

OHS PLAN

OHS PLAN

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DOCUMENT RELEASE AUTHORIZATION

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History of Revisions

Revision No.	Revision issue date	Chapter/clause no. & text affected	Reason for revision
0	07.08.2014	First issue	Initial-
0.01	13.06.2016	18.1	ESIC (The clause "If applicable is removed)
		5.1.26	Hole protection Plan is Changed to Total fall protection.(SOP is integrated)
		20.0	Prepare OHS Plan in line with this Plan by contractor.
		26.1	Penalty matrix revised.
		34.1	SOP requirement is included on welfare.
0.02	30.10.17	34.1	Site welfare requirements revised.
0.03	21.02.18	61.0	RSP requirements incorporated
1.00	15.05.19		Omitting Environmental requirements to create separate plan for OHS

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1. SCOPE & DEFINITIONS

These procedures apply to all MLDL, its contractors and their subcontractors in construction related operations and activities. These procedures apply to all workers and all visitors at project site regardless of worker's employer, employment status, previous experience or qualification.

In this document

Developer: Developer means the employees of MLDL.

PMC: Refers to Project Management Company as appointed by the Developer.

Contractor: Refers to contractors or sub-contractors working on or behalf of them in the project.

Safety Officer: A qualified OHS staff at project who is responsible for implementation of the safety plan.

Consultant's OHS Officer: An OHS personal from PMC who provides OHS resources for the project contractors & their subcontractors and the client and ensures safety in the construction site.

Project Site: Those areas indicated in the Contract Documents where the Work is to be performed. This includes premises owned by Developer as described in the Contract between Developer and and/or areas contiguous thereto, including any Project Site set up by Developer for use exclusively for storage of material or equipment or for on-Project Site fabrication of material to be used on the Project Site, including temporary locations.

Imminent Danger: Any condition or practice that could reasonably be expected to cause death or serious injury, severe property damage unless immediate actions are taken to mitigate the effects of the hazard created.

Dangerous conditions: Sometime referred to as serious hazards are those that do not present an immediate danger to workers, but if not corrected could result in a disabling injury and possibly death, or could develop into an imminent hazard.

An accident can be defined as "any unplanned event that resulted in injury or ill health of people

Example: Someone dropping a brick from a height, which caused injury to a person underneath, would be classed as an accident.



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Near miss can be defined as, “any event, which under slightly different circumstances, may have resulted in injury or ill health of people.

Refer OHSM.A.14 Procedure for reporting ,Investigating and analysing incidents

Example: Someone dropping a brick from a height, which just missed a person working underneath, would be classed as a “near-miss” incident. This incident did not cause an injury to a person but, under slightly different circumstances (the person standing nearer to the contact point) the person may have been injured.

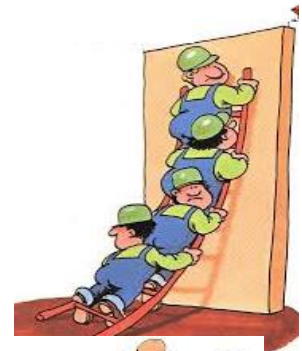


Dangerous occurrence can be defined as, “any incident that has a high potential to cause death or serious injury” and are specified by the Reporting of Incidents.

Example. Collapse or failure of lifting appliances or hoist or conveyors or other similar equipment for handling building or construction material or breakage or failure of rope, chain or loose gears; overturning of cranes used in building or other construction work; falling of objects from height; (b) collapse or subsidence of soil, any wall, floor, gallery, roof or any other part of any structure, platform, staging, scaffolding or any means of access including formwork; (c) contract work, excavation, collapse of transmission; (d) explosion of receiver or vessel used for storage, at a pressure greater than atmospheric pressure, of any gas or gases or any liquid or solid used as building material; (e) fire and explosion causing damage to any place on construction site where building material; (f) spillage or leakage of hazardous substances and damage to their container; (g) collapse, capsizing, toppling or collision of transport equipment.

Unsafe Act An action or activity performed by a person in a manner that has potential risk of injuring the health and/or safety of self or his co-workers.

Example. Operating without qualification or authorization, Lack of or improper use of PPE, Failure to tag out/lockout, Operating equipment at unsafe speed, Failure to warn, Bypass or removal of safety devices, Using defective equipment, Use of tools for other than their intended purpose, Working in hazardous locations without adequate protection or warning, Improper repair of equipment, Horseplay, Wearing unsafe clothing, Taking an unsafe position.



Unsafe Condition A condition that is likely to inflict injury or illness to anyone.

Examples. Defective tools, equipment, or supplies, Inadequate supports or guards, Congestion in the workplace, Inadequate warning systems, Fire and explosion hazards, Poor housekeeping, Hazardous atmospheric condition, Excessive noise, Poor ventilation.



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2. ROLES & RESPONSIBILITIES

Safety is an integral part of all activities performed by all personnel including leadership who has expressed her commitment through the OHS Policy. Members of MLDL project team are responsible for complete fulfilment of responsibilities in his area of work and takes leading role to ensure it fits within the overall organization's processes.

The MLDL Business head shall support this OHS Plan and hold his team members accountable for the proper implementation.

2.1 Employees

It is the OBLIGATION of every MLDL and contractor's employee to:

- Take utmost care of his own health and safety, as well as other persons' who may be affected by his acts or omissions at work.
- Co-operate with his management or others in order to comply with statutory requirements.
- Report to their immediate supervisor hazardous situations and defects found in premises, plant and equipment.
- Avoid unapproved improvisation, which might entail risk.
- Help new employees to become aware of all known and potential hazards.
- Consider and suggest means of minimization or elimination of hazards.
- Co-operate in maintaining a safe and healthy working environment.
- Attend safety training classes as and when organized.
- Attend safety meetings when invited.
- Participate in safety campaigns when organized.
- Never intentionally or recklessly interfere with, or misuse, anything provided in the interests of health, safety or welfare.
- Work carefully and safely and in accordance with given instructions.
- Use personal protective equipment always in the construction site as instructed by the Developer / PMC/.
- Draw to the attention of management /supervision improvements to health and safety which appear to be necessary or advisable.
- Report accident / near misses to his supervisor immediately as per the Accident / Incident reporting procedure.
- Demonstrate leadership of, and commitment to OHS, setting a personal example at all times.

2.2 Project Head/Manager MLDL

He shall be responsible to promote safety and health consciousness among all involved in the projects at all times. He is responsible to ensure that the OHS Plan is implemented in its entirety and constantly monitored and controlled.

He shall:

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Get familiarized and comply with this OHS Plan, procedures and all relevant statute rules and regulations.

Ensure the construction work is being executed in the safest manner based on planned work procedures in compliance with all applicable codes and standards

Inspect and maintain the entire work area in safe and healthy condition. Instruct the contractors appointed in the project to take immediate corrective actions if there be any discrepancies.

2.3 OHS Officers MLDL

He shall:

- Assist the Project Head and coordinate with Contractors Safety Supervisor for the implementation of the OHS program.
- Get familiarized with all government, MLDL OHS Programs, regulations, including reports and work permits procedures.
- Inspect the construction area on a regular basis in order to verify appropriate corrective actions and prepare reports to their Project Manager.
- Review the SAP (Safety Action Plan) prepared by the Contractors.
- Co-ordinate with Contractors for periodical safety meetings and act as secretary to Projects Heads.
- Assist in accident investigation and reports.
- Identify the safety training requirements and Conduct safety training classes.
- Participate in Tool Box Talks.
- Suggest safety promotional activities.

2.4 MLDL Engineer/Supervisory Personnel

Responsible for the overall OHS performance of contractors and work under their charge and supervision. They have to ensure that the workers strictly adhere to safety procedures in their specific jobs. Ensure that necessary task briefing is done by the contractor in connection with the task and shall ensure the right tool and right PPE are provided to complete the task safely. They shall immediately ask the contractors' area in charge to correct any unsafe acts and/or conditions immediately on detection during work. They shall ensure that all necessary documents such as Method Statement, Risk Assessment are available and will ensure the permits are available and all safety measures are in place. Participate in daily Tool Box Talk.

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2.5 Visitors

- Observe all OHS requirements and report any OHS non-compliance immediately;
- Wear the required personal protective equipment (PPE) on site;
- Use the appropriate PPE as required by the nature of work;
- Keep and maintain equipment and hand tools under their charge;
- Report all injuries, near miss and accident to respective OHS Coordinators;
- Participate in incident investigation if necessary;
- Attend OHS training and talk as required;
- Participate in giving suggestions to improve project OHS policies and systems if any;
- Participate in OHS promotions; and
- Ask when in doubt.

2.6 Security Management

- To ensure proper screening to all personnel entering worksite.
- Contractors / Workers are to be in proper Personal Protective Equipment (PPE) as required by the Safety Rules and Regulations.
- To prevent unauthorised persons from entering the worksite.
- To ensure that all personnel entering the worksite display their Security passes (conspicuously) between shoulder and waist level.
- Screen all incoming deliveries and direct them to their destinations.
- To check / verify documents from suppliers/vendors/service & repairman before granting entry/exchange to Temporary Security Pass (original ID's only).
- To ensure that personnel without Staff/Contractor Security Pass has to report to the Security Guard Post to get their Temporary/Visitor Security Pass in exchange for their original ID.
- To ensure that personnel bring out items belonging to the worksite are registered in the Exit Permit Form signed by Authorised Person
- To be familiar with Staff/Contractor Security Pass holder, Vehicle's Registration Numbers.
- To issue Site Traffic Warning Notice for unauthorised parking.
- To ensure that NO UNAUTHORISED PARKING of vehicle/s are allowed at worksite.
- To be vigilant in looking out for any personnel breaching the Security Rules and Regulations
- To liaise with Safety Personnel on any safety matters that may arise during the tour of duty.

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- To carry out other duty pertaining to security as and when required by the Management.
- Ensure that employees are not carrying any kind of tobacco products, alcohol, drugs and any other narcotics or carrying any weapons which can harm anyone. Anybody intoxicated or under the influence of drugs should not to be permitted.

6.1.2 Duties at Guard Post

- No admittance for non-security personnel in the Guard Post except Authorised Personnel.
- To ensure no fake ID holder are allowed entry (further action will be determined by Site Project Manager, ie apprehension of illegal worker, etc).
- To assist in filling in the necessary Standard Form required by personnel before entering the site (ie *Visitor's Admittance*)
- To ensure that personnel bringing out items belonging to the worksite are registered in Exit Permit Form duly signed by Authorised Person.
- To check and verify *Exit Permit Form*
- To ensure all personnel expecting Visitor/s report to the security at the Guard Post and make necessary arrangement. "*Visitor Admittance Form*" is completely filled and signed by person expecting visitor (shall be on official business).
- To check and verify *Visitor's Admittance*.
- To be vigilant in looking out for any personnel breaching the Security Rules and Regulations.
- To liaise with Safety Personnel on safety matters that may arise during the tour of duty.
- To record all movement pertaining to security in the Security Occurrence Book and comply with its recording procedures.
- To ensure proper recording/filing on other security books/standard forms at the Security Guard Post.(below are the followings)
 - Instructions Book
 - Workers Entry Book
 - Site Traffic Warning
 - Visitor's Admittance Form
 - Exit Permit Form
 - Security/Emergency Incident Report
 - Other Necessary Documents

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- To carry out other duty pertaining security as and when required by the Management.

3.0 SAFETY PHILOSOPHY

The Site Construction Safety Plan and OHS Procedures set forth in this OHS Plan are the minimum acceptable standards for the performance of this project. All Employees, Contractors and sub-contractors are required to comply with these standards and any additional requirements as well as local laws, statutory regulations, **Indian national, local standards, OHS referential** and best practices of industry whichever is more stringent. may do further changes of regulations from time to time as the work progresses on in order to fit the changing conditions of work site, which will be binding to the contractor.

MLDL Top management is fully committed to provide safety and healthy working conditions for all employees working on the project site, and our goal is to achieve zero accidents in our operations. Safety is an overriding value that the operation shall be conducted in such a manner that reasonable and practicable measures should be taken to protect people, not only our employees but also others who may be affected by our activities. Managers to follow proactive approach in the safety management and risk management strategy that includes identifying hazards before they materialise into incidents or accidents and taking the necessary actions to reduce the risks.

MLDL believes that accidents are caused and that they can be prevented by eliminating their root causes.

Safety is the responsibility of every person associated with MLDL project and visitors; Project Manager is ultimately accountable for the implementation of safety requirements as prescribed in this plan.

Everyone involved in the project must be committed to achieving high standards of OHS Performance with proactive approach at all levels in the organization by excellent teamwork.

All activities shall be in compliance with relevant National and local laws, statutory regulations, codes and practices, Standards pertaining to health & safety of employees.

All personnel should share a sense of empowerment on safety matters, with an effective communications system to facilitate the flow of OHS information in all directions through the organization.

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OHS Policy

Mahindra LIFESPACES

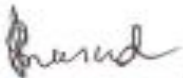
ENVIRONMENT, HEALTH & SAFETY POLICY

As a leading developer of residential projects and integrated cities & industrial clusters, **Mahindra Lifespace Developers Limited** recognizes the impact it has on the environment and on the people associated with it in various capacities. We, at **Mahindra Lifespaces**, are committed to protecting the environment and ensuring the safety and health of all our employees, contractors, operatives and visitors.

Mahindra Lifespaces will undertake all development activities considering appropriate Environmental, Health and Safety aspects, risks and impacts and in full compliance of relevant statutory and regulatory requirements. All employees have a responsibility to ensure that the EHS Policy is followed in letter and spirit by always working towards the safety and well-being of all employees, contractors, operatives and visitors and prevention of pollution.

To deliver on our commitment, we shall

- Identify, keep updated and embrace industry best practices to mitigate the safety, health & environmental hazards and risks associated with our activities as a developer.
- Improve working conditions across our offices, sites and work areas to prevent accidents and health hazards.
- Prevent pollution and environmental impact in our operations.
- Minimize waste generation and promote resource efficiency, reuse and recycling and embrace principles of circular economy in our construction.
- Reduce energy consumption in all aspects of our operations and value chain.
- Promote and create awareness among all levels of employees, contractors, vendors and other stakeholders about Environment, Health and Safety through training and capacity building programs.
- Set Environmental, Health & Safety objectives and targets and monitor the same to improve EHS performance and to create a good EHS culture.
- Implement PDCA cycle through regular audits to continually improve upon Integrated Environmental, Health & Safety Management System which conforms to the latest requirements of ISO 14001 and ISO 45001



Sangesta Prasad
MD & CEO

Date: 15 November 2018



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4.0. OBJECTIVES & TARGETS

4.1 General:

All personnel working on the Project site shall be committed to a policy of ensuring that the highest standards of Environment, Health, Safety and Welfare are the best, being reasonably practical to be implemented. For such a purpose, the following objectives have been set forth in the Project:

- Anticipated risk associated to be considered prior to commencement of task and same shall be documented.
- Unsafe acts & conditions must be detected, stopped immediately & corrected, with action aimed to prevent their recurrence.
- Achieve a Safe and Healthy Workplace.
- The Safety & Health of all employees must receive prime consideration throughout all phases of work.
- Ensure compliance with all applicable laws, statutory regulations, codes of practices and standards set forth by the government and's OHS standards time to time.
- In essence '**NO SAFETY NO WORK**'.

4.2 Goals (targets)

The following Safety goals apply to the Project:

- | | | |
|---|---|-------|
| ➤ Lost Time Injuries | - | Zero |
| ➤ Reportable Injuries | - | Zero |
| ➤ Occupational Illness | - | Zero |
| ➤ Reportable Environmental Incidents | - | Zero |
| ➤ Pilferage | - | Zero |
| ➤ Compliance to all applicable regulations- | | 100 % |

5.0 Contractor Responsibilities

Contractor shall have a written statement of the health and safety policy for all construction workers, which shall be signed by the Project Manager or Legal Representative.

Contractor shall have a comprehensive occupational health program in line with MLDL OHS Plan and other OHS requirements, a risk assessment plan and an emergency / crisis management plan in the form of standard documents for implementation, monitoring and control of OHS requirements. All of above plans should be submitted to the PMC/MLDL for approval prior to implementation. The contractor engaged shall identify the qualified personnel for the responsible positions mentioned below and the names of such with their credentials shall be submitted to Developer/ PMC for verification and consent.

Roles and Responsibilities.

Safety is an integral part of normal activities performed by all personnel. Members of project team are responsible for complete fulfilment of responsibilities in his area of work.

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The Designated Contractor shall support this OHS Plan and hold their team members accountable for the proper execution of OHS activities.

5.1.1 It is the OBLIGATION of every contractor's employee to:

- Take utmost care of his own health and safety, as well as other persons' who may be affected by his acts or omissions at work.
- Co-operate with his management or others in order to comply with statutory requirements.
- Report to their immediate supervisor hazardous situations and defects found in premises, plant and equipment.
- Avoid unapproved improvisation, which might entail risk.
- Help new employees to become aware of all known and potential hazards.
- Consider and suggest means of minimization or elimination of hazards.
- Co-operate in maintaining a safe and healthy working environment.
- Attend safety training classes as and when organized.
- Attend safety meetings when invited.
- Participate in safety campaigns when organized.
- Never intentionally or recklessly interfere with, or misuse, anything provided in the interests of health, safety or welfare.
- Work carefully and safely and in accordance with given instructions.
- Use personal protective equipment always in the construction site as instructed by the Developer / PMC.
- Draw to the attention of management /supervision improvements to health and safety which appear to be necessary or advisable.
- Report accident / near misses to his supervisor immediately as per the Accident / Incident reporting procedure.
- Demonstrate leadership of, and commitment to OHS, setting a personal example at all times.

5.1.2 Project Manager

Project Manager is having overall responsibility in implementing the Project OHS Plan and shall provide his workers with a safe and healthy working environment. He shall understand the Policy, targets and objectives of the Developer and update all concerned. He shall be responsible to promote safety and health consciousness among all his workers at all times. He is responsible to ensure that the OHS Plan duly approved by PMC / Developer is implemented in its entirety and constantly monitored and controlled and will mobilise the resources

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required for the same. He will identify the responsible person as per the BOCW Act and regulations for all critical activities and as per the requirement mentioned below. He shall appoint them with the consent of Developers Project Head and submit the name to Developer.

He shall:

- Get familiarized and comply with all Government and Developer's OHS procedures and practices.
- Provide adequate safe construction equipment, tools suitable for the work and Developer recommended personal protective equipment required for employees.
- Ensure the construction work is being executed in the safest manner based on planned work procedures in compliance with all applicable codes and standards
- Inspect and maintain the entire work area in safe and healthy condition. Instruct his supervisors to take immediate corrective actions if there be any defects discrepancies. Enhance safety awareness through promotional activities and by posting sufficient signage and posters in appropriate languages.

5.1.3 Senior OHS Officer /Lead OHS Staff in Project.

- Assist Project Manager in implementing the OHS Plan and act as secretary to him for effectively organizing OHS Committee meetings. He shall record the MoM and shall circulate to all concerned.
- Understand the Policy, targets and objectives of company and update all concerned.
- Implement Developers OHS Policy, Procedures and to fulfil the requirements of ISO 45001 and ISO 14001
- Preparation of project OHS Plan, standard operating procedure (SOP) for various activities and implementation.
- Asses the Risk associated with various task and propose the mitigation Plan.
- Regular Inspection for potential hazard, unsafe actions etc. and suggest suitable improvement/ corrective measures and escalate to Management.
- Preparation and review of project emergency plan
- Coordinate with concerned department to ensure statute compliance.
- Assist the Project Manager and coordinate with Safety Supervisor for the implementation of the OHS program within corresponding work groups.
- Assist Project lead in formulating the safety committee, preparation of Agenda, Action Plan and preparing the Minutes of Meeting.
- Enhance safety awareness through promotional activities

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- To conduct mock drill and fire drill.
- Update self and keep others informed on current OHS statute requirements, codes of practices etc.
- Incident Investigation and for finding root cause of incidents and proposing action plan.
- Coordinate with all concerned to achieve targets and objects defined by company.
- Follow the formats defined by the company and preserve the documents.
- Follow the check lists and permit system and preserve and present the same for audits/ Inspections.
- Prepare OHS statistics and circulate to all concerned.
- Maintaining records of training, exposure monitoring, investigations and medical examinations.
- Answers aptly to the requirements, state of mind, and capabilities of different people in different situations, is diplomatic, empathetic and understated, and treats others with respect.
- Motivating associated to act towards achieving a common goal and Capability and Maturity of delivering outstanding or extremely good deliverables.

5.1.4 OHS Officer

- Report to Project OHS Manger or his representative.
- Understand the Policy, targets and objectives of company and update all concerned.
- Implement Developers OHS Policy, Procedures, OHS Plan and to fulfil the requirements of ISO 45001 and ISO 14001.
- Preparation of project OHS Plan, standard operating procedure (SOP) for various activities and implementation.
- Asses the Risk associated with various task and propose the mitigation Plan.
- Regular Inspection for potential hazard, unsafe actions etc. and suggest suitable improvement/ corrective measures and escalate to Management.
- Preparation and review of project emergency plan.
- Coordinate with concerned department to ensure statute compliance.
- Enhance safety awareness through promotional activities.
- To conduct mock drill and fire drill.
- Update self and keep others informed on current OHS statute requirements, codes of practices etc.
- Incident Investigation and for finding root cause of incidents and proposing action plan.
- Coordinate with all concerned to achieve targets and objects defined by company.

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- Follow the formats defined by the company and preserve the documents.
- Follow the check lists and permit system and preserve and present the same for audits/ Inspections.
- Prepare OHS statistics and circulate to all concerned.
- Maintaining records of training, exposure monitoring, investigations and medical examinations.
- Answers aptly to the requirements, state of mind, and capabilities of different people in different situations, is diplomatic, empathetic and understated, and treats others with respect.
- Motivating associated to act towards achieving a common goal and Capability and Maturity of delivering outstanding or extremely good deliverables.

5.1.5 OHS Supervisor.

- Report to Project Lead OHS Manager or his representative.
- Understand the Policy, targets and objectives of company and update all concerned.
- Implement Company OHS Policy, Procedures and to fulfil the requirements of ISO 45001 and ISO 14001
- Understand the Policy, targets and objectives of company and update all concerned.
- Asses the Risk associated with various task and propose the mitigation Plan.
- Regular Inspection for potential hazard, unsafe actions etc. and suggest suitable improvement/ corrective measures and escalate to Management.
- Coordinate with concerned department to ensure statute compliance.
- Enhance safety awareness through promotional activities
- To conduct mock drill and fire drill.
- Update self and keep others informed on current OHS statute requirements, codes of practices etc.
- Incident Investigation and for finding root cause of incidents and proposing action plan.
- Coordinate with all concerned to achieve targets and objects defined by company.
- Follow the formats defined by the company and preserve the documents.
- Follow the check lists and permit system and preserve and present the same for audits/ Inspections.
- Prepare OHS statistics and circulate to all concerned. (If asked for)
- Maintaining records of training, exposure monitoring, investigations and medical examinations.
- Answers aptly to the requirements, state of mind, and capabilities of different people in different situations, is diplomatic, empathetic and understated, and treats others with respect.

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5.1.6 Engineer/Supervisory Personnel

It is the responsibility of the supervisors / foremen/Engineer to understand and follow the Project OHS plan, formats and check lists strictly and to ensure that their workers strictly adhere to safety procedures in their specific jobs and work areas. Ensure that necessary task briefing is done in connection with the task, (use task sheet) that work place is safe and shall ensure the right tool and right PPE are provided to complete the task safely. They shall correct any unsafe acts and/or conditions immediately when detected during work.

5.1.7. Lifting Supervisors/In charge/ TC Operator.

- Have minimum ten years experience and trained by an approved training provider;
- Co-ordinate all lifting activities;
- Ensure that only registered crane operators, appointed riggers and appointed signaller participate in any lifting operation involving the use of a mobile crane or a tower crane;
- Ensure that the ground conditions are safe for any lifting operation to be performed by any crane;
- Unless he is present to supervise a lifting operation, ensure that there is a set of safe lifting procedures for any lifting operation by a crane;
- Brief all crane operators, riggers and signallers on the safe lifting procedure referred to in paragraph (d);
- If any unsatisfactory or OHS non-compliance are reported to him by any crane operator or rigger, take such measures to rectify it. If in doubt, consult the immediate OHS coordinators on site;
- Monitor and ensure the maintenance and inspection programme of cranes; Ensure the material and substances e.g. fuel, hydraulic oil and grease associated with running of the crane is complying with OHS requirements;
- Monitor daily checking of cranes by crane operators. Adhere to the attire code set by MLDL;
- Check on the setup of the crane & overall conditions including valid documentations (LM, LG certificates and colour codes, etc) and enter findings into the lifting checklist Form.

5.1.8 Riggers

- Have a qualified rigger certificate from an approved training provider;
- Ensure that the load is secured such that it is safe to be lifted;
- Ensure that the lifting gears, web slings, wire ropes, shackles and hooks are in good working condition;
- Report any OHS non-compliance to the Lifting Supervisor.

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5.1.9 Signalmen:

- Have a qualified signalman certificate from an approved training provider;
- Ensure that the crane operator shall only take signal from him;
- Ensure that the operation of the lifting operation shall be carry out safely;
- Ensure that the crane boom movement is free from obstacles;
- Ensure the safety of other site personnel;
- Ensure clear signal is transmitted to the crane operator;
- Stop all lifting activities when condition does not permit movement of the boom;
- Only to lift when it is safe to do so;
- To report to the appointed lifting supervisor if it is not safe for lifting to be carried out; and
- Report any OHS non-compliance to the Lifting Supervisor.

5.1.10 Crane Operators

- Have a valid certificate of registration and medically fit for crane operation under the classification displayed in the certificate;
- Ensure that no lifting operation proceeds unless a lifting supervisor is present;
- Ensure that the ground conditions on which a mobile crane operates on are safe for travelling or lifting operations;
- Ensure that crane shall not be used for unintended operations including pulling or dragging a load;
- Ensure that lifting operations does not manoeuvred or hold suspended load over any public road or area unless road or area is cordoned off;
- Ensure that any outrigger when it is required is fully extended and secured;
- Ensure that before the start of every work shift, carry out operational tests on all limit switches under no load conditions before any lifting operations is carried out and enter such test results in a log book or sheet;
- Report any failure or malfunction of the crane to the lifting supervisor and make an appropriate entry in the log book or sheet;
- Ensure that when stopped on a slope, is adequately and securely blocked;
- Ensure that weight of load is ascertained before lifting operation;
- Ensure that no obstruction in the path of the manoeuvre and if there is any obstruction, be reported to lifting supervisor immediately;

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- Ensure that he shall not lift any load unless a clear signal is received from the appointed signalman;
- Ensure that no crane operation is within 3metres of any live overhead power lines; and
- Ensure that the crane engine is off, and cabin is locked with key removed when not in attendance to the crane.

