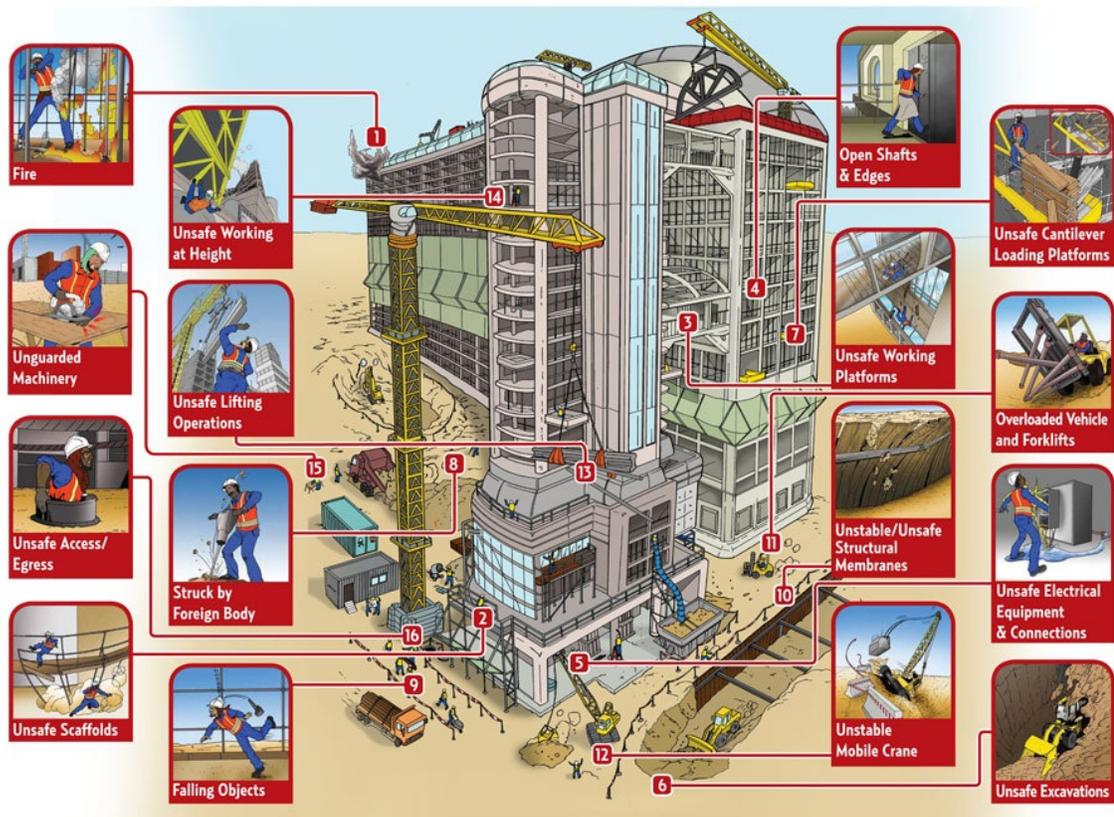


GOVERNMENT OF KERALA

# HEALTH AND SAFETY MANUAL

## Top 16 hazards in construction sites



DEPARTMENT OF LABOUR & SKILLS  
KERALA

# HEALTH AND SAFETY MANUAL

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## **A. INTRODUCTION**

**SAFETY** in construction is of paramount importance as any fatal accident will cause irreparable loss of human life, money and progress of work leading to reduction in morale and de-motivation of the work force. In order to prevent occurrence of an accident, every organization should follow the safety norms and ensure that they are effectively implemented.

The primary objective of this manual is to ensure non-occurrence of accidents in work places. The significance for safety starts from the stage of design and continues during the full life cycle of a project including maintenance. The designers, consultants, contractors, clients and workers share joint responsibility for safety which should be built into their work culture and systems.

Every personnel at site have to contribute their maximum effort towards safety promotional activities. They have to give adequate care for their safety as well as fellow personnel. Safety is to be treated as a part of work and safe methods are to be practiced by every individual till it becomes a habit and is voluntary. People should be pro-active and no one should wait for an incident or accident to do something, instead, they have to take all precautionary measures before anything happens.

This manual specifies the basic fundamentals which will address mainly about the potential hazards and unsafe practices leading to serious accidents. The emphasis here is to 'prevent than cure'. At present, the minimum and general safety requirements are given in this manual and it will be revised on the need basis. If these procedures and code of practices are religiously followed the objective of having 'zero accident' can eventually be achieved. This safety manual is prepared with due consideration of construction safety requirement and for the benefits of all concerned organization especially for the Builders, Developers and Contractors for the formulation of safety manual (company wise) and project safety plans (project wise). All of them are requested to read this manual carefully and utilize the given provisions accordingly. If Organizations working in the construction industry have any doubts or needs more information about the construction safety matters, they can approach the office of the Labour Commissioner, Govt. of Kerala, Thiruvananthapuram to clarify their doubts.

## **B. ACCIDENT PREVENTION PROGRAMME**

Prevention is always better than cure. The ultimate objective is to reduce accidents by planning an accident prevention programme and its effective implementation. Safety shall not be viewed as a separate entity. It should be integrated with all activities right from design, estimate, planning and execution stages. This programme requires effective and efficient monitoring and controlling.

Certain important tips for an effective accident prevention programmes are given below:-

- Ensure an effective safety organization to look after safety matters.
- Recruit the right personnel in the right places.
- All personnel at the site shall express and exercise their own safety role & responsibilities.
- Provide Information, Instruction and Training to all personnel at site regarding hazards, risks and the control measures.
- Establish & maintain good housekeeping practice throughout the site premises.
- Ensure effective supervision for all constructional activities.
- Provide safe access and egress at the site premises.
- Provide adequate lighting /illumination throughout the site premises on the need basis.

- Display the relevant safety sign boards and safety instructions at the prominent locations.
- All personnel at the site should observe and obey the safety signs & symbols and safety instructions displayed at the site premises.
- Establish and maintain a proper system for safely using the electric power.
- Ensure appropriate fire prevention & control measures.
- Report, investigate and take the relevant corrective measures for all cases of near misses.
- Report and investigate accidents and communicate the lessons learned to all employees. Also take the relevant precautionary measures to avoid similar occurrences in future.
- Wear the relevant Personal Protective Equipment (PPE) at the site premises and other areas on the need basis.

*In short, formulate and adopt PROJECT SAFETY PLAN and implement the provisions given in the plan accordingly.*

#### C. HEALTH & SAFETY POLICY

Safe and healthy working conditions do not happen by chance. Employers need to have a written safety policy for their enterprise setting out the safety and health standards which it is their objective to achieve. As per the statutory requirement, every establishment employing 50 or more building workers shall prepare a written statement of his policy in respect of safety and health at work. The employer shall revise the safety policy as often as necessary. The policy shall be signed and dated by the senior executive (preferably by the chief executive) who is responsible for seeing that the standards are achieved, and who has authority to allocate responsibilities to management and supervisors at all levels and to see they are carried out. A typical HS Policy is given the Annexure-I

#### D. STATUTORY REQUIREMENTS

##### Important Act & Rules

- “Buildings and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996”. This is a Central Act, it extends to the whole of India, the Act promulgated in 1996 and it has 64 Sections and XI Chapters. According to Section-44, *An employer shall be responsible for providing constant and adequate supervision of any building or other construction work in his establishment as to ensure compliance with the provisions of this Act relating to safety and for taking all practical steps necessary to prevent accidents.* This clause itself is self explanatory to point out the responsibility of the employer.
- “Buildings and Other Construction Workers (Regulation of Employment and Conditions of Service) Kerala Rules, 1998”. The Rules are framed as per the provisions given in “ THE BUILDING AND OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT,1996”. It has 317 Rules, 8 Schedules and 46 Forms
- Inter State Migrant Workmen (Regulation of Employment & Conditions of Service) Act, 1979. According to this Act, Contractors must pay timely wages equal or higher than the minimum wage, provide suitable residential accommodation, prescribed medical facilities, protective clothing, notify accidents and casualties to specified authorities and kin. The

Act provides right to raise Industrial Disputes in the provincial jurisdiction where they work or in their home province. The act sets penalties including imprisonment for non-compliance.

- In addition to the above, the rules & regulations of concerned Traffic Department, Municipalities, Electricity Board, Civil Aviations, Fire Force Department; and provisions given in the Codes of practices (IS) etc., also shall be effectively implemented by the employer wherever and wherever it is applicable.

In addition to the above, it is the responsibility of the employer to display the site safety rules & regulations at the entrance. A typical copy of the site HSE rules & regulations are given in the Annexure-II

**Non-compliance of Statutes & Regulations.**

The project manager at the site is bound to take appropriate disciplinary actions on any violations of statutory requirements, rules & regulations, and non-compliance of company's HS policy. All personnel at the site should get the rights to point out the violation of rules & regulations.

**E. SAFETY ORGANIZATION**

The organization of safety on the construction site will be determined by the size of the work site, the system of employment, rating of the potential risks, and the way in which the project is being organized. Safety and health records should be kept which facilitate the identification and resolution of safety and health problems on the site.

**a) Site Safety Officer/Safety Engineer/Manager**

In every establishment wherein 500 or more workers are ordinarily employed, the employer shall employ the safety officers. The position of such safety officers shall be notified by the Chief Inspector. The Labour Commissioner, Govt. of Kerala). Whoever is appointed should have direct access to an executive director of the company. The position and status of the safety officer shall be clearly marked on the organization chart of the project.

**b) Qualifications of Safety Officer**

- A person shall not be eligible for appointment as a safety officer unless he - possesses a recognized degree in any branch of engineering to technology and had a practical experience with construction work in a supervisory capacity for a period of not less than 2 years; or possesses a recognized diploma in any branch of engineering or technology and has had practical experience of construction work in a supervisory capacity for a period of not less than 5 years; or possesses a degree or diploma in industrial safety with at least one paper in construction safety (as elective) and recognized by the Central Government in this behalf; or possesses a recognized degree or diploma in engineering or technology and has had experience of not less than 5 years in the department of Central Government which deals with the administration of labour legislations pertaining to safety; or possesses a recognized degree or diploma in engineering or technology and has had experience of not less than 5 years in training & education or research in the field of accident prevention in industry or construction work.
- The ultimate authority for notifying the safety officer falls on the Chief Inspector.
- Though the employer is not required to appoint a safety officer as per the statutory requirement or the number of employees at site, there shall be a competent safety officer or a safety representative who have acquired adequate knowledge on site safety standards and requirements. If a responsible safety person is not available at the site, the employer cannot exercise the their responsibility for taking precautionary measures to prevent accidents.

