnel will be maintained by the Project Safety Manager on Appendix 37 (Project Safety Officers and Site Safety Supervisors)
- The Safety Adviser / Manager shall have operational authority in matters affecting health and safety and will be responsible for alerting Contractor's and CLIENT/CMS management to any existing or potential hazards until they are corrected or prevented.

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1.3 MATERIALS HANDLING

Where the Contractor brings materials to site that are intended to be manually handled, all such materials shall be of a weight and size that complies with any local laws and regulations regarding manual handling.

The Contractor shall give instruction to operatives on safe handling methods and techniques.

As well as the normal personal protective equipment, operatives shall wear gloves while handling rough or sharp materials

1.4 MATERIALS STORAGE AREA

Materials shall be stored in accordance with the suppliers or manufacturer's recommendation. The following rules shall be observed:

- Designated storage areas and material must not block access and shall be protected from damage, theft and vandalism.
- Store material off the ground or floor to allow drainage, levelling up and handling by equipment.
- Store materials as close to the installation point as possible to reduce handling.
- Store as little material as possible to reduce double handling and the risk of injury, damage and theft.
- Identify containers by both content and destination. This can reduce sorting time and make it easier to trace material.
- Materials are secured from tipping, rolling or blowing away.
- Cross-pile material for greater stability.
- Stack no higher than 2 m
- Lag or block between layers to reduce pressure and ease handling.
- Lock up material and equipment to prevent vandalism and theft.
- If materials are stored near opening or slope, ensure they cannot roll or slide in the direction of the opening or slope.

1.5 LIGHTING

The contractor shall be responsible for providing and maintaining general/safety lighting at a minimum level compliant with local requirements in all work areas including:

- Buildings, until the permanent lighting is operational
- Access to and from the workplace
- Temporary workshops
- Contractors compound
- Stores
- If required, Clients compound
- Preparation areas i.e. re-bar bending, pre-cast work etc.

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- Any remote workplace
- The site entrance/s (vehicle and pedestrian)
- Wheel wash areas
- Concrete batcher plants
- Craft work i.e. joinery, all work with power tool and circular saws, plastering, electrical, plumbing, etc. will require a higher level of lighting. (task lighting)
- Note: a high level of lighting may be required in some areas for security purposes

The provision and supply of task lighting at a higher level shall be the responsibility of each individual contractor/sub-contractor.

Lighting and all associated cables and wiring shall comply with the requirements of 'Temporary Electrical Installations'.

All festoon lighting, hand lamps, or any other type of fixture with an exposed bulb, must be guarded to prevent contact with personnel or materials.

All light fittings located at height must have a safe means of access, or system for maintenance/replacement.

Halogen lights (where authorised) must be mounted at a height, or protected in such a way, that personnel or materials cannot come into contact with them.

See 'Confined Space Entry' for low voltage lighting.

1.6 TEMPORARY UTILITIES SUPPLY

Maintenance Requirement:

Power supply and electrical installation

- All switch boxes, distribution boxes etc. shall be locked at all times and the keys kept by qualified electrician. Monthly inspections shall be carried out. (Appendix 25, Electrical Installations Inspection)
- All electrical equipment shall be inspected prior to use and inspected/tested in accordance with 4.17 TEMPORARY ELECTRICAL INSTALLATIONS.
- All electrical appliances shall be isolated after work. (where appropriate)

Water supply

- All water mains/pipes should be protected against damage from frost, plant, vehicles or construction activities.
- Potable and non-potable water sources/containers must be appropriately signed
- Regular inspections are to be carried out to water mains/pipes to ensure there is no leakage, misuse or damage.
- Non-return valves will be fitted to all standpipes.
- It is forbidden to take water from any fire hydrant or hose reel.

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1.7 TEMPORARY ELECTRICAL INSTALLATIONS

- All temporary electrical systems must be planned and under the control of a competent person.
- The system and connections will be in strict compliance with local / CLIENT requirements.
- A circuit / distribution drawing must exist and be updated to reflect any additions / alterations.
- All equipment (distribution panels) will be industrial quality, in good condition, fit for purpose and lockable.
- Cables will be of industrial quality and where appropriate, be fitted with an armoured casing.
- Underground cables must be at least 0.5m below ground level. Be adequately protected by tiles or covers and route markers positioned at regular intervals
- The height of overhead cables will be in compliance with local standards or as agreed with CLIENT, and sufficiently protected to prevent accidental damage by site plant / transport.
- Overhead cables must not be subject to tension or strain.
- Distribution inside buildings must be in a position where they do not cause a trip hazard. Do not create an obstruction and are not liable to come into contact with water, or be subjected to any type of damage.
- A permit to work (Appendix 33) will apply to all work done on the distribution system.

