

SECTION – 1
SAFETY

1.0 The Safety may be defined:

1. State of being "safe", the condition of being protected from harm or other non-desirable outcomes. Safety can also refer to the control of recognized hazards in order to achieve an acceptable level of risk.
2. Relative freedom from danger, risk, or threat of harm, injury, or loss to personnel and/or property, whether caused deliberately or by accident.
3. Safety means keeping yourself and others free from harm or danger. It also means to avoid accidents by being careful with what you are doing.

Construction is one of the most dangerous industries. Be it a fall, a mechanical malfunction, Men–Machine Interaction, or problems with exposure, construction workers can face serious injury while on the job. A good Safety Management System can go a long way to help prevent accidents and occupational hazards. The purpose of the Safety (& Occupational Health) Services for the staff/ workers is:

- a) Identification & assessment of the risks from various hazards in the work place.
- b) Advising on planning & organization of work & working practices.
- c) Providing advice, information, training & education on Safety.
- d) To implement the requirements as per ISO Standards, and IS Specs. such as IS: 18001, IS: 3786, IS: 15656, BOCWA - 1996.

1.1. Contractor's Safety Organization:

To make successful implementation of the safety plan, the contractor/agency shall formulate the Safety Organization at project. Safety organization consists of:

- a) Safety Officer^{1}
- b) Safety team members (all engineers / supervisors working at sites)

{1} If the Contract Price is equal or more than Rs. 25 Crore, then a full time qualified Safety Officer^{2} is to be appointed by the Contractor. For works having Contract Price less than 25 Crore, an Engineer (Degree in Engineering) can be nominated as Safety Officer^{3}

{2} Minimum Qualification of Safety Officer: Any one of the following:

- i) B.Sc. / Diploma in Engg. with Advanced Safety Management Diploma from Central Labour Institute / Regional Labour Institute at Mumbai/ Chennai / Kolkata / Kanpur and Faridabad (Haryana)

SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT SYSTEM

- ii) B.Sc. (Physics/Chemistry/Maths) with one year Full Time Advanced Safety Diploma from NICMAR, Hyderabad,
- iii) B.Sc. (Physics/Chemistry/Maths) with one year Full Time Diploma in Safety Engineering offered by West Bengal State Technical Education Departments and similar courses by other states
- iv) Degree in Science / Diploma in Engineering with Govt. recognized Safety Diploma from Correspondence Course of NICMAR, Annamalai University, National & State Productivity Councils, other state Technical Education Boards etc.
- v) Graduate in any discipline and International qualifications like CSP (Certified Safety Professional), NEBOSH (National Examination Board in Occupational Safety and Health, UK)

^{3} For nominated Safety Officer :

- i) Degree in Engineering or Technology or Architecture with practical experience of at least 2 years;
- or
- ii) Diploma Engineering or Technology with practical experience of at least 5 years

1.2 Responsibilities & Accountability of the Contractor / Agency

It is the obligation of all Contractors, Sub-contractors and their petty contractors to become familiar with and adhere to the provisions of the Safety (and Health & Environment) Management System as per relevant ISO standards, IRCON's Safety, Health, and Environment (SHE) Policy, and contractual obligation to provide a safe and healthful working environment for their employees and for the persons at the site who may be affected by their work.

The contractor/agency shall submit CVs of Safety Officer/s for engagement at site/s.

1.3(i) Documented Information: The contractor/ Agency shall formulate and maintain the following documents:

1. Development of Safety (& Health) Monitoring Plan
2. Setting of 'Safety & Health Objectives' of the project or particular process of the project
3. Maintaining of Applicable Legal & Other Requirements Register and to ensure that all statutory and Safety (& health) requirements are being met.
4. Implementation of BOCWA - 1996
5. Identification of hazards for each activity and analyze the corresponding risks. The preparation and implementation the control procedure to eliminate / substitute/ minimize the risk.

SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT SYSTEM

6. Maintenance all equipments, tools, tackle & implements in a safe & serviceable condition.
7. Periodic testing & servicing of all the tools & tackles is to be ensured and testing records to be maintained.
8. Ensure 'Permit To Work' for all hot works and other critical works.
9. For Electrical Works ensure 'Lock Out, Tag Out'
10. All near miss should be reported to IRCON
11. Complete and promptly submit an accident, unusual occurrence or dangerous incident reports.
12. A plan should be in place to face any Emergencies concerning Safety
13. Emergency Control Procedures
14. Training Records
15. Records of Internal Audits

1.3 (ii) Provision of Safety Protection Arrangements at Sites: The contractor/ Agency shall make the following provisions at sites:

