	<p align="center">Health & Safety and Environment Manual</p> <p align="center">คู่มือความปลอดภัย อาชีวอนามัยและสภาพแวดล้อม</p>	<p align="center">Number :</p> <p align="center">HSE-012</p>	<p align="center">Revision:</p> <p align="center">00</p>
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HEALTH & SAFETY AND ENVIRONMENT MANUAL

คู่มือความปลอดภัย อาชีวอนามัยและสภาพแวดล้อม

HSE-012

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1. INTRODUCTION

1.1 Objective

K-999 Engineering & Construction co., Ltd. has realized of the great importance of the accident minimization and Health care of all personnel involved in the work. The Safety at work and Health care program are taking care of by the Health Safety and Environment Section under the direct support of the Managing Director. The framework described in the applied safe working procedure will lead the company to reach the target of NO LOST TIME ACCIDENT.

1.2 Purpose

The procedure describes the measure to be adopted to ensure that the Health Safety and Environment objective Of K-999 Engineering & Construction co., Ltd. in all aspects of work.

The Health Safety and Environment is developed to describe the strategies, systems and responsibilities that will be undertaken to effectively manage health and safety during all projects at site and work shop.

The Managers and Supervisor are responsible to ensure that they are aware of the requirements of this project and comply with them throughout work activities to strive to reach the work objectives. The manager is responsible for the maintenance of the plan and will review the performance of health and safety on site, work shop and where necessary, review procedures and practices.

This Health Safety and Environment Plan apply to all personnel working at the construction site and work shop, including all subcontractors and visitors.

1.3 Policy

The Policy of K-999 Engineering & Construction co., Ltd. is to provide in according to discipline of the safety objective and shall be posted in the prominent location of all the construction sites and work shop.

2. ORGANIZATION & RESPONSIBILITIES


2.1 Organization:

The organization chart of Health Safety and Environment management and project coordination procedures will be prepared and forwarded to the client in according to identify personnel involved to the project operation.

2.2 Responsibilities:

Managers and Supervisor have a general duty under Thai Legislation to take all reasonably practical steps to protect the health and safety of persons under their control and to ensure that they don't harm the environment.

In addition to this legislative duty, an effective and meaningful Health safety and Environment Management Program are dependent on commitment and leadership from senior management and effective management of work process by supervisors. K-999 Engineering & Construction co., Ltd. considers the promotion of Health Safety and Environment awareness in the workplace an integral and essential component of responsibly management and requires the active

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consideration of Health Safety and Environment issues to be regarded as a primary prerequisite of all company operation and activities at all times. Manager and supervisor at all levels within the company shall be held responsible and accountable for their

Individual Health Safety and Environmental responsibilities.

The Manager is the head of line management structure and bears the overall responsibility for the implementation and Execution of the Health Safety and Environment Management plan throughout the life of the works.

The Manager has the responsibility to ensure that all project activities are undertaken in accordance with the required Statutory provisions and that all line management groups carry out their responsibility to provide and maintain:

- A safe working environment and place of work;
- Safe and Environment sound methods and system of work;
- Safe tools, machines and material of work;
- Structured practices and planning of work;
- Leadership, manager and competent supervision of work;
- Training and instruction of employees,

The Manager, Supervisors and Foremen shall be responsible for establishing the safe working method and operational practice. They shall ensure that their workforces are provided with the necessary equipment, procedures and instructions to execute each activity.

The Safety officer shall be responsible for assisting the Manager in safety related matters. He also shall be responsible for Developing a structured safety program that will maintain safety at the highest for the duration of the works.

The Supervisors and Foremen shall be responsible for ensuring that all work is carried out in accordance with the procedures And that all equipment is used in the safe way.

All personnel shall be responsible for their own safety, for the safety those working around them and for members of the public who are exposed to the potential danger of the works.

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3. SECURITY SYSTEM

3.1 Access Control

All visitors and deliveries shall report to the Security officer both on arriving and leaving the site and work shop.

Additionally, all visitors must be report to the supervisor on entering an area/building and shall be accompanied at all time.

The supervisor shall inform all visitors of the procedures to be adopted.