Identification

- All electrical appliances and outlets shall be clearly marked to indicate their purpose and voltage.
- When the layout of an installation cannot be clearly distinguished, the circuits and appliances shall be identified by labels or other effective means.
- Circuits and appliances carrying different voltages in the same installation shall be clearly distinguished by conspicuous means such as coloured markings.

Protection against Direct and Indirect Contact

Protection against excessive contact voltage in case of direct or indirect contact shall be provided in all kinds of installations.

Protection shall be afforded by one or more of the following:

- enclosure
- complete insulation (double insulation, reinforced insulation)
- extra-low voltage
- safety isolation (safety isolating transformer)
- earthing of the neutral
- isolated neutral

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- earthing of the normally dead parts
- current-operated earth-leakage circuit-breakers

No bare conductors or other bare current-carrying parts of equipment shall be permitted unless adequate precautions are taken to prevent direct or indirect contact, for example by fencing or screening.

Conductors

- All wiring shall be supported on proper insulators, and not looped over nails, brackets, etc.
- Overhead lines shall be carried on supports of adequate strength and at a height that prevents contact with persons or equipment passing underneath.
- Only conductors built to withstand rough treatment (heavy-duty conductors) shall be laid on the ground and, if necessary, they shall be protected against damage from vehicles, mechanical equipment passing over them.
- If plug and socket connections are necessary for connecting cables to the mains, they shall be properly paired and of adequate design.
- Hand-held apparatus, and where practicable, portable apparatus shall be supplied by a single flexible cable.

Flexible cables for portable and hand-held apparatus shall:

- contain an earthing conductor if the fed apparatus is protected by earthing;
- be protected against kinking by a steel spring, rubber tube or other suitable device at the motor end; and
- be relieved from mechanical strain at connections to terminals.
- All flexible cables shall be maintained in good repair; they shall not be joined except by means of a proper connection or by appropriate plugs and sockets.
- The flexible cable shall not be used to lift a portable tool.
- Only heavy rubber-insulated or industrial quality flexible cables and waterproof connectors shall be used on construction sites.

Electrical Equipment

- Voltage in excess of 220V shall only be used for heavy equipment such as hoists, winches, etc. and only in strict accordance with Regulations and when an earth leakage circuit breaker is in place and operating.
- Portable and hand-held tools and temporary site lighting shall be from a 220V centre tapped to earth system. In confined and damp situations, the voltage of temporary and hand-held tools shall not exceed 25V.
- Control appliances such as switches, fuses and circuit breakers shall not be installed at places where there are flammable liquids or flammable gases unless they are approved for that environment.
- Circuit breakers shall be of adequate breaking and making capacities to perform their normal function.
- Conductors shall be joined, branched or led into apparatus through junction boxes, sleeves, bushings, glands or equivalent connecting devices.

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- When parts of conductors are joined together, or conductors are joined to one another or to apparatus, the attachment shall be made by screwing, clamping, soldering, riveting, brazing or equivalent means.
- Hand-held and portable machines shall be equipped with a built-in switch that shall break the circuit automatically when the tool is released by the hands.
- All types of temporary lighting fixtures will be treated as a heat source.
- Hand lamps shall be equipped with strong covers of glass or other transparent material.
- Portable lamp holders shall have all current-carrying parts enclosed together with an insulated handle.
- Halogen lights must be in a fixed position where they cannot come into contact with personnel or combustible materials.

Inspection and Maintenance

- All electrical equipment shall be inspected before it is taken into use to ensure that it is suitable for its proposed use.
- Electrical conductors and equipment shall only be repaired by qualified electrician.
- As far as practicable, no work shall be carried out on live conductors or equipment.