1. Safety Induction Training should be provided to each and every one before deploying at site. The induction shall include, but not limited to:
 - a. Safety requirement.
 - b. Fire prevention.
 - c. Emergency procedures.
 - d. Security requirement.
 - e. Housekeeping procedures.
 - f. Use Personal Protective Equipment as required.
2. The Contractor shall issue the identity card to each and every person engaged related to the contract works.
3. Sufficient Numbers of Safety and Health Related Posters to be displayed at site.
4. Safety instructions regarding use of P & M shall be pasted at appropriate places.
5. Conduct daily "Toolbox Meeting" before start of work and keep the records.
6. Organize safety meetings with Safety Officer as chairman at least once in a month and keep the records & photographs of the same.
7. Provide Personal Protective Equipment for all employees, free of cost.
8. The Contractor shall ensure that all equipment, plants and machines engaged at site are checked and passed as per the Safety norms.
9. Suitable guards shall be ensured on all moving parts of machines.

SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT SYSTEM

10. Access to Working Areas Below Ground Level: For excavation depth exceeding 1.5M (but less than 3M) and of minimum size of 1M x 3M (Width x Length), a steel step ladder with tread 30cm and rise 15cm and with hand rails should be used for way in / out. If the depth of excavation is more than 3M then an access steel tower staircase should be used. When the size of excavation being carried out mechanically is quite large with minimum width of 3M and length at least two times the width then for depth exceeding 1.5M (but less than 3M) steps cut in firm ground at least at two locations may serve the purpose, if approved by Site In- charge. For deep excavations more than one steel tower staircase accesses are required.
11. Access to Working Areas Above Ground Level: Working above ground level or work at height means work in any place where, if precautions were not taken, a person could fall a distance liable to cause personal injury. You are working at height if you: 1) work above ground/ floor level. 2) are working on a ladder or a flat roof 3) could fall from an edge, through an opening or fragile surface or a hole in the ground. For access to / out of working areas at height steel step ladders with tread 30cm and rise 15cm and with hand rails should be used. The working platform (steel only) should be stable without any slippery surface, with 15cm toe board and guard rails at 90cm and 120 cm heights. While working at heights, the workers should wear body harness belts and the hooks should be anchored with solid and non yielding support above shoulder height, always.
12. All fall prone areas such as slabs, opening in slabs, column heads, bridges during erection etc. should be protected by hard barricades like pipe barricades.
13. Provide Fire Extinguishers/ Fire Stand at each flammable locations and as suggested by the Safety Officer/ the Engineer/ the Project Head.
14. Suitable Storage space for storage of Oxygen and LPG Cylinders as per standards is to be developed by the Contractor/ Agency.
15. For metal cutting works, a trolley shall be used to carry cylinders. The use of good conditioned gas pipes shall be ensured and non-return valves and flash back arrestors shall be used at either end of each pipe. The Cutter shall always use good quality goggles.
16. The welding shall be carried out using Rectifiers and there will be no joint in the leads. The return current lead should be clamped with earth. A good quality welding shield shall be used by the welder.
17. The erected Pre-cast girders or any other element should be supported by steel members to ensure stability during construction stage.
18. Cooperate with Ircon and other subcontractors working in the vicinity in maintaining safety and health at workplace.
19. Report immediately to Ircon, all fatal, serious occupational injuries, incapacity for more than 3 days or illness (requiring hospitalization). The

SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT SYSTEM

contractor must investigate these incidents and should submit a complete report within 24 hours of the occurrences.

20. All lifting equipment/ cranes/ wire ropes shall carry load test certificate.
21. The cranes and Hydra cranes shall be fitted with Safe Load Indicator (SLI).
22. The construction area shall be barricaded properly or as instructed by Site In-charge.
23. Shall maintain the smooth traffic if working near running traffic. Suitable safety measures shall be in place while working near running traffic / railway track. While working near running track, the instructions of Railway's and Site In-charge shall be followed in toto.
24. For road works, suitable traffic diversion with all sign boards as per IRC Specs. should be installed. The excavated area or any other area that pose danger to the running traffic should be hard barricades using either steel guards or New Jersey Barriers or any other method as approved by Site In-charge.
25. For power distribution at site, proper distribution boards with lock & key arrangements and fitted with rain protection hood and having MCB controlled power sockets , 30mA ELCB should be used.
26. All power cables to supply power at site should be joint free and laid properly either overhead or underground.

For all the above said Safety (& Health) points, Documented Information are to be maintained by the Contractor / Agency and shall be checked by IRCON from time to time. With the monthly bills original copies of all these Documented Information are to be submitted to IRCON.