3.2 Security

It shall be ensured that a suitable fence is installed around the site and work shop as soon as possible after opening. The only Entrance to site will be through gate. The security gate will at all times be kept closed and either locked manned by security Personnel. The security guard will check all entrants to site and work shop for correct validation for entry.

Any tools or materials being required to be removing from site and work shop can only be remove after approval by Manger.

4. RISK ASSESSMENT AND HAZARD IDENTIFICATION

Significant residual hazardous operation and hazardous work sequences indentified during the planning and design stages

Which cannot be designed our are as follow:

Activity/Element	Hazard/Risk	Control Measures
Pipe Erection Structure Erection	Falls from height Structure stability Manual handling Falling materials Trapping injuries Slip, trip and fall Noise Electric energy	Steel and pipe Erection will be carries out be trained and competent personnel working under supervision. Steel, Pipe works and heavy fittings will be lifted using suitable certified lifting Scaffolding/Man lift/ safety harness/Ear plug/training
Heavy Lift	Slipping/Sliding	Specific Risk Assessments/Method statement
Fire Hazard from Welding/Cutting, etc.	Fire hazard	Specific Risk Assessment/Method statement
Painting	Chemical	Material Safety Data Sheet (MSDS) / Method statement

It should be note that implementation of recommended control measures may not necessarily eliminate all of risk.

Appropriate training must be given to management, operators and other affected by the work, in order to minimize/control

The residual risks. Contractor must also ensure that appropriate safe methods of work are in place and/or ensure that

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Personal Protective Equipment (PPE) is provided, sufficient training in its use is given and that it is used.

Contractor must identify any residual hazard that they believe cannot adequately controlled during construction and require future review.

In order to minimize risks to Health Safety during construction appropriate work/assembly sequences have been assumed.

5. MATERIAL/SUBSTANCE

Material / Substance have been identified as potentially posing special Health and Safety hazards and environment aspects During of the work.

Material/Substance is not a definitive list of all potentially hazardous materials and substance. Other common material and substance used during construction may also present Health and Safety Hazards and a competent contractor and have therefore not been listed.

Contractor must perform and provide records risk assessment with respect to all hazardous materials and substances, Including reference to manufacturer's guidance and/or other specialist guidance. Appropriate control measures must be employed to prevent or minimize exposure to all hazardous materials and substance, as far as is reasonably practicable.

6. VEHICLES

6.1 Parking Area

All vehicles shall be parked at the designated area. Motor vehicles and other mobile equipment shall not be parking adjacent to firefighting equipment, building exits, walkways, etc.

6.2 Speed Limit

The speed limit is max. 20 km/hr. and must be adhered to at all times. Speed limit signs shall be installed along all Construction roads and the access road.

7. LAY DOWN AND STORAGE AREAS

The locations of the designated lay down and storage area are show on layout drawing. When establishing storage area, Contractor shall consider the need to minimize risk to Health Safety. Contractor shall also consider the need to maintain adequate access and egress.

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8. HEALTH SAFETY AND ENVIRONMENT MANAGEMENT

8.1 General

Health Safety and Environment Management has primary importance above all other considerations, Contractor shall be deemed to have made themselves aware of all current local Health Safety and Environment Legislation and Employers shall ensure that their employees/contractor implement the established systems of work throughout the entire project.

8.2 Legislation Applying to this Project

A Site specific register of Health Safety and Environment Legislation has been compiled, Identifying all Thai Legislation and is available to site via the K999 person responsible for Health Safety and Environment. Copies of relevant Legislation can also be obtained from this person. This is accordance with the Identification and Management of Health Safety and Environment Legislation.

8.3 Training

8.3.1 General Training

The Manager shall ensure that, where applicable, all personnel working on site and shop are suitably qualified and Experienced for tasks performed. Training shall be conducted and controlled in accordance with Work Instruction.

8.3.2 Induction Training

Induction training on site shall be carried out in accordance with Health Safety and Environment induction. The following 2 types of training shall be provided.

Type of Training	Brief Description
1. General Induction (Mandatory for all persons before they start work)	The session will provide the employee with an overview of the works and general and specific information relating to Health Safety and Environment.
2. Supervisors (Mandatory for all supervisory personnel)	This provided detailed training on the policy, Health Safety and Environment plan, Work instructions and \Guidance, with makes up the management system on site.