Before any work has begun on conductors or equipment that does not have to remain live:

- the current shall be switched off;
- adequate precautions shall be taken to prevent the current from being switched on again; (lockout-tagout)
- the conductors and the equipment shall be tested to ascertain that they are dead;
- the conductors and equipment shall be earthed; and
- neighbouring live parts shall be adequately protected against accidental contact.
- After work has been carried out on conductors and equipment, the current shall only be it switched on again on the orders or a competent person.

Work in the Vicinity of Electrical Installations and Overhead Catenary

- When any excavation is to be made or any borehole sunk, it shall be ascertained whether there are any underground conductors in, or in dangerous proximity to, the zone of operations.
- Work near the overhead catenary system shall be controlled as specified by local and CLIENT requirements
- No work shall be done in dangerous proximity to a conductor or an installation until it has been made dead.
- Before work begins, the electricity supply companies shall certify that the conductor or installation has been made dead.

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- If the conductor or an installation in the neighbourhood of which work is to be done cannot be made dead, special precautions shall be taken and special instruction given to the workers so as to prevent danger.
- If mobile equipment has to be employed in the neighbourhood of conductor or installations that cannot be made dead, its movements shall be controlled so as to keep it at a safe distance from them.

1.8 GROUND FAULT PROTECTION

An effective Grounding Conductor Program will be in established, to provide a method for accident prevention while using electrical equipment during the construction of this project.

To establish safety regulations, the herein shall be adhered to.

Assured Equipment Grounding Conductor Program:

- All electrical tools or equipment, cord sets, leads and receptacles, new or used, shall be inspected, tested, colour coded and recorded prior to the first issue or use and quarterly thereafter pending no repair.
- Any repair requires re-inspection and testing.
- Colour codes shall be per Colour Code Schedule and shall be applied "For Approved Use Only." (See attached exhibit "Colour Code Schedule.")
- Each person subject to using or being issued any electrical tools, cord sets, etc., shall inspect same at the time of issuance or prior to use each day.
- If any defects are detected, use shall not be permitted, Return it to the tool room and assure that it is tagged out accordingly.
- Any tool or cord set with no colour code or an out-dated colour code shall be considered defective, and the tool or cord set removed from service.
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1.9 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Adequate supplies of suitable PPE shall be maintained by the Contractor and sub-contractors, who shall each ensure that the appropriate PPE is issued to and correctly used by their respective project personnel and authorised visitors. The provision of PPE shall be in accordance with the relevant statutory requirements.

The Contractor and each of the sub-contractors shall establish the issue of each item of PPE to an individual. Every person, including visitors, issued with an item of PPE shall be required to sign a receipt, a copy of which shall be retained in a dedicated file.

Secure, adequate and sanitary facilities for the storage of PPE shall be provided both before and after issue to personnel.

All personnel shall be informed at the time of issue, of the need to maintain the equipment properly and hygienically and to immediately report any defect or damage

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to the PPE. They shall also be provided with instruction on the proper use and maintenance of the equipment where appropriate.

Depending on the work activity the types of PPE that shall be require to be issued on the project shall include but may not be limited to:

Safety helmets:	With the exception of site offices, the whole site shall be regarded as a hard hat area and the wearing of helmets therefore mandatory. All helmets shall comply with British Standard BS 5240 or equivalent acceptable to local standards.
Eye protection:	Suitable eye protection shall be provided to all personnel at risk of damage to their eyes, in accordance with the requirements for face visors, but in every case shall conform to Approved Specification for Eye Protectors published by Relevant Statutory Authority.
Hearing protection:	Suitable hearing protection shall be provided to all personnel exposed to noise levels at or above 85 dB(A) 8 hr. Leq. The type of protection provided may be ear muffs or ear plugs, but in either case shall provide sufficient attenuation to remove the risk of damage to the hearing of the person using the equipment. All hearing protectors provided shall comply with British Standard BS6344 or equivalent local standard as approved by the relevant Statutory Authority.
Respiratory protection:	A range of suitable respiratory equipment shall be kept available and provided, depending on the type of respirator capable of protecting against dust, fume and vapour and manufactured to a standard acceptable to local standards
Protective boots:	All personnel in construction and works areas are required to wear stout footwear and unless otherwise agreed, with steel toe-caps and mid-soles.
Gloves:	The appropriate personnel shall be provided with suitable protective gloves to prevent injury from handling sharp, abrasive, toxic or other hazardous materials or substances.
Reflective waistcoats:	High visibility reflective waistcoats shall be worn by personnel at all times in work areas, or involved in operations where it is important that they are easily seen. The waistcoats shall be regularly cleaned to ensure their continued high visibility.