***The duties and responsibilities of the site safety officer/engineer/manager should include, but not limited to the following:***

- identify the hazard & conduct risk assessment for all activities from the mobilization to demobilization ( see Annexure- VIII);
- Acquire the knowledge on statutory provisions pertaining to construction safety;
- Ensure that the relevant safety sign boards, safety posters, cautionary instructions, general site safety rules& regulations, emergency procedures with contact telephone numbers, and emergency assembly points etc., are displayed at the prominent locations. All of them shall be in English and other language(s) understandable by the majority of workers;
- conduct safety induction training to all new entrants coming to the site irrespective of their level of status and also conduct the safety in-house trainings on the need basis;
- conduct regular site inspection and advise the concerned person(s) to take corrective measures immediately to eradicate the dangerous situations;
- investigate near misses, accidents, dangerous occurrences, and occupational diseases and communicate the lessons learned to all employees. Also informed to the concerned personnel to take corrective and preventive measures to be taken to avoid such occurrences;
- acting as a secretary and technical adviser to the safety committee;
- ensure that implementing safety management system as per the safety budgeting for the project;
- ensure that pre-job meeting is conducted just before starting the job;
- keep the copies of the license for the operators of vehicle/equipment/machinery; third party test certificates for the lifts, hoists & cranes; third party certificates for the scaffolding crew, first-aider/male nurse; competency of welders & electricians; and Material Safety Data Sheets (MSDS) for chemicals etc., at the site safety office;
- prepare, maintain and update all safety reports and records;
- ensure that necessary personal protective equipment is available and used; and
- ensure that the provisions given in the project safety plan is effectively implemented.

**c) Safety Committee**

**Every establishment wherein 500 or more building workers are ordinarily employed, there shall be a safety committee constituted by the employer which shall be represented by equal number of representatives of employer and building workers/ representative of the recognized trade unions.**

Safety committee meetings shall be held at least once in a month at site. The committee shall discuss every aspect of safety, its adequacy with respect to the work, implementation, awareness levels, training, effectiveness of communication related to safety, detailed analysis of accident or near miss that has occurred, further improvement required etc. The entire proceedings of the meeting shall be recorded. Action taken and compliance report shall be placed before the Safety Committee in the next safety committee meeting. Recommendations of the safety committee shall be submitted to the management (Project Manager) for review and its proper implementation.

If there is no safety committee constituted in the construction project as per the statutory requirement, it does not mean that there is no need for safety meeting. Weekly or monthly safety meetings shall be conducted to discuss the current safety problems and future course of action to eradicate the dangerous situations. All key personnel at the site shall sit together and the meeting shall be chaired by the Project Manager. The implementation of the safety meetings will be one of the effective accident prevention programmes and it will be one of the important tools to exercise the responsibilities of the employer towards safety promotional activities according to the section-44 of the BOC Act,1996.

#### **F. HS RESPONSIBILITIES**

The employer ( builders/developers/contractors) is fully responsible for taking all precautionary measures to avoid accidents in the construction project. Generally, the main/principal contractor who is responsible for the construction from the mobilization to de-mobilization will be the employer.

An employer shall be responsible for providing constant and adequate supervision of any building or other construction work in his establishment as to ensure compliance with the provisions of this act relating to safety and for taking all practical steps necessary to prevent accidents.

Officially, on behalf of the principal contractor, the project manager is responsible for dealing safety matters in his project. The major responsibilities of certain personnel/organizations at the site are given below:

##### **1) Project Manager**

- Ensure that H.S. Policy and procedures of the company is effectively implemented in the project.
- Actively participate in the safety meetings and implement all outcomes of those meeting in the project.
- Acquire knowledge in statutory obligations and ensure its compliance in the project.
- Visit the work place frequently and monitor safety aspects during the visit.
- Investigate accidents with the help of a Safety Officer and establish causes and remedial measures to prevent re-occurrence
- Recommend suitable incentive schemes to increase the safety awareness/performance among the employees
- Evaluate the Safety performance of the employees and recommend for proper incentive for best performance.
- Give strong instructions and delegate the responsibilities to the sub-ordinates to implement the provisions given in the project safety plans.
- Actively participate in H.S internal audit and follow-up of audit recommendations.
- In short, effectively implemented the provision given in the project safety plan throughout the project activities.

## 2) Construction Manager

- Exercise the safety responsibilities of the project manager in implementing the safety management system at the work site
- Ensure that H.S. Plan for the project is effectively implemented
- Give instructions to all sub-ordinates in implementing safety standards and provisions at the workplace.

## 3) Engineers/Supervisors/Foremen

Good planning and organization at each work site and the assignment of clear responsibility to Engineers/Supervisors/Foremen are fundamental to safety in construction.” Each supervisor requires direct support of project manager/construction manager. Engineers and supervisors are directly supervising the workplace and workers. Therefore, they have a vital role to implement safety provisions and standards in their own areas of activities. They should:

- Ensure effective supervision at the workplace. In addition to the supervision of the work, inspecting the work spot for on the spot corrections of unsafe acts of the workmen & unsafe working conditions.
- Conduct pre-job meeting just before starting the work.
- Ensure that good housekeeping practice is established and maintained at the workplace.
- Ensure that the relevant safety, health and environmental system & facilities are arranged at the workplace.
- Ensure that workers have been adequately trained for the job they are expected to do; workplace safety measures are implemented as per the project safety plan; and necessary personal protective equipment is available and used.

## 4) Store keepers

- Ensure that no smoking boards, relevant safety instructions, signs & symbols etc., are displayed in the store premises.
- Implement good housekeeping practice inside and outside the store building.
- Ensure that adequate lighting is always available in and outside the store.
- Implement the relevant material codification standards while storing the materials.
- Ensure that relevant ventilation facility is provided in the storage areas.
- Segregate the combustible materials, non-combustible materials, hazardous chemicals, non-hazardous chemicals etc., with tags in the proper way and give adequate access to reach the materials easily.
- Ensure that MSDS is readily available for all hazardous chemicals. Read and understand the details given in MSDS and pass the information to the sub-ordinates and the personnel who are supposed to handle these materials. Copy of all MSDS shall be given to the site HS Officer/Engineer
- Ensure that fire prevention & control measures in the store area are very effective.

- Check the materials/equipment/machinery/tools etc., carefully while receiving and issuing and don't issue or receive any defective one.
- Prepare, maintain and update all records for receiving and issuing of materials
- Wear the relevant PPE's while handling and storing the materials and ensure that all sub-ordinates are doing the same.

#### 5) Workforce

- Beware of your Health & Safety and your fellow-workers.
- Inform all abnormal situations to the superiors immediately.
- Ensure the potential hazards of the work are well understood and do the work safely and in time.
- Properly wear the P.P.E's on the nature of the job and the work site.
- Use the tools/appliances/equipment properly.
- Report all incidents/accidents immediately to the concerned personnel.
- Discard the defective PPE's and Tools safely and replace by the new one.
- Clean up the work area immediately after finishing the work.
- Be alert in case of emergencies and act as per the emergency response procedures.
- Always follow the safety instructions of superiors and safety Officer.
- Actively attend the TBM and safety awareness programs.

#### 6) Sub-Contractors

- Identify the hazards of their work, assess the risks, and tell the contractor how they are to be controlled.
- Co-operate and co-ordinate with the Contractor, other sub-contractors and suppliers
- Comply the relevant provisions mentioned in the project HS Plan
- Conduct the risk assessment for all activities and submit the details to the Contractor prior to the commencement of any activity at the site.
- Give the relevant information, instruction and training to the employees.
- Obtain all information from the contractor about the hazards and risks at the work place and remedial action to be taken to eliminate/avoid the risk and pass this information to all employees.
- Immediately report all accidents/incidents/near misses to the contractor.
- Appoint a suitable and competent Safety Officer or HS co-ordinator and instruct him to co-operate and co-ordinate with the site safety engineer.
- Submit all HS reports including accidents/incidents/near misses to the contractor
- Follow the emergency response procedures of the contractor

## **G. ACTIONS REQUIRED**

### **a) Before Implementation**

From the design and tendering stage onwards, accident prevention requirements should be carefully analyzed by all concerned organizations. Adequate monetary allocations (HS budgeting) should be made for items such as barricades, safety signs & symbols, portable fire extinguishers, sand buckets, first-aid medicines & equipments, approach platforms, temporary supports, scaffoldings, warning tapes & traffic cones, pipes/re-bars, waste bins, personal protective equipment (like safety helmet, safety harness, safety nets, goggles, gloves, welding shield/glass, safety shoes & gumboots, ear plugs/ear muff and dust masks) etc.,. The approximate cost for the placement of safety officer, safety assistants, safety helpers, first-aider/male nurse etc., also shall be estimated and included in the safety budgeting.

### **b) During Implementation**

#### **General**

Immediately at the start of any job, key personnel should discuss about accident prevention procedures during the pre-job meeting. Job layouts, plans and schedules should be studied to determine requirements of safety materials, as mentioned in the above paragraph and a procurement schedule should be prepared.

Supervisory personnel assigned to the job should review initial planning, discuss any condition changes and alter safety plans as required. On the basis of decision taken, a brief supplemental safety programme is to be developed and distributed to all supervisory personnel on the job and to those who may later be assigned. Subsequently, regular safety meetings shall be conducted to monitor the safety performance.

Recorded safety announcement, in relevant different languages, shall be played using PA system, just before commencement of the work in the morning and afternoon as well as during the tea breaks in the morning and evening.