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8.3.3 Tool Box Talks

Tool box talks are means of providing structured interaction between employees and their Supervisors/Manager on Health Safety and Environment related issuer. The Supervisor should explain and discuss Health Safety and Environment Related subject and problems in a clear concise manner so as to ensure understanding by all participants.

The shot duration training topics are bases on material supplied in support particular safety topic, or alternatively may centre on a particular accident./incident. The talks are intended to discuss Health Safety and Environment related subject and problem in constructive fashion and not to conduct a fault finding or complaining exercise. Suggestions by all participants are actively encouraged. Meeting shall be conducted daily and attendance at these meeting is compulsory. Contractor shall be expected to maintain records.

8.4 Risk Assessment and Method Statement

A risk assessment shall be conducted for all height-risk activities on the site and work shop. They shall be conducted and compiled and accordance with work instruction Health Safety and Environment risk assessment.

Where it is a contractual requirement or when deemed as being necessary by a risk assessment a Method Statements shall be conducted and compiled in accordance with Work instruction.

8.5 Health Safety and Environment Audits and Inspections.

8.5.1 Health Safety and Environment Inspections

All work and areas under the control shall be subject to routine inspections in accordance with work instruction. This is in Order to confirm and report on K999 and its Contractor's compliance with Health Safety and Environment requirement.

The following inspections shall be conducted as a minimum.

- Area supervisor weekly inspection
- Weekly Health Safety and Environment
- And Other

8.5.2 Health Safety and Environment Audits

These shall be conducted in accordance with Auditing. Site and Work Shop audit schedule shall be prepared and following audits shall be undertaken.

A program to regular safety audits will be established whereby the Safety Officer will conduct a structured review of construction operation. The will be carried out against a checklist to be completed at the end of the audit.

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Remedial measure if not immediately adopted will be agreed at the time of audit together with a date by which the measures will be in

8.5.3 Client and Third Party Health Safety and Environment Audits

The finding of any Client or Third Party audits of activities shall be processed in the same way as internal Audit Corrective Actions.

8.6 Health Safety and Environment Meetings

The Health Safety and Environment Committee shall provide a forum by which the overall project can be considered, Monitored and actions agreed for the effective planning and management of Health Safety and Environment issues.

Any actions shall be binding upon those parties represented on the committee. Any disagreement shall be report to the committee within seven calendar days.

The committee shall be meet an agrees regular basis, with extraordinary meeting being called at the discretion on the chairman.

8.7 Accident/Incident/Hazard Report and Investigation

The local legislation places specific duties on employees and employees with the regard to report Accident/Incident, Hazard and implementation of appropriate corrective 2 preventative actions.

8.7.1 Accident/Incident/Hazard Report and Recording

K999 and Contractor companies are required to ensure their employees immediately report accident/incident to their Supervisor. All of the following should be report:

- A hazard, near miss or dangerous even
- Property or equipment damage
- Physical injury or harm to health
- A fire event

All accident and incidents shall be report, investigated and analysed in accordance with Accident and Accident Management.

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The completed Contractor report must be lodged with the Health Safety and Environment Section within 24 hours of accident/ Incident occurring or Hazard being identified.

8.7.2 Accident/hazard Investigation and Analysis

K999 considers the reporting of all occupational injuries, ill health, disease hazard and collection, report, reporting, and analysis of data concerning these events, essential in determining and identifying:

- Measures that need to be taken to prevent similar occurrences
- Selection of correct priorities for preventative action
- Evaluation of the effectiveness of these controls and preventative measures.

8.7.3 Follow up on corrective Actions

Following completion of Accident/Incident or Hazard investigations the Manager may initiate a follow up action review of the investigation.

The Manager may nominate the respective contractor site manager to the follow up on the status of the nominated Corrective/preventive actions proposed in the investigation to ensure the Accident/Incident or hazard has been properly dealt with and the risk of recurrence minimized or eliminated.

Once all nominated corrective /preventive actions have been implemented, the accident, incident or hazard report will be closed out and filed at the Health Safety and Environment Section.