5.1.11 Forklift Drivers

- Have a qualified forklift certificate of the capacity from an approved training provider;
- Ensure that the operation of forklift is safe;
- Ensure the lifting operation is safe;
- Ensure that the forklift is safe to use;
- Ensure that the forklift has a reverse alarm and blinker operation system and are operational;
- Ensure that diesel powered forklift is equipped with a serviceable fire extinguisher;
- Ensure that the operation does not expose danger to all site personnel and the environment;
- Ensure that engine is off and ignition key is removed when not in attendance to the forklift;
- Ensure the material and substances e.g. fuel, hydraulic oil and grease associated with running of the fork lift is complying with OHS requirements; and
- Check forklift daily prior to operations and enter findings into forklift checklist Form.

5.1.12 Scaffold Supervisors / In Charge

- To ensure that the scaffold is erected, added to, altered or dismantled in accordance with the Scaffold Regulations;
- To ensure that scaffold erected, added to, altered or dismantled by scaffold erectors who have undergone a course of training approved by the Commissioner of Workplace Safety and Health;
- No scaffold shall be erected, or be substantially added to or altered or be dismantled except under the immediate supervision of a scaffold supervisor;
- Ensure that the erections are accordance with the applicable scaffolding standards, manufacturers' guidelines and MLDL's site OHS rules and regulations;
- Ensure that the scaffolds do not poses any danger to all site personnel during erection and dismantling;
- To ensure that erection of stairs or ladders to enable persons to gain access from one level to another shall be installed within the scaffold;
- Ensure that the scaffolds are safe to use and to conduct inspection within 7 days of usage and have the tag to use updated;

OHS PLAN

- The inspection by scaffold supervisor to be registered containing details as required by the Commissioner of Workplace Safety and Health and the register shall be kept available at the site for inspection;
- To conduct inspection since exposure to weather conditions is likely to affect its strength or stability or to have displaced any part;
- To forward all documentations pertaining to erection, dismantling and inspection as required by the law to MLDL OHS Department (Construction of scaffold checklist, Dismantling of scaffold checklist (Scaffold register and weekly inspection); and
- Brief all erectors on the risk – impact assessment before erection, modification or dismantling of scaffolds.

5.1.13 Scaffold Erectors

- To ensure that no scaffold shall be erected, or be substantially added to or altered or be dismantled except under the immediate supervision of a scaffold supervisor;
- Scaffolds shall be erected, added to, altered or dismantled by scaffold erectors who have undergone a course of training approved by the Commissioner of Workplace Safety and Health;
- Ensure that the erections are familiar with applicable scaffolding standards and MLDL's site OHS rules and regulations;
- To erect of stairs or ladders to enable persons to gain access from one level to another shall be installed within the scaffold;
- Ensure that the scaffold does pose any danger to all site personnel during erection, dismantling and modifying;
- To wear full body harness with double lanyard and with a shock absorbing device when erecting, adding, altering or dismantling of scaffold; and
- To anchor the safety harness to the anchoring point in association with fall arrester.

5.1.14 Formwork Supervisors / In charge

- Have a qualified Formwork Safety Supervisor from an approved training provider;
- Co-ordinate formwork activities;
- Ensure that the formwork is of sound construction and safe to work on;
- To stop all formwork activities if there is a change of environment or lack of safety; and
- To update the formwork checklist

5.1.15 Explosive Powered Tool Users

- Ensure that the operation of ram setting is safe;

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- To safeguard the explosive powered tool; and
- Ensure that the operation does not expose danger to the user and all site personnel.

5.1.16 Gas Actuated Powered Tool Users

- Have attended a gas actuated powered tool operations and safety training on the project or a training certificate issued by the supplier or manufacturer;
- Ensure that the operation of the powered tool is safe;
- Ensure that the tool is checked before use;
- Ensure that the tool is safeguard against unauthorised use; and
- Ensure that the operation does not endanger the user and all site personnel.

5.1.17 Mobile Elevating Work Platforms (MEWPs) Operators

- Have attended a mobile elevating work platform basic operation and safety training by the supplier or manufacturer;
- Ensure that MEWPs are checked before use and enter results into the boom / scissors lift checklist;
- Ensure that movement of MEWPs are guided by banksman;
- Ensure that ground where MEWPs move on is safe;
- Ensure that MEWPs is not obstructing emergency escape paths and access when in parking mode at the end of the work shift;
- Ensure that operation of the MEWPs is on slow mode/ speed; and
- Ensure that any defect or damage observed on the MEWPs is reported to the supervisor immediately.

5.1.18 First Aid Personnel

- Have a valid qualified First Aider certificate from an approved training provider;
- Custodian of First Aid Box;
- To provide first aid assistance in the need of any medical emergency;
- To assist in any investigation after any medical injury/ emergency; and
- To record any first aid treatment are documented.

5.1.19 Confined Space Safety Assessors / in charge

- Responsible for the testing of atmosphere of a confined space prior to entry of any personnel;
- Enter results of atmospheric testing into the Confined Space Permit;
- Ensure that instrument used for gas testing is properly calibrated yearly or as recommended by the manufacturers;

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- Conduct inspection of the confined space to ensure that effective steps are taken to prevent the ingress of any dangerous fume or hazardous substance into the confined space;
- Responsible for regular gas checks (interval of 4hrs max) for confined spaces with work personnel in them; and
- Responsible for re-entry gas checks prior to re-entry of work personnel if the confined space is vacated.

5.1.20 Material Loading Platform Supervisor / in charge

- To supervise the erection of the material loading platform and ensure the OHS requirements for safe erection of the platform is adhered by the erectors;
- To ensure that the material loading platform is erected as per the design and drawings of a Professional Engineer;
- To ensure that the platform is not put in use unless a certificate of supervision is issued by the Professional Engineer;
- To ensure that safe working load is prominently displayed on the platform;
- To ensure that every open side of the platform where any person could fall more than 1.8 meters is provided with guardrails and toe boards;
- To ensure any gate provided at the outer edge of the platform is constructed to open inwards;
- Inspect the material loading platform at least once in every 7 days;
- Rectify any unsafe condition discovered during the inspection;
- Record the result of the material loading platform inspection into a register;
- To forward all inspection records and register to MLDL OHS Department

5.1.21 Plant and Machineries Supervisor / in charge

- Provide training to subordinates as per requirement and ensure that equipment are good condition before deploying the same for task.
- Maintain record of all plant and machinery, prepare the periodic maintenance schedule and implement the same.
- Provide training if required to improve working and monitor and ensure compliance to all manufacturing schedules.
- Maintain all plant equipment and perform troubleshoot on same to resolve all issues.

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- Supervise efficient operations of all plant equipment to achieve all plant objectives.
- Maintain compliance to all local, state and regulations for all human resource activities.
- Perform regular inspection on all machinery and maintain compliance to all regulations.
- Ensure that the defective machineries are not engaged for any task.
- Ensure that the operators are competent to operate the plant and machineries as per the statute requirements and OHS Plan.
- Ensure that tagging system is implemented.

5.1.22 Excavation in charge

Refer 55.0 for detailed responsibility and implementation.

5.1.23 Electrical Engineers.

Refer 64.0 for detailed responsibility and implementation

5.1.24 Structural Engineer.

- Analysing configurations of the basic structural components of a building or other structure;
- Calculating the pressures, stresses and strains that each component, such as a beam or lintel, will experience from other parts of the structure due to human use or environmental pressures such as weather or earthquakes;
- Considering the strength of various materials, e.g. timber, concrete, steel and brick, to see how their inclusion may necessitate a change of structural design;
- Liaising with other designers, including architects, to agree on safe designs and their fit with the aesthetic concept of the construction;
- Examining structures at risk of collapse and advising how to improve their structural integrity, such as recommending removal or repair of defective parts or rebuilding the entire structure;
- Working with geotechnical engineers to investigate ground conditions and analyse results of soil sample and in situ tests;
- Liaising with construction contractors to ensure that newly erected buildings are structurally sound;
- Applying expert knowledge of the forces that act on various structures;
- Provide design of enabling structures (temporary support systems) like Scaffolding, Formworks etc.
- Ensure that the temporary support systems, such as scaffolds, form work are erected as per requirement and can hold indented load applied to these.

5.1.25 Fall Protection In charge.

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Refer the Project SMARRT Fall Protection Plan and responsible for Implementing the same.

He shall be responsible for installation of Life Line and safety nets as per the standards mentioned in Fall Protection Plan.

5.1.26 Hole Protection in charge

Refer the SMARRT Total Fall Protection Plan and responsible for Implementing the same.

5.1.27 Batching Plant Operators.

Be familiar with operating procedure of Batching Plant. Monitor material flow and instruments such as temperature and pressure gauges, indicators, and meters, in order to ensure optimal processing conditions. Start agitators, shakers, conveyors, pumps, or centrifuge machines, then turn valves or move controls to admit, drain, separate, filter, clarify, mix, or transfer materials. Maintain logs of instrument readings, test results, and shift production, and send production information to computer databases. Inspect machines and equipment for hazards, operating efficiency, malfunctions, wear, and leaks. Apply LOTO before any servicing or adjustments

5.2 Qualifications of Safety Coordinator/ Manager should not be less than those prescribed in local regulations. / in building and other construction workers (regulation of employment & conditions of service) central Rules,1998. The contractor to provide one OHS coordinator for every 5 Safety Supervisors and one Safety Supervisor for each 50 workers working at project.

5.3 Contractor shall arrange for initial Site orientation / induction of all Employees / Supervising personnel on 'Safety practices' before entering site. This shall include a briefing about the construction site, safety policy, site safety rules, and emergency procedure and site facilities. The contractor also shall provide safety briefing to visitors entering site using appropriate safety training program approved by Developer/PMC.

5.4 Contractor shall conduct a daily toolbox talk for all workers before starting the work. These tool box talks shall include specific safety related to ongoing work activities and precautions to be taken on daily activities.

5.5 Contractor shall ensure participation of his site in-charge and the safety coordinator in the safety meetings arranged at intervals decided by the PMC / Developer.

5.6 Contractor shall also submit a Health & Safety report on daily, weekly and monthly basis to in the formats provided along with this document. Logs of safety induction will be submitted on weekly basis. (Attendants, subjects, etc....)

5.7 The safety conditions specified and recommended hereby are being issued as a guideline for the Contractor and sub-contractors. However, the contractor and sub-contractors are responsible to develop and implement their own safety training program to train their employees. It is the primary responsibility of the contractor to ensure that jobs are executed in an absolutely safe manner. This, however, does not absolve the contractor from any obligations or liabilities he might incur on, or transfer of such obligations or liabilities to his subcontractors or agent, or to the /Developer /PMC

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5.8 These rules do not exempt the contractor from statutory duties on environment, health and safety, but are intended to assist him in complying with high standards in order to provide a safe and healthy working environment.

5.9 The contractor shall obtain a “Safe Work Permit” for high risk activities as listed in this plan, from the before starting any work in the premises. These permits are issued to prevent contractors working in unauthorized areas and performing unauthorized work, and will be valid for specific areas and for a maximum time period of one day (24 hours).

5.10 The Contractor shall not move his office to any other place or area than the one designated by the PMC/ Developer and shall not store in it consumable construction materials, tools and tackles etc.

5.11 The Contractor shall designate a competent person in charge of the Site, who should be available at site during the period of execution of the contract, and who shall assume all responsibilities of the contractor in terms of OHS, time-schedule, cost, insurance and legal obligations.

5.12 The Contractor shall be responsible and shall indemnify the Developer, against all injuries to persons both, his own personnel and others, and for all damages to structural and / or decorative parts of the Developer's property during construction, assembling, and during commissioning of the equipment. Contractor will be responsible and will repair all such damages at no cost to the Developer.

5.13 The contractor should take all precautions not only for the safety of his own personnel but also for safeguarding of existing structures, equipment and personnel of the Developer as well as from other agencies in and around the job site.

5.14 The contractor shall cover all their workmen under the Employees State Insurance Scheme or any other medical / life insurance scheme, copy of documents to be submitted to PMC/Developer.

6.0 COMPLIANCE

6.1 Primary statutory regulations

The Contractor shall develop a thorough understanding of Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996, Central Rules 1998, Building and Other Construction Workers Welfare Cess Act, 1996 and Central Rules, 1998, not only to satisfy the Inspectors perspective but the use of legislation as the strong tool for effective OHS management at construction worksites. The Contractor is strongly advised to practice the principle of voluntary compliance.

In order to facilitate the contractor for better understanding on the various provisions of the above Act and Rules, a tabulated information highlighting the Sections/Rules referring to the corresponding registration of contractors, maintenance of registers and records, hours of work and wages, welfare, medical facilities and safety requirements are given in Appendix No: 2. It is an indicative one and not a limiting list.

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In addition, the construction works shall be undertaken in accordance with all applicable legislation and Indian statutory requirements listed below but not limiting to:

1. Indian Electricity Act 2003 and Rules 1956
2. National Building Code, 2005
3. Factories Act, 1948,
4. Motor Vehicles Act as amended in 1994, The Central Motor Vehicles Rules, 1989.
5. The Petroleum Act, 1934 and Rules 1976
6. Gas Cylinder Rules, 2003
7. Indian Explosives Act. 1884, along with the Explosives Substance Act 1908 and the Explosives Rules 1983
8. The Public Liability Insurance Act 1991 and Rules 1991
9. Minimum Wages Act, 1948 and Rules 1950
10. Contract Labour Act, 1970 and Rules 1971
11. Child Labour (Prohibitions & Regulations) Act, 1986 and Rules 1950
12. Air (Prevention and control of Pollution) Act, 1981
13. The Noise Pollution (Regulation & Control) Rules, 2000
14. Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989
15. Workman Compensation Act, 1923 along with allied Rules

The Contractor shall ensure that all his employees / workmen are covered under Workmen Compensation Act and shall pay compensation to his workmen as and when the eventuality for the same arises.

Notwithstanding the above Act/Rules, there is nothing in those to exempt the Contractor from the purview of any other Act or Rule in Republic of India for the safety of people / personnel.

If the requirements stated in this document are in conflict or inconsistent with the requirements of applicable laws, the more stringent requirements shall apply.

7.0 CONTRACTOR SAFETY MANAGEMENT

7.1 Strategies:

The following are some of the important strategies, which must be in place to accomplish the OHS Plan.

7.1.1 Construction:

7.1.1 Site opening:

The contractor shall submit the following documents:

- General lay out and circulation plan,
- General method methodology of project development, storage areas , crane positions , prefabrications , excavations ...
- Safety plan of action and policy for the project

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- A formal document for site opening will be established

7.1.2 Construction:

- The contractor shall include the safety requirements at the design stage and highlight it in the drawings or documents.
- Method statements should be prepared by the contractors well in advance of corresponding activities. Activities will not start before submission / review of the method statements proposed by the contractor
- Monitor compliance of OHS Plan requirements by all involved personnel.
- Conduct Safety Audits.

7.1.3 Resource Plan

- Plan the execution of the fieldwork to avoid conflict between activities.
- Separate (Physically) the pedestrian traffic with that of vehicle
- Ensure the Safety Compatibility of simultaneous operations.
- Minimize congestion at worksite areas.
- Use appropriate lay down areas.
- Assign flag men for heavy equipment operation.

7.1.3 People

- The contractors shall ensure training of all personnel on the general requirements for work and for specific requirements of the project.
- Instil people with project safety philosophy.
- Contractor must employ skilled people suitable for the Job.
- Ensure that all workers are medically fit for the Job. Safety induction will be given to whomever enter the construction site.

7.1.4 Hazard Information

- Prior to the start of the work, the contractor shall contact the PMC/ Developer to ensure that they have received pertinent information for the Work including permits, floor plans, utility information, etc.
- The contractor shall be responsible for the removal and/or disposal of waste generated from his work area. Hazardous waste generated from the work area must be removed and disposed of in accordance with State Pollution Control Board regulations.

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All contractors performing work as per the contract, fabrication & erection, construction, etc. at the Project Site are to comply with the requirements of this policy. Failure to adhere to these requirements may result in an immediate termination of the contract and a breach of contract.

8.0 PRO-ACTIVE SAFETY MONITORING:

Refer: (MLDL / OHS / CT 012) OHS inspection report.

(MLDL / OHS / CL 013) OHS Internal Audit Checklist form.

A Pro-active Safety Monitoring Program shall be used on the project.

The following are some of the elements of such program

- Safety Audit Reports
- Safety Inspections
- Safety Action Plan
- Method Statements

Suitable formats will be provided for the purpose.

9.0 COMMUNICATIONS AND CO-OPERATION

Developer / Supervisor accept the importance of ensuring that the OHS message is cascaded throughout all levels of workforce.

In order to facilitate communications, the following elements will be used during the construction phase.

- All Contractors will attend daily / weekly / monthly safety meeting with /PMC/Developer Site management. At these meetings the previous week Safety performance will be analysed and the planned activities for the forthcoming week will be reviewed.
- Contractors Safety personnel will attend project safety committee meeting; typically, these shall be held every week or as may be decided by Site Manager. The purpose of this meeting is to discuss the OHS performance at various levels and suggest the alternative safety strategies to be introduced. Minutes of meeting shall be recorded in MoM format and shall be circulated to all interested parties.

10.0 SAFETY PROMOTIONAL ACTIVITIES

In order to improve safety awareness and to develop safety consciousness amongst the employees the contractor site management shall organize suitable Safety campaigns, Safety competitions and Safety rewards.

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DAYS TO BE OBSERVED FOR CREATING OHS AWARENESS

1 st Monday to Sunday of January	Road Safety Week (Subjected to confirmation from Ministry of Road Transport, Govt. of India every year.)
4 th March	National Safety Day
7 th April	World Health Day
14 th April	Fire Safety Day
20 th April	Earth Day
20 th April	Noise Awareness Day
May 1 to 7	Emergency Preparedness Week
12 th June	World Day against Child Labours
9 th July	Occupational Health Day
17 th October	World Trauma Day
1 st December	World AIDS Day

11.0 MEDICAL ROOM, AMBULANCE, FIRST AIDERS AND HOSPITALS

Refer: MLDL / OHS / FT 012 - First Aid injury record.

MLDL / OHS / CT 042 - Checklist for First aid care centre.

Contractor at Project Site should provide an ambulance containing the minimum equipment to attend emergencies (mobile stretcher, rigid stretcher with fasteners to secure the patients during transportation, oxygen, reanimation equipment (AED), first-aid dispenser duly equipped, serum disposer and hydration system, neck/arm/leg immobilizers), which should be registered with the corresponding authority and be equipped with the expert paramedic crew. This ambulance with trained driver shall stay in the project site during the same time that the contractor employees stay, including Sundays and holidays, and must have an emergency route to the nearest hospital. All components of ambulance should be in good condition.

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Medical Care Centre. (First Aid Centre)

Provide and maintain Medical Care Centre as per requirements of BOCW Act/Rule. Maintain record of treatment. A qualified registered nurse should be available during the entire period of work.

First Aid Box

Work site must be provided with a first-aid box and keep it in a conspicuous place where it is easily accessible.

Hospital Tie up.

The Contractor shall make arrangements for the emergency care and treatment of all Contractors' employees at the nearest (or reasonably nearby) hospital. The emergency phone numbers of such hospitals shall be posted at prominent locations like security / site office, etc.

11.1 Number of first aiders

Contractors shall ensure that qualified / trained first aiders are provided based on the manpower employed by them. For every 100 workers employed one trained first aider shall be deployed at site.

Contractors can nominate the first aider from their line or site personnel who have the first aid certificates / undergone first aid training.

The First Aiders should be trained by reputed organization such as St. Johns Ambulance

Association and their list should be displayed at various locations along with emergency numbers.

12.0 INCIDENT / ACCIDENT REPORTING

Refer: OHSM.A.12 Near miss reporting and Management

MLDL / OHS / FT 013 - Incident report.

Any accident that appears to be serious or which entails a person reporting to hospital or leaving site for treatment shall be reported immediately to OHS representative.

Contractor shall ensure that any incident / accident occurring, will be fully investigated to find out the root cause, and develop preventive measures will be adopted to prevent its reoccurrence. /PMC and Developer shall have the right to conduct independent inquiry of the accident.

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13.0 INFORMATION TO BE PROVIDED BY CONTRACTOR

Refer: MLDL / OHS / FT 002 - Contractor OHS performance evaluation.

- OHS policy
- A detailed Health, Safety and Environment plan in line with MLDL OHS Plan and Requirements.
- Names of the Safety personnel and organization chart
- Employers' liability insurance policy.
- Work method statements for critical operations such as lifting etc.
- Test Certificates for lifting gear, lifting equipment and accessories.
- Information related to hazardous materials used and corresponding MSDS (Materials Safety Data Sheets).
- Daily labour returns
- Copies of all Statutory Records / Approvals / Permits
- Copies of the Contractor Safety's reports
- Supervisor's reports of his findings on-site inspections.
- List of appointed responsible persons for relevant activities as per BOCW.

13.1 MANDATORY INFORMATION UPON ENTRANCE OF CONTRACTOR AT SITE

ENTRANCE OF CONTRACTOR'S PERSONNEL IN PROJECTS. In order for contractor's personnel to enter in DEVELOPER facilities, the Contractor must comply with the following procedures:

- Before starting any activity, a list of all personnel scheduled to work at site should be provided to in advance, stating names, identification document number, kind of work to be done, and time expected to remain in the facilities.
- Personnel expected to enter in DEVELOPER facilities, should attend the safety induction, and must wear required personal protective equipment. They Personnel should wear a reflective vest, and carry the identification card in a visible place.
- Personnel entering at different times to do specific jobs should inform the site supervisor well in advance so that he authorizes entrance.
- Personnel are authorized to enter only through the main entrance / authorised gate.
- Personnel transportation is the responsibility of the Contractor.

OHS PLAN

- Admission of vehicles with contractor's personnel in Projects shall be authorised by the /PMC/ Developer representative, prior to inspection of documents.

For entry of vehicles in facilities, contractor shall comply with the following procedure:

- Send to the site supervisor in writing, a descriptive list of equipment.
- Verify identification of personnel entering with equipment.
- Entry of equipment should be done through the main entrance gate in order to facilitate the guard personnel to do required control.
- Coming out of equipment from the site shall be likewise informed and authorized by the site supervisor.

Required documents for starting the work at site:

- Description of the works to be done per building or area
- Analysis of the risks for the high risk jobs
- Protection and prevention measure
- Circulation and vehicles plan
- List of the required regulatory permits for the potentially dangerous operations
- Duration of the work
- List of the required permissions
- Name of the persons planned on site, with responsibilities (Organization chart)
- Certificates of the different construction machinery to be used on site, initial and last maintenance, inspection by regulatory authorities, competent person (cranes, slip-form equipment, etc)
- Certificates / proof of safety training for the persons performing high risk jobs
- Certificates of aptitude for authorised people (electrical license, safety...)
- List of daily / weekly check list of inspection.

14.0 SITE SUPERVISION

- The Contractor must ensure that an employee of suitable seniority and authority with responsibility for health and safety is always 100 % present on site during the course of work, to supervise and direct corresponding activities, and to receive and implement instructions from the representative. Prior to commencing works on Site, the Contractor must notify Developer/PMC the names of such employees in advance.
- All supervisory staff shall be made aware of their safety responsibilities.

OHS PLAN

15.0 TRAINING AND COMPETENCE OF EMPLOYEES

- Contractor must ensure that his employees are duly trained and experienced to carry out their work safely. Training should be continuous throughout the project and should include regular toolbox talks about their work methods.
- For such a purpose the Contractor must also ensure that specific hazards likely to be experienced or not on Site, are notified to his workforce along with any precautions to be taken and local rules to be observed.
- Where particularly severe or unusual hazards arise, the Developer/PMC reserves the right at no additional cost, to request Contractor's employees to attend safety training and instruction sessions, whether carried out on Site or externally. Also requires Contractor's employees to undergo specified safety training induction.
- Contractor shall participate in the training program to help develop content, introduce training sessions, conduct training sessions, lead site tours that are part of the safety training, and other responsibilities that may be appropriate from time to time. The Safety Managers from /PMC/Developer and Contractor share the duty of conducting the orientation and other training sessions.
- It is the responsibility of the contractor to organize the training rooms, furniture, audio-visual systems, training materials and trainers to perform the training.

15.1 Initial site orientation / induction

Refer: MLDL / OHS / FT 008 - OHS awareness cum OHS induction training.

The initial site safety induction is conducted by the Developer/ PMC to all the contract employees. No employees of the contractors or visitors shall be permitted inside the site without attending the site safety orientation and the access card / visitor pass will be issued only after completion of the site safety orientation.

The regular staff/labours will be issued with a sticker stating their ID No and date of Induction and sample is depicted.

It is the responsibility of the Contractor to have for all new personnel of the project, get familiarized with actual location of safe assembly points, first aid centre and the like.

Contractors are responsible for arranging site safety induction in a language understood by all the attendants (if not different sessions will be organized) for their personnel at least one day in advance and the training shall be conducted by Safety personnel.

For medium risk and potentially dangerous activity, a test will be done to check the understanding of the safety instructions for the personnel of the contractor.

Records of attendance will be transmitted to on weekly base

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The following topics will be included during such presentations, which will change during the course of the project to meet changing site requirements.

- Introduction to the site and project, with a brief overview of the construction site.
- MLDL approved OHS policy.
- Personal Protective Equipment (hard hats, safety glasses, safety steel-toed shoes and reflective safety vest)
- Housekeeping
- Working in and around excavations
- Working at height (ladders, scaffolds, free edges and openings)
- The Safe Plan of Action (SPA)
- General electrical safety
- First aid facilities, Accident reporting system
- Emergency procedure and contact person with contact no.
- Incident / Accident reporting procedure
- Working hours regulation
- Smoking restrictions, prohibition of alcohol and drugs.
- The contractor will conduct a site visit for his new employees in groups of less than 25 so that they get acquainted with essential services, their work place, and general site layout.
- Identity card will be issued only after completion of the site orientation / induction.
- Hole punching system

Note: Suggested to use MLDL Animated Induction Movie.

15.2 Specific Hazards Training

Specialized training will be given to personnel working on specific areas / topics such as:

- Hot work
- Scaffolding & work at heights
- Material handling
- Pressure testing
- Heavy equipment lifting & rigging
- Work permits system
- Lockout & tag out procedures

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- Entry into confined spaces
- Handling hazardous materials
- Fire prevention and control
- ERT (Emergency Response Team) etc.

Above courses will vary in length depending on the time required to properly address the topics in question.

Completion of specific hazards training is mandatory before working on such tasks.

A list of trained personnel shall be maintained.