Every person issued with PPE shall be responsible for using and maintaining the equipment and inspecting it regularly to ensure that it remains fit for its intended use. Sub-contractors shall also be required to regularly monitor the use and condition of PPE issued to project personnel.

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The failure of any individual to use PPE provided as directed by their employer is subject to disciplinary action that may result in the offender's dismissal from the site.

A penalty procedure shall be implemented where failure to use issued PPE shall initially invoke a fixed financial penalty against the employees' Company. This penalty shall be used towards safety promotion on site.

1.10 FIRE PREVENTION

The Contractor shall implement a detailed Fire Prevention Plan and Emergency Procedures that take into account any local law, regulation or by-law as well as the general standards laid-out below. Where the duty imposed by local standards is greater, these will supersede the general standards set by the Client. All personnel will co-operate and comply with the "Plan". Contractors/Sub-Contractors will provide suitable and adequate Emergency Procedures, fire fighting equipment as well as detection / alarm / emergency lighting systems in their site offices and facilities.

RESPONSIBILITY

The Contractors Project Manager shall be responsible for the operation of these arrangements. He shall appoint a Site Fire Co-ordinator who shall assess the degree of risk(s) on site as the project develops, regularly advise on status of preventative measures provided, maintain records to that effect and where necessary assist in the regular review of the safety plan. The Site Fire co-ordinator shall be assisted in these duties where necessary by all levels of personnel and contractor involved on the project.

FIRE PRECAUTION – ADMINISTRATIVE

- Fire marshals shall be appointed from the Contractor's staff.
- Emergency procedures will be drawn up and posted as appropriate on the site and in offices. (see Appendix 13, Emergency Procedures and Appendix 14 Emergency Contacts)
- Site fire precautions shall be discussed and explained at the site safety induction for all operatives and at the pre-works safety meeting for all contractors.
- Regular fire drills shall be arranged and implemented.
- Liaison with the local Authority/Client fire service shall be regularly maintained.
- General arrangement drawings denoting floor layout, access/egress, fire points, electrical distribution points, rising mains, hydrants etc. shall be made available in the form of a fire log to the fire service attending site either during routine visit(s) or an emergency situation.
- Records of precautionary measures shall be maintained on site.

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OTHER EMERGENCIES

BOMB ALERT

Purpose and Scope

This procedure defines responsibilities and details the actions to be taken if a threat is received by telephone that an explosive or incendiary device has been placed in some part of the facilities or project area.

It should be noted that good housekeeping, both internally and externally, reduces the opportunity for such devices to remain undetected. All supervisors are responsible for checking offices and work areas both at the beginning and end of shifts and any suspicious objects should be reported to the CLIENT Project Manager for investigation.

Responsibilities of Incident Controller

- The Project manager or his deputy will assume overall control of the emergency as Incident Controller (IC).
- The IC will ensure that any senior managers and contractor managers are fully informed and will liaise with the IC on any question of evacuation or return.
- The IC will ensure that all employees, contractors and visitors are made aware of the situation.
- The IC will contact the emergency services and maintain contact.
- The IC may nominate Incident Wardens to cover specific areas.

Procedure on Receipt of a Bomb Threat

- The person receiving the call will follow the bomb alert procedure and carry out the actions included in Appendix 45 (Bomb Threat Checklist) for dealing with telephone warning and recording details of the caller.
- The IC will initiate the search procedure BUT will remain at his desk to undertake the actions listed above under "Responsibilities".
- The object of the search is to establish if any suspicious parcel, package or object has been left on or near the project or any related facilities.

If a suspicious item is found the following precautions must be taken:

- All VHF transmitting radios, mobile telephones and personal radios must be switched off.
- Suspect items **MUST NOT BE HANDLED OR MOVED.**
- Suspect items **MUST NOT BE PLACED IN WATER**, as an electrical connection may be made.
- Few materials are capable of minimising blast. **NONE SHOULD BE TRIED**
- If a suspect object is found, it's position must be immediately reported to the IC and a suitable marker posted to enable rapid identification by the Emergency Services.