Unless there is accurate means of measure, it is virtually impossible to determine progress in any management function and accident prevention is no exception. All accidents should be supplemented with an investigation report for internal purposes. [refer Annexure-IV for specimen report]

## **H. SAFETY TRAINING PROGRAMS**

### **a) Safety Induction Training for new employees**

*No employee shall be assigned on job without attending H.S. induction training. Safety Officer should conduct this training and proper record is to be maintained. All concerned personnel should send the new employees to the safety section and ensure that the new employees are attended this training before starting their job.*

### **b) Safety In-house training**

H.S. In-house training shall be given to the employees on the basis of general requirements and training need analysis. Safety professionals will conduct this type of training programs. Proper records shall be maintained and it will be reviewed periodically.

**c) Refresher Training**

The Site Safety Professionals and the immediate Supervisor of the individuals should assess the performance of the people . If it is findout any drawbacks from any individual/groups , suitable training shall be scheduled and conducted accordingly.

**d) External Safety Training ( Specialised H.S. Training )**

In special cases, if it is found that specialised training is required, it can be arranged . But it will be studied and reviewed by the H.S. Manager and after the approval of Managing Partner, it will be arranged accordingly.

**e) Tool Box Talks**

Tool box talks will be given to workers on daily basis and records will be maintained. It will be conducted by the concerned Supervisor –in-Charge and the records shall be documented by the concerned Project Safety Officer.

**I. HS INSPECTIONS & AUDITS**

**I.1 HS Inspections**

The Safety Officer/Site Line Management Personnel will conduct frequent HS Inspections (Both Planned and Unplanned) with comprehensive checklist and subject to a written report of the results of the inspection, completed as soon as practicable after the inspection. It is the responsibility of all concerned personnel to take corrective actions on inspection reports. A typical HS Inspection checklist is attached in the Annexure- VII.

In addition to the above, specific inspections shall be conducted for certain activities, vehicles, tools, equipment & machinery etc. by the concerned responsible personnel. A register shall be maintained for inspections, but not limited to:

- Scaffold Inspection
- Excavation Inspection
- Cranes & Other Lifting Accessories Inspection
- Fire Fighting Equipment Inspection
- First Aid Facilities & Equipment Inspection
- Vehicles & Equipment/Machinery inspection

**I .2 HS Audits**

**a) Internal HSAudits**

Monthly internal HS Audits shall be conducted by the project manager and site safety officer/engineer and it shall be recorded in the prescribed format. It is the responsibility of the project manager to give the information on the adverse comments in the Audit report to the concerned sub-ordinates for taking the proper corrective as well as preventive measures without any delay.

**a) External HS Audit**

External HS Audit gives the clear picture of safety deficiencies and status of safety performance of the construction project. The safety audits shall be done on the basis of the following points:

- To be done by independent auditors enlisted by the Chief Inspector.
- Audit to be done once in six months at a reasonable fee to be decided by the above bodies.
- The observations of the audit team to be classified as major and minor non-conformities. Any major non-conformity shall be corrected within 2 weeks. In case, if the non-conformity is of a very serious /damaging/hazardous nature, such activity/activities shall be stopped forthwith as per the written instructions/stop memo by the audit team. For major non-conformity, the audit team shall make a second visit to inspect and ensure compliance after the corrective measures are undertaken.
- Minor non-conformities are to be corrected within 2 weeks and compliance report shall be submitted to the audit tea. A follow up visit is not required in the case of non-conformities.

## **J. HOUSEKEEPING**

Good housekeeping is one of the important elements of accident prevention programmes. It should be planned at the beginning of the job and carefully supervised until the final clean up and handing over of the site.

It is recommended to have a regular clean up in all the job sites. However, housekeeping should be the concern of all workers, supervisors and engineers in their area of working and not left for the cleanup crew. In any case, housekeeping should be a part of daily routine with clean up being continuous procedure. It must be made clear to everyone including the workers that housekeeping and clearing of debris in their area of work is the responsibility of the workers working in that area.

*The following guidelines have to be followed for maintaining good housekeeping practice:*

- All materials should be maintained in neat stockpiles with well laid aisles and walkways for ease of access. There shall not be any projections in the walkways.
- Debris from the floors shall be removed and collected by suitable chutes and skips. When the skip is full, debris shall be disposed off into the designated dumping area.
- Loose materials, scrap, tools etc. shall not be allowed lying in the working areas especially in the vicinity of ladders, ramps, stairs etc. This is more important at heights where loose materials are liable to fall down. Spilt oil and grease should be removed immediately.
- Protruding nails is wooden pieces is a chronic problem in sites of civil work construction. Every worker need to be made aware that such pieces will injure the workers themselves so that they will not throw such wooden pieces carelessly around their work space. Instead they should retrieve protruding nails and stack the materials in designated place.
- Wooden scrap yard should be well away from any gas cutting or welding operations and 'No Smoking' board shall be strictly exhibited there.
- All floors shall be numbered at the landing level.
- Combustible and non-combustible materials shall be segregated and marked with separate waste bins shall be collected and disposed off to designated dumping areas.

- Construction materials shall be stacked in safe and orderly manner with safe access. They shall not be stacked near the edge of floor or openings.
- Adequate lighting should be provided in and around all work areas, passage ways, stairs, ladders and other areas used by personnel.
- All openings in floors where workmen are liable to work or even pass through shall be either closed or barricaded. If they are closed, a visible sign shall be kept to indicate the opening below the cover.

## K. FIRE PREVENTION & CONTROL

### a) Prevention of Fires

*'Prevention is better than cure'*. The following precautions will be taken for the prevention of fire hazards:

- 1 Keep the site clean and clear the combustible materials such as papers, carton, and inflammable materials from the unsafe area. These materials shall be stored in the safe place.
- 2 Smoking shall be strictly prohibited at all the places except the designated smoking area.
- 3 Safety and fire prevention instructions/posters/no smoking and other safety sign boards etc., shall be clearly displayed in the relevant places.
- 4 Frequent safety inspections shall be conducted to ensure tidiness of the site and camp premises.
- 5 The proper use of electrical outlets and temporary electrical installations shall be ensured. Switch off the mains of any electrical equipment when not in use. The electrical circuit and appliances should not be overloaded.
- 6 Welding and cutting operations shall be done strictly as per the safe procedures.
- 7 Watch for overheating of bearings, non-aligned or broken machine parts, choking or jamming materials, and poor adjustment of moving parts.
- 8 Guard against exposure of flammables, explosives, and combustibles to furnaces, hot ducts or flues, static electricity, and electric lamps or heating elements.
- 9 All personnel at the site shall be instructed to follow these procedures strictly.
- 10 All fabrication to be done in a special area where adequate precautions are taken to avoid fire on account of the above activity. No welding, cutting or grinding shall be done until flammable materials like wood, packing products, oil, paint, bitumen etc. have been fully removed from that area. Do not hang clothing over or near heating equipment/appliance. Good housekeeping practice shall be ensured at all sites as well as camp premises.

### b) Control of Fires

*To control the fires, the following guidelines shall be adhered to:*

- Display the safety instructions for control of fires at the prominent places. All personnel should be instructed to observe and obey the instruction.

- Suitable portable fire extinguishers shall be provided in the relevant locations. All site personnel shall be instructed in the use of the firefighting equipment on site and shall be aware of its location. Do not obstruct access to fire extinguishers.
- Provide manually operated fire alarms at suitable locations to alert the people in case of fire.
- Learn the fire classification system to match up fires and fire extinguishers. Suitable safety training programs shall be conducted for all personnel on “Control of Fires” activities.
- Protect combustible materials from any kind of heat source.
- Be sure that all containers for flammables, explosives, and combustibles are clearly and correctly labeled.
- Formulate and establish a good system for emergency response procedures and display it in the prominent places with emergency telephone numbers.
- Clearly mark the fire exits and ensure that all personnel are aware about the emergency evacuation routes. Keep fire doors and shutters clear and unobstructed.

#### **L. ELECTRICAL SAFETY**

*For the prevention and control of electrical hazards, the following guidelines shall be strictly adhered to:*

- All electrical work should be done only by qualified, experienced and competent electrical technicians/foremen.
- All temporary electrical installations/appliances shall be checked periodically by a competent person and ensure that all installations are free from short circuit, loose contacts, insulation failure etc.
- Three pin plug and socket shall be used for tapping electrical supply. Insertion of loose wires in socket and use of improperly jointed wires is a major cause of electrical accidents at site. Hence, only metal clad and interlocked switch-plug-socket units along with properly rated cables shall be used. All metal parts (switch board, control panels, motor frames etc.) should be properly earthed.
- Relevant protective devices like ELCB (Earth Leakage Circuit Breaker), Earthing/Grounding, Fuses, Interlocks etc., shall be in place and are functioning properly.
- Permit-To-Work (PTW) system shall be introduced, if it is relevant to the particular job.
- Electric cables shall be adequately insulated and protected against mechanical damage. Cables should not be lying on floors unless it has adequate protection.
- Work on live lines must be avoided wherever possible. If it is unavoidable, it should only be done by trained personnel and personal protective equipment like -protective clothing, rubber gloves and boots etc. shall be worn.
- Relevant PPE such as rubber hand gloves, rubber shoes and insulated tools suitable for electrical work shall be supplied to the personnel who are doing the electrical work.
- Danger notice and other safety instructions & signs will be displayed in a conspicuous position with proper symbols near electrical installations/apparatus wherever is required.

- Always use electrical distribution boards when there are several connections to be drawn. Close DBs immediately after the work and only one load can be connected from one plug. To protect the DBs from adverse weather conditions, cover it by insulated materials like pvc or polythene sheets.
- The portable electric tools shall be used as per the correct power supply as instructed on manufacturer's manual.

#### **M. USE OF HAND TOOLS & ELECTRIC POWER TOOLS**

*The following precautionary measures shall be taken to avoid accidents while doing the work with the help of Hand Tools :*

1. Only a suitable tool will be used for the specific purpose.
2. Hand tools will be used in the safe way.
3. Defective tools will not be used
4. Keep tools in good condition and in a safe place. It must be kept in cabinets, holders or shelves or in a tool box.
5. Always use proper personal protective equipment.
8. Non-sparking tools will be used in explosive atmospheres.
9. When not in use, sharp-edged or sharp pointed hand tools will be provided with protection for the edges or points. The sharp-edged tools such as knife, chisel etc., should never be put in pocket without proper shield.
10. After using tools, it will never be left at the top of the ladder, workplace or work bench since they may fall accidentally.