15.3 Training and Awareness Courses

The following topics for training shall be considered:

- Overall Safety Program
- OHS Policy
- The Statutory Regulations and OHS Codes & Practices
- Site Safety Rules and Requirements
- Safety Organization and Responsibilities
- Safety and Health Inspections / Safety Audits
- Fire Prevention Control
- Methods of Accident Prevention
- Method Statement, Work permits system
- Emergency Response Procedures
- Personal Protective Equipment and Safety Equipment
- Scaffolding, Ladders, Safety nets etc., fall protection and prevention.
- Cranes, Hoists and Lifting Equipment
- Good Housekeeping
- Excavations
- Electrical safety
- Gas Cutting and Welding
- Hazardous material handling
- Entry in confined spaces

OHS PLAN

15.4 Daily Tool Box Talk / SMARRT Briefing

Please refer: MLDL / OHS / FT 023 – Daily Tool Talk Format,

Refer: SMARRT Card

- Contractors will conduct SMARRT briefing for all employees every day before commencement of work and to be recorded with the signature of all attendees.
- Topics will include current issues or precautions for work about to start, as determined by the contractor or safety leadership team from time to time.
- Each session will last from 15 to 30 minutes.
- Each contractor shall maintain a record of attendance by his employees to demonstrate his compliance with this requirement and copies of attendance register shall be forwarded to PMC or MLDL for records.
- Refresher training shall be given to employees absent/ leave for more than 12 days continuously from project.
- SMARRT is mandatory for briefings involving hazards identification / risk impact assessment with workforce.
- 100% attendance in daily SMARRT briefing is mandatory
- MLDL / PMC staff shall verify and sign SMARRT briefing on daily basis and participate in SMARRT briefings on sampling basis.
- Contractors will conduct Tool Box Tasks to employees on specific topics relevant to site on as and when required.

16.0 SITE SAFETY COMMITTEE

Please refer: MLDL / OHS / FT 021: MoM of Safety Committee.

In order to ensure a better communication and coordination for realizing safety targets, the project shall establish an independent Safety committee comprising of Developer Representative, PMC, Project Manager, Safety Manager, Discipline Heads, Contractors Site Manager, Safety coordinators and supervisor. Adequate representation of workmen shall be ensured. The Project head will act as chairman of the Site safety committee and Safety Advisor will act as secretary and will minute the Minutes of Meeting (MoM). The meetings shall be organized by the Safety Advisor and shall be organized once in a month as a minimum. The MoM will be shared with MLDL HO OHS Department and the points addressed in the MoM shall be closed in stipulated time. Failure to comply with MoM target points will be considered as infringement and will attract fine.

OHS PLAN

The establishment of site Safety committees in which employees and Contractor and sub-contractor management are represented can increase the involvement and commitment of employees. The contractor shall ensure the formation and monitor the functioning of contractor safety committees.

Terms of Reference

The Terms of Reference for the committee shall be as follows;

- To monitor the adequacy of the contractor's site OHS plan and ensure its implementation
- To review safety training
- To review the contractor's monthly safety report.
- To identify probable causes of accident and unsafe practices in building or other construction work and to suggest remedial measures.
- To stimulate interest of Employer and building workers in safety by organizing safety week, safety competitions, talks and film-shows on safety, preparing posters or taking similar other measures as and when required or as necessary.
- To tour round the construction site with a view to check unsafe practices and detect unsafe conditions and to recommend remedial measures for their rectifications including first-aid medical and welfare facilities.
- Committee team members should perform a site inspection before every committee meetings and to monitor safety inspection reports.
- To bring to the notice of the Employer the hazards associated with use, handling and maintenance of the equipment used during the course of building and other construction work.
- To suggest measures for improving welfare amenities in the construction site and other miscellaneous aspect of safety, health and welfare in building or other construction work.
- To look into the health hazards associated with handling different types of explosives, chemicals and other construction materials and to suggest remedial measures including personal protective equipment.
- To review the last safety committee meeting minutes and to take action against persons/sub-contractors for non-compliance if any.

Within 14 days of award of contract, the Safety committee shall be constituted and notification regarding the same shall be communicated to the members and the Developer.

16.1 Safety Meetings

OHS PLAN

- Safety meeting will be attended every week, by the site project manager (No delegation will be accepted) and safety officers. Main subcontractor's representative will also attend.
- Safety will be part of the agenda at all Site meetings. The Contractor's Safety Officer will attend these meetings.

17.0 OHS INSPECTIONS AND AUDITS

17.1 OHS INSPECTIONS

Refer: MLDL / OHS / CT 012 - OHS Inspection checklist
MLDL / OHS / CT 013 - OHS Internal Audit Checklist Form

The Developer's Safety Manager/Officer will visit the Sites and carry out Site OHS inspections. Contractors must co-operate in these inspections. Contractors OHS Personnel also shall conduct daily OHS inspection and report to Contractor's Site In charge for taking corrective action. A copy of their reports shall be forwarded to the Project manager and provide a report of their findings and any necessary corrective action to be undertaken.

17.2 OHS AUDITS

Developer/ PMC may plan to conduct the following two types of audits from time to time during a project life.

- Formal Audit
- Regular and Ad-hoc Inspection

17.3 Formal Audit

Formal audit is a comprehensive assessment of compliance with project program, procedures and local codes and regulations.

PMC OHS Personnel and / Developer OHS personnel / Auditors from external auditing firm will have the right to carry out this audit during project life cycle by means of pre-determined formats at mutually agreed dates.

The results of formal audit will be reported in a written assessment form and feed back to all relevant parties including contractor's top management. Site management and supervisors should take corrective actions immediately and submit their compliance report to Developer/ PMC.

17.4 Regular and ad-hoc inspection

Regular and ad-hoc inspection is an audit providing regular or special means of checking compliance with project OHS requirements at key stages of project life. Regular and ad-hoc inspections will be carried out by site project team and/ or site safety team.

OHS PLAN

18.0 MONITORING & RECORDING

18.1 STATUTORY RECORD

The documents to be maintained at Project (as minimum):

- Labour Licence.
- Migratory Labour Licence.
- Wages and Over time Register.
- ESIC
- PF
- Workmen Compensation Policy (Insurance coverage for the Workers)
- Certificate of Medical Fitness.
- Display of relevant Labour laws.
- Display of Project Information along with contact Numbers.
- Test Certificate for Drinking Water(Site/Labour Camp)
- Facilities, Equipment and Machinery

ESIC (Employee State Insurance Corporation)

All lifting machines, lifting gears, Chain, Pulley, cable Slings appliances and platforms and lifts

Air receivers, compressors

Fire detecting and fighting equipment

Scaffold

Powder actuated tools (explosive power tools)

- Personnel, Training and Competency

First Aider Certificate

Fire Fighting Training Certificate

Construction Safety Orientation Course Certificates

- Accident Reporting documents, Forms & Register (File)

OHS PLAN

As a part of monitoring the OHS performance of the construction, the following forms and checklists will be required to be used as a minimum by the Contractor during the construction period.

- Contractor Organisation Chart
- OHS Inspection Checklist
- OHS Inspection Report
- Job Safety Analysis
- OHS Induction Training Record
- Specific OHS Training Record
- Tool Box Meeting Record
- Personal PPE Record
- Hot Work Permit
- Confined Space Permit
- General Work Permit(Routine/ Night)
- Demolition work permit
- Lifting Permit
- Work at Height permit
- Excavation Permit
- PPE Inspection
- Electrical Tools Inspection Checklist
- Mobile Crane Inspection Form
- Excavation Inspection Form
- Excavator Inspection Form
- Electric Welding machine Inspection Form
- Gas Cutting Tool Inspection Form
- Fire Extinguisher Inspection Form
- Scaffold Inspection Checklist
- Dismantling of Scaffold Checklist
- Scissors or Boom Lift Checklist
- Concrete Breaker Inspection Form
- Air Receiver & Air Compressor inspection Form
- Forklift Checklist

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- Lifting Gear And Appliance Inspection Form
- Ladder Inspection Form
- Chemical In Use Inspection Form
- Summary Hazardous Material Inventory Log
- First Aid Box inspection Form
- First Aid Injury Record
- Details of disposal of Bio-Medical waste
- Notice of Dangerous Occurrence / Near Miss
- Incident Report Form
- Incident Investigation Report
- Witness Statement Of Account
- Injured person Statement of Account

19.0 SAFETY AWARDS, SANCTIONS AND SAFETY COMPETITIONS

19.1 Awards and Recognitions

Construction site Safety awards programs may be instituted with focus on remarkable achievements and contributions towards safety.

The following categories will be considered for awards as per the scheme in practice of Employer:

- For every one-million-man hour working without any accidents / incidents
- Zero reportable accident / incident contractor
- 100% adherence to voluntary reporting of all near misses and incidents throughout the period of contract
- Safest Contractor of the year.

19.2 Safety Competitions

The Developer/ PMC may plan for various safety competitions to motivate employees to take active part in safety program.

20.0 OHS PLAN

The contractor shall submit their OHS Plan in line with this generic plan and shall be approved by Developer/PMC and it shall be used as main tool for OHS surveillance.

OHS PLAN

21.0 FIRE PREVENTION AND CONTROL

Refer: MLDL / OHS / CT 019 - Fire extinguisher checklist

Contractors shall plan and take pertinent measures for elimination of possible conditions which may lead to fire.

Contractors shall provide the required number of well-maintained fire extinguishers at each work area.

Contractor shall ensure that personnel are duly trained in the use of fire extinguishers, understanding the basics of firefighting procedures. A qualified operator shall inspect all fire extinguishers on a regular basis.

Contractor shall take every precaution and use all reasonable means to prevent an outbreak of fire and shall tender immediate assistance in case of fire. Any outbreak of fire in or near the workplace shall be reported immediately to the engineer in-charge, Developer or Supervisor.

Smoking on worksite is not allowed, **“No smoking”** signs shall be displayed at prominent location including stores/ storage places.

Flammable materials, oily rags, wastes etc. must not be left lying on the floor or accumulated. Covered metal skips or bins should be used for disposal of flammable wastes.

If required, fire drills should be held at intervals to ensure that personnel get familiarized with the location, operation and uses of the various extinguishers used at site. Fire extinguishers should be clearly identified and located in designated areas.

Defective fire extinguishers should be rejected. No empty fire extinguishers should be kept at site. They should be refilled and kept in good working conditions. On the other hand, each fire extinguisher should have a control card attached to it, showing date of load and expiring date.

Fire extinguishers must never be left empty, defective or in a discharged condition - they shall be refilled / maintained in good working order.

All machines such as welding machines, generators, and cutting machines should be arranged in such a way that fire risk is eliminated and equipment protected.

If welding/ cutting operations are to be carried out close to flammable materials, non-flammable screens and blankets shall be used to confine sparks hot metal or slag. A fire extinguisher should also be available.

All flammable material shall be kept away from the source of heat. All waste papers, wooden shavings, oily rags, coir, jute, cotton gunny bags etc. shall be removed from place on a daily basis.

Chemicals and other such products should be stored in stable racks properly labelled. Mutually reactive chemicals should be stored separately from each other. Storage place should have proper ventilation and an emergencies kit in case of spills, fire, etc., and personnel having access to such places, must have an adequate

OHS PLAN

training in handling chemical products. Safety Data Sheet Should be available for all the hazardous materials brought to Site.

Storage areas must not be built with flammable or combustible materials such as wood, carton, etc. A separate storage for Hazardous material is recommended.

22.0 EMERGENCY PREPAREDNESS & RESPONSE PLAN

Refer: MLDL / OHS / CT 015 - Emergency item checklist
MLDL / OHS / CT 019 - Fire extinguisher checklist
MLDL / OHS / CT 030 - First Aid Box inspection form

An emergency preparedness plan shall be prepared and submitted to the Safety representative within 7 days from the date of awarding the contract. The following, but not limited to this, shall be considered to establish emergency procedures:

- Identify and list out the possible emergency situations according to project location.
- Make a list of available emergency services and confirm their communication channels.
- Ensure that supervisors clearly understand their responsibility and role in the site emergency procedures.
- Designate first aid and provide medical supplies and other material and equipment that may be required for emergency use.
- Set up emergency response teams.
- Determine emergency evacuation routes for work areas and construction site and designate safe assembly areas.
- Ensure that all site personnel & visitors clearly understand emergency warning siren signals used at site and the safe assembly areas.
- Designate a supervisor to conduct a head count and give instructions to evacuees as necessary.
- Post emergency information for each work area on the site.
- Conduct emergency procedure drill periodically at least once in 3 months.

23.0 SITE ACCESS

The Developer / PMC/ shall at all times have free access to the site and facilities necessary for inspection and examination and tests of the materials and workmanship. No person not authorised by the Developer / PMC/ except the government authorities shall be allowed on the works at any time.

Employees under the influence of alcohol, drugs and any other narcotics or carrying any such items shall not be permitted to enter the workplace / project site.

OHS PLAN

Access to the site must be at all times via recognized roadways and footpaths. Personnel must not access to construction areas through unauthorized areas. Anyone found disregarding this rule would be subject to withdraw his access card.

The access for pedestrians will be physically separated from personnel access with steel pipes barricading,

All areas where pedestrians will be exposed to the traffic of vehicles will be separated with steel pipes barricading.

Separation of vehicle movement and pedestrians will have to be implemented

A special identification mark on the access badge , colour mark , coloured badge or other mean for the worker , supervisors or any other people after getting the medical clearance , for working at height .

The contractor shall not engage any employees who have criminal records or attached to any banned organization by State or Central government.

Contractor shall closely monitor to ensure that the employees adhere to the following code of conduct:

- Alcoholic beverages will not be consumed, brought onto, or manufactured on the site.
- Non-prescription drugs, intoxicants or alike substances will not be used, brought onto or manufactured on the site. Tobacco in any form is prohibited.
- Firearms, explosives, knives or other types of weapons will not be allowed on the site.
- Gambling or any other form of betting game is prohibited.
- Discrimination or intimidation on the basis of race, sex or national origin is prohibited.
- Aggressive or abnormal behaviour is prohibited.
- Individuals under the influence of alcohol, drugs or any other narcotics will not be permitted entry to the site.
- Violation and / or failure to comply with the above requirements will require a written report detailing facts and corrective actions taken.

Contractor shall provide visitor's helmet and other PPEs like Safety Shoe, reflective jacket as per requirement of the site. **No PPE, no entry.**

All Visitors shall be accompanied at all times by a responsible member of the site personnel. The contractor shall be fully responsible for all visitors' safety and health within the site.

All visitors shall be permitted inside the site, by the security, only after obtaining authorisation or confirmation from Developer/PMC Project manager or any other authorised person at site.

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It is always the duty of the contractor to provide required PPEs for all visitors. Towards this required quantity of PPEs shall be kept always at the security post.

23.1 ATTIRE CODES

For General office areas Non Personal Protective Equipment (PPE) Zone following steps should be taken:

- Sleeveless shirts/blouses, shorts, dhotis, lunges, etc are not permitted
- All footwear shall be closed heel and toe i.e. no slippers & high heels are allowed

For Construction Areas (PPE Zone)

- Sleeveless shirts/blouses, Bermuda, shorts, dhotis, lunges and skirts are not permitted
- Shirts and long trousers must be worn at all times on the construction sites
- Loose clothing and loose jewellery are not permitted when operating machinery

23.2 PHOTOGRAPHY

No photography, video, imaging capturing or reproduction equipment of any kind may be used within the project shall be used unless prior approval from and / or the Client is granted.

23.3 MOBILE PHONE USAGE

Any personnel using mobile phone must be stationary and be in a location where they are not exposed to fall from height or falling object hazards. Equipment and machinery operators shall stop the operation before answering a call.

Vehicle drivers shall not answer phone calls when vehicle is moving. Personnel on scaffolds, ladders, MEWPs or at heights shall not answer phone calls. They shall be on the ground or in a safe location before answering any call.

Personnel shall stop their work before answer a call. Listening to music (including through usage of earphones) is also prohibited while carrying out work on the construction site or while on the move.

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23.4 IDENTITY CARD

Access to the site must be at all times via recognized footpaths. Personnel must not access to construction areas through unauthorized areas. Anyone found disregarding this rule would be subject to disciplinary action.

All personnel will be provided with a photo pass, which will be required to enter the Site. Passes must be carried at all times. At the completion of the project, all passes must be returned to the Project Manager.

Sample of Identity card is depicted for the understanding of the requirement:

IDENTITY CARD Provide Details of Project and Contractor Induction Serl. No		Photo						
ID No:..... Name:.....								
Age and DOB:..... Trade:.....								
Agency:..... Project:.....								
Place:..... Blood Group:..... RH factor:.....								
Allergic to:.....								
Home Address:.....								
Nearest Police Station:.....								
Emergency Contact:..... Tel No:.....								
Date: / /		Authorised Signature						
Trained in  Height work  Electricity  Accessories  Confined space		Disciplinary Action <table border="1"> <tr> <td>1st</td> <td>2nd</td> <td>3rd</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	1 st	2 nd	3 rd			
1 st	2 nd	3 rd						
								

23.5 Hole punching process:

The 3 holes system will be used on site. This means if any person receives 3 holes against his /her name on badge due to all unsafe acts such as not following safe work method, not following direct instruction from safety officer and not following site rules, he will be no longer qualified to work on site.

Not knowing will not be considered as an excuse, as all individuals entering the project will have site induction and sign to prove they did. Immediate removal from site can occur if unsafe act is considered serious and an individual can be permanently removed from site even before 3 holes.

Below are the basic principles on which a hole maybe punched into a badge, there are the principles. For example: So, if a worker is found using defect equipment the team leader would have his badge punched.

Basic Punishment Principles

1. Worker shall be responsible for his own PPE and actions
2. Team leader shall be responsible for the equipment and workplace
3. Safety engineer shall be responsible for procedures, reporting and implementation.

In case of safety violation, the worker will be considered responsible and will get his card punched, but according to the facts the supervising manager will also be held responsible in case of:

- Repeated violations in his working area, or work under his responsibility

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- Non-compliance to safety protections tools, hand railing, to labours, working area.
- Such statistics shall be provided to the developer on demand.

24.0 SITE SECURITY PROCEDURES

The following minimum controls on personnel and equipment / materials will be exercised:

- Site Entry Control / Material movement Gate Pass systems
- Site Entry Permit (Personnel) System
- Site Entry Permit (Vehicles and equipment)
- Contractors shall comply with Developer's Security system.

The Developer's security representative reserves the right to admit the personnel into the site and also have the right to frisk the person or vehicle for security reasons.

25.0 SUSPENSION OF WORK

If the contractor is found by the Developer/ PMC engineer not complying and or persisting in non-compliance with safety requirements or with statutory obligations, the engineer may suspend his work at any time by notice, in writing, and the work shall not be resumed unless and until the engineer shall cancel in writing his suspension order. The Engineers decision in this matter shall be final. No claims arising from such suspension shall be made by contractor.

26.0 DAMAGES & PENALTIES

The Contractor shall take full care to implement provisions of the OHS requirements given by the Developer at the time of contract and updated in the due course of construction. In case if the contractor is persisting with non-compliance Developer/ PMC would take action against the contractor after giving a reasonable time to improve.

1.1 Penalties

Any reportable accident (fatality / injury) results in loss of life and/or property damage. These accidents not only result in loss of life but also damage the reputation of Company. Most of the accidents are avoidable and caused preliminary due to negligence. Hence shall recover the cost of damages from the contractors for every reportable incident (fatality / injury).

The Contractor shall not be entitled for any damages / compensation for stoppage of work, due to safety reasons and the period of such stoppage of work shall not be taken as an extension of time for Completion of the Facilities and will not be the ground for waiver of levy of liquidated damages.

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The fines levied will be used to assist those who have suffered as a result of the accident, for the welfare of the workers or for rewards and recognition.

OHS PENALTY MATRIX		
SN.	Definitions	Amount of Penalty
1	Failure to provide ID Card to workers	Rs. 200/- per person
2	Failure to provide requisite amenities in the Labour Camp including crèche	Rs. 50,000/- per amenity
3	Failure to provide well equipped Induction Room	Rs. 50,000/- on first instance and multiplies by two for non-rectification within stipulated time.
4	Smoking in the construction zone and/or working under influence of alcohol/prohibited drugs.	Rs. 2000/- per violation
5	Burning of waste or smouldering of combustible materials on site without written permission.	Rs. 5000/-
6	Failure to wear Personal Protective Equipment (PPE) or its improper use.	Rs. 1000/- per individual if PPE supplied but not worn by personal; Rs. 1,000/- per individual if PPE not provided by the contractor
7	Working without OHS Induction .	Rs. 5000/- per personal and working day to be dismissed
8	Not attending OHS Meetings or any other OHS Programme/Function	Rs. 1,000/- per individual
9	Failure to submit OHS Documents (OHS Plan, Work Method Statement, Emergency Plan) with in stipulated time	Rs. 10,000/- each instance
10	Failure to submit report on incident , accidents and near misses with in the stipulated time	Rs. 10,000/- each instance
11	Failure to comply with infringement notice	Rs. 10,000/- each instance
12	Misuse/damage to property/equipment/ infrastructure	Rs. 10,000/-; in addition, contractor to pay for the cost of items damaged
13	Unsafe work (act/condition) not covered otherwise	Rs. 5,000/-; & immediate rectification
14	Poor Housekeeping and stacking of materials	Rs. 10,000/- & cessation of work till satisfactory rectification.
15	Obstruction of passageways, entrances, doorways, stairs, access to Fire Fighting Equipment etc.	Rs. 2,000/- & immediate rectification

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16	Use of equipment without Inspection tag or its unauthorized use and alterations	Rs. 2,000/- & immediate rectification
17	Use of damaged or uncertified lifting tackles	Rs. 10,000/- & confiscation of such items
18	Unsafe lifting method	Rs. 10,000/- & cessation of work till satisfactory rectification
19	Failure to provide for and use unsafe working platforms, means of access to the work place, where work is required to be carried out beyond a person's normal reach	Rs. 10,000/- & cessation of work till satisfactory rectification
20	Permitting/Forcing personal to work unsafe manner	Rs. 20,000/- each instance to supervisor/work In charge
21	Failure to provide OHS signage	Rs. 5,000/-
22	Not providing collective fall protection	Rs. 10,000/- & cessation of work till satisfactory rectification
23	Allowing fall of materials from height or throwing materials from height or not barricading dangerous zone on ground and not providing flagman to warn the possibility of falling materials.	Rs. 20,000/-
24	Violation of Work Method Statement or Violation of Permit to Work or Violation of Work Instructions	Rs. 10,000/-
25	Absence of well-equipped Medical Care Centre or non-availability of First Aiders or no tie up with hospitals for emergency health care	Rs. 25,000/-
26	Lack of pre- & periodical post-employment health screening.	Rs.10,000/-
27	Failure to implement Height Pass for height work (Refer SOP on Total fall protection.	Rs. 5,000/-
28	Non-compliance to Permit to work procedure. Refer SOP for permit to work.	Rs. 10,000/- and any fine imposed by the authority
29	Unauthorized use of any safety appliances/equipment	Rs. 10,000/-
30	Adopting unsafe tapping/connections/termination of electrical lines or use of defective electrical fittings, cables and electrical tools or allowing cables / equipment to be submerged in water or not providing Earth Leakage Circuit Breaker/not maintaining Earthing	Rs. 10,000/- & cessation of work till satisfactory rectification

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31	Failure to comply with an order (written or otherwise) issued by the MLDL Project Manager or representative, or OHS In-charge in regard to OHS matter	Rs.20,000/-
32	Threatening OHS personnel, misbehaving, fighting or intentionally causing harm to any person	Rs. 50,000/- and Personal to be banned from the site and a report will be made to the police
33	Failure to deploy competent OHS Personnel in adequate number as per the OHS Plan	Rs. 20,000/- per incidence
34	Lost Time Injury as a result of negligence as established by Accident Investigation Report	Rs. 25,000/- per incidence
35	Fatality	Rs. 10,00,000/-
36	Failure to constitute and run Safety Committee or non- representation of workers in the committee	Rs. 25,000/-
37	Failure to constitute Emergency Response Team	Rs. 25,000/-
38	Use of Mobile Phone in any form while on work	Rs. 500/- per person per incidence
39	Noncompliance of statute/ legal requirements.	Rs 500,000/-
40	Failure to provide supervisor on every 20 labours.	Rs.10,000/-
Note: -The penalty mentioned are for the first incident and the fine amount will be doubled for every repetition or non-rectification with in the time stipulated. For eg. If the fine is yy for first time it will be 2 X yy for the repetition and further 2 X (2 X yy), keeps doubling for every repetition.		

27.0 TEMPORARY FACILITIES / SITE OFFICES

All the temporary facilities constructed / installed at site shall confirm to the environmental regulatory requirements. Such facilities installed shall have all the required pollution control measures to prevent any damage to air, water or land.

All the fuel / oil / greases / chemicals shall be stored with secondary containment under weather proof roof and on impervious flooring.

Due care shall be taken to collect the wastes that are generated at site with proper segregation facility to segregate the following waste generated in the site.

- Organic waste

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- Plastic
- Paper, Paperboard
- Glass
- Metals
- e' waste
- Batteries

The contractor shall create / construct all the temporary facilities to properly collect / store / treat or dispose the wash water or waste water that is generated from the construction site.

The contractor at the close of construction work and clearing the site shall ensure that all the temporary facilities, septic tanks, drainage systems, fuel tanks, water tanks and wastes storage area or any other temporary facility that are created for the facilitation of construction work are completely removed from the construction site and properly disposed confirming to the environmental regulations.

The contractor shall be liable for site remediation that is required for any environmental damages that is caused by the contractor or sub-contractor during or after the construction work.

28.0 WELFARE FACILITIES

Refer: OHSM.A.25 Standard for onsite workers housing quarters

MLDL / OHS / CT 041 - Labour camp checklist

MLDL / OHS / CT 011 - Drainage control checklist

28.1 Latrine and Urinal Accommodation

The contractor shall provide one latrine seat for every 20 workers up to 100 workers and thereafter one for every additional 50 workers. Minimum one mobile toilet facility with adequate water supply shall be provided for every four floors for the high rise building during construction stage.

When women are employed, separate latrine and urinals accommodation shall be provided on the same scale as mentioned above. Latrine and urinals shall be provided as per Section 33 of BOCWA and maintained as per Rule 243 of BOCWR and shall also comply with the requirements of public health authorities.

Refer MLDL / OHSM A 25 - Standard for onsite workers housing quarters.

28.2 Canteen

In every workplace wherein not less than 250 workers are ordinarily employed the contractor shall provide an adequate canteen conforming to Section 37 of BOCWA, Rule 244 of BOCWR and as stipulated in Rule 247 of

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BOCWR the charges for food stuffs shall be based on no profit no loss basis. The price list of all items shall be conspicuously displayed in such canteen.

28.3 Drinking water

As per Section 32 of BOCWA the contractor shall make in every worksite, effective arrangements to provide sufficient supply of wholesome drinking water with minimum quantity of 5 litres per workman per day. Quality of the drinking water shall conform to the requirements of national standards on Public Health.

Due care shall be taken to ensure drinking water facilities are easily accessible to the workforce and within a distance of 20m from the place of work.

All such points shall be legible marked —Drinking Water in a language understood by a majority of the workforce. Drinking water points are not to be located within six metres of any washing places, urinals or latrines.