8.7.4 Health Safety and Environment Statistics Notice Board

The Health Safety and Environment Notice Board will be update periodically and will be located at the Office.

The Health Safety and Environment notice board will display the following key performance indicators.

- Project has been running for (number) of day
- Lost time Injury Frequency Rate (number)
- Lost time Injuries to date (number)
- Environment Incident to Date
- All injury frequency rate
- Total Project Hours to Date

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8.8 Emergency Response & First Aid

8.8.1 Emergency Procedure

A specific emergency procedure shall be procedure in accordance with the Emergency Procedure of the operation. This shall be communicated to all personnel via the induction training and will be appended to all notice boards.

An emergency situation may involve.

- Fire
- Explosion
- Fuel leak
- Medical emergency
- Chemical leak

An emergency response team may be established. External emergency service will be utilized to support the emergency response team, as responsibility will be to stabilize the emergency until external assistance arrives.

External training providers, if required, will provide other specific emergency response training.

8.8.2 First Aid

Provision will be made at the start of construction to establish the availability of a hospital, doctors and ambulance service to deal with accident emergencies. The names, addresses and telephone numbers of all emergency services such as Fire Department, Local Police and Ambulance Service will be posted clearly on the job site.

- First Aid facilities will be provided within the vicinity of each work. The contents of the first aid kit will be checked and restocked at the regular intervals.
- First Aid training will be provided as an integral part of the safety program. Personnel will be encouraged to qualify in first aid.
- Washing and toilet facilities will be available within the vicinity of each work.

8.9 Permit to Work System

A permit to work system is formal written planning and control system used to control certain types of work activity that are recognized as beginning potentially hazardous and to ensure this work is carried out in accordance with safe work practices.

These procedures apply equally to all K999 and Contractor personnel required to conduct work under the Permit to Work System.

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All parties conducting work on the project will brief on the Permit to Work System and procedures at the specific induction.

8.10 Disciplinary Plan

The K999 policy for all employees, including K999 direct hire employees, contract hires, and Contractor personnel associated with this construction project and work shop are required to follow K999 Health Safety and Environment policies and operating procedure. This policy provides reasonable guidelines to enforce disciplinary action, although Contractors may implement a policy that exceeds the K999 policy.

Workers will be provided with the required training and information, or re-tainting to maintain their knowledge.

8.10.1 Verbal Warning


As the first step in correcting unacceptable behaviour, the employee's immediate Supervisor/Foreman will review the pertinent facts with the worker. They will consider the severity of the problem and worker's past performance. A verbal warning will be issued to the worker, which will be documented by the supervisor and copies distributed to the worker's personnel file and to the Manager

8.10.2 Written Warning

If the unacceptable performance continues, the next step shall be a written warning. The written warning shall clearly state the policy that was violated and the steps the worker must take if it is to be corrected. A 30-day probation period shall be part of the written warning. A written warning requires the Contractor or tiered subcontractor's Health Safety and Environment coordinator and/or supervisor to ensure that the worker has satisfactorily completed a minimum re- training session related to Health Safety and Environment policy violated. This training must be completed within the probationary period. Documentation, with copies forwarded to the Health Safety and Environment office shall be maintained in the worker's personnel file. At the completion of the probationary period the employee's supervisor will meet with the worker to determine if worker has achieved the required level of performance.

8.10.3 Suspension and/or Termination

The worker may suspended without pay for a period of 1-4 days if improvement in safety performance is not apparent, or if the worker has violated another Company Health Safety and Environment policy during the probationary period.

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9. SITE HEALTH SAFETY AND ENVIRONMENT RULES AND GUIDANCE

The guideline applies to K999 and contractors in respect of the project. The used guidelines do not in any way diminish the responsibility of individual operating company, their (sub) contractor to carry out operations Safety having due regard to their duty of care responsibilities and to observe statutory requirements. K999 does not accept any responsibility for any incident or consequence thereof, whether or not in violation of any Legal or regulation, which arise or is alleged to have raised from the use these guideline.