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- The IC will take immediate steps to evacuate the area in an orderly manner and instruct security to stop all further access.
- The IC will inform the police that a suspicious object has been found and, if appropriate, that an evacuation has commenced.

Evacuation Rules

- Only the IC or his deputy has the authority to order a general evacuation of all or any part of the project or facilities, or a return following an evacuation.
- If the location of the suspect item is known, safe evacuation routes will be determined by Project Management and clearly indicated where practical.
- All persons evacuated will make their way in an orderly manner to their designated assembly point where a role call will be taken by an Incident Warden.
- Before leaving their place of work all persons should ensure that:
 1. all non essential equipment is turned off and/or disconnected
 2. all personal belongings are collected and taken away

Incident Wardens will report their area roll calls to the IC

Incident Wardens Duties

- Incident Wardens will be informed of an incident by telephone radio or runner.
- The message will indicate, if known, the part of the project or facility affected.
- They will ensure that all VHF transmitting radios, mobile phones and hand held radios are switched off.
- On completion of the inspection of their area, they will report their results to the IC.
- In the event of an evacuation they will inform all persons in their area where to assemble and which route to take.
- When the evacuation is completed, they will report to the IC.

Bomb Threats Received by Telephone

- Calls may be received through either through the main switchboard or a direct line to an individual. On receipt of such a call the person receiving it will:
 - complete the Bomb Threat Checklist
 - let the caller finish his/her message without interruption
 - record the message verbatim on the checklist
- The person receiving the call should try to get another person to listen to the call. If the caller is prepared to enter into conversation, encourage them to do so and try to get answers to the following:
 - the location of the object
 - the time it is set to go off
 - the reason for placing the object
 - when and how it was placed

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- Immediately pass the checklist to the IC
- Complete the “Details of Caller2 Form as soon as possible
- The person receiving the call should expect to remain available for Police interview and must not leave without permission from the IC.

Emergency Procedures will also be put in place as appropriate to deal with the following:

- Serious accident or incident
- Earthquake
- Typhoon or extreme storm

1.11 FIRE PREVENTION GUIDELINES

General

- Good Housekeeping shall be maintained in all work areas. Accumulation of combustible/flammable material/substances is prohibited.
- Fire protection equipment should be provided in all areas where combustible materials are present. Regular inspections should be made by the Contractor’s Safety engineer in order to assure that fire extinguishers and hose reels are in good working order and not obstructed. The use of fire hydrants, hose stations and PIV (post indicator valve) will be permitted only with authorisation from CLIENT EHS Department, or an actual emergency.
- A clear access to all fire protection equipment will be maintained.
- Fire protection equipment is to be used only for the intended purpose.

Fire Precautions - Site Accommodation

- No site accommodation shall be located within building(s) being built/refurbished.
- Site accommodation shall, where practicable, be located no closer than 6 m from buildings being constructed.
- Where accommodation is double stacked, the roof/floor assembly, and members supporting it shall achieve at least 30 minutes fire resistance.
- The space beneath raised floors of site accommodation shall be enclosed to prevent the accumulation of rubbish whilst still allowing under-floor ventilation.
- No combustible substances/materials shall be stored under any temporary buildings.
- Where applicable, Fire certification shall be applied for in accordance with local regulation.
- Electrical installations/testing and inspection shall be in accordance with local regulations or any additional requirement of the Client or CMS.

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- Temporary electrical installations shall be inspected every 3 months and records maintained.
- Electrical distribution panels and electrical equipment shall have the appropriate type extinguishing agents positioned alongside/nearby.
- Means of raising the alarm shall be provided and maintained - type shall be dependent on configuration of accommodation complex.
- Emergency procedures (see Appendix 13, Emergency Procedure and Appendix 14, Emergency Contacts) including appointment of fire marshals together with the appropriate training needs shall be in accordance with company requirements and drawn up reflecting site conditions.
- Fire points/extinguishers shall be established throughout the site offices and welfare accommodation.
- Extinguishers shall be fitted to the wall adjacent to exit points on suitable brackets with the operating handle approximately 1 m from floor level.
- The position of each fire extinguisher shall be highlighted with sign "Fire Point".
- Each exit shall have an emergency procedure prominently displayed adjacent to it.
- Fire escape routes shall be signed, clear access maintained at all times and where necessary provided with emergency lighting.
- All protective measures shall be regularly inspected and records maintained.
- A good housekeeping regime shall be imposed.
- Highly flammable liquids shall be properly stored in the designated storage area.
- Heaters used in drying room accommodation shall be fixed to walls above floor level, adequately guarded, thermostatically controlled and have enclosed elements.
- Appropriate fire detection system(s) shall be installed in welfare facilities used for cooking.