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29 LABOUR LAWS AND RULES

28.1 The Contractor shall maintain relevant records and fulfil all conditions and requirements in accordance with following:

- Person below the age of 18 (eighteen) years shall not be permitted for the work.
- The Contractor shall not pay to anybody less than what is provided under law.
- The Contractor shall pay equal wages for men and women in accordance with applicable labour laws.

29.2 CHILD WELFARE

The Contractor shall at their own cost provide 'Crèche' facility in case female workers are employed at a secured location as approved by the Developer. Such facility shall be in accordance with Bldg. & Other Construction Workers' (Regulation of Employment and Conditions of Services) Act, 1996.

29.3 PROTECTION OF WOMEN AGAINST SEXUAL HARASSMENT

All contractor and subcontractor shall ensure to take appropriate steps to prevent sexual harassment of women on site. Without prejudice to the generality of this obligation they shall provide appropriate work conditions in respect of work, leisure, health and hygiene to further ensure that there is no hostile environment towards women at work places and no employee woman should have reasonable grounds to believe that she is disadvantaged in connection with her employment.

30 SOCIAL SECURITY SYSTEM AFFILIATION

The Contractor must affiliate all his direct employees and subcontractors to the social security system such as PF, EPF, Pension and the other legal requirements in the country. The Contractor must present these affiliations duly stamped as a minimum, one day before the beginning of the works in the Project Site.

The Contractor must lend the original documents concerning the legal payments to the Social Security System, including PF, EPF, and pension, in the corresponding format, to Developer/PMC within the 10 first calendar days each month. In case the tenth day is on Saturday, Sunday or holiday, the limit date to submit this information must be the following Tuesday.

If after this defined date, the employee information has not been received in, this employee will not be accepted to enter the Project Site, WITHOUT EXCEPTION.

All the affiliations payment copies should be submitted highlighting the names of the employees contracted for the Project Site Works. Developer/ PMC will not receive these formats without complying with this requirement.

The payments copies should include both the workers in the site and the administrative personnel involved in the contracted works.

The Contractor is responsible for their Subcontractor's social security payments delivery to Developer/ PMC.

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Partial payments are not accepted. It is mandatory to pay PF, EPF and Pension, all of them to be presented in the corresponding form.

Both the Contractor and the Subcontractors should guarantee that the payments are done based on workers real data.

A copy of the workers payment list duly signed by them, as well as a copy of the retired workers payments, must be presented on a monthly basis.

The submission of the above documents will be conditional for the release of the running bills

31 SANITATION AND HYGIENE MEASURES

Refer: MLDL / OHS / CT 041 - Labour Camp checklist
MLDL / OHS / CT 043 - Checklist for Welfare at site

In order to provide adequate sanitary conditions for all personnel at site, considers the following provisions as a part of the temporary facilities to be provided by the Contractor.

- Provision for an adequate supply of potable water and non-potable water.
- Provision for toilets and hand wash basins
- Garbage disposal and regular collection (daily basis)
- Proper drainage and sewer disposal
- Other special hygienic operations viz. Fumigation, pest controls etc.
- Separate Cooking Facility
- Worker's Rest Space
- Sunshade and / or site canteen

32 NOISE & AMBIENT AIR QUALITY

Refer: MLDL / OHS / CT 001 - Air Pollution Control Checklist
MLDL / OHS / CT 034 - Noise Pollution Control Checklist

Noise must be kept to a minimum at all times and must not exceed acceptable and/or locally specified rules and conditions relating to noise imposed by the Contract. Due regard must always be given to noise levels, permissible duration for noisy work operations and other restrictions. Any work activity which is likely to expose any employee on site to a noise level of 85 db (A) or above, assessments should be carried out and informed to Developer's representative. In such circumstances, the Contractor must keep stocks of ear defenders or other suitable hearing protection and issue to the workmen who are exposed to the higher levels of noise.

OHS PLAN

The legal requirements for the protection of worker's hearing are contained in the Building & Other Construction Workers' (Regulation of Employment and Conditions of Services) Central Rules 1996. Loss of hearing is normally progressive and cannot be seen nor is it always apparent until an older age.

Noise assessment should be taken at regular intervals as per Consent to Establish/Operate directive.

But as a general rule, if you have to raise your voice to be heard, it means it is too noisy.

- Grinders
- Cutters
- Jack Hammer (pneumatic drills)
- Engine driven plants and alike all which produce harmful noise levels.

Ear plugs and ear muffs are the common form of hearing protection. In general, muffs are to be preferred for the construction industry because:

- If it is necessary to remove the ear protectors for a short time, due to communication needs, it is better to remove and replace them in order to avoid ear infection.
- Muffs should be easily visible, so that plant operators will be aware that persons may not hear approaching machines.

If there is a concern that personnel cannot hear warnings, shouts or gas monitor alarms, then a method statement / safety system of work should be provided for those operations.

32.1 Activities impacting indoor air quality

Many repairs, work activities, construction-related activities generate and disperse contaminants that adversely impact indoor environmental quality.

Activity Contaminant/Physical Agent:

- Grinding: Dust, fibre & particulates,
- Roofing Coal tar pitch volatiles
- Flooring, painting - Volatile organic compounds
- Welding and cutting Lead, carbon monoxide, ozone
- Jack-hammering Noise, vibration

Prior to performing construction-related activities or any assigned tasks, contractors shall eliminate or minimize any potential contaminant/physical agent exposures by implementing the following procedures:

- Maintain good housekeeping habits to contain dust and construction debris. Minimize recirculation of contaminants.

OHS PLAN

- Implement engineering controls, such as dilution or local exhaust ventilation and isolation of mechanical systems.
- Install critical barriers made of polyethylene sheeting on doors, windows, vents, etc. in order to isolate the specific work area.
- To minimize dust, use wet methods when appropriate.
- Have trained employees and approved equipment on site prior to performing work.
- Conduct work activities in a safe manner.
- Use the least toxic material suitable for the application
- Relocate sources of contamination (for example, a diesel generator or tar kettle) away from the building air intake.

Contractors will be responsible for complying with the above guidelines and for communicating this policy to their employees and subcontractors. All work shall be performed in accordance with all applicable laws and regulations.

33 Control of Substances Hazardous to Health Regulations

Refer : MLDL / OHS / FT 004 - COSHH Assessment Sheet

33.1 The Statutory Regulations are to be complied with at all times. Hazardous substances include any flammable liquid or any substance likely to cause toxic, corrosive, irritant or harmful risk.

33.2 Substances hazardous to health must be identified prior to taking them onto Site and, if they cannot be substituted or eliminated, assessments stating how the substances will be controlled and what precautions will be taken and recorded in writing by a competent person. This assessment must be communicated to and comprehended by the workforce who is likely to come in contact with the substance(s). A copy of all assessments should be handed over to the Developer/PMC's OHS Manager.

33.3 Hazardous substances brought to site shall be kept to a minimum and must be stored in secure, appropriate containers with the contents clearly labelled. The containers must be stored in a secure area, preferably quarantined for the main stores areas, with suitable warning notices and signage posted.

31.4 Hazardous materials must not be allowed to be discharged into natural watercourses or drainage systems.

31.5 All hazardous material wastes must be kept separate from normal waste and be disposed of in a special disposal facility.

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34 RADIOGRAPHY

Only qualified and trained personnel with required license issued by AERB (Atomic Energy Regulatory Board) should be assigned to install, adjust and operate radiography equipment.

When working in areas with a potential exposure directly or indirectly to any workers/persons, the relevant statutory required protection shall be made.

Areas in which lasers, X rays are used shall be posted and restricted with standard radiation warning sign, placards and barricades.

All applicable rules pertaining Radiography shall be complied with regard source movement, Radiography license etc.

All personnel working on radiography shall wear Thermo Luminescence dosimeter / film badges as per AERB / Dept. of Atomic Energy norms and other applicable statutory requirements.

35 ERGONOMICS

Manual tasks

Manual tasks are those workplace activities requiring the use of force exerted by a person to grasp, manipulate, strike, throw, carry, move (lift, lower, push, pull), hold or restrain an object, load or body part. Manual tasks therefore cover a wide range of activities including operating mobile plant, laying reinforcing steel and laying pipes.

Manual tasks can contribute to a number of musculoskeletal injuries including muscle strains and sprains, ligament or tendon rupture, prolapsed inters vertebral discs, tendonitis of the shoulders and elbows, and carpal tunnel syndrome.

Musculoskeletal injuries can result in permanent injuries that can have a significant impact on a person's working ability and quality of life, as well as impacting on the productivity and economic performance of the company.

A great majority of manual handling accidents result in most commonly a sprain or strain, often of the back. Sprains and strains arise from the incorrect application and/or prolongation of bodily force. Poor posture and excessive repetition of movement can be important factors in their onset. Many manual handling injuries are cumulative rather than being truly attributable to any single handling incident. A full recovery is not always made; the result can be physical impairment or even permanent disability.

Building & Other Construction Workers' (Regulation of Employment and Conditions of Service) Act 1996 requires employers to make a suitable and sufficient assessment of the risks to the health and safety of their employees while at work. Where this general assessment indicates the possibility of risks to employees from the manual handling of loads the requirements of the present regulations should be observed, as follows:

OHS PLAN

- avoid hazardous manual handling operations as far as reasonably practicable
- assess any hazardous manual handling operations that cannot be avoided, and
- reduce the risk of injury as far as reasonably practicable
- record and monitor methods used

Where it has been assessed that there is a risk of injury from manual handling, the first consideration should be whether the load needs to be handled at all, or whether the requirement for handling can be minimized. The scope for eliminating the handling of loads on construction sites is limited, but careful planning of storage areas and deliveries of loads can reduce handling requirements.

Where load handling operations are essential, consideration should be given to the use of mechanical handling, for example by the use of lifting appliances or forklifts. The Contractors should consider the use of such mechanical aids at the planning stage of their activities.

Except in the case of very simple operations where verbal instructions may be sufficient or operations of very short duration, which will not be repeated, the significant findings of assessments should be recorded and kept for as long as they remain relevant.

The following points should be emphasized in training programs and the capability of employees to follow such advice should be considered in making assessments.

- Plan the lift

Where is the load to be placed? Use any appropriate handling aids. Do you need help with the load? Ensure there are no obstructions to the lift. For a long lift, such as ground to shoulder height, consider resting the load mid-way, if possible, in order to change grip.

- Adopt a good posture

Place the feet apart, bend the knees while grasping the load, do not kneel or over flex the knees. Keep the load close to the body and back straight and keep shoulders level facing in the same direction.

- Get a firm grip

OHS PLAN

Try to keep the arms within the boundary formed by the legs. The optimum position and nature of the grip will depend on the circumstances and individual preference, but it must be secure. If it is necessary to vary the grip as the lift proceeds, do this as smoothly as possible. Do not jerk. Carry out the lifting movements smoothly, keeping control of the load.

- Move the feet

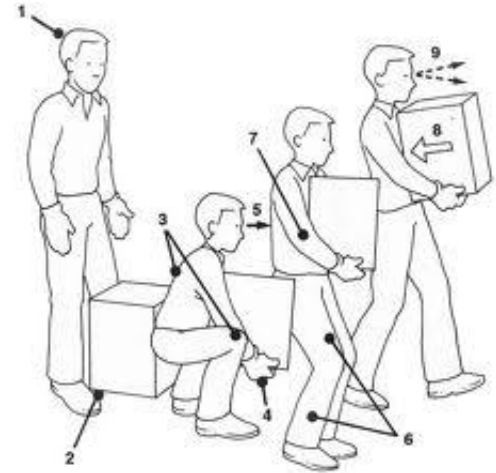
When turning to the side, move the feet; do not twist the trunk.

- Keep close to the load

Keep the load close to the trunk for as long as possible. Keep the heaviest side of the load next to the trunk. If a close approach to the load is not possible, try sliding it towards you before attempting to lift it.

- Releasing the load

If precise positioning of the load is necessary, put it down first and then slide it into the required position.



36 RISK ASSESSMENTS

Refer: MLDL / OHS / FT 022 - Risk Assessment Form

Contractors shall be required to produce safety risk assessments for the following high risk works, but not limited to:

- Scaffolding erection & dismantling
- Working at height
- Excavation deeper than 1.5 meters
- Confined space entry
- Energized & high voltage electrical work
- Assembling of building structures
- High level cladding work
- Lone work at remote location
- Commissioning of equipment

OHS PLAN

- Energizing utility services
- Interruption to utility services

The risk assessment form shall be submitted to Developer/ PMC at least 48 hours before the job commences, and include the following information:

- Identification of all significant risk activities involved in the work.
- Details of measures taken to control the risks identified.
- Justification that the existing control measures are adequate or if not, a detailed action plan on how the risk(s) shall be controlled.
- All risk assessments must be communicated to the workforce who will be involved in undertaking the work.

Refer Risk assessment Format

37 METHOD STATEMENTS

Contractors shall submit work method statements for work activities such as the following:

- Excavation works
- Lifting operations
- Steel erection , roofing , cladding
- Hot work operations
- Radiography
- Entry into confined spaces
- Pressure testing
- Working at height
- Electrical work
- Piping and structural work

Work method statements must also be submitted for activities, which have been identified as being of significant risk assessment process and activities selected by Developer/PMC's representative.

All method statements shall be submitted to the Developer/PMC well before planned commencement of work and approval shall be obtained.

The work method statement shall include, but not limited to:

OHS PLAN

- The job to be undertaken
- The individual activities required to complete the job.
- The individual trades/disciplines involved in each activity.
- Plant, equipment, tools to be used in each activity.
- Any hazardous substances/chemicals to be used along with their SDS.
- The name(s) of the Supervisor(s) for each activity.
- The name of responsible person in charge of the job.
- A detailed description of how the work will be done including control measures and procedures to complete each activity and the overall job safety.

Compliance with the standards detailed on the work method statement and relevancy to current operations shall be monitored on a daily basis and during safety management meetings.

Drawings will support the description of the work, with the safety precautions to be taken

38 SMART BRIEFING

Refer: MLDL / OHS / SMART/SMART Card, Daily Tool Box /Risk Impact Assessment Briefing

Contractor to perform Task briefing in small groups at a particular grid/level which generally involves around 15 to 20 operatives and the same shall be returned to Developer/PMC OHS department on daily basis. While briefing the site engineer should take feedback on hazard associated with job. This shall be witnessed by Developer/ PMC representative.

44.3 It is the responsibility of the site engineer to ensure that all equipment, tools, or materials identified in the SMART are obtained and that all steps identified to prevent the hazards are implemented before starting any activity. MLDL Site engineer will witness the SMART Briefing.

SMART Card to be used for the purpose.

39 SAFETY OBSERVATION REPORT (SOR)

Refer: MLDL / OHS / FT 008 - OHS Inspection Report

39.1 The SOR is used as a tool for supervisors to record unsafe acts, and the steps taken (immediately and as follow-up) will be used to correct such unsafe acts.

39.2 The form includes spaces for the supervisor to state the unsafe act, what he did to immediately correct it, what caused the unsafe act, and recommendations to prevent its recurrence.

OHS PLAN

39.3 The SOR's will be handed over to Developer/ PMC every day, and data recorded as a weekly SOR's summary used to identify safety risks, will consequently be addressed as a contribution to make the site a safer place.

40 WORK PERMITS SYSTEM

40.1 A work permit system is a safety strategy designed to protect personnel and property which consists of an organized and predefined safety procedure. It forms a clear record of all foreseeable hazards, which have been considered in advance of the construction operations.

40.2 Information of the work permit "Issuing Authority" and "Permit Acceptant" will depend on nature of activity.

40.3 The following are some of the types of work permits issued from time to time depending on work requirements:

Type of permit	Validity
Chemical Product Entry Permit	Weekly , updated on daily basis
Demolition Permit	Weekly , updated on daily basis
Excavation Permit	Weekly ,Updated on Daily basis
Hot Work Permit	Weekly ,Updated on Daily basis
Lifting Permit	Weekly ,Updated on Daily basis
Parent Work Permit	Weekly ,Updated on Daily basis
Piling Permit	Weekly ,Updated on Daily basis
Work on height permit for work on scaffold above 2m	Weekly ,Updated on Daily basis
Work at Height Permit (Other than work on Scaffold)	Weekly ,Updated on Daily basis
Working at Height Permit	Weekly ,Updated on Daily basis
Night Work Permit	Weekly ,Updated on Daily basis
Demolition Permit	Weekly ,Updated on Daily basis
Electrical Work permit	Weekly, Updated on Daily basis

OHS PLAN

Drivers / Operators of trucks, forklifts, cranes, excavators, other earth moving equipment, etc on the premises requires special authorisation from the safety department.

40.4 Only authorised contractor supervisory personnel shall submit the work permit to the authorised person by Developer/ PMC for the approval.

40.5 Written requests for work permits must be submitted to representative at least twenty four hours in advance except for emergency situations.

40.6 HOT WORK PERMIT

Refer : MLDL / OHS / SMARRT / WP 05 Hot Work Permit

A Hot Work Permit as part of the overall permit to work system is required any time work involves the use of open flame or spark producing equipment. This includes welding, electrical cutting, burning, grinding and or soldering operations.

Prior to commencing work, all work specific / area hazards must be identified, controlled and communicated and all appropriate permits will be obtained.

All appropriate permits will be posted in the area of the work. A specify training shall be arrange to communicate features of permits. All personnel in the surrounding work area must be properly warned of the hazardous work area by the use of barricades or other communication means.

Prior to work, within 6 m of work area:

- Flammable liquids, dust lint and oily deposits are to be removed;
- Explosive atmosphere is eliminated or if not possible, monitored.
- Floors are cleanly swept;
- Combustible floors wet down, combustibles in the area removed or covered with fire resistant protection;
- Floor and wall openings covered; and
- Fire resistant tarpaulins suspended beneath work.

Fire watcher shall be deployed at the location where the hot work is being conducted. In general, fire hazard that arises on the floor / area above, below, sides and the hot work area itself have to be monitored. Fire spy must be observed who work activities perform and inform to respective department. All fire watcher personnel will be trained in the use of the fire protection equipment and fire watch duties.

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40.7 WELDING, CUTTING AND BRAZING

Refer : MLDL / OHS / SMARRT / WP 05 Hot work permit

All precaution shall be taken in the beginning of welding and cutting work performs on site.

Only natural fibre/ cotton clothing may be worn on the upper body extremities. A leather apron or full body leathers is recommended. Proper ventilation shall be provided, when welding work perform in close area or room. The consideration for respiratory protection must be taken when the work is done in confined spaces or in areas where there is a clear lack of ventilation. This is to prevent welders and work personnel from being exposed to metal fumes.

Welding screens are required to protect adjacent workers from exposure to non-ionizing radiation. Adjacent workers are required to wear appropriate eye protection where screens are not feasible. Welder's assistants and those working inside the screened in area must wear appropriate eye protection.

Chlorinated solvents are prohibited from use in or adjacent to all welding operations. Decomposition products such as phosgene can be formed as a result of the reaction of these solvent vapours with the radiation energy produced during welding operations.

41 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Refer: MLDL / OHS / CT 032 Monthly PPE inspection Form

MLDL / OHS / CT 033 Monthly Safety Harness Inspection form

MLDL / OHS / CT 035 Personal PPE record.

The Contractor must provide all his employees/workers working overhead or in other hazardous jobs, with full body Safety harness, safety helmets, goggles, etc. as and when required for the work and ensure their regular use by their employees/ workers to prevent accidents.

Full body safety harness and other equipment as stated above must be subject to inspection and approval by the engineer. Refer SMARRT in Fall Protection.

Contractors shall provide all necessary protective clothing and equipment. Records of the issue of safety equipment must be maintained.

As a minimum every worker need to wear safety shoes, reflective jacket and safety helmets at all the times, while on project site.

Non PPE Zone would be identified separately.

Note: If the contractor fails to issue the PPE, Developer will issue all required PPE and the cost incurred will be deducted from the contractors running bill.

OHS PLAN

Safety harness will issued to individuals on daily basis only and separate register shall be maintained for this purpose.

Proper PPE issue register should be maintained and the document may be subjected for random audit.

Refer PPE Matrix for compliance and SOP for PPE OHSM A.22.

41.1 The Contractor shall:

- Maintain all personal protective equipment in good and hygienic condition and keep them clean.
- Replace all defective / broken personal protective equipment
- Provide storage for personal protective equipment when not being used.
- Ensure that personal protective equipment is properly used.
- Give training, information and instruction on its use to employees.

41.2 Primarily all the person who is entering the project site shall be provided with the following PPEs:

- i) Head Protection (Safety helmets)
- ii) Foot Protection (Safety shoe / Safety Gumboot)
- iii) High Visibility Jacket / Reflective vest
- iv) Safety glass / Safety Goggles

Based on the nature of work carried out, additional PPEs as mentioned below may be provided:

- Personal fall protection (Full body harness, Rope-grab fall arrester–double flat, etc)
- Hand Protection (Safety Gloves, etc)
- Ear plugs / ear muffs
- Equipment and clothing for body protection
- Respiratory masks

41.3 The followings, but not limited to these, are considered to be collective protective facilities:

- Barricades
- Guards, Handrails and Roofs
- Safety nets
- Stairways, fixed and portable, corridors
- Safety Networks
- Scaffolding
- Shoring

OHS PLAN

- Cages and crane suspended working platforms
- Insulating Screens and Barriers

41.4 HEAD PROTECTION

All personnel shall be provided with safety hard hats which are CE marked and approved by Developer/ PMC and shall be worn at all times while at SITE.

Safety hard hats shall be inspected regularly for deterioration, and in particular for cracks in the shell, and the inside lining. Any evidence of such deterioration shall result in the rejection of such hard hats and replacement by new ones.

Helmets shall not be painted as this will cause invalidity of guarantee and results in brittleness of the helmets.

The following are the colour code of the safety helmets with company logo that are to be used in the site:

- Construction workers: Yellow
- Safety & Security personnel: Green
- Electricians: Red
- Engineers / Managers / Supervisors: White
- Visitors: Orange



Company logo and induction sticker should be visible on the helmets

REFLECTIVE JACKETS

Company logo and name should be visible on the Green reflective jackets for the staff and company name should be visible on the orange jackets for the operatives.



41.5 HAND PROTECTION

Workers employed on bar bending, mixing asphaltic materials, Cement, Lime mortar and Concrete, shall be provided with safety protective foot-wear and safety gloves.

Gloves shall be used by personnel exposed to risks derived from:

- Abrasion;

OHS PLAN

- cutting;
- tearing;
- Chemical, or other burns;
- Infection.
- Voltage rated gloves

41.6 Foot Protection

Appropriate safety footwear shall be used by personnel, according to nature of work and hazards such as:

- Risk of crushing by heavy objects (safety steel toe boots should be used)
- Penetration/Cuttings with sharp objects
- Electrical discharge



41.7 Ear Protection

Ear protection shall be used by personnel working in areas of high noise levels, or in areas where equipment generate a high noise level.

Ear protection can be of external type 'cup-type' which fits over the outside of the ear, or 'plug-type', usually made of compressible foam, which fits the inside of the ear. Selection of the most convenient ear protection depends on:

- nature and source of noise;
- assumed, or known level of noise, (measured in decibels and recorded as dB [A]);
- the 'pitch' or frequency of noise;



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type of protection offered

Whenever practicable, equipment generating high noise should be located at the maximum possible distance from any work being performed. Noise barriers or noise minimizing boxes should be placed around equipment wherever practicable.

41.8 Eye Protection

41.9 All Personnel shall be provided with adequate eye protection wherever there is a risk due to:

flying particles,

high speed flying particles,

dust presence,

chemical splashing,

hot sparks or metal spatter,

Harmful vapours.

electrical hazards



- The correct selection of eye protection shall depend on the assessment of the risk, or combination of risks based on the site situation.
- Eye protection with scratched or 'fogged' lenses shall be discarded and replacements issued
- Use of sun glasses as an alternative to safety glass and tinted glass during the night and in low lighting / enclosed area is strictly prohibited (except medical approval or corrective lens)

41.10 Fall Protection

Full body harness with double lanyard shall be used by all personnel working at heights greater than 1.8 m above the ground level. Waist belts will not be permitted; all personnel working at heights will be required to use "Full body" type safety harness with snap-hooks.

➤ All safety devices need to be individually identified with a tag system, A record of the tags need to be maintain by the contractor and copies submitted to Developer/PMC.

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Refer SOP for Total Fall protection plan for further details.



OHS PLAN

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42. WARNING SIGNS, BARRICADES AND SIGNALS

Refer: MLDL/OHS/SMART/WP 11 Working at Height Permit

A safe and accessible path-of-travel shall be provided for all pedestrians, including those around and/or through construction sites. Barricades act as warning devices, alerting others of the hazards created by repair teams, construction activities, and should be used to control traffic, both vehicular and pedestrian, safely through or around the plant & work site.

While barricades shall be used wherever necessary for the physical protection of people or property, the following is a list of activities where their use is required by code or regulation:

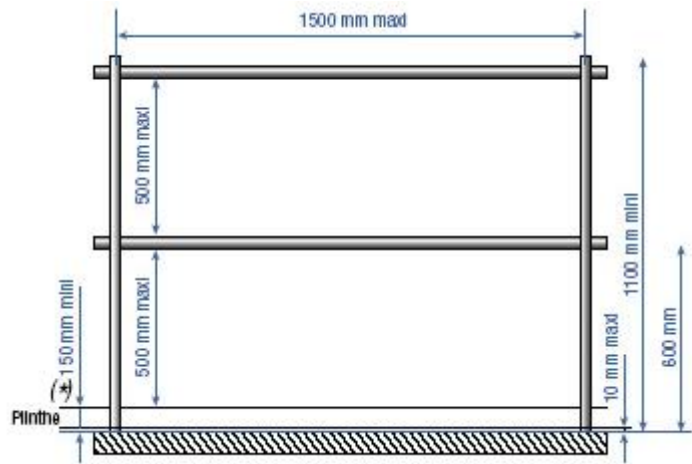
- Areas with temporary wiring operating at more than 230 volts.
- Work areas for electrical equipment with exposed, energized parts.
- The swing radius of the rotating superstructure of cranes or other equipment.
- Wherever equipment is left unattended near a roadway at night.
- Excavations.
 - i.Areas used for the preparation of explosive charges or blasting operations
 - ii.Street openings, such as manholes
- Floor opening in the cover slab, etc.
- Restricted entry areas in the project site.

The Contractors shall:

- Use double rails for barricades as required (steel pipe of 1 ¾ inch diameter, painted with red and white paint only be permitted)
- Erect and maintain for the duration of the Contract proper barricades including fencing material, traffic cones, A-frames, caution tape and temporary curb ramps complying with all State and central rules and regulations at all closed crosswalks and existing closed curb ramps.
- Obtain all applicable permits required by the Project site regulations.
- Furnish, erect, and maintain all necessary signs, barricades, lighting, fencing, bridging, and flags that conform to the requirements set forth by Factories Inspectorate.
- Require that no construction materials or materials required for any repair work be stored and/or placed on the path-of travel.