The portable electric power tools:

- 1 shall be used on the correct power supply as instructed on manufacturer's manual ,
- 2 cables, plug and sockets, tools etc., shall be inspected and tested regularly ,
- 3 one tool shall be connected to one plug at a time,
- 4 shall be disconnected from the circuit when not in use,
- 5 shall be connected with suitable plug and socket instead of tapping the supply by connecting two wires.
- 6 shall be connected to earth unless the equipment is double insulated or all insulated , and
- 7 Overloading shall not be allowed

#### **N. WORK AT HEIGHTS**

*General Safety Measures*

- 1 Effective Supervision will be ensured at the place where people are working at heights.
- 2 All working platforms more than 2 meters height will be secured properly with relevant guard rails and toe boards.
- 3 All personnel who are engaged in work at a height more than 2 meters will wear safety harness/safety belt. & and other relevant Personal Protective equipment.

- 4 Proper access/egress will be provided in all landings/working platforms.
- 5 Scaffolds will not be over loaded.

**Ladders:**

- 1 All ladders shall be of good condition, free from rust and deformations.
- 2 Ladders made at site will not be permitted. Ladders used for electrical work shall be of non-conductive materials.
- 1 Ladders used for access on the working places, shall raise at least three rungs or one meter above the stepping-off point or the feet of the person using the ladder.
- 2 Ladders will be securely and evenly supported on both stiles and will not be footed on loose material.
- 3 Ladders will be evenly supported at the upper resting place and where more than 3m in length, securely fixed.
- 4 When ladders are used in the presence of the public or site traffic a second man will be required at the bottom of the ladder to ensure that no harm to the public or the person performing the job.
- 5 Ladders, which obstruct the public right of way or other site transport, will be removed as soon as the particular job is completed.

**Scaffolding:**

- 1 Only sound materials shall used for the erection of scaffolding.
- 2 Erection of scaffolding shall be done only by the certified scaffolders in the presence of a third party certified competent person.
- 3 Inspection of all scaffolding shall be made by the certified competent person before any employee uses the scaffold or after any modification in the structure of the scaffold. After inspection of the scaffolding, scaff Tag shall be displayed.
- 4 Using a Scaffold Checklist Form, the following checks will be carried out:

*Base plates are under all standards, Standards & lift spacing are correct,  
Ties are secured, Bracing is adequate, Suitable guard rails are provided,  
Toe Boards are in place, and access/egress is provided etc.*

- 1 Incomplete or unsafe scaffold shall be sealed off with danger signs displayed. Scaff Tag procedures shall be followed.
- 2 Standards and frames shall be pitched on steel base plates, where the scaffold to be erected on soft or uneven surface, timber bearers shall be provided.
- 3 Sufficient bracing shall be provided to ensure stability of the structure.
- 4 Working platforms shall be closed-planked for the entire width of the scaffold and, where more than 2m above ground, fitted with guard rails and toe boards.
- 5 Scaffolds of 6m or more in height shall be guyed and securely fixed to a structure at least every 4m vertically and 6m horizontally.
- 6 Rolling/mobile scaffolds shall be moved only by pushing or pulling at the base, and never moved with men or materials on the platform.

- 7 All working platforms shall be kept tidy, clean and free from tools, material or rubbish.
- 8 In addition to the relevant P.P.Es, full body safety harness shall be provided for workers working at high platforms.
- 9 When using suspended platform/scaffold, each rope of the platform should be capable of carrying the entire load and proper hand rails shall be provided on all sides.

#### **O. HANDLING OF HAZARDOUS CHEMICALS**

*The following precautions will be taken while handling Hazardous Chemicals:*

- As far as possible, hazardous chemicals shall be avoided at the site. If it is unavoidable, adopt the provisions of COSHHR (Control Of Substances Hazardous to Health Regulations).
- If any hazardous chemicals are used or handled, the MSDS ( Material Safety Data Sheet) shall be readily available at the premises.
- The suitable labeling and tagging system shall be adopted.
- The relevant safety signs, symbols, and cautionary instructions shall be displayed.
- The detailed information about the hazardous effects of the chemicals, preventative and corrective measures to be taken in case of emergencies, first-aid treatment, and the chemical & Physical properties of the chemicals etc., will be informed to all relevant personnel.

#### **P. SAFE ERECTION OF STEEL STRUCTURES**

*The following safety measures shall be taken while erecting steel structures :*

- Safety helmets and safety harnesses shall be worn by all operatives on steel erection work.
- Steel erectors shall not be permitted to carry out unsafe practices such as walking on the top flange of steel beams, climbing up or sliding down columns, etc.
- Only fully trained and competent persons shall be engaged on this work. Fingers shall never be allowed in to the structure, while hoisting.
- Steel working area shall be protected from public and other workers access.
- Care will be taken when hoisting the steel structure, sound lifting points shall be introduced and rigger shall direct the crane operative. No workers shall be allowed to pass under the structure while being transported.
- Placing of the structure shall be directed by one/ two trained workmen, and only after securing the structure the hoist shall be removed.
- Never use manpower to support a steel structure.
- Special care shall be taken during lifting and slinging operations to ensure the sections are secure and cannot slip. Stability of the crane shall be maintained during all activities.
- Adequate precautions must be taken to provide support for temporarily unsecured section before final fixing.

- Ensure lifting areas are clear of obstructions especially overhead cables etc.

#### **Q. SAFETY IN DEMOLITION WORK**

- Appropriate work permits shall be obtained from the client prior to the commencement of the work.
- Prior to demolition, a detailed and comprehensive survey shall be made to specifically identify the removal of salvaged equipment, mounted equipment & machinery, etc.
- Before proceeding, all sources of power and other utilities shall be disconnected.
- A fence shall be erected enclosing the demolition operation.
- The sequence of operations shall be established to clear the accumulated debris on a regular basis so that floors will not become overloaded .
- All precautions shall be made to prevent any debris falling on to the neighborhoods and/or the personnel working on site.
- Access to the demolition site shall be restricted to other personnel except those involved in this operation. Guards and watchmen shall make sure that no access shall be given to the site.
- Warning signs, red flags, shall be used to caution the personnel who approach the site.
- A method statement will be produced , together with the preferred demolition procedure, following the demolition survey.
- In case of asbestos removal appropriate method statement of removal of asbestos shall be prepared and approval will be obtained prior to the commencement of the work. Adequate personal protective equipment shall be used during the removal of asbestos. The disposal of asbestos shall be carried out as per the waste disposal management procedures.
- All debris shall be removed from the site immediately.

#### **R. SAFE PROCEDURES FOR EXCAVATION WORK**

*The following safety measures shall be adopted while planning and doing the excavation work are given below:*

- Proper inspection shall be done to identify whether any underground utility services existing near or inside the areas where excavation is to be done.
- Ensure permit-to-work before starting the excavation as and when it is required.
- All excavated areas shall be cordoned off with barriers, tapes and flashing lights, to prevent public access ( Barriers 2.5 m minimum height )
- Warning boards shall be provided around the cordoned area.
- Excavated material shall be deposited clear of the trench to avoid the fall of debris.
- Excavators shall be operated by licensed drivers only.
- Compressors shall be operated by trained personnel only. All connections to air compressors and tools shall be properly secured. All moving parts of compressors shall be covered to avoid accidents.

- Relevant Safety equipment such as hard hats, safety boots, goggles, overalls, ear protectors and gloves etc., will be worn by all personnel while working on site
- Proper egress and access shall be ensured in all excavating trenches if the depth is more than 1.5 m.

## S. SAFE MATERIAL HANDLING OPERATIONS

### a) *Lifting Operations*

- In all lifting operations, care shall be taken to ensure that the load imposed on any item does not exceed its safe working load (SWL).
- The equipment and its method of use shall be suitable for the load and the method of attachment of slings to the load and slings to the lifting appliance should be secured. No overloading of equipment shall be allowed either by weight of load or the method of slinging.
- The lifting operations shall be carried out only in the presence of competent lifting Engr./lifting supervisor.
- Care must be taken to ensure that the load and the lifting equipment are not damaged.
- Packing between the sling and the load may be used if required.
- Before commencing the operation, a suitable landing site shall be prepared.
- Ensure that any loose parts of the load are adequately secured, either by slinging method or other means, or those they are removed.
- Clear communication between the operative responsible for slinging and the driver or operative responsible for the lifting appliance will be ensured.
- If, when the lifting operation is completed, the equipment is no longer required, it shall be returned to proper storage.
- Only licensed and certified operators are allowed to operate the Cranes. Banks man/Riggers/Signalers with distinct color jacket shall be employed during the lifting operation.
- Cranes, lifts, hoists, lifting accessories such as slings, ropes, hooks, shackles etc., should have valid third party test certificate. The copy of this certificate shall be available at the site safety Office. Proper maintenance shall be carried out regularly and records shall be maintained.

### b) ) SAFETY REQUIREMENT FOR VEHICLES, EQUIPMENT & MACHINERY

#### Vehicle Safety

- All vehicles must be the proper registration document (from concerned local authority ) and have suitable insurance .
- All vehicles should have a portable fire extinguisher, a first-aid box and all other accessories which are useful in case of breakdown or other emergency situation.

- The drivers should have relevant license, they should wear seat belt, adhere to local authority and company traffic rules etc.
- When reversing a large vehicle have some one direct at the rear. Reverse alarms should be provided all vehicles.
- The speed limit inside the site shall be strictly followed.
- Vehicles should be maintained regularly, with checks made for coolant level, oil, tyre condition and pressure.
- All vehicles shall be parked only at the designated parking areas.
- relevant instructions and training shall be provided for all drivers. Adequate precautions shall be taken to avoid most common type of transport accidents such as:
  - being struck by or falling from a vehicle;
  - vehicles overturning; and
  - material falling from vehicles.
- The routes for pedestrians and vehicles shall be properly segregated.
- Traffic cones and warning tapes shall be used to identify pedestrian exclusion areas if vehicles are being used for short periods of time and the work presents only a very small risk to pedestrians.
- Where vehicles and pedestrians cannot be separated, a flagman shall control vehicle movements and give clear warnings to pedestrians.
- When reversing the vehicles, ensure adequate visibility for drivers and provide proper warning system.