9.1 General Rules on site

- Only workers passed Environment safety & Health Orientation course and received the sticker in safety orientation are allowed to work in job site and work shop.
- All personnel and visitors on site and work shop must be endure that suitable personal protective equipment in warn at all times whilst on the construction site and work shop. The wearing of Safety Helmets, Safety Footwear And Safety glasses is compulsory. Additional PPE must be warning appropriate to the location.
- To prepare safety equipment ready before working.
- Use prepare correct tools and equipment for the job and keep it in good condition.
- To report unsafe condition in work immediately.
- Report of the injury and give an appropriate care.
- No personal unconcerned enter to area, which are under the contraction.
- Smoking area and ending is prohibited throughout the workplace except in designated areas.
- Liquors, Gambling/Drugs & Sport in job site and work shop are prohibited.
- Instructions give on safety signs must be adhered to at all times.
- No alcohol is be taken onto or consumed in site and work shop. Any persons found in possession of or under the influence of controlled substances (except where prescribed by a doctor for medical reasons) or alcohol will be immediately remove from site and work shop.
- Rule regulation or instruction shall strictly be complied.

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9.2 Personal Protective Equipment (PPE)

It is the responsibility of each contractor on site and work shop to provide adequate and will maintained personal protective equipment (PPE), it is also the responsibility of each contractor to ensure sufficient training is provided to ensure correct and proper use of such equipment.

Personal Protective Equipment (PPE) shall be properly maintained in good order and replace if defective Protective equipment shall conform to national and international standard. Appropriate personal protection shall be worn as follows:

- Safety Health at all times.
- Safety Footwear steel toe caps safety shoes to be worn at all times.
- Safety Glasses at all times.

And the following is recommended:

- Additional eye protection for specific task.
- Hearing protection where necessary.
- Fall protection for working at heights.

In additional to above following will also apply:


Worker involved in hot work such as, welding burning and grinding will also be required to be appropriate eye/face/head/body protection and gloves/gauntlets where necessary.

Worker working under noise conduction above Insert e.g. 90 dB (a) must also be provided with and required wear appropriate ear protection

When working with toxic gas and liquid, ceramic fibers, asbestos, etc. or when working with Dangerous formation of dust, appropriate clothing and respiratory equipment must be provided and warn in accordance with the regulations that apply for the kind of work.

Workers at heights of over 2 meters above ground with insufficient barrier protection must be provided with and required to use harness and lifelines. Failure to do so may result in disciplinary action.

Visitors shall be provided within minimum personal protective equipment (PPE) requirement and accompanied at all times if required to visit the site and shop.

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For all specific work activities, appropriate personal protective equipment shall be worn as required by the Risk Assessment of that activity.

9.3 Hazardous Substances

This section describes the minimum procedure to manage the level of risk and ensure the safe management of all Hazardous Substances and dangerous goods brought onto or used on site and shop.

The transport, storage, use and disposal of this substance will be in accordance with the minimum provision contained in the Material Safety Sheet (MSDS).

All relevant information including a current Material Safety Data Sheet (MSDS) shall be provided to the Health Safety and Environment section for inclusion in the site Hazardous substance Register.

9.4 Fire Prevention

K999 recognize a system of fire prevention and fire protection is needed that will minimize the risk of a fire starting and then minimize injury and illness should a fire occur.

Routine checks and maintenance shall be conducted on all fire protection system and equipment as per regulation standards. Registers shall be kept at all maintenance and inspections.

9.5 Mobile Cranes

Mobile Cranes operations on site have the potential to create a number of height-risk hazards on the project.

This section describes the minimum standards to be adopted by K999 and all contractors in relation to the operation of cranes on site.

The operation of all mobile cranes on site shall be complying fully with the relevant legislation and minimum standard detail.

9.6 Rigging – General

The following are the general requirements for rigging activities on site

- All personnel involved in rigging or lifting operations shall have valid and current certificate of competency.
- All load bearing equipment capable of moving materials e.g., chain blocks, winches jacks etc shall have an identification number visible on the unit and recorded in a register.
- The register shall detail the type of equipment number, SWL, the serial number of the unit, and the last inspection date.

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- All rigging equipment shall be inspected before each use with a comprehensive inspection and service being undertaken by a qualified rigger every three months and a tag, visible from a distance of a at least 6 meters, complying with the relevant project color code for the period attached.
- All sling, chains webbing and composite slings designed for attaching a load shall be identified with a Safe Working Load.
- Damaged slings and equipment shall not be used. They shall be tagged "out of service" and returned to the owner;
- Rope shall only be used for tying off or tailing.