OHS PLAN

- Maintain the barriers in a sound, neat, and clean condition.
- Not occupy main walk ways.
- The Contractor shall not obstruct free and convenient approach to any fire extinguisher.
- Remove barriers and enclosures upon completion of the work.



Note: With the unique nature of each project or the type work, certain issues may arise which have not been covered in the above guidelines. The contractor is required to review on a case-by-case basis, to ensure that complete, safe, usable and accessible paths-of-travel are maintained during construction.

All floor openings, cut-outs, open edges and excavations shall be properly barricaded, covered and warning notices posted.

- Signs
- Barricades
- Signals

Refer SOP on Total fall protection for details.

Site supervision shall make sure that signs, barricades and signals are used, erected and maintained as required to ensure the safety and health of site personnel.

43 HOUSEKEEPING

All Contractor and subcontractor on site shall ensure the following task must be considered during the performing work on site for good housekeeping:

- Elimination of fire hazards;
- Elimination of slipping and tripping hazards;
- Good access ways;
- A clean site; and
- Segregation of materials and waste for recycling, reusing and reducing.

OHS PLAN

- Projected edges/leading edges should be clear of loose materials/ debris at all times.

Very high standards of housekeeping shall be maintained at all times by the Contractor.

- Keep the site neat and tidy. Keep adequate number of skips / waste bins.
- Keep the access clear from all obstructions.
- Remove the nails or bend them down from the wooden scrap and remove them from job site.
- Store the material in an orderly manner.
- Maintain a safe and healthy work environment
- Provide adequate light in work area and passages.

The contractor shall on a daily basis keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by activities.

At the completion of days' work contractor shall remove these materials to avoid Slip/ Trip hazards and provide safe areas for movement of all workers and supervisor. Contractor should establish regular maintenance program of sweeping and hosing to minimize accumulation of dirt and dust in working areas. If the contractor fails to Clean-up as provided in this document, the Developer may do so and cost thereof shall be charged to the contractor.

On completion of the job the contractor shall remove all his construction materials, tools etc. and demolish all temporary constructions and leave the job site thoroughly cleaned up and ready for use.

When required contractors have to suspend other operations and do housekeeping.

Contractor shall have adequate support to maintain the housekeeping in work area. Following task must be ensured from contractor:

Contractors shall provide and maintain adequate manpower and resources for housekeeping based on the requirement.

Debris chute need to be installed in each building irrespective of floors except for villas. The debris chute shall be made of adequately strong material and shall be properly anchored to the structure. No locally fabricated such as drums are permitted. Debris chute made of HDPE is suggested for this.

If the abovementioned points are not adhered and site is not considered clean the Developer will proceed with the housekeeping through an external agency, at the cost and risk of contractor.

OHS PLAN

44.0 CONSTRUCTION EQUIPMENT AND VEHICLES

Refer: MLDL/OHS/SMARRT/WP 06 Lifting Permit

MLDL/OHS/SMARRT/CL 40 Lifting checklist.

MLDL/OHS/SMARRT/CL 47 Monthly Lifting Gear and Appliance Inspection Form

44.1 Pre-Construction Examination and Inspection

The Contractors shall provide a list of equipment and vehicles needed to safely perform the work. Cranes, hoists, slings, lifting tackles and other lifting equipment shall be selected as per load carrying capacities.

The Contractor must include in his Safety Assurance program, a procedure relating to construction equipment and vehicle inspection, operation and maintenance plan. It must be consistent with the manufacturer's recommendations and requirements as contained in the program.

All hoisting and lifting equipment shall be thoroughly examined by a competent agency approved by applicable local laws and regulations. A report on the result of examination shall be submitted (in prescribed form) before equipment is brought into site.

Operators of all cranes and other heavy equipment must be physically and mentally fit to operate the assigned equipment. They should be well trained to operate the particular type of equipment. Operator's qualification for cranes, pile drilling rig and heavy equipment are subject to review by the competent equipment supervisor and safety manager.

All statutory document related to vehicle shall be submitted before site entry along with operator credentials like valid licence, experience certificates and fitness certificates and third party certificate where applicable.

For cranes, lifting equipment, test certificates from an approved official office that the inspection of the equipment had been done as per regulations and can be safely operated.

44.2 Scheduled Inspections and Maintenance

Contractor's construction equipment and vehicles are to be periodically inspected and maintained according to pre-determined schedule.

Complete record of all inspection and maintenance shall be maintained and submit to at vehicle site entry.

44.3 Equipment Operator Qualification and Training

Contractor shall review the qualifications of all crane operators, crane maintenance personnel and other mobile equipment operators in accordance with the following procedure:

3. Possession of medical fitness certificate, valid driver's license and job site authorization card signed with the consent of Project Head.

OHS PLAN

4. Successful completion of a practical operating examination administered by competent and authorized personnel.
5. Training - Operator responsibilities, familiarity and comprehension concerning all crane safety and O & M requirements, load capacity charts, rigging methods and practices, hand signals and other requirements will be examined by competent and authorized personnel.

44.4 Flag man

Flag man shall be responsible for the following task to ensure traffic movement on site:

- Flag man are required to regulate traffic for all construction vehicles and equipment like concrete trucks, trailers, dumpers, excavators, trucks, scissors lifts, boom lifts and forklifts, etc.;
- Site personnel who shall be designated as Flag man shall undergo a Flag man training conducted by OHS Department, on their roles and responsibilities;
- All Flag man must be equipped with a whistle; and
- At least 1 Flag man shall be deployed for each vehicle.

45 MACHINERY SAFETY

Refer: MLDL/OHS/SMARRT/CL 11 Daily Electrical Tool Inspection

MLDL/OHS/SMARRT/CL 13 Daily Pneumatic Concrete Breaker Inspection Form

MLDL/OHS/SMARRT/CL 29 Excavator Checklist Form

MLDL/OHS/SMARRT/CL 24 Electric Welding Inspection Form

MLDL/OHS/SMARRT/CL 35 Gas Cutting Tool Inspection Checklist.

MLDL/OHS/SMARRT/CL 36 Pre- Inspection Generator /Welding set Checklist Form

MLDL/OHS/SMARRT/CL 43 Mobile & Lorry Crane Checklist Form

MLDL/OHS/SMARRT/CL 44 Monthly Concrete Breaker Inspection form

MLDL/OHS/SMARRT/CL 45 Monthly Electrical Equipment Inspection Form

45.1 Machine Guarding / Fencing

- The Contractor shall ensure that all gears, revolving shafts, flywheels, couplings and other dangerous parts of machinery shall be effectively guarded unless they are so constructed, installed or placed as to be safe as if they were guarded.
- Fencing of dangerous parts of machinery shall not be removed while the machinery is in use or in motion. If the fencing is required to be removed for maintenance purposes it shall be replaced before the machine is taken into use.

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45.2 Maintenance

- The Contractor shall ensure that all machinery used on site is in safe condition and is properly maintained and repaired by duly authorised, thoroughly trained and experienced persons.
- No repair to machinery shall be carried out whilst it is in motion.
- Maintenance records shall be kept available for inspection by the / PMC / Developer.

45.3 Air Receivers

- All Air receivers shall be fitted with a pressure relief valve and shall have the safe working pressure clearly marked upon them.
- Every air receiver shall be subject to an annual test, which shall be carried out by a duly authorised person. The results of all tests shall be recorded and the records shall be kept available for inspection by the Employer's Representative.
- The connection couplers on compressed airlines shall be securely fixed together and have safety chains or be wired at the joints in order to ensure that the joints do not come apart when charged with compressed air.

46 VEHICLE AND TRAFFIC SAFETY

The following elements shall be taken care to eliminate traffic accidents.

46.1 Driver's Qualifications and Training

6. The drivers / operators are competent enough to drive the vehicle and hold a valid license for the class and type of vehicle or equipment driven to be operated by them as required by the Central Motor Vehicle Act.
 7. Each driver or operator must have completed the Site Induction Course before driving or operating vehicles and equipment on site.
 8. Drivers, who are entering the site for delivering the material or goods, shall undergo the general site safety induction program.
- All the drivers shall be in possession of mandatory PPEs such as Safety shoe, Hard Hat and High visibility Jacket. They are exempted from wearing the hard hat while driving a vehicle having roof.

46.2 Traffic Safety Regulations

9. Pedestrian traffic and vehicle traffic must be separated

OHS PLAN

10. Suitable traffic signs & warning notices shall be posted at Site.
11. Drivers and operators shall comply with all traffic safety regulations, traffic controls and traffic signs.
12. The maximum speed limit on the construction site is 10 km/ hr
13. Drivers or operators who violate the site traffic safety regulations will be removed (fired out) from the project.
14. Personnel must not be transported while standing on the bed of trucks, neither on trailers, and they shall not be allowed to sit on the vehicle's doors.
15. Personnel shall not ride sitting on top of materials or moving equipment.

➤ The curves and turning shall be provided with concave reflective mirror.

46.3 Vehicle Maintenance and Inspection

Vehicles must be frequently inspected and properly maintained. Each vehicle must be equipped with the required safety features which will enable them to function properly.

16. Preventative maintenance shall be performed on all vehicles on a regular basis as prescribed by the manufacturer. All safety features shall be checked on a daily basis and repaired as necessary to ensure proper operation.
17. All the vehicles shall have valid – Fitness Certificate, Comprehensive insurance coverage and Emission Certificate, while entering the site.
18. Drivers and operators shall perform pre-operational checks of their assigned vehicles and equipment at the start of each working day.
19. Each driver shall keep a record of the daily and monthly pre-operational vehicle and equipment checks.

All site vehicles should have following as a minimum:

- 6 First Aid kit
- 7 Fire extinguishers
- 8 Parking brake and brake light
- 9 Reverse horn and light.
- 10 Tyres in good conditions

46.4 Motor Vehicle Accident Investigations

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All motor vehicles and equipment accidents shall be reported, investigated and corrective actions taken to prevent recurrence.

47 SITE TRANSPORT

The most common factors contributing to site driving accidents/fatalities include:

- poor maintenance
- carrying of unauthorized passengers
- unattended vehicles moving under overhead cables
- unauthorized drivers (i.e. do not hold current driving license or Certificate of Training Achievement)
- reversing of vehicles
- reckless driving
- ignorance of specific safety notices

Contractor shall ensure that the drivers hold necessary license for the type of vehicle they are driving. Holding a current driving license for a road vehicle does not necessarily prove fitness to drive construction site vehicles.

The driver of a construction site vehicle must be trained and competent to drive the vehicle. He must also be at least 18 years of age.

A trained flag man or guide should be deployed to ensure safe reversing. The flag man should be a designated person, one of whose tasks is to ensure a reversing area free of pedestrians and ensure a safe vehicle manoeuvring.

All the site vehicles shall be fitted with horn, mirror and lights and **reversing alarms**.

Guidelines for the traffic Control in the construction areas

- ⇒ No entry will be all allowed to enter the site without proper Vehicle Entry Permit issued by the PMC/ Developer.
- ⇒ The vehicles should enter the site and go to the work area or contractor's storage yard or sub-contractor's storage yard on designated and identified access roads.
- ⇒ The contractors & their sub-contractors should ensure safety of pedestrians, workmen and people at construction site and equipment in worksite.

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- ⇒ The vehicle should get parked only in designated location and should not get parked so that it blocks the regular traffic or it becomes unsafe.
- ⇒ Proper Road safety signs and street lighting shall be provided and maintained well by the contractors & their sub-contractors.
- ⇒ Use barriers and warning signs to separate vehicles and people.
- ⇒ Create clearance around slewing vehicles.
- ⇒ Avoid reversing – where you cannot and use the cleaner of the cleaner
- ⇒ Make sure that loads are secured
- ⇒ Do not use vehicles on dangerous slopes
- ⇒ Only take passengers on vehicles designated to take them
- ⇒ Make sure vehicles are maintained and operators are trained.
- ⇒ Vehicles should be driven by drivers with license for heavy vehicles.
- ⇒ Diesel/Petrol filling facility for vehicles operated inside the site be safe & approved by and shall be in the designated location.
- ⇒ The fuel filling station should be provided at least two numbers of 10kg. Capacity Dry Chemical Powder Extinguisher.
- ⇒ All the diesel storage drums shall be stored with secondary containment.
- ⇒ Empty Diesel or petrol drums should not be used for any other purpose and should not be stored in the open in non-designated locations.

48 HAZARD WARNING

Hazard warnings come in different forms, which include signs, tags, permits, barriers etc. The primary factor with any hazard warning is that all personnel; visitors' etc. shall be educated as to the types of warnings and their definition.

Hazard warning concerns individual's health from dangerous chemicals by requiring manufacturers/ suppliers to identify and communicate the hazards of chemicals, provide adequate advice on their safe handling and use, and ensure they are packed in a safe and appropriate manner.

48.1 Tags

Various tags may be utilized during the construction and commissioning phases, e.g.

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Electrical - to designate that electrical equipment has been taken out of service, or men are working on the equipment.

Danger - designating a possible hazard such as "valve open", "do not use", "spade inserted".

Defective - designating unsafe materials and/or equipment, e.g. "out of order", "failed safety checks".

48.2 Warning Tapes / pennant

Hazard warning tapes should be utilized to attract the eye to avoidance of hazards or local services. Tapes, whilst warning of potential hazards, should not be employed as safety barriers and are considered as a guidance indicator. Caution tapes shall not be used in place of barricades.

All hazard warning signs, tags, barriers etc must be removed when the hazard no longer exists. It shall be the responsibility of the person who erected the signs etc., and not of any other person, to remove or issue instructions for the removal of the signs etc.

Note: It is to be ensured that following information factors are conveyed to all including Contractor's employees:

49.0 EXCAVATIONS

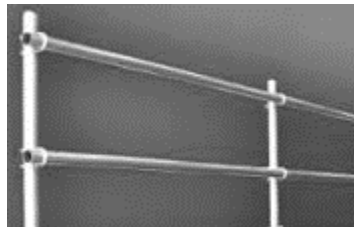
Refer: MLDL/OHS/SMARRT/ WP 04 Excavation Permit
MLDL/OHS/SMARRT/CL 28 Excavation Checklist

Excavation work shall follow State legal requirements, including National Building Code Requirements and BOCW Act Regulations. Excavations include, but are not limited to, operations such as drilling, digging and trenching.

Barricading shall consist of a minimum:

- Steel pipes ,
- Clamps

➤ Double Hand Rails



Contractors shall apply the following safety controls:

1. Before any excavation work begins, underground utilities shall be identified and the location marked of underground pipes, electrical conductors, gas lines or other structures.
2. Evaluation is required of the trenching site by a "competent person" who knows and is trained to identify soil types, proper protective systems and hazardous conditions.

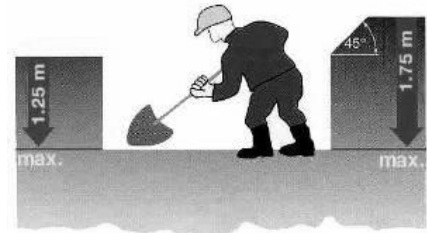
OHS PLAN

3. Conduct a daily inspection of the excavation and the adjacent areas prior to work and as needed during the workday. If there are any unsafe conditions, work shall stop in the excavation and personnel removed until the problems are corrected.
4. Monitor and recognize hazardous atmospheres and conditions such as vibration, external loads, weather conditions, ground water conditions and confined spaces.
5. Check all protective material or equipment for any damage.
6. When excavations are deeper than 4 four feet, ladders or steps shall be located so that a worker does not need to travel more than 25 feet in the excavation before being able to exit.
7. Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with statutory requirements.
8. Examination of the ground by a competent person for excavations less than five (5) feet in depth must present no indication of a potential cave-in hazard. If a cave-in hazard exists, protective systems are required.
9. When excavations are deeper than five (5) feet, the sides shall be provided with a protective system (shored, braced or sloped sufficiently) to protect against hazardous ground movement.
10. When heavy equipment will be operated nearby, the shoring or bracing shall be able to withstand this extra load regardless of the depth of the excavation. For any excavation that a person will enter, all dirt, debris and excavation material shall be effectively stored or retained at least two (2) feet from the edge of the excavation.
11. Adequate protection from hazards associated with water accumulation should be in place before working in excavations.
12. Signs and Barricades shall be displayed at all excavation/trenching sites.
13. All excavations into which a person could fall or trip shall be guarded. While work is being performed in or near the opening, the guards surrounding the area shall be maintained.
14. A registered professional engineer shall design excavations more than twenty feet deep.
15. Excavations should be covered and not left open overnight, whenever possible.
16. Contractors will be responsible for complying with the above guidelines and for communicating this policy to their employees and subcontractors. All work shall be performed in accordance with all applicable laws and regulations.

- Trenches crossing shall be done with walkways with hand railing.

The planning of excavation works should consider:

- i) Nature of the soil, including the proximity of any make-up ground
- ii) Weather and moisture conditions



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- iii) Size of the excavation
- iv) Method of excavation
- v) Proximity of other structures, services
- vi) Duration of the work
- vii) Dewatering systems
- viii) Existence of buried services

Before starting excavation permit should be taken from PMC/ Developer.

- ix) All excavations more than 600 mm shall be barricaded.
- x) The barricade should be made of steel pipes.
- xi) It should withstand a lateral load of 100 kg.
- xii) These barriers should have minimum two horizontal members (Waist rail & Knee rail) located at 1100 mm and 550 mm from the ground
- xiii) Excavations less than 600 mm shall be cordoned off and suitable notices/ warning tapes posted
- xiv) The most appropriate method of stabilizing the sides of an excavation can be made and should be approved by PMC/Developer.

The following are frequent causes of accidents and necessary precaution shall be taken:

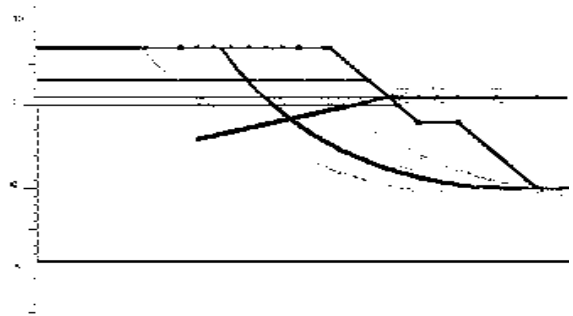
- Collapse of earthwork due to lack of, inadequate, or weak shoring.

Excavation slope calculation will be submitted to PMC/ Developer representative. The calculations reports will include water table if any, and mobile and permanent loads close to the excavation.

For deep excavations, the safety officer will daily visually inspect, before access of the labour force, the excavation, sides, surround in order to ensure that no cracks, water seepage are developing.

A formal report of the inspection will be submitted to Developer representative on a daily basis before 9 a.m. In case of failure during inspection / report submission the area will be closed, with the personal evacuated, no claim will be accepted for the time lose.

- Persons falling into excavations due to lack of barriers or inadequate fencing.



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- Asphyxiation from exhaust gases/ carbon monoxide, which may have collected in the bottom of the excavation, caused by lack of ventilation, especially on damp and foggy days.
 - Spoil from excavations not being thrown clear of the sides, which then become overloaded and collapse.
 - Failure to maintain shoring, particularly after rainy weather.
 - Vehicles or plant too close to the edge, causing the edge to collapse.
 - Workers in the excavation being struck by spoil or materials falling into the excavation.
- Falls through unsafe means of access into or out of the excavation.
- All excavated materials shall be deposited minimum 2 feet away from the edge of the excavation.

Other important points:

- Ladders should be provided at intervals of not more than 15 m, depending on the number of men present.
- The position of existing services should be marked on the ground ahead of the works.

Because of its temporary nature, the shoring requires constant maintenance and inspection by a competent person. All inspections to be recorded in the Record of Inspection.

Important Points:

- Shrinkage of timber through drying.
- Movement of soil due to drying out absorption of water, or freezing. Particular care should be taken during wet or frosty weather.
- Methods of working in the excavation likely to dislodge the shoring.
- Runs or leakage of soil from behind the sheeting should be stopped immediately and the cause investigated.
- Wedges require continuous tightening. Do not use makeshift wedges.
- Illumination inside the excavations, whether natural or artificial, should be adequate at all times.
- Walkways between trenches should be kept clear of obstruction.

Any openings in fencing that may have been necessary for operational purposes should be securely closed before leaving the site at night.

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50.0 BLASTING & DEMOLITION

All activities including but not limited to the storage, transportation and blasting shall be carried out in accordance with the Petroleum and Explosives Safety Organization rules and regulations and as per the instructions of local authorities PMC/ Developer.

Before any demolition work is commenced and also during the process of the work all roads and open areas adjacent to the work site shall either closed or suitably protected.

Whenever making an opening in the existing wall adequate supports to be provided against the collapse or cracking of the wall portion above.

Adequate protection and care to be taken to avoid any hazard due to unexpected fall or premature collapse of earth/structure/building.

Adequate protection and care to be taken to avoid any hazard due to shock, fire and explosion due to faulty wiring and naked flames.

51.0 GRIT BLASTING

Before establishing / performing Grit blasting operation at site, the contractor shall obtain necessary regulatory approval from the government agencies like labour department, state pollution control board, etc.

Grit blasting operations can be overlooked when preparing safety plans because they are generally a small part of a larger project such as cleaning and refinishing or painting. As a result, many workers are exposed to the hazards of Grit blasting without adequate protection. Even if all Grit blasting equipment is properly designed and regularly inspected, users must always be alert to the hazards of these operations and take precautions against harmful exposures.

Airborne dust: This is one of the most serious hazards associated with blasting operations. When evaluating this hazard, it's important to consider the concentration of dust and the size of particles. Larger particles, considered "nuisance" dust, are normally filtered out in the nose and throat. Smaller particles (10 microns or smaller) can bypass the lung's filtering system and penetrate deep into the respiratory system, where they may cause serious damage. Safeguards are needed when smaller particles are present in the working environment.

Metal dust, in addition to the abrasive being used, contributes to the generation of airborne dust. Metals such as lead, cadmium, and manganese, can be extremely toxic when inhaled. Many existing paints have a lead base. Regulations require special handling, trained personnel, and medical monitoring when lead is present. If in doubt, check it out.

Air supply: Air-supplied respirators must be used (1) when working inside of blast cleaning rooms, (2) when using portable units in areas without enclosure, and (3) under any circumstances where the operator is not physically separated from the abrasive material by an exhausted enclosure. If airline respirators and compressors are used,

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make sure the intake hose is placed in an area that provides clean air. An attendant should be in the area at all times, monitoring breathing air and assuring the blaster's safety.

Additional personal protective equipment: Blasting operations create high noise levels, so hearing protection is a must--for both the operator and nearby workers! Operators should also use heavy canvas or leather gloves, aprons, or leggings when appropriate, as well as safety shoes.

Manual cabinet blast cleaners should never be exhausted into an area where workers can breathe dusts. These fully enclosed cabinets are designed to filter out dust and re-use blasting medium.

Handling and storing abrasives: Dust is nearly always created at any point where abrasives are transferred, whether by hand or shovel. Therefore, all points of transfer must be properly exhausted and workers who handle abrasives manually should wear particulate filter respirators.

52.0 CUT-OUTS AND OPENINGS

All floor openings shall be immediately securely covered with load steel checker plate 6 mm and shall have proper guardrails and toe boards on all sides.

It should not be easily removable by non-responsible person. Pipes, electrical cut out, and more generally cut outs provided for others should be secured by the under face of the slab (12 mm bended bars for example)

Warning Tape should not be used and Guardrails shall be able to withstand a lateral load of 100 Kg.

Refer Total Fall Protection Details for effective Implementation.

53.0 SCAFFOLDING

Refer: MLDL/OHS/SMARRT/CL 05 Construction of Scaffolds Checklist

MLDL/OHS/SMARRT/CL 56 Scaffold Dismantling Checklist

MLDL/OHS/SMARRT/WP 09 Work on height for Work on Scaffold Above 2m

MLDL/OHS/SMARRT/CL 60 The BOCW Act & Regulation & IS Standard for Scaffolding

No structure, temporary support, scaffolding to be loaded beyond allowable loads. If there is a doubt on the structural stability the scaffolding to be tested to two and half times of live load.

Appropriate hand railings knee rails and toe guards to be provided on the top of all working platforms.

All scaffolding should be identified with tag numbers, this tags numbers recorded in a register

53.1 Important note:

All scaffoldings used at site will be from reputed manufacturer as DOKKA, PERI or equivalent, they should be in good conditions, conform to the legislation in force.

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The scaffolding will be inclusive of all provisions for:

Access

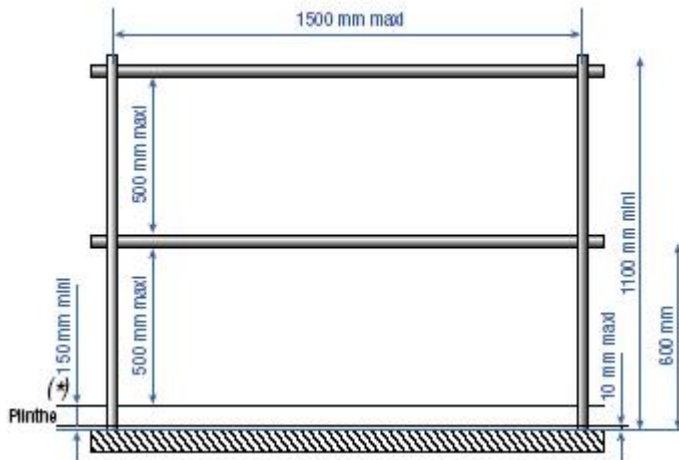
Legs

Installation by certified workers

Inspection by safety engineer of manufacture representative

Calculation sheets

Only genuine elements like, legs, fastener, hand rails will be permitted.



Scaffolding shall be properly designed and erected, with its intended use in mind, where additional, anticipated loads are to be applied; the structure shall be redesigned and modified accordingly.

Bamboo and wooden scaffolding are strictly prohibited. Only scaffolding made of mild steel pipe is permitted.

Where work cannot be done from the ground or from existing platforms, scaffolding must be provided,

- It is mandatory that approved and competent experts erect all scaffolding. All components and erection procedures must conform to the relevant Standards and statutory requirements.

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SCAFFOLDING TAG

SCAFTAG is a control measure that cover:

Instructions as to either not to remove or not to use the scaffolding

- Allocation of responsibility to the scaffolding erection
- Scaffolding inspection, by whom, status of condition and date of inspection
- Scaffolding structure bearing capacity



The SCAFTAG is a tool for ensuring integrity and safe operation of SCAFFOLDING

- A weekly inspection by the safety manager of the contractor will be done, with safety manager, report to be submitted to . A register of inspection will be maintained at site.
- It is suggested that inspections of scaffolding to be done every week on the same day. A date of inspection can be mention on the colour tag
- A scaffolding permit must be obtained before using it, and a caution notice posted. A GREEN tag posted on permitted scaffolding with identification of the contractor safety engineer inspection. **RED** tags for non-inspected and non-usable scaffolding
 - Tags will be fixed at each access point, clearly visible.
 - In complement with the red tag, barricading and warning signs need to be installed.
 - During erection, dismantling or modification, scaffolds must be cordoned off and adequate precautions must be taken to prevent materials falling. People unconnected with the work should be kept away from the area by the use of signs and barriers.
 - All materials must be raised and lowered in a controlled manner, and under no circumstances should components be dropped from heights during dismantling.
 - **Properly positioned and secured ladders must be used for access up or down the scaffolding. Climbing using the framework is not permitted and this includes scaffolding experts.**

The contractor shall comply with BOCW Act requirements and shall ensure that the scaffolding be:

- Erected on sound and rigid footing, capable of carrying the maximum intended load without settling or displacement.
 - 31 Securely fastened with all braces, pins, screw jacks, base plates and other fittings installed as required by the manufacturer.