#### ***Safety for Workplace Equipment & Machinery***

- All equipment and machinery should have proper Identification number on the tag.
- Emergency stop controls shall be provided.
- All rotating machinery and the rotating parts of the machinery should be effectively guarded.
- The operator should have valid licence to operate the equipment/machinery.
- Adequate space shall be given around the equipment and machinery for conducting inspection and for the repair & maintenance work.
- Sufficient lighting shall be provided around the equipment & machinery.
- Good housekeeping practice shall be maintained around the equipment & machinery
- All machinery must be marked with items such as the name and address of the manufacturer, the CE mark, the type and serial number.
- There should be proper Controls and Control Systems to reduce the risks and it must be safe and reliable.
- Controls must be clearly visible, easily identifiable and properly marked. It must be positioned so that they may be operated safely and their operation does not cause additional risk.
- START a machine by “ Voluntary actuation of a control, STOP a machine by means of control (fitted to the machine) which will bring it safely to a complete halt.
- In an emergency, interruption of the power supply must not allow the machine to start inadvertently, or allow parts of the machine or work piece to be ejected. Failure of a control circuit must not lead to a dangerous situation and automatic and manual protective devices must remain fully effective.

- Warnings should be issued in the language of the country in which the machinery is to be used. (This warnings should also be in the language of the operator.
- All machinery must be accompanied by instructions.
- Operators should be fully informed of the hazards presented by machinery, the risk control measures employed and correct working procedures.

Manufacturer's manual shall be readily available at or near the workplace

**c) Manual Handling of Materials**

The principles that contribute to safe manual handling of materials (For example, a cargo ) are given below

and these are to be strictly followed while handle the materials manually:

1. Correct Positioning of Feet
2. Knees Bent
3. Straight Back.
4. Arms close to the Body.
5. Correct Grip
6. Head in Correct Position
7. Use of Body Weight

When a heavy load is handled by two or men the job should be leveled in such a way that load is shared equally by all. It is advisable to employ men of similar physique and built for the purpose.

**T. SAFE PRACTICES FOR WELDING AND CUTTING OPERATIONS**

*The following guidelines will be followed while doing gas welding and cutting operations:*

- 1 Hoses shall not be wrapped around cylinders.
- 2 Regulators shall be checked for leaks using soap and water solution.
- 3 Torches shall be cleaned regularly and adequate purging before use.
- 4 Hoses shall be in good condition, and a flame arrestor must be fitted in the supply line from the cylinder/ generator to the burner/blow pipe and as near as possible to the burner/ blow pipe.
- 5 Ensure adequate ventilation while doing welding & cutting operations in confined areas...

*The following guidelines shall be followed while doing Electric Arc welding & Cutting Operation:*

- The frame or case of the welding machine shall be efficiently grounded as per the standards. There shall be safe power supply interrupting device to the welding machine.
- Before starting the operation, all connections to the machine will be checked to ensure they are properly made.
- Electrodes shall be removed from holders when not in use to eliminate danger of electrical contact with persons or conducting objects. Electrode holders when not in use shall be so placed that possibilities of electrical contact between them and persons or conducting objects are eliminated.
- Any current carrying parts passing through the portion of the holder which the welder grips in his hand shall be fully insulated against the maximum voltage encountered to ground.
- When job is finished, welding machine shall be disconnected from the power source and remove the electrode from its holder. Store the electrode holder in a safe place.

- Cable and power source shall be free from dirt/grease. If the cables and other accessories are damaged, it should be replaced immediately.
- Maintain electrical cable is in good condition and make sure connections are tight. Keep cables as short as possible.
- Welding cables shall be kept dry where practicable, and free from grease and oil to prevent premature breakdown of the insulation.
- All earth connections shall be checked to determine that they are mechanically strong and electrically adequate for the required current. The earth clamps shall conform to the relevant standards.

**Note:** All welding and cutting operations carried on in confined spaces shall be adequately ventilated to prevent the accumulation of toxic gases or possible oxygen deficiency. Where welding operations are carried on in confined spaces and welders & helpers are provided with approved air-supplied respirators or hose masks, a workman shall be stationed on the outside of such confined space to service the power and ventilation lines to ensure the safety of those working within the confined space.

## U. PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) means specialized clothing or equipment worn by employees for protection against health and safety hazards. Personal protective equipment is designed to protect many parts of the body, i.e., eyes, head, face, hands, feet, and ears. All site personnel, within pre-designated and clearly marked zones, will wear the standard (or as appropriate) Personal Protective Equipment, namely:

- Hard Hats
- Coveralls
- Safety shoes/Boots
- Safety goggles and face shields
- Face masks
- Ear plugs/Ear muffs
- Full Body Safety Harness
- Safety Glass
- Welder's Hoods and Welder's Sleeves and
- Work Gloves and Rubber Gloves etc.

Personal protective equipment should not be used as a substitute for engineering work practice, and/or administrative controls. It should be used in conjunction with these controls to provide for employee safety and health in the workplace. Personal protective equipment includes all clothing and other accessories designed to create a barrier against Work place hazards.

## V. HEALTH & WELFARE REQUIREMENTS

### V.1 Health Requirements

#### a) First-aid & Medical Facilities

At every construction site, there shall be provided and maintained so as to be readily accessible during all working hours, sufficient number of first aid boxes or cupboards. Provided that the distance of the nearest first-aid box or cupboard shall not be more than 200m from any working place. Nothing except appliances or requisites for first aid shall be kept in the boxes and cupboards. All such boxes and cupboards shall be so kept that they are protected against contamination by dust or other foreign matters and against penetration of moisture. They shall be kept in the charge of as responsible person who is trained in first aid treatment and who shall always be readily available during working hours. Each first aid box or cupboard shall be

distinctly marked “First Aid” and shall be equipped with the articles specified in Schedule-III of the BOC Kerala Rules,1998. There shall be a full-fledged first-aid centre/clinic at all construction sites if there is no hospital or clinic just near the site. An ambulance shall be readily available at the first aid clinic. At least one full time first-aider/male nurse who has third party certification in first-aid shall be available at the site.

*The major responsibilities of the first-aider are given below:*

- Ensure that first aid facilities such as first-aid medicines, stretchers, suitable table and chairs, washing facilities, waste bins, oxygen cylinder(s), drinking water, telephone etc., are readily available at the clinic.
- Ensure that an ambulance/a suitable vehicle in good condition with a driver is readily available at / near the clinic.
- Ensure that people can identify the first aid clinic easily. Also ensure that the entrance of the clinic is not obstructed by any materials/vehicle
- Prepare a detailed accident-injury and occupational disease register and submit a copy to the site safety officer/engineer.
- Ensure that emergency contact telephone numbers are readily available at the clinic
- Implement good housekeeping practice inside and outside the clinic.
- Avoid unauthorized entry (other than patients) at the first-aid centre.

## V. 2 Welfare facilities

a) **Latrine Accommodation:** Latrine required to be provided in an establishment-where females are employed, there shall be at least one latrine for every 15 females or part thereof; where males are employed, there shall be at least one latrine for every 15 males or part thereof – provided that where the number of males and females exceeds 100, it shall be sufficient if there is one latrine for every 25 males or females up to the first 100, and one for every 50 or part thereof thereafter.

c) **Urinal Accommodation:** The urinals required to be provided in an establishment – there shall be at least one urinal for male workers up to 50 and one for female workers up to 50 employed at a time, and where the number of male or female workmen, as the case may be, exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females up to the first 500 and one for every 100 or part thereof thereafter.

Note: The latrine and urinal accommodation shall be cleaned and maintained well with proper sign boards.

d) **Washing facilities:** In every establishment, adequate and suitable facilities for washing shall be provided and maintained for the use of building workers employed therein – separate and adequate screening facilities shall be provided for use of male and female workers and such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

e) **Canteens:** In every establishment regarding the employment of building or other construction work is likely to continue for 6 months or more and the building workers 250 or more are ordinarily employed, an adequate canteen shall be provided by the employer for the use of such building workers.

f) **Drinking Water:** The employer shall make in every place where building or other construction work is in progress, effective arrangements to provide and maintain at suitable points conveniently situated for all persons employed therein, a sufficient supply of wholesome drinking water.

g) **Working Hours:** No building workers shall be required or allowed to work for more than 8 hours a week. No building worker shall be required or allowed to work continuously for more than 4 hours unless He had an interval of rest of not less than half an hour. The working day of building worker shall be so Arranged that inclusive of the intervals of rest, if any, shall not spread over more than 10 hours on any day.

## **W. EMERGENCY RESPONSE PROCEDURES**

At sites where five hundred or more building workers are employed, the employer shall ensure that emergency action plan to handle the following emergencies is prepared, and made known to workers and others working or entering site:

- i) Fire and explosion.
- ii) Collapse of lifting appliances or other equipments
- iii) Collapse of structure
- iv) Leakage and spillage of dangerous materials.
- v) Fall of workers from height
- vi) Collapse of soil getting worker buried
- vii) Electric shock
- viii) Natural calamities.

*The following procedures shall be followed to ensure an effective emergency response system:*

- During H.S Induction Training , the site safety officer should give detailed instructions, where and how the personnel shall be evacuated in case of emergencies?.
- Emergency Mock Drills shall be conducted periodically on the need basis.
- A suitable Emergency Response Procedure shall be prepared and it shall be displayed in the prominent places with the telephone numbers of the following personnel/office:
  - 11 Project Manager
  - 12 Construction Manager
  - 13 Safety Officer
  - 14 H.S Manager (H.O)
  - 15 Administration Manager
  - 16 Nearest Police Station
  - 17 Nearest Fire Brigade
  - 18 Nearest Hospital/Ambulance Services
  - 19 Safety representative of the Client/Consultant

## **X. ENVIRONMENTAL PROTECTION**

- Appropriate measures shall be taken to protect the environment as per the Client's/Consultant's requirements.
- All debris, sewage, and other waste disposal shall be done periodically with extra care.
- Adequate training shall be provided among the employees in increasing the awareness on environmental protection procedures.
- Suitable measures like water spraying shall be done frequently to reduce the effects of dust pollution. People should wear dust masks and safety glass in all dust polluted atmosphere.
- Adequate safety sign boards shall be displayed at the relevant places.
- All personnel should wear ear plugs/ear muffs in all noise polluted atmosphere on the need basis.