Following the quarterly inspection the rigging shall be colored according for Cranes Rigging Monthly color coding table.

Monthly Color Coding

Monthly	Color
January – March	White
April – June	Green
July – September	Red
October - December	Yellow

9.7 Working at Heights

Fall from heights or being struck by falling objects result in the death or serious injury of numerous workers each year in the construction industry.

These activities have been identified as tasks having a high to very high potential lever of risk on the work.

The control measures to protect a person from the risk of falling from height or from falling object must be in place before any work involving these hazards commences.

Several control measures are available to protect works from the risk of falling from height when carrying out work. In some circumstances, more than one control measure may be necessary.

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The three levels of control measure, in order of preference, are:

- Erecting a physical barrier,
- Providing personal fall protection, and
- Measures provided to “Catch” a person once they have fallen.

All personal fall protection equipment shall be inspected daily prior to use by the user.

A competent person shall maintain a register of all heights safety equipment and conduct inspections at a minimum of three monthly intervals with the results of these inspections being recorded and retained.

An appropriate colored tag complying with the Monthly color coding guidelines shall be applied in a conspicuous location.

9.8 Elevated work platforms


Elevated work place details the minimum standards to be adopted by K999 employees and contractor personal undertaking work from an elevated work platform. Any personal required to operate an Elevated Work Platform must have the appropriate operator’s certificate to competency.

All employees intending to operate an Elevated Work Platform shall ensure that all of the Safety Work procedures are followed.

Pre – start safety checks must be completed and logbooks filled in prior to use. Full body harnesses, worn correctly and fitted with the appropriate lanyard attached to a secure anchor point shall be worn at all times by the occupants of the Elevated Work Platform a Risk Assessment and/or Job Safety Analysis is to be conducted. The responsible supervisor must be notified on each occasion and ensure the appropriate procedure are in place before giving his/her consent for this activity to take place. Double lanyards appropriately attached to a secure attachment points, shall be used at all times.

Note: Operators of scissor lifts must have proof of appropriate instruction and be competence to operate the unit safety.

The same maintenance and pre-start check requirements for Elevated Work Platform’s will apply to scissor lifts used on the project. The manufacturer safe operating procedures shall be observed at all times.

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9.9 Scaffolding and Work Platforms

The erection, use and dismantling of scaffolding can create hazards on the project that must be controlled.

This section describes the minimum procedures to be adopted to manage the level of risk and ensure contractors comply with legislative requirement.

The application of this procedure extends to the management of all mobile, independent, suspended and cantilever scaffolding on site and shop.

Contractors erecting scaffolding on site and shop are to ensure compliance to the legislative standards and minimum requirements detailed in the Working at Elevated Places.

All scaffolding on site shall be erected, modified, and dismantled by (or under the supervision of) an appropriately certified scaffolder.

Unauthorized persons shall not to be used as components of work platforms or scaffolds.

Mobile scaffolds and platforms must have wheels locked while in use. These scaffold shall not be moved while people occupy the scaffold.

The scaffolding tag system is to be used on all scaffolds to show the condition of scaffold. All work platforms are to have appropriate, unrestricted and safe access.

The scaffold supervisor or a suitably qualified designated person is to conduct routine daily inspections of all scaffold and work platforms erected on site to ensure they have not been altered and remain in a safe condition.

9.10 Leaders and Steps

Leader misuse is the cause of many serious accidents with many accidents being able to be prevented by more frequent inspections of the ladder prior to use; adequately securing ladders before use; and the application of safe work methods whilst using a ladder, etc. K999 and Contractor personnel placing and using ladders for access on site and shop are to comply fully with the legislative provisions and the minimum standards detailed in the Working at Elevated Places in relation to developing procedures for safe use, selection, and maintenance of ladders and steps.