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- 32 Designed and approved by a professional engineer and constructed in accordance with the design, if over 10 meters in height.
- 33 Limited to authorised personnel only, especially after working hours.
- 34 Equipped with standard guardrails and toe boards on all open sides and ends of platforms Equipped with standard guardrails on all open sides and ends of platforms four (4) to ten (10) feet in height.
- 35 Provided with a screen with maximum ½ inch openings between the toe board and the guardrail, where persons are required to work or pass under the scaffold.
- 36 Replaced or repaired immediately if scaffolding and accessories have any defective parts.
- 37 Provided with an access ladder or equivalent safe access.

The contractor shall ensure that the planking be:

- 38 Scaffold grade or equivalent.
- 39 Overlapped a minimum of 12 inches or secured from movement.
- 40 Extended over their end supports not less than 6 inches or more inches.



than 12

Contractors will be responsible for complying with the above guidelines and for communicating this policy to their employees and subcontractors. This includes the implementation of policies and procedures including education of employees. All work shall be performed in accordance with all applicable laws and regulations.

Worker in charge of scaffolding erection / Dismantling will be specially trained for this kind of operation.

They have to be easily identified by a tag on helmet, or any other distinctive mark, helmet colour

Access to the different levels of scaffolding or working platform shall be permitted only to authorised persons. The access shall be locked when the scaffolding or the platform is not in use.

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53.2 Scaffold Sample

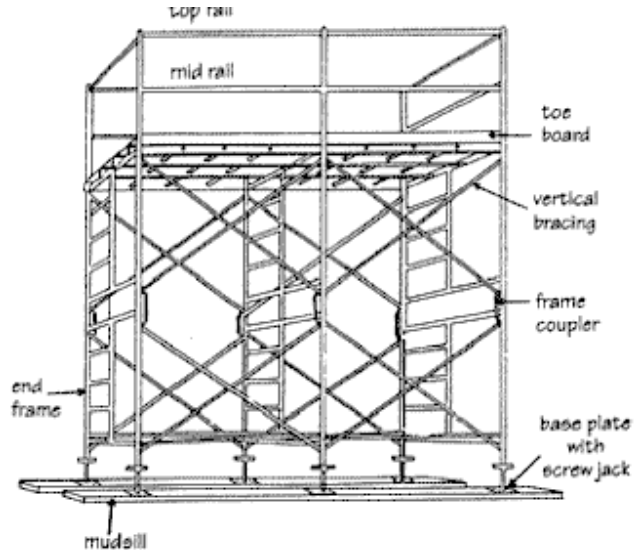
The contractor shall prepare sample scaffolding as mentioned below and take the approval of

the Safety representative prior to installing any scaffolding at site.

The approved sample scaffolding shall be retained & maintained till the end of project as a reference to follow.

53.3 Scaffold Inspection

- Every scaffold must be inspected at regular intervals and details to be recorded.
- A competent person must make all inspections.
- For scaffolds used by several Contractors at the same time, it is the responsibility of every contractor and every employer to ensure that any scaffolding used by their own employees is safe and complies with the Regulations.
- The tag system should be followed and the 'tags' should be placed within easy sight of users to show the condition, e.g. green for safe, red for do not use when the scaffolding is still being erected, altered and/or dismantled.



53.4 Mobile Tower Scaffolds

There are various types of pre-fabricated towers, which are assembled in different ways. Instructions of manufacturers, suppliers for erection must always be followed and supervised by a competent person.

All components must be inspected before use for damage, cracks, broken welds or defects. Where the assembly is connected by latching hooks or pins they should be inspected to ensure that the spring and the release trigger are operative.

- **The height of the working platform in relation to the width of the base is critical.**

The normal acceptable ratio is:



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MOBILE TOWERS USED INTERNALLY 3.5 TIMES THE MINIMUM BASE DIMENSIONS

MOBILE TOWERS USED EXTERNALLY 3.0 TIMES THE MINIMUM BASE DIMENSION

These recommendations are when all outriggers/ stabilizers are in a supporting position. If the tower is exposed to movement, from the operations or are exposed to more than light winds physical ties must be used.

Stabilizers/ outriggers may be used to increase the effective base size.

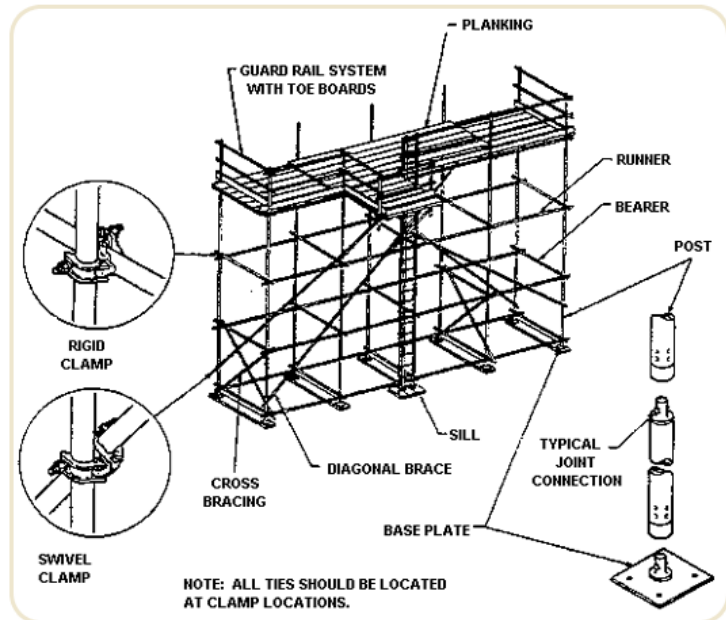
- Towers with stabilizers or outriggers shall be moved only after any necessary dismantling.
- Mobile tower scaffolds must have wheels fitted to the uprights with a locking device, which must be applied, when the scaffold is stationary. Towers should only be moved when all tools, materials, personnel are cleared off the platform and by pushing or pulling at the base.

Climbing, using the horizontal members of the frames is not permitted. Access should be provided by:

- vertical ladders attached to the narrow side
- internal inclined ladders, or an inclined stairway
- A level surface should be provided for mobile towers.
- Do not overload mobile scaffolds.

54.5 Tower Scaffolds (Not Access Towers)

- Stationery tower scaffolds from tube and fittings should be erected and used on firm ground, fitted with metal base plates and, unless the foundations are concrete or other solid material, the load should be spread by timber sole plates.



- Bracing should be fitted at ledgers and transoms by right angle couplets, braced either by:

- a) Plan bracing, i.e. diagonally at the base and working platform, also at alternate lifts.
- b) Diagonal bracing in zigzag fashion to the full height of the tower on all four sides.

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All external scaffolds shall be covered with agro net completely.

A ladder for access purposes should be fitted vertically to one of the narrow sides of the base area with the foot resting on an additional transom and extends at least 1.05 meters above the platform level to provide a handhold while stepping off.

54 STAGING

For carrying out work at heights exceeding 1.8 meters or more and near opening in floors, roofs etc., the following precautions shall be observed:

54.1 All workers engaged in this work shall be experienced in carrying out such work. Workers involved in erection of scaffold, staging etc. must use full body safety harness with double lanyard.

54.2 Staging shall be provided with steel scaffolding pipes throughout its length at waist height and on each open side.

54.3 Staging supports shall be of steel pipes safely secured and supported on firm level footings or slung from overhead beams. The supports shall be located at a distance of not more than 8ft. apart and the staging shall be secured to each support properly. **Staging shall be as per IS 3636.**

54.4 Even after completion of concrete work, concrete formwork shall be frequently inspected to prevent collapsing before due date.

54.5 Whenever it is not possible to put up a staging and/ or use a full body harness, safety nets shall be slung beneath the place of work.

54.6 MLDL Engineer shall have the right to reject any staging or scaffolding considered by him as unsafe and requires the contractor to effect necessary improvement before using such staging or scaffolding.

54.7 Proper working platform to be provided with proper access and lateral bracings should be provided from the initial erection stage.

54.8 Formwork:

Refer: MLDL/OHS/SMART/CL 34 Formwork Structure Checklist

For walls, flooring and columns erection

1. Walls will be executed with formwork including self-safety protection : access , hand railing with toe guards , lifting devices ...
- Columns will be executed with formwork including self-safety protection : access, hand railing with toe guards, lifting devices ...
- 2 . Safe access will be provided by access towers

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- The contractor will take special attention in the dismantling operations
- System form work only allowed and prior approval to be obtained with MoS.

55.0 CONSTRUCTION HOIST'S ACCESSORIES

An expert operator duly certified by a reputable organization, should install the construction hoist's accessories in accordance with manufacturer's instructions.

After installation, a hoist must be tested and inspected, results which should be noted in a records book. While in use, hoists must be checked on a weekly basis and results noted on the records book.

An enclosure of at least 2 meters high must be built around the hoist way at ground level with appropriate gates at the same height, giving access to the platform / cage. Consideration must also be given to other landing levels with the fitting of gates which must be secured at all times except during loading and unloading.

Operators must be at least 20 years old with a responsible attitude, duly trained, and must affirm that they understands how to operate the hoist safely with regard to the following points: All operations are conducted from a position outside the hoist at a point where they have a clear view of the platform throughout its travel,

1. All gates are closed and unobstructed when the platform is in motion,
2. Nobody will travel on the hoist platform,
3. The hoist must never be left unattended with the engine running, and the platform must be at ground level when not in use, and effectively immobilized at the end of normal working hours.
4. The safe working load must be clearly marked on the platform or cage and it must not exceed the specified capacity of the crane.
5. Warning visible signs should be placed as required.
6. Loose materials such as bricks must be placed in containers.
7. Maximum safe working load shall be plainly marked on every hoist or lift.

Entry to the hoist lower level and every gate at various level shall be fitted with interlocking or other efficient device to secure that the gate cannot be opened except when the cage is at the landing and that the cage cannot be moved unless the gate is closed. Remotely controlled hoist is not recommended. Winch driven hoists are not permitted.

A suspended working platform should be load tested and examined by a registered professional engineer after erection or repositioning. Moreover, the suspended working platform should be inspected by a competent person at least once a week and all suspension ropes and safety ropes should be inspected prior to commencement of daily work. The erection and dismantling of a suspended working platform and the alteration of any structure

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from its original design should only be carried out under the supervision of a competent person. A suspended working platform should be installed with a safety rope with an automatic safety device mounted on it. No person shall tamper or interfere with or render inoperative such safety rope and automatic safety device. Every person working on a suspended working platform should be at least 18 years old and has undergone training to operate the suspended working platform and obtained a certificate in respect of such training. They should wear safety belts and attach them to independent lifelines. A notice specifying the safe working load, number of persons allowed on a suspended working platform and the inspection of ropes should be posted on the suspended working platform. The notice should also remind workers to use safety belts and lifelines.

All the equipment of hoist/ suspended working platform should be properly maintained and the record thereof should also be kept properly.

56.0 LADDERS AND STAIRCASES

Refer: MLDL/OHS/SMARRT/CL 39 Ladder Inspection Form

Ladders must be of good construction, sound material and made as per standard specifications.

Wooden ladders will not be permitted at site.

Ladders shall be checked for defects such as splits in the rungs or stile, unduly worn rungs, loose tie rods, and split or frayed feet.

Ladders made up on site are not permitted unless specifically approved.

Ladders with missing or defective rungs are not permitted.

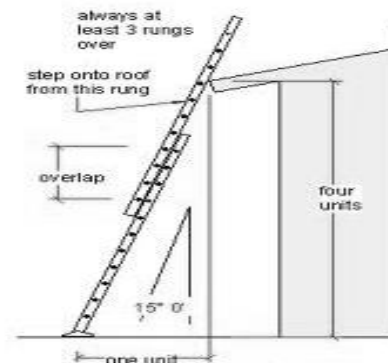
When a ladder is erected for use it must:

- have a good footing (level)
- be fixed at both top and bottom points of rest
- extend at least 1 meter above the top landing level

Ladders are common pieces of equipment. Because they are so common, the dangers associated with ladders are often not appreciated.

Ladders are a means of access, and they should not be used as working platforms.

Stepladders can provide a safe working platform for low level work. (Do not use the top step).



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All steps and ladders should be regularly inspected by a competent person and a record kept.

Visually inspect all ladders immediately before use to ensure that they are sound.

Ensure that the ladder is erected on a sound footing and firm base.

Place the top of the ladder against a firm support so that both stiles are resting against it.

Place the ladder at an angle of 25° with the vertical or 3 up to 1 out.

Before using the ladder ensure that it is secured either by having it footed or securely tied with rope.

Raise and lower tools on a sash line.

Check regularly for cracks, splits or twists in stiles and rungs and remove a faulty ladder at once.

Ladders must stand on their stiles. They should never be supported on a rung.

Ladders should be stored under cover wherever possible.

Do not use a defective ladder (mark it defective and return it to the stores for servicing / scrapping).

Do not use a ladder near live electrical equipment.

Ladders to scaffolding shall be clamped at a minimum of two (2) points and shall extend a minimum of 1.0 m above the level of the platform it accesses.

Some useful tips about ladders that apply to both interior and exterior use:

- Inspect ladders before use. Make sure that the rungs are intact and free of dirt and paint build-up that could interfere with footing.
- When extending or retracting an extension ladder, hold the pulley rope firmly; if the rope is released, the upper section could drop on your fingers, arms or feet.
- Follow the "three point contact" rule: When using an extension ladder, make sure that the tops of both rails make firm contact with walls, and that both legs make firm contact with the floor or ground.
- Never stand higher than the third-highest rung on a ladder. Make sure that the ladder reaches at least three feet higher than the highest level you need to stand.
- Place foam protectors or wads of cloth on the tops of extension ladders, to prevent them from sliding and to protect the walls.
- On a stepladder, make sure the spreader bar is fully extended and locked in place.
- With a straight or extension ladder, make sure that the base is one foot away from the wall for every three feet of height.

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- Make sure your pockets are empty of knives, scissors or other pointed tools before climbing any ladder.
- When on the ladder, keep your hips between the rails for good balance.
- Do not push or pull too hard on a scraper or other tool while balanced on the ladder.
- Always wear rubber-soled or another type of non-slip shoe on a ladder.

Special Guidelines for Outdoor Ladder Use:

- Avoid working in wet or windy weather, and do not climb a wet ladder.
- Keep all ladders away from power lines -- especially metal ladders.
- Make sure that the ground under the ladder is secure -- ensure solid footing.
- A ladder can be additionally secured by tying it to a sturdy portion of the house or to a large eyebolt in the wall or fascia board.

Ladders safety devices allow a climber to attach a restraint belt to a sliding fixture that travels along a carrier rail or cable anchored to the ladder. The traveling fixture will lock and suspend a person who slips and starts to fall (a fall arrester).

The following general requirements apply to fixed ladders:

56.1 Fixed Ladders must:

- Be designed to withstand a single concentrated load of at least 113 kgs.
- Have rungs with a minimum diameter of 19mm for metal ladders.
- Have rungs at least 40cm wide and uniformly spaced no more than 30cm vertically on center apart
- Have a preferred pitch of 60-75 degrees for safe use.
- Have 75cm clearance with minimum 61cm on the climbing side of the ladder (unless caged)
- Have at least an 18cm clearance in back of the ladder to provide for adequate toe space.
- Have side rails extend 1 meter above landings.
- Have a clear width of 38cm on every side of the centre line of the ladder (unless with cages or wells)
- All ladders shall be equipped with slip-resistant bases.
- All ladders should be inspected once every three months.
- Ladders that are weak, improperly repaired, damaged, having missing rungs, or appear unsafe shall be removed from the job or site for repair or disposal.
- Before junking a ladder, cut it up so no one can use it again.

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- Any ladder which has developed defects must be tagged Dangerous-Do Not Use and removed from service for repairs or destruction.

56.2 Use of Ladders:

- Place ladder so that the horizontal distance from the back to the vertical plane of the support is approximately one fourth the ladder length between supports.
- Do not use ladders in a horizontal position as runways or scaffolds. Single and extension ladders are designed to use in a nearly vertical position and cannot be used in the horizontal position.
- Never place a ladder in front of a door that opens towards the ladder unless the door is locked or blocked.
- Do not place the ladder against a window pane
- Place a portable ladder so that both the rails have a secured footing. Provide solid footing on the soft ground to prevent the ladder from sinking.
- Place the ladder feet on a substantial and level base, not on movable objects.
- Never lean a ladder against unsecured backing, such as loose boxes or barrels.
- When using a ladder for access to high places, securely lash or otherwise fasten the ladder to prevent its slipping.
- Secure both bottom and top to prevent displacement when using ladder for access to a scaffold.
Extend the ladder side rails at least 1 meter above top landing.
- Do not place a ladder close to electric wiring or against any operational piping where damage may be done.
- Only one person is permitted to climb the ladder at a time.
- Do not overload a ladder.

Metal ladders should be marked with signs reading CAUTION-DO NOT USE NEAR ELECTRICAL EQUIPMENT.

All Staircases should have guard rails (Waist and Knee rails) till permanent parapet or railings are installed.

Ladders must be of good construction, sound material and made as per standard specifications. Wooden ladders will not be permitted at site. Ladders shall be checked for defects such as deteriorated rungs, loose tie rods, and split or frayed feet.

Ladders made up on site would not be permitted unless specifically approved.

Ladders with missing or defective rungs are not permitted.

When a ladder is erected for use it must:

- have a good footing (level)
- be fixed at both top and bottom points of rest

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- extend at least 0.9 m above the top landing level

Ladders are common pieces of equipment. Because they are so common, the dangers associated with ladders are often not appreciated.

Ladders are a means of access, and they should not be used as working platforms.

All stepladders should be regularly inspected and a record shall be kept.

Before using the ladder ensure that it is secured either by having it footed or securely tied.

Carrying of tools while ascending and descending would not be allowed.

Check regularly for cracks, splits or twists in stiles and rungs and remove a faulty ladder at once.

Ladders must stand on their stiles. They should never be supported on a rung.

Ladders should be stored under cover wherever possible.

Ladders to scaffolding shall be clamped at a minimum of [two (2)] points and shall extend a minimum of [1.0 m] above the level of the platform it accesses.

All Staircases should have guard rails (Waist and Knee rails) till permanent parapet or railings are installed.

57.0 WORKING PLATFORM

Refer: MLDL/OHS/SMARRT/CL 05 Construction Scaffolding Checklist

MLDL /OHS/SMARRT/WP 09 Work on Height permit for work on Scaffold above 2m.

MLDL/OHS/SMARRT/CL60 The BOCW Act & Regulation & IS Standard for Scaffolding.

SOP for Cup lock scaffolding.

57.1 All works to be carried out over water or at a height greater than 1.5 m above the ground level, must be performed from a properly built and maintained working platform.

Safe access to all points of work should be provided in the form of suitable ladders/ stairways located at appropriate interval which should not be more than 15 meter.

57.2 The working platform shall be,

closely boarded,

at least [0.7m] wide if used only as a footing,

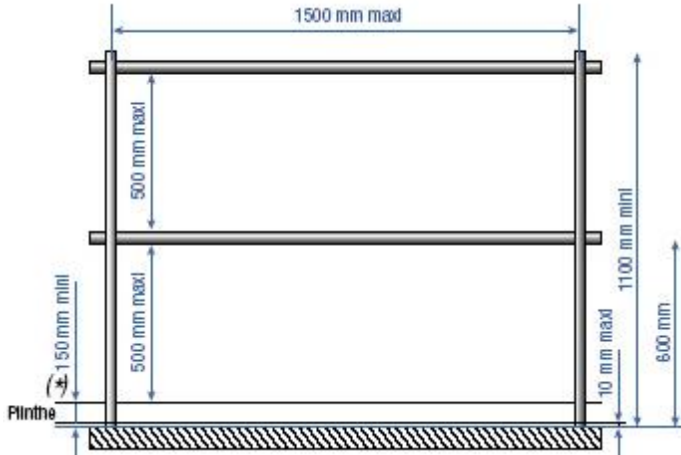
if used to store materials the width of the platform should be plus [0.7m] in addition to existing,

provided with toe-boards of minimum [0.1 m] in height,

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provided with handrails at and knee rails at [0.55 m] above the board,

Constructed as close to the structure or building as possible.



57.3 Scaffold Boards(Timber) to be used on the platform shall be,
of a suitable thickness, in due consideration of the spacing of supports beneath,
Supported by at least three (3) crossbars, (or cross-supports),
not project beyond the last support by more than twice their thickness,
be adequately fastened to prevent slippage or movement during use,
not overlap another board,
be free from cracks, twists, holes or other defects which may affect the load bearing strength,
Protected from weathering by means of a clear preservative.

Boards shall never be painted as this disguises defects.

Additional guidelines in use of temporary work platforms

- The platform floor should be solidly planked or decked over its entire surface, except for access opening.
- Planking or decking of equal strength should be proper thickness to carry the working load, a minimum of 50 pounds per square foot.

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- Planking should not be less than 2 inches thick, full size undress, and should be laid tight and secured to prevent movement, especially displacement by wind or any physical disturbances or while usage.
 - The platform should be provided by hand rails and toe boards. The top hand rail shall be minimum of 1.1 meter, and with a mid-rail at 0.55 meter from floor. The toe guard should be provided with not less than 10mm MS flat for a 100 mm width from the base.
 - Workers should use full body safety harness and life lines attached to a sufficient anchorage.
 - All unused floor opening should be planked over until they are needed.
 - Floor planks removed to perform work should be replaced as soon as possible or the open area should be guarded.
 - A safe and convenient means of access must be provided to gain access to the working platform level.
 - Ladders used for access to work platforms should conform to ladder code – as mentioned in the previous chapter.
 - The footing or anchorage of the platform shall be level, sound, rigid, and capable of carrying maximum intended load without settling or displacement.
 - Unstable objects such as barrels, boxes, loose bricks, or concrete blocks, wooden blocks or wedges are not be used to support platforms or planks.
1. No work platform shall be erected, moved, dismantled, or altered except under the supervision of competent personnel and without approval from OHS Officer.
- Any platform or component of a platform that is weakened or damaged must be repaired or replaced immediately.
 - All load carrying timber members of platform shall be scaffold grades or equivalent. The maximum permissible spans for 5 x 25 cm for a working load of 25 pounds per square foot shall be 8 feet and for a working load of 50 pounds per square foot shall be 6 feet.
 - Slippery conditions on platforms must be eliminated as soon as they occur.
 - Wire, synthetic, or fabric rope used with platforms must be capable of supporting at least six times the rated load and should be inspected before each use.
 - All working platforms shall be kept clean and free from grease, oil, rubble, debris or rubbish to ensure safe movement for personnel performing the works.
 - Mobile Platforms: The height of the mobile platform shall not be greater than [3 times] the shorter base dimension. Mobile tower scaffolding shall be fitted with lockable wheels.

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58.0 ELECTRICAL SAFETY

Refer: MLDL/OHS/SMART/CL 11 Daily Electrical Tool Inspection
MLDL/OHS/SMART/CL 65 Electrical Safety Checklist

Electrical hazards are a significant source of injuries and fatalities in the construction industry. Many injuries and fatalities could be prevented through the use of safe electrical work practices that include providing earth leakage circuit breakers on all temporary wiring.

The contractor shall appoint competent persons as per the regulatory requirement and to the satisfaction of the safety engineer, as the authority on site who will be responsible for the control of all maintenance and repairs to any electrical switchboard, distribution board, hand tools, etc.

- No cable in poor condition be accepted
- All connections will be done with proper sockets
- All installation will be grounded
 - No cable in water will be accepted
 - All electrical installation will be controlled by an electrician and approved good for use
 - All safety devices: shall be in proper working conditions. Use of makeshift wires or any conductors as fuse wire is strictly prohibited. Automatic safety breaker should be installed.
- IP 65 grade distribution panels to be provided.
- All electrical cables to routed overhead using nonconductive materials.
- Contractor to appoint a licensed electrician.
- Extension cords are for temporary use: In general, roll up the cord at the end of the day. If an extension cord is required for the same work at the same location on a continual basis, should install an additional receptacle (IP 65 grade) where you actually need the power, or move the equipment.
- Do not daisy-chain extension cords. Avoid any joints in wire and always use industrial plugs and sockets



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58.1 Power Supply

Construction power supply shall be in the scope of the contractor. Power distribution shall be through armoured cable only. No deviation on this would be permitted. The provision of all connections and equipment required shall be responsibility of the contractor and be in accordance with these safety conditions and comply strictly with the latest applicable Indian Electricity Rules.

58.1.1 All power distribution cables should be taken overhead with required clearance.

58.1.2 All switch boards, extension boards, etc. should be protected from rain and water. No water logging should be allowed around switch boards.

58.1.3 Earth leakage, Circuit breakers should be provided on all distribution boards and main switchboards. Single switch multiple socket system would not be permitted.

58.1.4 All circuit breakers shall be of good quality and confirm to correct ratings, use of makeshift wires or conductors as fuse wire is strictly prohibited.

58.1.5 Electrical maintenance workman must use wooden platforms insulated tools and rubber boots. Working on energized circuit/ live wires would not be permitted.

58.1.6 Electrical maintenance workman must use wooden platforms insulated tools and rubber boots. Working on energized circuit/ live wires is strictly prohibited.



58.2 Electrically Operated Hand Tools

All electrically operated hand tools will be periodically inspected by the contractor and properly earthed prior to their use.

58.2.1 Use of lighting circuits for portable tools shall not be permitted.

58.2.2 Portable tools shall not be used near inflammable vapour or gases.

58.2.3 All equipment shall be suitably earthed and doubly insulated.

58.2.4 All tools shall be checked to ensure the supplied voltage is comparable to the machine's design.

58.2.5 Electrical leads and connections shall be inspected for signs of damage or wear, and repaired or replaced accordingly.

58.2.6 At no time shall two or more power tools be connected to a single power plug.

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58.2.7 For circuits having voltage over 230 V suitable warning labels should be posted such as “Danger-440V” Boards also shall be displayed during the repairs / maintenance.

58.2.8 The length of cables attached to the machine shall not exceed more than five meters and no joints permitted.

58.2.9 All connections shall be made through industrial plugs and sockets.

Inspection before to operate will be done on fixed machinery, such as, bar cutting, bar bending, welding machines, routine controls will be done every 15 days, a tag system will be implemented on machinery, and report submitted to safety manager.