## **Y. PERMIT-TO-WORK (PTW)**

- Work permits like Cold Work Permit, Hot Work Permit, Vessel Entry/Confined Space entry etc., Shall be obtained prior to starting any job, wherever it is applicable.

- The permit-to-work system shall be handled only by the trained and experienced personnel.
- All relevant records of Work permits shall be documented and maintained properly.
- Appropriate safety sign Boards, Safety Instructions etc. shall be displayed around and inside the work areas
- All jobs shall be done only as per the requirements mentioned in the Work Permits.
- One copy of the Work Permit shall be kept at the site safety office.

## **Z. REPORTING OF NEAR MISSES/ ACCIDENTS/ DANGEROUS OCCURRENCES**

Timely reporting, investigating and taking corrective actions on near misses is one of the important accident prevention programmes. A typical near miss report form is given in the Annexure-III

As per the statutory requirement, the reportable accidents( mainly Lost Time Injuries and fatality) and reported to the chief inspector, nearest police station, director of factories, district magistrate, the relatives of the injured etc. depends upon the seriousness of the injuries. Occupational diseases also shall be informed in the prescribed format. The reporting of accident and dangerous occurrences are given in the Annexure-IV

All Accidents (major or minor) leading to property damage and /or personal injuries shall be entered in a register including details like reporting to the concerned authorities viz. Chief inspector, Insurance Company, Police, Client Project Manager, Architect etc. The register shall also have details of accident, nature of injury including disability, days lost, treatment provided etc. and the extent of property damage.

Prescribed formats for reporting the accidents and near misses shall be distributed to all section and the details mentioned in these formats shall be explained to all section-in-charge by the site Safety Officer.

Immediately after the accident, it should be informed to the client and also the accident report shall be submitted to the site safety officer by the concerned section-in-charge and it shall be submitted to the project manager for submitting officially to the concerned authorities.

All personnel at the site shall be encouraged for reporting the near misses and accidents. All accidents shall be investigated by a team and it should be documented (see Annexure-VI). The lessons learned from the accident shall be communicated to all personnel.

**Annexure- I : A Typical HS Policy.**

**(The Name of the Company with Logo)**

**HEALTH AND SAFETY POLICY**

**We are committed to avoid personal injuries, property damage and to preserve the environment by the following principles:**

- **Implement the requirements of applicable international and local H.S Standards, Rules & Regulations pertaining to safety.**
- **Ensure an accident-free work place and safe environment in the company premises.**
- **Establish and maintain the Environment Management System in accordance with ISO 14001 Standard.**
- **Evaluate and minimize the environmental, safety and health impact.**
- **Ensure adequate H.S Training to all personnel who are directly involved in the company's business activities.**
- **Ensure that all plant and equipment is adequately maintained so that it does not present a risk to the health and safety of personnel.**

**We recognize that the implementation of H.S Policy is the direct responsibility of the line management personnel. But the company invites the fullest co-operation of all employees for its effective implementation.**

**The HS Policy of the company will be reviewed periodically and revised as and when it is required. Any revision will be brought to the attention of all personnel who are directly or indirectly involved in the company's business.**

**Sd/  
Name  
Chief Executive  
Date:**

## **Annexure- II**

### **GENERAL SITE H.S RULES & REGULATIONS**

- 1. Observe and obey cautionary instructions, signs & symbols which are displayed in the relevant places.**
- 2. Don't block emergency exits and Assembly Areas.**
- 3. Inform all dangerous situations to the concerned personnel immediately. (Near Miss Report form is available at the site)**
- 4. Don't tamper safety equipment and devices. If these are used in case of emergencies, inform to the concerned safety officer immediately.**
- 5. Don't do the job if you are not authorized to do it.**
- 6. Avoid Short-cut methods and do the job with safe procedures.**
- 7. Wear the suitable Personal Protective Equipment (PPE) properly.**
- 8. Keep the tools in a safe condition and in a safe place.**
- 9. If PPEs and tools are found defective, discard it safely and replace it by a new one immediately.**
- 10. Use properly rated and certified slings and other lifting gears while handling the materials.**
- 11. Keep the work area clean and tidy.**

**Annexure - III**

<b>NEAR MISS INCIDENT REPORT</b>	
<b>1. PROJECT:.....</b>	<b>2. REPORT NO:</b>
<b>3. LOCATION OF INCIDENT:</b>	
<b>4. DATE &amp; TIME OF INCIDENT:</b>	
<b>5. STATE WHETHER PERSONNEL/EQUIPMENT/MACHINERY/MATERIALS ARE INVOLVED ?</b>	
<b>6. DESCRIPTION OF INCIDENT:</b>	
<b>7. CAUSE(s) OF INCIDENT:</b>	
<b>8. PREVENTIVE /CORRECTIVE MEASURES SUGGESTED:</b>	
<b>9. ACTION TO BE TAKEN BY:</b>	
<b>10. PREVENTIVE/CORRECTIVE ACTION TAKEN:</b>	
<b>12. SIGNATURE OF THE SAFETY OFFICER:</b>	<b>11. REPORTED BY :</b>
<b>13. SIGNATURE OF THE PROJECT MANAGER:</b>	<b>SIGNATURE :</b>
	<b>ADDRESS</b>

**NOTE: Sr.NO:8,9 &10 to be filled up by the Safety Officer**

**Annexure- IV**

**FORM XIV**

**Report of Accidents and Dangerous Occurrences**

1. **Name of the Project /Work :**
2. **Location of Project/Work :**
- 2a. **Stage of construction work :**
3. **Particulars of Employer :**
  - a. **Main contractor firm/co.**
  - b. **Sub contractor's particulars**

<b>Name:</b>	<b>Name:</b>
<b>Address:</b>	<b>Address:</b>
<b>Phone Nos:</b>	<b>Phone Nos.:</b>
<b>Nature of business:</b>	<b>Nature of business:</b>
4. **Particular of injured-person:**
  - (a) **Name**

<b>(First)</b>	<b>(Middle)</b>	<b>(Surname)</b>
----------------	-----------------	------------------
  - (b) **Home Address:**
  - (c) **Occupation:**
  - (d) **Status of the worker:**  
**Casual/Permanent**
  - (e) **Sex Male/Female**
  - (f) **Age:**
  - (g) **Experience:**
  - (h) **Marital Status: Married/Unmarried/Divorced**
5. **Particulars of Accident:**
  - (a) **Exact place where accident occurred :**
  - (b) **Date:**
  - (c) **Time:**
  - (d) **What the injured person was doing :**  
**The time of accident**
  - (e) **Weather condition :**
  - (f) **How long employed by you for this Particular job :**
  - (g) **Particulars of equipment/machine/**  
**Tool involved and condition of the same after the accident occurred. :**
  - (h) **Brief description of the accident :**
6. **Nature of injuries**

(a) Fatal (b) Non-fatal :

(c) If non-fatal, state precisely the

Nature of injuries :

(Describe in detail the nature of injury, for instance fracture of right arm sprain etc.)

(d) First Aid: Given: : Not Given:

(e) If not, give the reasons

(f) Name and designation of the person  
by whom first aid was given :

(g) If admitted to hospital, Name of the  
hospital :

Address of the hospital :

Phone No. : Name of the Doctor

7. Mode of transport used:

Ambulance Truck Tempo Taxi Private Car

7. (a) How much time was taken to shift  
the injured person. :

If very late, state the reasons :

(b) How the reporting was made?

Telephone Telegram Special Messenger Letter

(c) Who visited accident site first and  
What action was proposed by him :

(d) What are the actions taken for the  
Investigation of the accident by the  
Employer. Describe about  
Photographs/video film/measurement  
Taken etc.

8. Particulars of the persons given witness

(a) Name Address Occupation

- 1.
- 2.
- 3.
- 4.

(b) Whether temporary/Permanent

9. Particulars in case of fatal:

Date: Time:

Place:

Whether registered with Building and other:  
Construction Workers Welfare Board  
(If yes, Give Reg.No.)

10. Dangerous Occurrences as covered under:  
the Regulation No. (give details)

(a) collapse of failure of lifting appliances,  
Hoist, conveyors etc.

(b) collapse or subsidence of soil, any wall,  
floor gally etc.

:  
(c) collapse of transmission towers,  
Pipelines, bridges etc. :

(d) explosion of receiver, vessel etc. :

(e) fire and explosion :

(f) scillage or leakage of hazardous :

Substances

(g) collapse , capsizing, toppling or  
Collision of transport equipment :

(h) leakage or release of harmful toxic  
Gases at the construction site :

(i) failure of lifting appliance, loose gear,  
Hoist or building and other construction  
Work machinery, transport equipment  
etc. :

11. Certificate from the Employer or  
Authorized signatory. :

I certify that to the best of my knowledge and belief, the above particulars correct in every  
respect.