1.12 HAND TOOLS

All portable hand tools will be properly maintained in a good condition and the necessary PPE will be worn by the user of hand tools. Damaged or worn tools are to be replaced with serviceable equipment suitable for the type of work being undertaken.

- Hand tools shall be of materials of good quality and appropriate for the work for which they will be used.
- Hand tools shall only be tempered, dressed and repaired by competent persons.
- Heads of hammers, wedges and other shock tools shall be dressed or ground to a suitable radius on the edge as soon as they begin to mushroom or crack.
- Unless adequately protected, sharp-edges and sharp-pointed tools shall not be carried in pockets.
- When not in use sharp tools shall be kept in sheaths, shields, chests or other suitable containers.

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- Hand tools shall not be left lying in places where persons have to work or pass, or on scaffolds or other elevations from which they might fall on persons below.
- Only insulated or non-conducting tools shall be used on or near live electrical installations if there is any risk of electric shock.
- All hand tools shall be inspected monthly. (see Appendix 22, Hand Tool Inspection)

1.13 PORTABLE POWER-DRIVEN TOOLS

All portable power-driven tools and extension leads must be inspected each time before use and regularly inspected and tested in compliance with local /CLIENT requirements. (see Appendix 24 Power Tools Inspection)

The use of a residual current device (RCD) is recommended while using any portable power-driven tool.

The following precautions will be observed before and during operation:

- Ensure that the correct tool is being used for the job
- Check that the cable and plug are in good condition
- Check that the tool is the correct voltage for the power supply socket to be used
- All guards must be secured and adjusted correctly
- The machine or tool must be disconnected from the power source before cleaning or adjustment
- When not in use, the machine or tool must be disconnected from the power source
- The operation switch must never be tied or taped in the "on" position
- The electrical supply lead/cable must never be used to carry the tool or machine or to pull the plug from the socket
- Never attempt to repair a machine or tool unless qualified to do so
- Never operate a portable power-driven tool in wet conditions and ensure that supply leads/cables are not in contact with water
- Ensure that extension cables are in good condition and not overloaded
- If an extension lead or tightly coiled cable is used, always unwind to prevent overheating
- During the use of most portable power driven tools, personal protective equipment is compulsory i.e. eye/face protection, ear protection, respiratory protection and where necessary, gloves for vibrating tools

1.14 LADDERS

Use of Ladders:

- Job built wooden ladders (**where allowed**) must be approved by the construction CMS/Client Safety manager and will be used only as a means of egress from excavations.

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- All ladders must be secured in place by one or more of these methods: someone holds the ladder until the person reaches where they can tie/secure the ladder, by blocking or chocking the ladder where it cannot be displaced
- Maintain at least one (1) metre above the object it is resting on or being secured to.
- Do not use a stepladder as a straight ladder or vice versa. Do not use the centre section of an extension ladder as a step ladder or straight ladder.
- Do not use a conductive metal ladder in the energised area/units.
- Always face the ladder when you are on it. Do not stand partly on the ladder and on another object.
- As soon as you step on the ladder or reach where you are going, tie off your safety harness immediately.
- Do not carry objects in your hands while you are climbing a ladder. Use a bucket and rope or other arrangement to get the materials and tools where you have to work.
- Maintain three points of contact at all times on the ladder - two feet and one hand or two hands and one foot, as you climb on the ladder.
- Do not block a door or walkway without making sure ladder will not be displaced by other personnel, vehicles or equipment.
- Do not work on the top rungs of a stepladder. The stepladder must be level to be safe.
- Loose objects must not be used to maintain a level footing, you must clean up as necessary to maintain your ladder in a level position.
- Moving a ladder with a person on it is specifically forbidden.
- Defective ladders will be destroyed immediately, a ladder without safety feet will be repaired immediately.
- Sliding down the runner or jumping from the ladder is forbidden.
- Maintain a pitch of one out to four in height on portable ladders.
- Ladders shall be maintained when not in use in a dry location and protected from damage. Ladders will be secured from accidental displacement while not in use.
- Some jobs may also require the use of a safety harness – check!