1.4 FUNDAMENTAL SAFETY RULES APPLICABLE TO EACH EMPLOYEE AND WORKERS

1.4.1 ALCOHOL / BANNED DRUGS

Anyone found to be under the influence of alcohol or banned drugs will be suspended forthwith. This offence amounts to gross misconduct and will result in disciplinary action being taken. PH reserves the right to request alcohol and/ or drugs tests at anytime should there be probable cause.

1.4.2 PLANT AND EQUIPMENT

All plant and equipment must be in good condition. Any defect in plant or equipment must be notified by the Contractor/ Agency Engineer, and the item withdrawn from service until repaired or replaced. A suitable guard should be in use over all the movable parts.

All electrical equipment must be supported by certificate confirming its last inspection date.

1.4.3 PLANT CERTIFICATES

All plant requiring certification, whether for the machine, the operator or process, must arrive with the machine and the records are to be maintained. Any changes in circumstances must also be notified and recorded (e.g. change of driver / machine).

1.4.4 PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Contractor/ Agency shall ensure that PPE must be worn for all activities at the site. The minimum PPE for Head, Foot and Eye Protection must be worn by all (including executives) during all times at site. For particular activities requiring specified PPE the same must be provided by the Contractor/ Agency in time.

1.4.5 METHOD STATEMENTS AND RISK ASSESSMENTS

Work must be carried out in compliance with the Method Statements and Risk Assessments that have been prepared for that activity. Nobody should proceed until he/ she is familiar with the assessment / statement and the restrictions imposed by it.

1.4.6 WELFARE FACILITIES

The contractor/ agency shall provide canteen and welfare facilities for all workforce at site, and the same must be maintained in a clean condition. The dustbins are to be provided for disposing waste food and packaging.

1.4.7 REPORTING ACCIDENTS AND/ OR INJURIES

All near miss, accidents and/or injuries must be reported to the Site In-charge/IRCON. A detailed investigation report is to be prepared by the contractor/ agency and to be submitted to IRCON.

1.4.8 LOCATION OF FIRST AID KIT

First Aid Kit(s) shall be provided at suitable location(s) and the locations are to be identified clearly. Schedule "H" drugs are prohibited in First Aid kit.

1.4.9 EMERGENCY PROCEDURES/ASSEMBLY POINT/ EMERGENCY TELEPHONE NUMBERS

A suitable assembly point is to be marked for assembling in case of any emergency situation arisen. The Important and Emergency Contact Numbers are to be displayed on a board readable from a distance and letters should be 7.5cm (minimum) in height and 1.2cm (minimum) in thickness.

1.4.10 MATERIAL HANDLING

The contractor/ agency shall ensure that proper & certified tools and equipment are available for material handling and heavy lifting work.

1.4.11 WORKING AT HIGH ELEVATION

The contractor/agency shall pay special attention to avoid fall while working at site by using fall arrestors, body harness, proper working platform with railing and toe boards. The persons engaged for working at height should be given proper training.

SECTION – 2
HEALTH

2.0. The term ‘Occupational Health & Safety’ covers services entrusted with essentially preventive functions & responsibilities for staff, workers & their families. The purpose of the Occupational Health & Safety services for the staff/ workers is:

- a) Identification & assessment of the risks from health hazards in the work place.
- b) Advising on planning & organization of work & working practices.
- c) Providing advice, information, training & education on occupational health, safety & hygiene.
- d) To implement the requirements as per ISO Standards, and IS Specs. such as IS: 18001, IS: 3786, IS: 15656, BOCWA - 1996.

2.1 Contractor’s Occupational Health Organization:

To make successful implementation of the occupational health (& safety) plan, and to fulfill objectives as per IRCON’s SHE Policy, formulation of occupational health organization shall be the sole responsibility of the Contractor/ Agency. For this the contractor / agency shall establish the organization consists of:

- a) Health Officer ^{1}
- b) Health team members (all engineers / supervisors working at sites)

{1} If the Contract Price is equal or more than Rs. 100 Crore, then a full time qualified Health Officer^{2} is to be appointed by the Contractor. For works having Contract Price less than 100 Crore, an Engineer (Degree in Engineering) can be nominated as Health Officer^{3}

{2} Minimum Qualification of Health Officer

- i) MBBS degree from a medical institute recognized by the Medical Council of India,
- or
- ii) Recognized degree or diploma in industrial health or equivalent post-graduate certificate of training in industrial health.

{3} For nominated Health Officer :

- i) Degree in Engineering or Technology or Architecture with practical experience of at least 2 years;
- or
- ii) Diploma Engineering or Technology with practical experience of at least 5 years

2.2 Responsibilities & Accountability of the Contractor / Agency

It is the obligation of all Contractors, Sub-contractors and their petty contractors to become familiar with and adhere to the provisions of the Occupational Health (and Safety & Environment) Management System as per relevant ISO standards and contractual obligation to provide a safe and healthful working environment for their employees and for the persons at the site who may be affected by their work.