Place:

Signature:

Date:

Designation:

c.c.forwarded for information and follow-up action:-

Note: If more than one person is involved then for each persons informal is to be filled-  
up in separate forms. [Note: This report is sent to the concerned within 24 hours of the accident  
occurrence]

**Annexure- V**

**ACCIDENT INVESTIGATION REPORT**

1. **Name and designation of the injured person** :  
**including the name of organization**
  
- Age & Sex** :
  
2. **Date and time of accident** :
  
3. **Exact location where the accident took place.** :
  
4. **What was the injured doing at the time of accident** :
  
5. **Describe briefly how the accident occurred** :  
**(Add sketches & additional sheets, if required)**
  
6. **What was the unsafe act/condition which caused the accident** :
  
7. **What are the precautions to be taken to prevent similar accidents** :
  
8. **Any other information** :

**Safety Officer/ Manager    Safety Committee Member    Project Manager**

**(If it is constituted)**

**(Note: This report has to be sent to the concerned within 48 hours of the accident occurrence, in case of fatal accidents and serious accidents likely to cause more than 21 days of disablement. The purpose of investigation is to find out the causes, not to fix the blame on somebody).**

Annexure - VI

**MONTHLY HS STATISTICS**

Name of the Site/Project:

Job No.:

Date:

1. Total no. of Safety Inspections conducted :
2. Total no. of Near Misses Reported :
3. Total no. Safety Meetings Conducted :
4. Total no. of Safety Trainings conducted :
5. No. of Emergency Drills conducted :
6. Total no. of Accidents :
7. Total no. of First-aid Injuries :
8. Total no. of Lost Time Injuries(LTI) :
9. Frequency Rate (LTI) :
10. Severity Rate (LTI) :
11. Specify the other Activities, if any :

Name &Signature of Safety Officer :

Submitted to : Project Manager

Annexure-VII

**SITE SAFETY (HS) INSPECTION CHECKLIST**

Project Name & No.

Date of Inspection:

SL No.	ITEM	OK	NOK	NA	REMARKS
01	<b>SAFETY MANAGEMENT SYSTEM</b> <ul style="list-style-type: none"> <li>• Health &amp; Safety Policy</li> <li>• Site Safety Plan</li> <li>• Safety Trainings</li> <li>• Safety Meetings</li> <li>• Safety organization</li> <li>• Inspections &amp; Audits</li> <li>• Updated safety records&amp;reports</li> </ul>				
02	<b>SITE SECURITY &amp; COMMUNICATION</b> <ul style="list-style-type: none"> <li>• Gates for pedestrians &amp; vehicles</li> <li>• Security guards with proper uniform &amp; cabin</li> <li>• Entrance registers available</li> <li>• Phone/Fax/Email facilities</li> <li>• General Site Safety Rules</li> </ul>				
03	<b>HEALTH &amp; WELFARE FACILITIES</b> <ul style="list-style-type: none"> <li>• First-aid &amp; medical facilities</li> <li>• Emergency response system</li> <li>• Medical examination &amp;fitness of employees</li> <li>• Drinking Water,Urinals &amp; latrines</li> <li>• Washing facilities</li> <li>• Canteens</li> <li>• Working Hours</li> </ul>				
04	<b>SAFE WORK PRACTICES</b> <ul style="list-style-type: none"> <li>• Method Statement &amp; Risk Assessment</li> <li>• Permit-To-Work</li> <li>• Trained personnel</li> <li>• Effective Supervision</li> <li>• Relevant PPEs</li> <li>• Third party certificates</li> </ul>				
05	<b>WORK AT HEIGHTS</b> <ul style="list-style-type: none"> <li>• Use of ladders</li> <li>• Erection, use, and dismantling of scaffolding</li> <li>• Stacking of materials</li> <li>• Safe access &amp;egress</li> <li>• Edge protection</li> <li>• Suspended scaffolds</li> <li>• Use of man basket</li> </ul>				

06	<b>EXCAVATION WORK</b> <ul style="list-style-type: none"> <li>• Permit-To-Work</li> <li>• Placement of Mechanical excavators</li> <li>• Daily Inspection</li> <li>• Stability of supports &amp; supporting materials</li> <li>• Warning lights</li> <li>• De-watering operations</li> <li>• Stability of adjacent structures &amp; buildings</li> <li>• Control of vehicles &amp;Eqpt.</li> <li>• Stacking of materials, spoils, tools &amp; equipments</li> </ul>				
07	<b>SAFE USE OF ELECTRICITY</b> <ul style="list-style-type: none"> <li>• Protection of electric cables &amp; wires</li> <li>• Earthing/grounding</li> <li>• Protection of DB's</li> <li>• Certified electricians</li> <li>• Portable electric tools</li> </ul>				
08	<b>LIFTING OPERATIONS</b> <ul style="list-style-type: none"> <li>• Conditions of Lifts, Hoists &amp; Cranes</li> <li>• Valid operator's licence</li> <li>• Riggers</li> <li>• Lifting engineer/supervisor</li> <li>• Placement of cranes</li> <li>• Lighting &amp; visibility</li> <li>• Fencing &amp; barriers</li> <li>• Valid Third Party Test Certificate of the Crane</li> </ul>				
9	<b>HOUSEKEEPING</b> <ul style="list-style-type: none"> <li>• Waste collection &amp; disposal</li> <li>• Stacking of materials</li> <li>• Cleanliness</li> <li>• Illumination/lighting</li> <li>• Storage of tools, equipment &amp; machinery</li> <li>• Segregation of materials</li> <li>• Control of Oil spillage</li> <li>• Dust control procedures</li> </ul>				
10	<b>SAFE MEANS OF ACCESS/EGRESS</b> <ul style="list-style-type: none"> <li>• Walkways, aisles, ramps</li> <li>• Stairs are protected with handrails</li> <li>• Edge protection</li> <li>• Protection of manholes</li> <li>• Control of slip &amp; trip hazards</li> <li>• Control of protruding parts</li> <li>• Lighting &amp; visibility</li> </ul>				



Annexure- VIII

**HAZARDS & MITIGATION/CONTROL MEASURES OF HIGH RISK ACTIVITIES**

ACTIVITY	HAZARDS	CONSEQUENCES	CONTROL MEASURES
<b>1. Demolition At Height</b>	<b>1. Fall of person from height while working</b>	<b>1. injury/illness/death</b>	<b>1. Provide Edge Protection, Safe erection &amp; dismantling of Scaffolding, use of suitable safety nets, Full body Safety Harness and other PPE</b>
	<b>2. Fall of materials/tools from height while working</b>	<b>2. Injury/illness/death/property damage</b>	<b>2. Provide Edge Protection, use safety nets, clear the safety nets periodically, and wear PPE. Establish and maintain safe system for removal, collection, and disposal of waste ( use suitable chutes and skips).</b>
	<b>3. Vibration due to power tools, hammering, chipping etc.</b>	<b>3. Discomfort to the workers , Damage of the nearby buildings., and Flying objects/particles etc.</b>	<b>3. Prefer shock absorber , use of hand gloves, protect the buildings/other structures from vibration.</b>
	<b>4. Dust Pollution</b>	<b>4. Occupational lung disease, Irritation to eyes, accumulation of dust over the human body.</b>	<b>4. Use dust mask and goggles. Provide proper covering to the work area, water spraying, washing/bathing immediately after the job.</b>
	<b>5. Noise more than permissible level</b>	<b>5. Irritability, stress, loss of sleep, loss of hearing capacity, mental instability</b>	<b>5. Use silencer for all machinery wherever it is applicable, use ear muff/plug,</b>
	<b>6. Structurally unsound ladders</b>	<b>6. Injury/illness/death/property damage</b>	<b>6. Provide good condition ladders, select the right type of ladders, ensure proper placement of ladders, dispose defective ladders.</b>
	<b>7. Working without PPE</b>	<b>7. Injury/illness/death</b>	<b>7. Provide suitable PPE. Safety Induction, toolbox meeting to all workers.</b>
	<b>8. Overhead cable/nearby cables/Live line on the bldg.</b>	<b>8. Electric shock</b>	<b>8. Isolate the line as per requirement.</b>
	<b>9. Usage of portable electric equipment</b>	<b>9. Electric shock, Electric Burns &amp; Fire/Explosion</b>	<b>9. Encourage proper house keeping &amp; conduct maintenance to all equipments.</b>

	10. Failure of man riding baskets/lifts	10. Injury/illness/death	10. Do not overload, mention safe working load, should be load tested conduct proper maintenance, provide third party certificate. A secondary brake system should be incorporated in hoist/lift.
	11. Accumulation of rubbish	11. Injury/illness	11. Maintain good housekeeping.
	12. Sharp edges, timber with protruding nails.	12. Injury/illness	12. Provide PPE to all workers
	13. Dehydration, Sunstroke	13. Illness/death	13. Sufficient supply of water, provision for shade

ITEM	HAZARDS	CONSEQUENCES	CONTROL MEASURES
2. Demolition at ground level	1. Unauthorised operation of Dozer/Excavator/Roller	1. Injury/illness/death/ property loss	1. Allow authorized operation only at site.
	2. Fall of materials/tools from height while working	2. Injury/illness/death	2. Edge Protection, use safety nets, and wear PPE. All waste should be removed through chute.
	3. Vibration due to power tools, hammering etc.	3. Discomfort to the workers/may damage the nearby bldgs.	3. Prefer shock absorber gloves for workers. Disconnect the contact b/w nearby bldgs. If any
	4. Dust	4. Occupational lung diseases	4. Use dust mask, provide proper covering to the work area, water spray.
	5. Noise more than permissible level	5. Irritability/Stress/loss of sleep	5. Use silencer for all machinery, use ear muff/plug
	6. Working without PPE	6. Injury/illness/death	6. Provide PPE, Safety Induction, toolbox meeting to all workers
	7. Live line on the bldg	7. Electric shock	7. Isolate the line as per requirement
	8. Usage of portable electric eq on wet ground having damaged cables	8. Electric shock	8. Encourage proper housekeeping & conduct maintenance to all equipments.

	9. Accumulation of rubbish	9. Injury/illness	9. Maintain good housekeeping
	10. Sharp edges, timber with protruding nails	10. Injury/illness	10. Provide PPE to all workers
	11. Dehydration, sunstroke	11. Illness/death	11. Sufficient supply of cold drinking water, provision for shade/rest places.