1.15 LOCKOUT AND TAGOUT

Lockout:

Only individually keyed padlocks shall be used.

A lockout device of the standard scissors type that will allow the placing of more than one padlock is required, when more than one craft or client acceptance is denoted.

A piece of chain or cable may be necessary to complete a lockout on some valves or controls and shall be used wherever needed.

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Danger Tags:

- Danger tags shall be on a white tag with the letters of the word 'DANGER' in white within a red oval outline.
- DANGER TAGS **ARE NOT** DANGER SIGNS, and shall not be used where a sign is needed.
- Two standardised Danger Tags shall be used on this project. They are described as follows:

'DANGER - DO NOT USE':

This tag must be attached to each padlock on a lockout.

'UNSAFE - DO NOT USE':

This tag does not require an attachment to a padlock, but may be used if needed. This tag shall be used to identify tools, equipment, vehicles, etc.

Procedure Function:

- If a device, valve, switch, or piece of equipment is locked out, a '**Danger Tag**' shall be attached.
- No device, valve, switch or piece of equipment shall be energised with a '**Danger Tag**' and/or lockout attached regardless of circumstances !
- Systems consisting of electrical components will be checked, locked and tagged first by electrical staff supervision. The electrical staff will be the first to lock on, and the last to lock off.

Panel Boards (switch gear, etc.)

- Where placing of lock is not feasible, the circuit conductors will be disconnected from the breaker and tagged out.
- The panel cover must be of the type that will cover all breakers when closed and must be equipped with a hasp in order to secure a lock to prevent the panel door from being opened.
- If panel cover is of a type that cannot be locked closed, a cover must be secured over the panel cover and be locked closed and tagged while any work is being performed on any of those circuits.
- If the above cannot be accomplished, each circuit will be tagged out as prescribed and an electrical department's employee will stand by the panel board to prevent breakers from being tampered with. This physical presence will be assigned daily until the work is complete.
- All '**Danger Tags**', must be dated, signed and employee's badge number shown. Also the tag must indicate the work and equipment for which this tag has been placed.
- If employees of more than one craft or crew are to work on a system, circuit, machinery, or component. The supervisor from that craft shall place his individual lock and tag; and verify that the system, circuit, machinery or component being tagged, is indeed the system that is to be worked on. That supervisor should then pass that locks key to the responsible foreman who is assigned to do the work.

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- Upon completion of work, the foreman returns the key to that supervisor who then removes his tag and lock.
- Only the person that placed the lock and tag shall remove same without special authorisation from the Project Manager, Construction Manager(s), Craft Superintendent or Safety Manager.
- If lock must remain after one shift, the upcoming shift supervisor will assume the responsibility of ensuring of a new lock and tag. The system tagged will be secured until all work is accomplished.
- Padlocks, lockout devices and 'Danger Tags, shall be made available as previously specified Padlocks shall be colour coded for craft identification and shall only be used by that craft for lockout purposes, i.e. valves, switches, electrical components, etc.
- Padlocks shall be numbered and issued by the contractor's safety engineer. Locks and tags shall be issued to the foremen or supervisor responsible for the craft performing the work. The Superintendent of each craft discipline will be responsible for assuring all padlocks are numbered and properly craft colour coded, that will be used for lock and tag purposes. The Craft Superintendent(s) will be responsible for ordering their own craft's padlock, and issuing a lock and two keys to the safety department.
- Any employee(s) or person(s) found to have removed another's lock and/or tag will be subject to disciplinary action up to the contract termination.

Special Situations:

- When, due to the nature of work, some job should be performed on systems that are between construction site and CLIENT utilities, and it is needed to be locked and tagged out, the below shall be applied:
- Prior to the de-energising the system, the contractor should ascertain whether system or device has been turned off and accepted by the CLIENT responsible (see section *); If system is signed off, the CLIENT shall assume responsibility for de-energising system and becoming the tagging authority.
- The contractors qualified employee should place the lock and tag and to engage the equipment, as prescribed.
- The same qualified employee should measure the locked/tagged equipment to verify that it is de-energised.
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