58.3 Connections to/from Developer’s Power Sources

58.3.1 Before connecting any electrical equipment to any power source belonging to the Developer following shall be complied with:

Obtain approval from the MLDL engineer that the equipment is in good condition.

Inform the MLDL engineer, in writing, of the maximum current required and the voltage and phase of the equipment,

Obtain the written permission of the MLDL engineer detailing the power sources, to which the equipment may be connected,

Obtain approval from the MLDL engineer that the cabling to all equipment are of adequate sizes, have earth conductors in addition to metallic armour and fitted with suitable connections.

Satisfy the MLDL engineer that any electrical distribution system which he proposes to install and any electrical equipment which he proposes to use will not endanger persons or property.

58.3.2 Care of Cable

No electric, data, voice cable, which is used by the Developer, shall be disturbed without prior permission of the Developer.

58.3.3 Periodic check shall be carried out for defective cables, cracked or perished insulation, loose joints in conduits, damaged fuse boxes and switchboards, loose pins, faulty sockets and defective earth wire. Kinking, twisting, binding or crushing of cables shall be avoided all the time.

58.3.4 Care of Equipment

No electrical equipment shall be left open or unsecured at any time.

58.3.5 Work at Night

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For working at night adequate supervision, lighting shall be ensured by the contractor. Contractor's employees will not be allowed to work on circuits at night unless special permission to the contrary has been obtained from the engineer.

58.3.6 Only authorized persons shall carry out operations and maintenance of electrical systems.

58.3.7 Work permit and isolation of the electrical system before taking up the work would be necessary for all works of electrical maintenance.

58.3.8 Adequate emergency lights shall be available at the work site

Temporary site supplies and permanent installation should be installed in accordance with local Electricity Rules.

The design and installation of electrical power systems shall be done by specialists as the conditions are more arduous than most.

Before work commences, an assessment of the following characteristics of the proposed installation are:

- purpose, supplies and structure
- external influences
- compatibility of equipment
- maintainability of equipment

The first matter to consider is the size and locations of electrical loads and the manner in which they vary with time during the project.

Only persons who are competent for the particular class of work should carry out the installation, operation, maintenance and testing of electrical systems and equipment.

All completed electrical installations must be inspected, tested and commissioned before being made available for use. Written certificates should be completed for these tests.

It is a legal requirement that all electrical systems must be properly maintained to ensure safety. Thus, inspection, test and maintenance must be carried out on a routine basis.

The following are general safety rules to be followed:

- Electrical wiring jobs should be done by trained electrician.



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- Avoid over loading of electric circuits
- Never use defective or worn out appliances.
- Discard damaged cords and plugs
- Check for damaged insulations and exposed wires.
- Ensure earth wire is well connected
- Don't touch electrical switches and appliances with wet body.
- Low voltage 24V equipment should be used in confined spaces
- Electrical equipment used in flammable atmosphere should be of flameproof construction.
- Never permit a person to work in the proximity of any electrical circuit which may come in contact with him in the course of his work
- Whenever work is to be done on an electrical circuit, the circuit should be isolated and fuses removed.
- As far as possible all temporary electrical cables should be buried to a depth of two feet or laid overhead to a height of 3 meters.
- All electrical wires laid on the surface should be protected from damage due to vehicles passing on them / mechanical damage.
- Proper plugs should be used for tapping power supply. Inserting the leads into the sockets should be prohibited.
- Hand lamps should be provided with guards over the bulb to protect from mechanical damage.

58.4 Underground power cables

Always assume cables will be present when digging in the street, pavement or near buildings. Use up-to-date service plans, cable avoidance tools and safe digging practice to avoid danger.

All underground cables should be protected with marking net below ground at a safe distance of: 50 cm

58.5 Overhead power lines

When working near overhead lines, it may be possible to have them switched off if the Developers are given enough notice. If this cannot be done, consult the Developers about the safe working distance from the cables. Remember that electricity can flash over from overhead lines even though plant and equipment do not touch

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them. Over half of the fatal electrical accidents each year are caused by contact with overhead lines. More detailed guidance on avoidance of danger from overhead electric lines is available with OHS department.

MINIMUM CLEARANCE DISTANCES FROM POWER LINES

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility Developer/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

58.6 Arc Flash Protection

The Contractor shall comply with the "Arc Flash Protection" in their Electrical safety program. Developer as a worldwide policy strongly recommends the Contractor to provide "Arc Flash Awareness Training" and the applicable PPEs and warnings to the workers who are involved in electrical work. Developer can help contractor with this training material if needed.

58.7 Minimum lighting specification

The contractor shall create and maintain the minimum lighting levels at the construction site as per the tabulation given below:

Area	Lux	Measured at Height (in mtr)
Office	450	0.85
Working Area	350	0.85
Maintenance	450	0.85
Social	250	0.85

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Storage	250	0.85
Passage	150	0.0
Stair Case	150	0.0
Toilets	150	0.0
Emergency @ Floor Level	50	0.0
Exit Light	10	0.0
External Lighting (Road)	10	0.0
External Lighting (Entrance)	40	0.0

59.0 WELDING EQUIPMENT

Refer: MLDL/OHS/SMARRT/CL 24 Electric Welding Inspection Form

MLDL/OHS/SMARRT/CL 36 Pre Inspection Generator/Welding set Checklist Form

Oil cooled transformers for welding purpose is not permitted to use.

59.1 The contractor shall get his welding sets certified by the Developer's Elec. Engineer before start of work and shall obtain a certificate valid for a period of one month and shall get renewed every month.

59.2 A copy of the certificate shall be displayed on respective welding sets.

65.3 Welding cables shall be in good condition. The length of supply cable to welding set shall not exceed 5 Meters and the body of the welding set shall be properly earthed.

59.4 Adequate number of charged fire extinguisher(s) of suitable type shall be placed with each welding set, preferably a dry chemical powder type.

60.0 COMPRESSED GASES AND COMBUSTIBLE LIQUIDS

Refer :MLDL/OHS/SMARRT/CL 35 Gas cutting tool Checklist Form

60.1 Gases

- Valve protection caps shall be provided while transporting or storage.
- All compressed gas cylinders shall be used, stored and transported in an upright position.

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- Compressed gas storage facilities shall be positioned at a sufficient distance from work area, offices and roads in such a manner as not to cause a hazard to employees, facilities and/or a third party.
- Cylinders shall not be used for any other purpose than for the storage and transport of gas as provided by the Supplier.
- Cylinders should be stored in suitably designed racks, which must have chains so that any number of cylinders can be securely and safely stored.
- Signs indicating the contents with separate storage for “full” or “empty” shall be displayed. Warning signs must be posted - “DANGER - HIGHLY FLAMMABLE - NO SMOKING OR NAKED FLAME”. Fire extinguisher shall be located within accessible distance.
 - Oxygen cylinder shall be separated from other combustible gas, oil or grease.
 - Equipment must be kept clean and regularly inspected to ensure it is in good working order.
 - The storage of gas cylinders shall be according to statutory regulations pertaining to the use of industrial gases and gas cylinder rules.

60.2 Combustible Liquids

- Flammable and combustible liquids must be stored in a metal storage cabinet with a prominent notice - “FLAMMABLE - NO NAKED FLAME”.
- The area should be well ventilated and free from flammable material
- Suitable fire extinguishers must be located adjacent to the cabinet.
- **Code of practice for storage of compressed gases and combustible liquids shall be followed.**

60.3 Storage Gas Cylinders

60.3.1 Oxygen Cylinders

- Full cylinders must always be stored in an area away from empty ones, and all cylinders secured in an upright position.
- Check that all cylinders, valves and equipment are free from oil and grease, secured in an upright position and when not in use have the valves shut.
- Under no circumstances must oxygen cylinders be stored with liquefied petroleum gas cylinders, or within three meters of an LPG storage area.
- Cylinders must be stored in an area, which is under cover and well ventilated, and away from flammable materials, solvents or excessive heat.

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- Storage in such a position to be easily moved in the event of a fire.
- Cylinders should not be subjected to rough treatment, if moved by mechanical means then a cradle or strip must be used, never lift by the neck or valves.

60.3.2 Acetylene Cylinders

Storage precautions are the same as for oxygen cylinders with additional points to observe.

- **Acetylene should be kept away from copper and alloys containing more than 70% copper.**
- Must be stored and used in well ventilated areas due to a narcotic effect if inhaled.

Check the code of practice for storage of gas cylinders.

67.0 COMPRESSED AIR

- All air receivers and compressors shall be in good condition and properly maintained.
- Air receivers shall be individually identified and marked with their safe working pressure.
- Air receivers shall be accompanied by a valid test certificate which shall be kept on site by the Contractor and shown to the Safety Representative before bringing the vessel onto site.
- All air receivers must be fitted with a properly set pressure relief valve.
- Air receivers shall be examined and the pressure relief valve tested by an independent examiner at yearly intervals.
- A register of all air receivers containing:-
 - Individual identification numbers.
 - Dates of independent inspections.
 - Name and signature of independent examiner.
 - Pressure at which pressure relief valve lifted shall be kept on site by the Contractor along with all current certification.
- All compressed air fittings shall be wired and/or restrained to prevent them from whipping should the coupling separate.
- Only hose clamps designed for compressed air service shall be used. Worm drive (jubilee) clips are not acceptable.

COMPRESSED AIR MUST NEVER BE USED FOR CLEANING CLOTHES

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62.0 WELDING AND GAS CUTTING

Refer: MLDL/OHS/SMARRT/CL 24 Electric Welding Inspection Form
MLDL/OHS/SMARRT/CL 36 Pre Inspection Generator/Welding set Checklist Form
MLDL/OHS/SMARRT/CL 35 Gas cutting tool Checklist Form

Safety procedures for welding and cutting have been elaborated below,

Gas cylinders used in cutting and welding shall:

- be stored separately, depending on the type of gas contained, and whether empty or full;
 - be stored upright, and shielded from direct sunlight or other heat source;
 - be stored in a well-ventilated area;
 - be fitted with safety caps when not in use;
 - be properly secured during transportation;
 - not be lifted by the nozzle, rolled, or used as rollers themselves.
 - When handling cylinders, ensure hands, clothes, gloved, etc. are free from oil, dirt, grit and grease. Under no circumstances oil shall be allowed to contaminate a cylinder containing oxygen.
 - All gas and oxygen regulators shall be fitted with flashback arresters, being non-return valves designed to prevent an explosive mix developing in either cylinder. Such explosive mixers can occur due to loose connections, leaking hoses, etc.
 - Pressure gauges shall be provided to monitor the cylinder pressure as well as the gas flow pressure.
 - Prior to use, all equipment shall be thoroughly checked to ensure that:
 - all connections are 'tight', checking for leaks shall be by means of soapy liquid applied to each joint;
 - all fittings such as gauges, flashback arrests etc. are functioning correctly;
 - Hoses are in good condition, and free from signs of cracking or perishing.
- Under no circumstances shall an open flame be applied to any part of the cylinder or hose arrangement to detect leaks.
- The cutting and welding of certain metals or metal coatings such as zinc galvanized surfaces give off harmful fumes and such works must, where possible be carried out in a well-ventilated area.

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- The welders shall wear good quality insulated welding gloves and use proper welding shields (Eye protection). Welding holders shall be of insulated type with finger guard.
- When not in use, the current to the holder and electrode must be turned off.
- Work area beneath or adjacent to fabrication of welding works shall be made free from combustible materials and cordoned-off to prevent personnel being injured by weld spatter or molten metal. Placing of cylinders directly beneath the work area shall not be permitted.

Elimination of danger from welding and cutting is of the application of sensible precautions: Rigorous supervision and control of portable equipment is essential as is adequate training.

- Supply hoses should be arranged so that they are not likely to be tripped over, cut, or otherwise damaged by moving objects: a sudden jerk or pull on the hose is very liable to pull the torch out of the operator's hands, or a hose connection to fail.
- Explosions can occur when acetylene gas is present in the air in any proportion between 2 and 82%.
- Acetylene is also liable to explode when under excessive pressure, even in the absence of air.
- The first essential requirements are, therefore, adequate and proper ventilation, and the examination of the equipment to ensure that it is free from leaks.
- Flashback arrestors and hose check valves should be fitted to both oxygen and fuel gas regulators and manifolds. Acetylene manifolds must be fitted with an effective flashback arrestor.
- Non-return valves are also fitted in the hose connectors at the torch end to resist flashback.
- During welding and cutting operations, precautions must be taken to prevent burns of the eyes and exposed parts of the body.

Good ventilation must always be provided for gas welding. The heat produced by prolonged contact of the acetylene flame with a large mass of metal will lead to the formation of oxides of nitrogen, and in confined spaces special ventilation or breathing equipment will be necessary. The fumes given off when welding or cutting parts which have been galvanized, lead-coated or otherwise treated may be injurious to the operator, and special precautions must be taken.

The operator should be provided with suitable respirators to protect him.

In addition to fumes evolved from electrodes and fluxes, coated or otherwise treated metals may give off toxic fumes. Special care in ventilation must also be taken in welding nonferrous metals and certain alloy steels. The ultraviolet light from the arc, particularly the gas shielded arc, may form ozone from the air or phosgene from solvents. Shielding gases are released into the atmosphere, and may build up where ventilation is restricted, or even in open-topped tanks, as they are generally heavier than air.

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If the eyes are exposed to the light of the arc, even for quite short periods, arc eye may develop. Adequate screening to protect workers in the vicinity is essential.

Eye injuries also occur during scraping operations so safety glasses/goggles must be used while scraping.

Sparks and spatter from the arc are always liable to ignite any inflammable material in the vicinity. Care should therefore be taken to make sure that the workplace and the surrounding area are clear of anything, which may catch fire.

- Damaged cables shall not be used.
- The cables shall be connected to through lugs.
- Earthing return should be connected close to the welding area and no alternate method to be used.

Welders should wear safety helmets even while welding by attaching the welder's hood to the safety helmet.

Weld Cable Selector Guide

Turn off power before connecting to weld output terminals.

Do not use worn, damaged, under-sized, or poorly spliced cables.

Welding Amperes	Weld Cable Size** And Total Cable (Copper) Length In Weld Circuit Not Exceeding***			
	100 ft (30 m) Or Less		150 ft (45 m)	200 ft (60 m)
	10 - 60% Duty Cycle	60 - 100% Duty Cycle	10 - 100% Duty Cycle	
100	4	4	4	3
150	3	3	2	1
200	3	2	1	1/0
250	2	1	1/0	2/0
300	1	1/0	2/0	3/0
350	1/0	2/0	3/0	4/0
400	1/0	2/0	3/0	4/0
500	2/0	3/0	4/0	2 ea. 2/0
600	3/0	4/0	2 ea. 2/0	2 ea. 3/0
700	4/0	2 ea. 2/0	2 ea. 3/0	2 ea. 4/0
800	4/0	2 ea. 2/0	2 ea. 3/0	2 ea. 4/0
900	2 ea. 2/0	2 ea. 3/0	2 ea. 4/0	3 ea. 3/0
1000	2 ea. 2/0	2 ea. 3/0	2 ea. 4/0	3 ea. 3/0
1250	2 ea. 3/0	2 ea. 4/0	3 ea. 3/0	4 ea. 3/0

*This chart is a general guideline and may not suit all applications. If cable overheating occurs (normally you can smell it), use next size larger cable.

**Weld cable size (AWG) is based on either a 4 volts or less drop or a current density of at least 300 circular mils per ampere.

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Welding Lens Shade selector Guide.

Operation/Process	Electrode Size in. (mm)	Arc Current (Amperes)	Minimum Protective Shade	Suggested* Shade No.
Shielded metal arc welding (SMAW)	Less than 3/32 (2.5) 3/32-5/32 (2.5-4) 5/32-1/4 (4-6.4) More than 1/4 (6.4)	Less than 60 60-160 160-250 250-550	7 8 10 11	— 10 12 14
Gas metal arc welding (GMAW) and flux cored arc welding (FCAW)		Less than 60 60-160 160-250 250-550	7 10 10 10	— 11 12 14
Gas tungsten arc welding (GTAW)		Less than 50 50-150 150-500	8 8 10	10 12 14
Air carbon arc cutting (CAC-A)	(Light) (Heavy)	Less than 500 500-1000	10 11	12 14
Plasma arc welding (PAW)		Less than 20 20-100 100-400 400-800	6 8 10 11	6 to 8 10 12 14
Plasma arc cutting (PAC)		Less than 20 20-40 40-60 60-80 80-300 300-400 400-800	4 5 6 8 8 9 10	4 5 6 8 9 12 14
Torch brazing (TB)		—	—	3 or 4
Torch soldering (TS)		—	—	2
Carbon arc welding (CAW)		—	—	14
	Plate thickness			
	in.	mm		
Oxyfuel gas welding				
Light	Under 1/8	Under 3.2		4 or 5
Medium	1/8 to 1/2	3.2 to 12.7		5 or 6
Heavy	Over 1/2	Over 12.7		6 or 8
Oxygen Cutting (OC)				
Medium	Under 1	Under 25		3 or 4
	1 to 6	25 to 150		4 or 5
Heavy	Over 6	Over 150		5 or 6
* As a rule of thumb, start with a shade that is too dark to see the weld or cut zone. Then go to a lighter shade which gives sufficient view of the weld or cut zone without going below the minimum. In oxyfuel gas welding, cutting, or brazing where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.				

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63.0 LIFTING OPERATIONS

Refer: MLDL/OHS/SMARRT/WP 06 Lifting Permit

MLDL/OHS/SMARRT/CL 40 Lifting Checklist

MLDL/OHS/SMARRT/CL 47 Monthly Lifting Gear and appliance Inspection Form

Lifting machine, chains, ropes and lifting tackles used by the contractor on site must conform to the following,

- All parts must be of good construction, adequate strength and free from defects.
- Must be properly maintained, thoroughly examined and load tested by the contractor's competent person regularly.
- No lifting machine and no chain, rope or lifting tackle should, except for the purpose of test, be loaded beyond safe working load and this safe working load must be plainly marked on the gear concerned.

The contractor shall offer his tools and tackles for inspection and approval of Developer's Engineer/ Supervisor before start of work, if so desired. He shall produce valid Test- Certificates from Govt. approved Competent Engineers for all of the lifting gear and hoists (Slings, chains, hooks, chain-pulley blocks, winches, hoists, cranes, etc.) as well as Electrical, Pneumatic and Hydraulic equipment and appliances.

These certificates shall be retained at the site with the contractor's Supervisor/ Site-in-charge for subsequent spot checks also.

64.0 CRANE & RIGGING

Refer: MLDL/OHS/SMARRT/CL 43 Mobile crane Checklist Form

MLDL/OHS/SMARRT/WP 06 Lifting Permit

MLDL/OHS/SMARRT/CL 40 Lifting Checklist

Crane selection to ensure compatibility with the particular site lifting requirements and construction program is a major decision which may require careful investigation by a specialist.

The contractor shall appoint a suitably qualified and experienced person to act as Supervising Rigger, and his responsibilities will include the preparation of the 'rigging study', and the safe rigging and lifting of the load at the location.

All works involving the use of a crane shall be properly planned in advance and a 'rigging study' carried out to ensure that,

the crane is capable of lifting the load, given the known working radius, boom length, weight of the load, etc.;

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the condition of the ground at the crane location is satisfactory to support the crane and the load;

the rotation of the cab, and therefore the boom is not restricted;

suitable 'matting' or plates are available to protect underground services and paving;

all slings, shackles, hooks, etc., of the correct rating are available and in good condition (i.e. without lapping, knots or artificial extensions).

Crane hooks shall be fitted with properly functioning latches to prevent the displacement of the sling from the hook during the lift.

Loads must always be slung with the center of gravity directly beneath the crane hook and at all times, be kept as close to the ground as possible.

The angle between sling legs shall not, under any circumstances exceed $[120^{\circ}]$, as this doubles the tension on each leg, thereby reducing the lifting capacity of the sling by 50%.

For wheeled cranes outriggers shall be used for each lift, regardless of the size, and shall always be fully extended.

Shackles shall be complete with the original pin and under no circumstances shall a substitute bolt be fitted.

A 'trial' lift shall be carried out, raising the load a short distance above its pick-up point, to check the stability of the crane, and the efficiency of the brakes.

Only one person, usually the Supervising Rigger, shall give instructions to the crane operator.

At no time, whilst the crane's machinery is running, shall the operator leave the cabin.

At no time, whilst a load is suspended shall the crane's engine(s) be intentionally turned off.

At no time, whilst a load is suspended, shall personnel perform any works directly beneath.

Particular consideration to the presence of low-level structures such as pipe badges shall be given where crane is to move about the site.

Consideration shall be given to prevailing weather conditions, and where a greater than normal risk exists, the lift shall be postponed until more favourable condition develop.

Site preparation and operations require detailed planning, design and execution. Lifting operations necessitate the establishment of efficient management teams and detailed systems of work.

Broadly speaking, there are three categories of lifts:

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- Major lifts involving heavy lift equipment and cranes
- Special lifts, which require bringing on to, site a large crane, in most cases for a short period of time
- Repetitive routine day to day crane work.

Casual use of cranes to perform apparently simple tasks, too often results in serious injury and expensive damage. Detailed planning and preparation is essential to carry out work safely and efficiently.

The training, skill and experience of the crane operator and crew is only one element of a properly organized lifting operation. For day to day routine crane operations, careful selection of the most suitable type of crane, plus the establishment of a safe system and method of work is essential.

All lifting operations should be carefully planned and a safe system of work (lifting study) developed. The safe system should be suitably communicated to all those who are involved with the operation in any way. Planning should consider a wide range of factors including:

The selection of lifting appliances and gear shall be determined by:

- the load to be lifted, including the slings, shackles, block and other lifting gear
- the radius of operation
- the height of the lift
- the presence of any restrictions in the form of overhead cables or lifts inside buildings, etc.
- the visibility of the load throughout its travel
- the method of attaching the slings

64.1 General requirements of appliances

64.1.1 Out-of level

One of the most severe effects of being out-of fit level is that side loads develop in the boom. Because of side loads all mobile cranes lose capacity rapidly as the degree of out-of-level increases and therefore;

64.1.2 Boom

- The boom elements of the crane must be in perfect condition at all times. No boom section with a bent lattice member shall be allowed
- All welds shall be crack and corrosion free
- No member of the boom shall be bent

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- All telescopic booms shall be free from cracks, rust, flaking or cracked paint etc

The sweep area (work area) of the construction machinery shall be always free from obstructions. All hydraulic piping and fittings shall be maintained leak proof.

The operator cab shall possess good and safe:

- structure, windows and windshield with wipers
- Drivers chair and foot rest
- Control handles
- Cab instrumentation
- Telecommunication
- Cab out fitting

64.2 Qualification of operator of lifting appliances and of signaller etc

The contractor shall not employ any person to drive or operate a lifting machine like crane, hydra, Piling Rig etc. whether driven by mechanical power or otherwise or to give signals to work as an operator of a rigger or derricks unless he

- ..1 Is above twenty-one years of age and possesses a valid heavy transport vehicle driving license as per Motor Vehicle Act and Rules.
- ..2 Is competent and reliable
- ..3 Possesses the knowledge of the inherent risks involved in the operation of lifting appliances by undergoing a formal training at any institution of national importance acceptable to Employer
- ..4 Is medically examined periodically as specified in schedule VII of BOCW Rules.

The maintenance of lifting appliances and gear

In case of Contracting for Lifting Operations, management must make sure that the contractor they wish to employ for such operations has the necessary competence to carry out the work.

Every contract agreement for a Lifting Operation contract should state the following:

- that all work will be carried out in accordance with safe practices, and
- that the contractor will designate one person to have overall control of the Lifting Operation

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The following item should be verified before starting the work with the crane: For major crane, certificate to be submitted before site entry

- Certificate of Testing and Examination issued by a competent and approved by Developer as per the statutory rules. Validity of certificate : 2 months
- Stress test (analysis metallographic of the structure in order to detect material stress and ink test to detect welding damage) issued by a competent person / Developer approved
- Record of the periodic inspections on the crane must be signed by a competent person of contracting agency.
- That the lifting equipment to be used is suitable for the job and that the test certificates for such items are available.
- That the crane complies with the requirements of the job assessment.
- The crane hook is provided with safety catch.
- The hydraulic system / brakes are functioning.
- That the safe load indicator and load radius indicator are working and set correctly for the crane as rigged.
- Certificates of initial and periodical Tests and Examinations.

Loads should only be moved when the signaller can both see the load *and* communicate with the driver. An additional signaller must be provided if the load goes out of sight.

- Copies of the sling chart and safe working load tables shall be used.
- Loads should not be lifted until directed by the signaller / flag man. The load should then be lifted a short way to enable an assessment to be made that the load is properly slung.
- No person should be allowed to come under lifting load.
- The counter weight of the crane and boom movement area shall be cordoned off.
- No one should ride on load being slung.
- Tag lines should be used to control load swinging.
- Load shall not be lifted if there are knots / kinks in the slings.

64.3 Lifting Gear

Automatic safe load indicators

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stipulated in BOCW Rules, every lifting appliances and gears like cranes, if so constructed that the safe working load may be varied by raising or lowering of the jib or otherwise shall be attached with an automatic indicator of safe working loads approved by Bureau of Indian standards/ International certifying bodies which gives a warning to the operator and arrests further movements of the lifting parts.

The severe usage to which lifting gear is often subjected, may result in failure, it is important that attention be paid to the correct use and maintenance of such lifting gear. This can best be achieved by:

- Good design and workmanship
- Careful testing and inspection after manufacture or repair
 - Detailed planning and correct and careful use of the gear; storage under cover
 - Regular, careful inspection and maintenance during the life of the gear

Majority of the accidents in lifting operations are due to faulty slinging, overloading of slings, items over which the crane driver has little or no control.

The duties of flag men / slingers are not the ones who can be undertaken by non-trained persons, and therefore should be carried out by competent experts.

Ensure that wire rope sling is protected from sharp corners of loads by suitable packing. Discard the ropes if there are excess broken wires.

When 'U' clamps are used on wire rope slings the rounded portion of 'U' clamp shall be on the free end of the wire rope. Minimum 3 no's of 'U' clamps shall be used for splicing and more clamps required depending upon the diameter.

The Safe Working Load (SWL) markings on an item of lifting equipment shall be inspected before it is used. These numbers are normally stamped on to the master eye or ferrule of slings and the body of eyebolts, shackles, etc. Alternatively, metal tabs, which bear this information, may be fitted to slings. On web slings the information may be on a label stitched into the sling, normally at the eye, and they may be additionally color coded to identify SWL.

Due to the multiplicity of grades of chain available, a given chain diameter will give rise to varied SWLs. For this reason, it is imperative to refer to the SWL marked on the sling.

The most common defect to be found with chains in service is that of stretching – and this includes stretched or distorted links, rings or hooks. Other regular defects are, cuts in the surface through bending round sharp-edged objects – these cuts (or nicks) reduce the strength of a link out of all proportion to the depth of the cut, hooks opened out, due to lifting on, or near, the hook point with the full load being borne by the point of the hook.