ITEM	HAZARDS	CONSEQUENCES	CONTROL MEASURES
3. Demolition below the ground Level/Excavation	1. Snake/scorpion bite	1. Injury/illness/death.	1. Use PPE, provision for lighting, use pesticide against reptiles.
	2. Water comes up	2. Discomfort to work	2. De-watering, use PPE.
	3. Vibration due to power tools, hammering etc.	3. Discomfort to the workers/may damage the nearby bldgs.	3. Prefer shock absorber gloves for workers. Disconnect the contact b/w nearby bldgs if any.
	4. Dust	4. Occupational lung disease/Irritation to eyes.	4. Use dust mask and goggles. Provide proper covering to the work area, water spray.
	5. Noise more than permissible level	5. Irritability/stress, loss of sleep	5. Use silencer for all machine, use ear muff/plug
	6. Structurally unsound ladders	6. Injury/illness/death	6. Provide good condition ladders dispose bad ladders
	7. Working without PPE	7. Injury /illness/death	7. Provide PPE, safety induction, toolbox meeting to all workers.
	8. Underground cables/Water line	8. Property loss	8. Check the drawing of the site, trial pits.
	9. Usage of portable electric eqpt. on wet ground having damaged cables	9. Electric shock	9. Encourage proper house keeping & conduct maintenance to all equipments.
	10. Unauthorized operation of Dozer/Excavator/Roller	10. Injury/illness/death/property loss	10. Allow authorized operation only at site.
	11. Fall of persons from Dozer/Excavator/Roller	11. Injury /illness/death	11. Wear seat belt, Other workers are not allowed to sit.
	12. Vehicle/Bucket of excavator may struck the workers	12. Injury/illness/death	12. Keep safe distance. Provide reverse audible alarm
	13. Accumulation of rubbish	13. Injury/illness	13. Maintain good housekeeping.

	14. Sharp edges, timber with protruding nails.	14. Injury/illness	14. Provide PPE to all workers
	15. Trench Collapse/sliding	15. Injury/illness/death	15. Shoring/step cutting/slopping to prevent collapse/sliding
	16. Spoil may enter into the trench	16. Injury/illness/death	16. Keep the spoil minimum 1 metre from the trench
	17. Workers may fall into the unprotected excavation	17. Injury/illness/death	17. Provide guard rails and proper access
	18. Dehydration, sunstroke	18. Illness/death	18. Sufficient supply of water, provision for shade.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>5. Shuttering &amp; Deshuttering.</b>	1. Protruding nails on the timber	1. Injury/illness	1. Remove the projected nails before starting the shuttering work. Wear PPE.
	2. Fall of person from height while working.	2. Injury/illness/Death	2. Edge Protection, use safety nets, safety belt and other PPE.
	3. Fall of materials/tools from height while working.	3. Injury/illness/Death	3. Edge Protection, use safety nets, and wear PPE. All waste should be removed through chute.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>6. Concreting</b>	1. Delivery hose of the concrete pump may hit the workers.	1. Injury/illness/death	1. The remote control operator should stand in such a position to see the workers.
	2. Fall of person from height while working	2. Injury/illness/Death	2. Edge Protection, use safety nets, safety belt and other PPE.
	3. Contact of cement with skin and eyes.	3. Burns/Allergy/Irritation	3. Use PPE.
	4. Vibration from the vibrator	4. Irritation/Shivering to fingers.	4. Provide Shock absorber gloves to the operator.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>7. Plastering</b>	1. Fall of person from height while working.	1. Injury/illness/death	1. Edge Protection, use safety nets, safety belt and other PPE.
	2. Fall of materials/tools from height while working.	2. Injury/illness/death	2. Edge Protection, use safety nets, and wear PPE. All waste should be removed through chute.

	3. Contact of cement with skin and eyes.	3. Burns/Allergy/Irritation	3. Use PPE.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>8.Painting</b>	1. Fall of person from height while working.	1. Injury/illness/death	1. Edge Protection, use safety nets, safety belt and other PPE.
	2. Fall of materials/tools from height while working.	2. Injury/illness/death	2. Edge Protection, use safety nets, and wear PPE. All waste should be removed through chute.
	3. Contact of paint with skin and eyes.	3. Burns/Allergy/Irritation	Use PPE.
	4. Paint may enter into lungs while spray painting.	4. Occupational lung disease.	4. Wear mask.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>9.Cleaning/Maintenance</b>	1. Fall of person from height while working.	1. Injury/illness/death	1. Edge Protection, use safety nets, safety belt and other PPE.
	2. Fall of materials/tools from height while working.	2. Injury/illness/death	2. Edge Protection, use safety nets, and wear PPE. All waste should be removed through chute.
	3. Work on live equipments	3. Injury/illness/death	3. Switch-off the equipment.
	4. Work on confined space.	4. Injury/illness/death.	4. Proper access, wear PPE.
	5. Hot surface	5. Burns	5. Machine guard, warning boards.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>

<b>10. Dozer/Excavator/Roller/Vehicle</b>	<b>1. Unauthorized operation of Dozer/Excavator/Roller/Vehicle</b>	<b>1. Injury /illness/death/ property loss</b>	<b>1. Allow authorized operation only at site.</b>
	<b>2. Fall of persons from Dozer/Excavator/Roller/Vehicle.</b>	<b>2. Injury/illness/death</b>	<b>2. Wear seat belt, Other workers are not allowed to sit in the vehicle.</b>
	<b>3. Unintended movement of Dozer/Excavator/Roller/Vehicle</b>	<b>3. Injury/illness/death</b>	<b>3. Keep safe distance, provide reverse audible alarm.</b>
	<b>4. Dust</b>	<b>4. Occupational lung disease/Irritation to eyes.</b>	<b>4. Use dust mask and goggles, Provide proper covering to the work area.</b>
	<b>5. Noise more than permissible level.</b>	<b>5. Irritability/stress/loss of sleep</b>	<b>5. Wear ear muff/plug.</b>
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>11. Mixing Machine</b>	<b>1. Damaged switch</b>	<b>1. Electric shock</b>	<b>1. Proper maintenance</b>
	<b>2. Chance for touching/entering body parts to a revolving gear/wheels/belts.</b>	<b>2. Injury /illness/death</b>	<b>2. Provide machine guard, warning board.</b>
	<b>3. Hot surface of machine</b>	<b>3. Burns</b>	<b>3. Provide machine guard, warning board.</b>
	<b>4. Noise more than permissible level.</b>	<b>4. Irritability/stress/loss of sleep</b>	<b>4. Wear ear plug/muff.</b>
	<b>5. Smoke from machine</b>	<b>5. Occupational lung disease</b>	<b>5. Wear mask.</b>
	<b>6. Chance for Trapping in b/w machine &amp; wall</b>	<b>6. Injury/illness/death</b>	<b>6. Provide staking for vibrating/wheel mounted machine.</b>
	<b>7. Workers may hit the machine and fall down.</b>	<b>7. Injury/illness</b>	<b>7. Keep the machine away from the passage; provide good lighting &amp; warning board.</b>

	6. Smoke	6. Occupational lung disease.	6. Wear mask.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>12. Drilling Machine</b>	1. Damaged switch	1. Electric shock	1. Proper maintenance.
	2. Flying particles	2. Injury to eyes.	2. Wear safety goggles.
	3. Vibration	3. Irritation/Shivering to fingers	3. Provide Shock absorber gloves to the operator.
	4. Noise more than permissible level	4. Irritability/stress/loss of sleep.	4. Wear ear plug/muff.
	5. Dust	5. Occupational lung disease	5. Wear mask.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>13. Motor Driven Pump</b>	1. Damaged switch	1. Electric shock	1. Proper maintenance.
	2. Excess heat	2. Burns	2. Provide machine guard, Proper maintenance.
	3. Noise more than permissible level	3. Irritability/stress/loss of sleep	3. Wear ear plug/muff.

<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>14. Scaffoldings</b>	1. Failure of base	1. Structural collapse	1. Scaffolding must be on foot plate and provide secure footing. Only authorized scaffolder allowed to erect & alter.

	2. Faulty joints	2. Structural collapse	2. Only authorized scaffolder allowed to erect & alter.
	3. Fall of person from scaffolding while working	3. Injury/illness/death	3. Implement tag system. Check the scaffolding before climbing. If it is yellow, use safety belt. Use ladders with 100 cm extension above the platform they serve, platform must have hand rails & kick boards.
	4. Vibration due to nearby machine touching the scaffoldings.	4. Structural collapse	4. Provide proper bracing, base plate & support; keep the vibrating machines away from the scaffoldings.
	5. Protruding edge of scaffold	5. Injury/illness	5. Erect in a proper manner, Provide covering.
	6. Contact with overhead/nearby service	6. Electric shock	6. Keep safe distance switch of f the line as per requirement.
	7. Fall of materials/tools from scaffoldings while working	7. Injury/illness/death	7. Provide helmets and proper training.
<b>ITEM</b>	<b>HAZARDS</b>	<b>CONSEQUENCES</b>	<b>CONTROL MEASURES</b>
<b>15. Lift/Hoist</b>	1. Brake Failure	1. Injury/illness/death/ property loss due to fall from height.	1. Proper maintenance.
	2. Over load	2. Injury/illness/death property loss due to failure of lift/hoist.	2. Do not over load, mark safe working load.
	3. Noise more than permissible level	3. Irritability/stress/loss of sleep	3. Wear ear plug /muff.
	4. Faulty erection.	4. Structural failure.	4. Provide qualified workers, proper super supervision, and third party certificate.

**Please review the items below  
everyday to make sure you and  
others are safe!**

 <b>INSPECT:</b> Rails Platforms Wheels Lanyard Harness <b>Lift &amp; Fall Protection</b>	 <b>INSPECT:</b> Lock Out Tag Out Electrical Cords Emergency- Exits & Lights <b>Electrical</b>	 <b>INSPECT:</b> Ladders Rails Scaffolding Fork Assembly <b>Ladders &amp; Scaffolding</b>
 <b>INSPECT:</b> First Aid Kit Fire Extinguisher Evacuation Plan Emergency- Response Plan First Aid Plan Safety Meeting MDS Sheets <b>First Aid</b>	 <b>INSPECT:</b> Caution Overhead- Work <b>Open Trenches</b>	 <b>INSPECT:</b> Hard Hat Ear Plugs Safety Goggles Respirator Gloves Boots <b>Personal Protection</b>

**We take time to care about your safety,  
so should you....**



**OFFICE OF THE LABOUR COMMISSIONER  
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