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The following are minimum guidelines in relation to the safe of ladders:

- Only ladders that are whole and in a safe, undamaged condition and of approved construction shall be use on site. Checks shall be conducted at a minimum every three month to ensure hinges; steps, retraining cords, ropes and stays are in good condition.
- An appropriately colored tag complying with the monthly color coding guideline shall be applied in a conspicuous location.
- Metal ladders and steps shall not be used in connection with electrical work or where contact may potentially be made with live current.
- Ladders and steps shall be used on a firm level surface free from obstructions and with clear access / egress.
- All ladders must be fitted with safety
- Once elevated, all ladders shall be secured with lashing. An assistant shall hold the ladders steady until secured.
- Ladders shall extend at least one meter beyond the edge or landing point.
- Wherever possible, steps shall be used in the fully opened position.
- Workers shall not overstretch from a ladder or step. Shift the ladder to a more convenient position. Both feet and one handhold should be on the ladder at all times when conducting work.
- Do not stand on the top of a stepladder to conduct work.


Routine inspections of ladders shall be recorded in the appropriate register.

9.11 Barricading

K999 and contractor line managers and supervisors are responsible for erecting and proper maintenance of barriers or barricading that is required to project workers or designate hazard work areas or exclusion zones.

All barriers or barricading used on the project shall comply with the requirement of Management of Excavations and be of a suitable material and strength sufficient to perform the task required of it. In other words, flag bunting or similar material is not adequate a person from falling into an open trench or pit.

Floor openings, stairwells, platforms, and walkways, and trenching where a person can fall any distance shall be adequately barricaded and where necessary, well it. Barricades may also be used to prevent personnel entering an area where risk of injury is high e.g., during overhead work activity or electrical testing etc. Such barricading must provide clear visual warning

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and be of contrasting colors. The reason for the barrier shall be attached by means of a tag or label. Where possible barriers shall be placed at least one meter from the edge of an open trench or excavation.

9.12 Electrical Safety

An employer has an obligation to ensure the employer's business or undertaking is conducted in way that is electrically safe. This includes identifying electrical hazards, assessing the risk of injury or property damage that may be attributed to hazard and taking necessary actions to minimize exposure to the risk through the development, implementation, and continuing to ensure systems of work.

It is also a requirement that all portable electrical apparatus are tested every three All records of tests and portable electrical equipment lists are required to be kept on file for inspection.

9.13 Welding Cutting Grinding

Welding processes have been identified as tasks creating a variety of hazards on the project. The Management of hot Works provides guideline on the minimum standards to be adopted by K999 employees and contractor personnel to manage the level risk and to the relevant legislation.

This includes the documenting of specific controls to be implemented to minimize the risk of electrocution, fire and explosions.

In summary:

- Only qualified, suitable trained and approval personnel shall only carry out welding.
- When conducting welding, oxy-acetylene cutting and grinding operations in elevated areas fireproof blankets shall be used to arrest sparks reduce the risk of fire, and to protect surrounding structures.
- When welding is being carried out at ground level welding screens or/ and blankets are to be used to minimize sparks and the risk of fire, and to protect nearby works from flash or penetrating eye injury.
- If there is a potential for the outbreak of fire, consideration should be given to the use of a fire watcher.
- Fully operation fire extinguisher shall be accessible within easy reach of the hot work area.

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- Welding equipment shall inspected before use and shall in good condition.
- Flashback arresters shall be fitted to oxy-acetylene unit at the regulator. Flash back arresters shall also be fitted at the torch end if long hoses are being trouters.
- A comprehensive generic safe work procedure should be in place and the procedure to be followed well understood by those required to carry out welding, grinding and cutting operations.

10. HOUSE KEEPING

K999 and Contractor line manager and supervisors shall conduct housekeeping inspections of their respective work, storage or lay down area frequently taking corrective action immediately where necessary.

The following rules for housekeeping shall apply on site and step:

- All material, equipment and apparatus shall be stored neatly in their designated areas.
- All scrap, construction waste and packing material shall be brought to specially designated areas.
- The accumulation of waste in prohibited.
- The working area must be kept in the clean condition at all times.
- All flammable materials must be frequently removed from the working area and disposed on the end of working hours.
- To prevent a tripping hazard, cables, extension cords and hoses must be properly laid and kept away from the walkway or road way.
- Each employee shall leave from workplace in a clean and safe state on the completion of the task end at the end of each shift.