Non-adherence to any of the clauses mentioned above shall be viewed seriously by the Employer and penalty levied as per relevant clause.

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Note. Usage of Pick and carry lifting machines/Hydra shall be subjected to MLDL approval. Detailed lifting plan shall be prepared for tandem lifting and shall be subjected to MLDL approval.

65.0 ABRASIVE WHEELS

Before any abrasive wheel/disc/cutter/side grinder is mounted on a grinding machine. The person mounting the wheel shall be fully trained and competent to do the job.

Injuries involving the use of abrasive wheels, disc cutters, side grinders, fall into three main types:

- Those, which result from particles being thrown out during a grinding, process;
- Those which occur when a grinding wheel bursts or disintegrates;
- Those caused by contact between a revolving wheel and a person's hand or some other part of the body.

Many of these injuries result in permanent disability, and some prove fatal.

Selecting the right abrasive wheel for a particular application is critical. Check for expiry date.

Only reinforced resin-bonded or resin-bonded abrasive wheels must be used with portable grinding machines. As the most serious injuries involving abrasive wheels occur when wheels burst and flying fragments strike people in nearby places.

The two main causes of wheels bursting are over-speeding, and the faulty mounting of wheels on grinding machines.

Grinding machines are marked with the maximum working speeds of their spindles, whilst abrasive wheels are marked with the maximum speed at which they may be operated. They should be compatible.

Eye protection and gloves shall be worn during all grinding operations. Protection for those not involved in the operations shall also be protected by the erection of screens, or barriers to keep personnel out of the danger zone.

The safe operation of a properly mounted abrasive wheel is determined to a large extent by a trained grinding machine operator taking the following precautions:

- Guards

Seeing that the guard is in position and properly adjusted. No machine with proper guards will be permitted

- Side grinding



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Avoiding grinding on the sides of straight-sides wheels.

- Lubrication

Checking that spindles do not become overheated through lack of lubrication.

- Stopping wheels

Do not stop wheels by applying pressure on the work piece or the floor/bench.

- Cutting-off wheels

Avoiding the use of warped wheels/discs or exerting pressure on the sides, ensure that the work piece is rigidly supported and firmly clamped and let the cutter cut through before removing the cut piece.

➤ Cables

The electrical cable attached to the machine shall not exceed 5 meter in length.

66.0 WORK AT HEIGHTS

Refer: MLDL/OHS/SMARRT/CL 05 Construction of Scaffolds Checklist

MLDL/OHS/SMARRT/WP 09 Work on Height for Work on Scaffold above 2m

MLDL/OHS/SMARRT/WP 10 Working at Height (Other Than Work on Scaffold)

MLDL/OHS/SMARRT/WP 11 Working at Height

MLDL/OHS/SMARRT/CL 12 Daily Lifeline Inspection Form

MLDL/OHS/SMARRT/CL 49 Monthly Safety Harness Inspection Form

MLDL/OHS/SMARRT/CL 56 Scaffold Dismantling Checklist

MLDL/OHS/SMARRT/CL 60 the BOCW Act & Regulation & IS Standard for scaffolding

Where workers on a construction site are exposed to vertical drops of 6 feet or more, the contractors shall provide fall protection in one of three ways before work begins:

- Placing guardrails around the hazard area,
- Install safety nets, or
- Providing personal fall arrest systems for each employee.

Many times the nature and location of the work will dictate the form that fall protection takes.

All personal working at height will pass a medical check-up or submit a medical certificate not older than 3 months, demonstrating aptitude for this kind of activities.

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- All work at height require a work permit with method statement and risk analysis
- Concrete columns erection, steel structure erection, roofing, cladding, painting, etc.
- All roofing installations , steel structure and other activities at height will be done with protective nets :
- All safety elements for, the safe execution of the work, (net installation / removal) will be planned as early of possible at the design stage.
- All required hooks, supports; access will be integrated at the design stage.
 - Access towers fixation devices will be planned at design stage
 - Proper scaffolding and working platforms with handrails should be provided to work at higher elevations.
 - Tools and loose material should not be left on the scaffolding from where they are likely to fall.
 - Things should not be thrown from heights. They should be brought down or taken up with the help of ropes.
- While work is carried on at higher elevations, warning notices should be posted below or barricade the area so as to draw the attention of persons and prevent them from coming under the falling objects.
 - Defective scaffoldings, damaged ladders, insufficient working platforms etc. should not be permitted.
 - Wherever necessary, light weight mobile tower scaffolds or hydraulic platforms should be used.

Protective net for vertical fall of construction material: to be used in case of work superposition.

If the contractor chooses to use a safety net system, he must comply with the following provisions:

Safety nets must be installed as close as practicable under the surface on which employees are working, but in no case more than 30 feet below.

When nets are used on bridges, the potential fall area must be unobstructed.

Safety nets must extend outward from the outermost projection of the work surface as follows:

Safety nets must be installed with sufficient clearance to prevent contact with the surface or structures under them when subjected to an impact force.

- After initial installation and before being used.
- Whenever relocated.

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- After major repair.
- At 6-month intervals if left in one place.

Safety nets must be inspected for wear, damage, and other deterioration at least once a week, and after any occurrence which could affect the integrity of the system.

Defective nets shall not be used, and defective components must be removed from service.

Objects which have fallen into the safety net, such as scrap pieces, equipment, and tools, must be removed as soon as possible from the net and at least before the next work shift.

Maximum mesh size must not exceed 6 inches by 6 inches. All mesh crossings must be secured to prevent enlargement of the mesh opening, which must be no longer than 6 inches, measured centre-to-centre.

Each safety net, or section thereof, must have a border rope for webbing with a minimum breaking strength of 5,000 pounds.

Connections between safety net panels must be as strong as integral net components, and must not be spaced more than 6 inches apart.

Provide and enforce use of Full Body Harness for height work (>1.8 m). Make provision for anchoring lifeline. Individual Rope grabber vertical life line required for any work on RSP with suitable anchorage.

Bosun's chair/ Spiderman kit or any rope suspended working not allowed.

66.1 Access

Proper access towers shall be installed at all required points :

- Persons should use full body harness while working near open edge where it is not possible to provide hand rails.
- Proper access should be available to the work spot.
 - Nobody should jump over open area between equipment, pipes and rails etc. from where they may slip.
 - Walking over beams, narrow pipes etc. should be prohibited.
 - The area from where the materials are pulled up with ropes etc. should have hand railings and the person should keep firm footing.

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- They should not lean over the handrails and should use full body harness to protect themselves from fall due to body imbalance.
- Reduce the hazards associated with falls
- Control fall hazards first through engineering controls
- Institute personal fall arrest systems, administrative controls and training when engineering controls are not feasible
- Have a formal fall protection program in accordance with Factories Act requirements
- Have the necessary fall protection equipment to safely perform the job
- Have workers properly trained in the use of fall protection equipment
- Have supervisors (or competent personnel) who ensure the use of fall protection equipment as required
- Obtain work permit from the prior to starting of activities requiring fall protection.
- Use powered access safely
- Protect holes and leading edges, e.g. with hand rails and toe boards

When working on roof never:

- Work in poor weather
- Work on sloping roofs without edge protection
- Throw down waste or equipment

Take care when working on or near fragile material – you can fall through as well as off it.

Contractors will be responsible for complying with the above guidelines and for communicating this policy to their employees and subcontractors. All work shall be performed in accordance with all applicable laws and regulations.

66.2 Sloping roof systems

Falls from sloping roofs are one of the most common causes of serious accidents. The slope of a roof obscures the view of the ground, deceiving a person into a false sense of security.

It is mandatory to construct scaffold barriers completely around the perimeter of a roof, especially during construction. Unfortunately this type of barrier is not practical for the minor maintenance which often has to be carried out on roofs. Therefore a fall-protection system must be used.

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There are essentially two different situations from a fall-protection perspective. If the worker can fall through the roof, this is a fall-arrest situation and a fall-arrest harness with a lanyard assembly (incorporating an energy absorber) must be used.

If the roof is solid and the worker cannot fall through it, this is a work-positioning situation or restraint situation. The worst that can happen is a sliding fall down the roof until the fall-protection system takes effect - which of course should be as soon as possible. With a work-positioning system, a work-positioning harness (which does not require an upper torso section) can be used, and no lanyard is necessary. (Often though a fall-arrest harness is used simply because it is also required for other work). The worker's harness is connected directly to a rope grab, which travels up and down a rope. How the rope is configured determines whether the system is safe or not and there are a number of ways of doing this, depending on the anchors that are available.

In the examples in this article, the building is assumed to have a simple structure with a double-pitched roof based on a straight ridge-line. In practice few buildings are as simple as this, and different techniques may have to be used on a single building.

66.3 Horizontal life-line

The preferred arrangement for a fall protection system on a typical double-pitch roof uses a horizontal life-line, which may be wire rope, fibre rope, or webbing, fixed along the ridge line, with a positioning rope and rope grab connected to the line and running down the roof. This gives security for complete freedom of movement across the whole roof, as well as on a ladder while accessing the gutters or climbing on to the roof.

1. Steel cable for life lines
 2. 12 mm cable
- 12 mm polyamide or Kernmantle Rope

66.4 Safety Harnesses

Safety harnesses are not a safe system of work. THEY ARE PART OF THE SAFETY SYSTEM OF WORK.

Should have double lanyard having a length not more than 1.8 meter with energy absorber, connected by means of Karabiner and with the provision of scaffold type snap hooks.

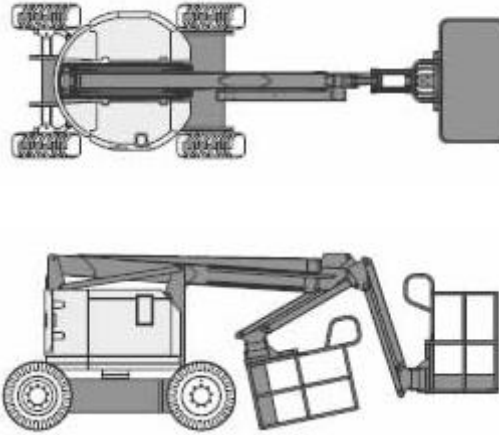
Refer Work at height Plan for Details

66.5 Automotive platforms:

3. Steel structure erection will be done with automotive man lift

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4. Man basket lifting from crane is prohibited



5. All operators need to:

- a. Be declared medically fit for the work at height
- b. Have , an least 8 hours proved formation
- c. Have a training to operate the equipment

Use safety harness

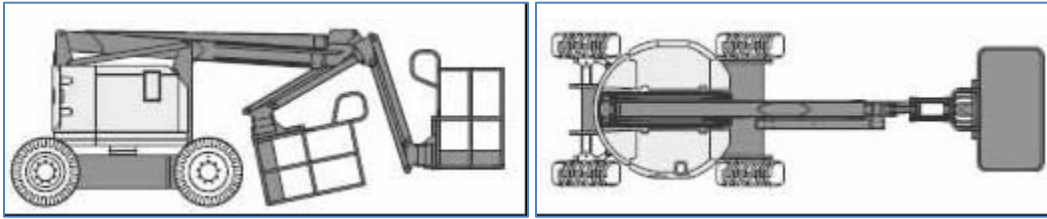
6. Inspection and maintenance certificates from third party need to be submitted before to operate the platform, a copy will be incorporated in the method statement

72.6 Steel Structure erection – Removal of Slings

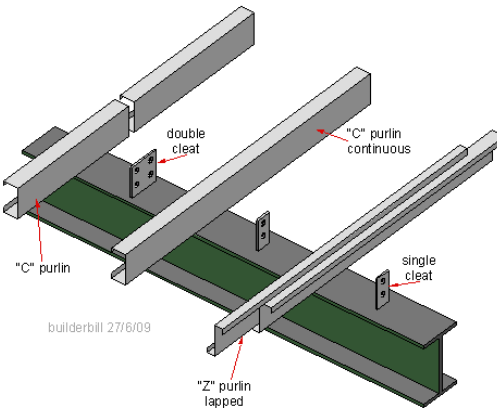
Erection of steel structure and removal of slings from the steel structure need to be done as follow:

1. Level the ground flat with sufficient strength for the cranes / scissor lifts to commute with safely.
2. The erection of steel structure will start from the bracing area and not continue before the bracing is fully completed.
3. The removal of sling from the steel structure shall be done **only** using either a scissor lift or man lift.

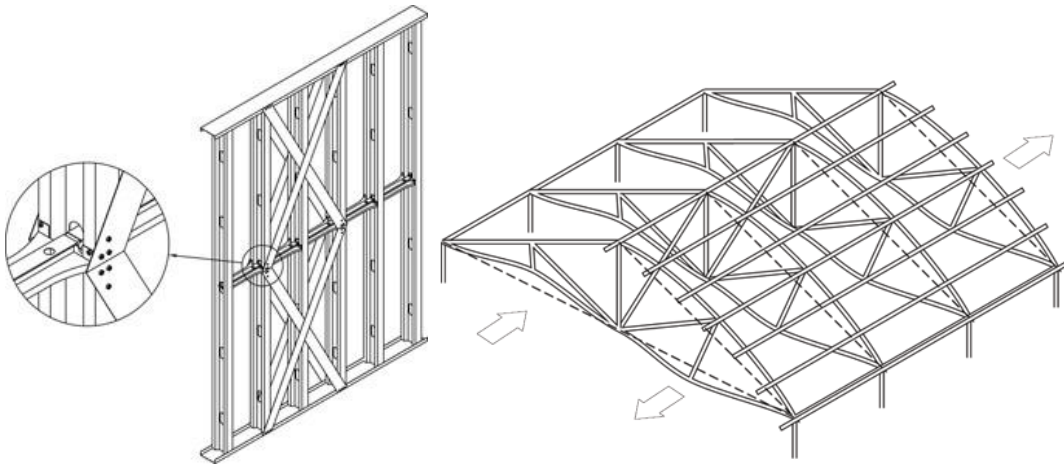
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4. First bolting shall be done on the column and thereafter alignment of the steel structure shall be carried out only after installation.
5. Employees who are involved in such activity shall be properly trained to work at such heights and also medically fit to do such work at height tasks.
6. Walking on the installed structure, either temporary or permanent is prohibited.
7. All the workers who are responsible to access the roof shall be provided with full body safety harness with double lanyard and shock absorber.
8. The primary safety of the workers working at such height shall be from the anchorage of safety harness and there shall be a secondary level of safety from the safety net that is adequately covered at safe height, below the work area.
9. Z-Purlin and cross bracing shall be provided wherever applicable / required.



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66.7 CLADDING - Safety Measures (during installation and afterwards):

Many of the hazards associated with the construction of the building envelope arise from the need to work at height. This is especially true for roof cladding operations.

All cladding components being hoisted to the working level shall be adequately banded and carefully slung employing steel wire rope.

All bundles shall be tag lined during the ascent of the hoisting operation. Precaution shall be taken to avoid damage to cladding components and to prevent marring of exposed surfaces.

All cladding components, after being positioned, shall be adequately secured in place as quickly as possible and in all cases prior to leaving the jobsite at the end of the working day.

All loose bundles of cladding components shall be adequately secured at the completion of each working day.

All scaffolds, platforms, ladders, etc., required by the erector for installation of cladding components shall at all times be properly secured to prevent accidental movement or collapse.

All cuttings, strapping, packaging materials, and other debris pertaining to cladding components shall be cleaned up each working day and disposed of in a suitable manner.

Use crawling boards and other safety equipment required for safe installation. Use all safety measures required according to local safety regulations.

Don't step on installed panels between the purling for fear of falling and other severe bodily harm.

Never leave panels unattended on the roof until all the required fasteners have been appropriately installed or the panels secured to the supporting structure.

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The two principal categories of hazard are:

- Falls through gaps in the roof
- Falls from the edge of the roof.

Work shall not be permitted to start until the risk assessment has been conducted, the method statement has been written and the required safety equipment and trained personnel are in place.

The following details shall be considered while preparing the method statement for installing the cladding:

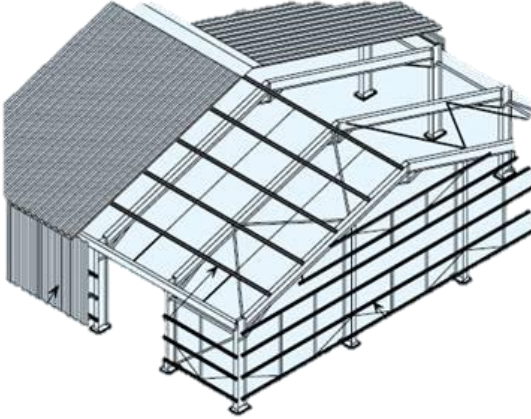
1. Agreement on cladding sequence
2. Provision of access and egress
3. Provision of safe working platform
4. Use of fall arrest equipment, anchorage points and safety nets
5. Method of fixing panels and sheets
6. Materials handling
7. Use of cranes, scissor lifts and man lifts.
8. Supervision of workforce

The nets should be fitted as close as possible to the underside of the roof and should cover the bay ahead and the bay behind the current work location (i.e. a minimum of bays).

Personnel should not enter the area above the final netted bay unless it is the last bay of the building. Safety nets should always be installed and regularly inspected by a competent person who has been trained and assessed to standards. They should only be removed when the appropriate section of roof has achieved a 'non-fragile' status.

At times during the construction of the roof, there will be completed areas of cladding adjacent to large gaps or areas that have yet to be clad. This situation is potentially very dangerous to the operatives working on the roof. While this hazard cannot be eliminated completely until the completion of the cladding activities, the associated risks can be significantly reduced by providing fall arrest equipment, usually in the form of safety nets or harnesses. Whichever fall arrest system is chosen, the structural engineer will need to ensure that the supporting structure is capable of carrying the additional loads.

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Falls off the edge of a roof during construction shall be prevented by means of temporary guardrails. These will also require consideration by the structural engineer at the design stage, in terms of the additional loading and also the provision of suitable attachment points.

Two aspects of construction safety that require input from the cladding specifier and structural engineer are the need for restraint to the supporting secondary steelwork and the ability of the cladding to provide this restraint. These issues are especially important for the roof, since the purlins

are often required to support significant construction loads before the cladding has been fully fixed.

66.7.1 Wall cladding installation

All employees and contractors of Walls and All have undertaken specific training in:

- manual handling techniques
- air powered, power tools
- occupational health and safety
- Work at height.

Refer work at height Requirements, Ladder Safety, Hand tools safety and Tools and Equipment.

67.0 CONFINED SPACES

Refer :MLDL/OHS/SMARRT/WP 02 Confined Space Entry

A confined space is any enclosed or partially enclosed area where there is a possibility that the atmosphere or conditions may become injurious to health and safety of persons entering. The danger may be as a direct result of a process being undertaken by persons within the confined space or:

- Oxygen enrichment
- Oxygen deficiency

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- Flammable atmosphere
- Accumulation of flammable or toxic fumes

All entry into confined spaces shall be controlled by means of a "WORK PERMIT". Persons authorizing entering into confined spaces must have the required competence to issue any work permit, and to check for contamination and/or dangerous atmospheres.

Entry Requirements:

Safety precautions, restrictions of the operations and personal protection equipment will be clearly shown on the work permit. Check if retrieval/harnesses are required. A standby man is required outside the confined space. He should be instructed on his duties. Air/ Gas detectors/ monitors will normally be required. Understand how they work.

68.0 TOOLS & EQUIPMENT

**Refer: MLDL/OHS/SMARRT/CL 11 Daily Electrical Tool Inspection.
MLDL/OHS/SMARRT/CL 24 Electrical Welding Inspection Form
MLDL/OHS/SMARRT/CL 35 Gas cutting tool checklist Form
MLDL/OHS/SMARRT/CL 36 Pre Inspection Generator /Welding Set Inspection form**

The following four basic principles shall be applied to and govern the safe use of hand and power tools. The principles are:

- choose the right tool for the job;
- use only tools in good conditions;
- use the tools correctly, and only for the purpose they were intended;
- maintain and store tools properly.

High speed rotating equipment, such as grinders, shall be fitted with protective guards.

Grinding discs must be compatible with rotational speed of the grinder itself.

Spark arresters shall be fitted to all equipment exhausts where a risk of combustible gases in the atmosphere exists.

- **All tools and equipment must be suitable and adequate for the purpose.**
- **Guards and electrical trip switches must work effectively and must not be removed or bypassed.**

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- All tools shall be of good quality and maintained in a safe working condition.
- Contractors shall provide suitable storage with suitable racks and bins for storing tools and equipment.
- The contractor shall nominate or employ the services of a competent qualified electrician to inspect and tag electrical power hand tools transformers, distributing boards, extension cables etc on an at least quarterly basis. The tag shall display name, signature of the individual inspecting the tool, date of inspection.
- The contractor shall keep, on site, a register of all electrical power hand tools in use. The register shall detail :-
 - Individual identity number of the tool.
 - Name, signature and company of the qualified electrician carrying out the inspection.
 - Date of the inspection.
 - Maintenance and inspection schedule.
 - Remarks on condition of tool and whether required or withdrawn from use.
- No electrical powered hand tool shall be used other than it is tagged with a current "INSPECTION" tag.
- All electrical leads must be connected to the power source through standard industrial waterproofed plugs and sockets, which shall be in good condition.
- Hand tools, in this context. Refer to those tools for which the hand provides the motive force i.e. picks, shovels, crowbars, saws, chisels, hammers, screw drivers, wrenches etc., which are commonly used in our day-to-day work activities.
- Hand tools by themselves are incapable of causing accidents. However accidents arise with them due to the following reasons:-
 1. Sheer carelessness
 2. Lack of common sense
 3. Not knowing the correct tool for the job
 4. Ignorance of sensible safety precautions
 5. Failure to maintain tools in good working order and store them properly etc.
- Hand tools are very often used by unskilled or semi-skilled labourers. Hence appropriate tools must be provided to them for the job to ensure that the operatives are properly instructed in how to use them.
- Every tool has its proper application. The correct type, size and weight of tool should be selected for the job.
- The tools should be carried in proper tool box
- While working at higher elevation, adequate precaution to be taken to ensure that they do not slip down.
- Do not carry sharp and pointed tools in the pockets which may cause injuries.
- Do not throw the tools either from top or from the lower elevations to higher elevations.

68.1 Cleanliness:

- Grease and dirt should be regularly cleaned off.
- Moving and adjustable parts shall be lightly oiled to protect against corrosion to prevent wear and mis-alignment.

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- All tools to be kept clean and dry.
 - Where work takes place near electrical source only properly insulated and non-conductive tools should be used and the insulation should be tested at regular intervals by a competent person
 - Metal body of all tools should properly earth.
 - For work near flammable material or flammable atmosphere, special tools made of non-ferrous metals for the purpose shall be used to avoid sparking.
 - All safety devices, as per manufacturer and laws should be in place and in working perfectly. Machine without the protecting devices will be immediately remove from site
 - The electrical system to be in good condition, cable, Automatic safety breakers (No fuses), contactors, grounding system

68.2 Bars bending machines:

- Only trained and experienced person to operate. The details and photo of authorised person should be displayed near machine.
- Bar bending machines should be placed on firm, level ground, with sufficient clearance allowing safe access and operations.
- Moving parts and cutters on metal bar fixed machines for cutting, bending etc should be guarded.
- Work pieces or materials should be secured or gripped to prevent whiplashing or flying offcuts etc.
- Provide sufficient information and safe work procedures for operating bar bending machines, training and supervision to operators/workers.
- Machine should be earthed properly.

68.3 Bars cutting machines:

- Only trained and experienced person to operate. The details and photo of authorised person should be displayed near machine.
- Bar bending machines should be placed on firm, level ground, with sufficient clearance allowing safe access and operations.
- Moving parts and cutters on metal bar fixed machines for cutting, bending etc should be guarded.
- Work pieces or materials should be secured or gripped to prevent whiplashing or flying offcuts etc.
- Provide sufficient information and safe work procedures for operating bar bending machines, training and supervision to operators/workers.
- Machine should be earthed properly.
- Remove the waste rebar and stack the same properly away from rebar bending/ cutting area.

69. IS Standards

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Indian Standards have been developed to provide necessary guidance for carrying out tasks at work places providing safe and healthy work environment. Following is a gist of Indian standards that are widely used in construction site. Contractor and subcontractors ensure IS Standards shall be available on site for ready reference and also work practices pursue as per the following guideline:

- IS: 3696 - (Part I) - 1987 Safety Code for Scaffolds and Ladders: Part I Scaffolds.
- IS: 3696 - (Part II) - 1991 Safety code for Scaffolds and Ladders: Part II Ladders.
- IS: 2750 -1964 Specification for Steel Scaffoldings.
- IS: 3764-1992 Safety Code for Excavation Work.
- IS: 4082-1996 Recommendations on stacking and storage of construction materials at site (first revision).
- IS: 4130 -1991 Safety code for demolition of buildings (Second revision).
- IS: 4912 -1978 Safety requirements for floor and wall openings, railings, railings and toe boards (first revision).
- IS: 5121-1969 Safety code for piling and other deep foundations.
- IS: 5916 -1970 Safety code for constructions involving use of bituminous materials.
- IS: 5916 -1970 Construction involving use of hot bituminous materials.
- IS: 7205-1974 Safety code for erection of structural steel work.
- IS: 7969-1975 Safety code for handling and storage of building materials.
- IS: 818 -1968 Safety and health requirements in electric and gas welding and cutting operations.
- IS: 3016 -1982 Fire Protections in welding and cutting operations (First revision)
- IS: 10500 - Drinking Water Standards.
- IS: 8989 -1978 Safety code for erection of concrete frame structures.
- IS: 4138 -1977 Working in compressed air (First revision).
- IS: 4435 -1967 Trestles and Ladders (Part II)
- IS: 7293 -1974 Working with Construction machinery
- IS: 13367 – 1992 Safe use of Cranes.
- IS: 9474 - 1980 Specification for Principles of Mechanical Guarding of Machinery
- IS: 8324 – 1988 Practice for Safe use and Maintenance on Non-calibrated Round Steel Link Lifting Chains and Chin Slings (First Revision).
- IS: 8216 – 1976 Inspection of Lift Wire Ropes.
- IS: 9944 – 1992 Recommendations on safe working loads for natural and man-made fibre rope slings

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IS : 13416 (part-I to V) - Recommendations for falling material, hazard prevention, fall preventions, disposal of debris, timber structures, fire protection

PLEDGE

- “On this Day, I solemnly affirm that I will rededicate myself to the cause of Occupational safety and health and will do my best to observe rules, regulations and procedures and develop attitudes and habits conducive for achieving these objectives.
- I fully realise that accidents and diseases are a drain on the national economy and may lead to disablements deaths, harm to health and damage to property, social suffering and general degradation of environment.
- I will do everything possible for the prevention of accidents and occupational diseases in the interest of self, family, community, organization and the nation at large.”

“Safety in All we do and Our Ultimate Goal is Incident Free Work”

“Everyone goes home every day safe,

“I at, Mahindra Lifespaces will do all those possible to achieve this”.