The contractor/agency shall submit CVs of Health Officer/s for engagement at site/s.

2.3 (i) Documented Information: The contractor/ Agency shall formulate and maintain the following documents:

1. Development of Health (& Safety) Monitoring Plan
2. Setting of 'Safety & Health Objectives' of the project or particular process of the project
3. Maintaining of Applicable Legal & Other Requirements Register and to ensure that all statutory and Health (& safety) requirements are being met.
4. Implementation of BOCWA - 1996
5. List of identified Hazards of construction activities and Risk analysis of these identified Hazards. The preparation and implementation the control procedure to eliminate / substitute/ minimize the risk.
6. Medical services: To meet any emergency, any nearby hospital should be on the panel of contractor/ agency and Address of the Hospital and Phone Numbers of Concerned Persons to be contacted should be displayed on a board readable from a distance and letters should be 7.5cm (minimum) in height and 1.2cm (minimum) in thickness. Suitable transport arrangement should be promptly made to carry the sick or injured workers to the nearby hospital or other equivalent treatment center.
7. The mock drills are required to be conducted and Records of Mock drills to be maintained.
8. Keeping the records of Material Safety Data Sheet (MSDS) of Chemicals and other hazardous construction materials
9. A plan should be in place to face any Health Emergencies due to spread of Vector-borne diseases and epidemic or any other disease.
10. Emergency Control Procedures
11. Training Records
12. Records of Internal Audits

2.3 (ii) Provision of Occupational Health and Safety Protection Arrangements at Sites : The contractor/ Agency shall make the following provisions at sites:

1. Sufficient Numbers of Safety and Health Related Posters to be displayed at site.
2. Availability of drinking water
3. Availability of toilet facilities
4. Availability of First Aid Box
5. Availability of trained First Aider.
6. The sites where 'Working at Height' is involved, for rescue, at least one Inertia Reel – a safety device must be available.
7. Proper lighting system should be in place at site of work.

2.4 Labour Camps:

Camp sites should:

- be provided with portable drinking water and proper drainage facilities.
- Meal rooms & canteens with (1) a sufficient number of tables & chairs or benches, (2) drinking water; (3) adequate facilities for cleaning utensils, etc;
- the accommodation should be effectively protected from weather, ground moisture, mosquito etc..
- suitable provisions should be made for lighting, ventilation and sanitation.
- Adequate washing facilities should be provided for all workers, in which (1) There is a sufficient flow of clean water ; (2) There is adequate means of removing waste water ;

Construction Sites should:

- be provided with portable drinking water
- Meal rooms & canteens with (1) a sufficient number of tables & chairs or benches, (2) drinking water; (3) adequate facilities for cleaning utensils, etc;
- suitable provisions should be made for lighting, ventilation and sanitation.

For all the above said Health (& Safety) points, Documented Information are to be maintained by the Contractor / Agency and shall be checked by IRCON from time to time. With the monthly bills original copies of all these Documented Information are to be submitted to IRCON.

SECTION – 3
ENVIRONMENT

3.0 During construction works many by-products and effluents are generated like residue dusts, wastewater, air emissions, noise emission etc, which are discharged into the surroundings and create imbalance in the environment.

There are numerous laws, regulation and statutes, which govern and direct the construction processes with the aim and purpose to eliminate/ substitute/ minimize the various kinds of pollutants in the environment.

Contractor(s)/ Subcontractor(s)/ Agency shall confirm to all the Indian Environmental Laws and Codes, and objectives of IRCON's SHE Policy, as are applicable to their construction activities. To specify a few, the Contractor shall comply with but not limited to:

- Building & Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 (BOCWA)
 - Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998 (BOCWR)
- Environment Protection Act, 1986 (Amended 1991)
 - The Hazardous & Other Wastes (Management & Trans-boundary Movement) Rules, 2016
 - E-Waste (Management) Rules 2016
 - Batteries (Management & Handling) Rules, 2001
- The Air (Prevention and Control of Pollution) Act, 1981 (Amended 1987)
 - The Noise Pollution (Regulation and Control) Rules, 2000
- The Water (Prevention & Control of Pollution) Act, 1974 (Amended 1988)
- The Water (Prevention & Control of Pollution) Cess Act, 1977 (Amended 1992)
- The Indian Forest Conservation Act, 1980 (Amended 1988)
- The Wild Live (Protection) Amendment Act, 2006.
- The Factories Act, 1948 (Amended 1987)
- Motor Vehicle Act, 1988
- Delhi Fire Service Act, 2007
- Petroleum Act, 1934
- The Explosives Act, 1884
- Electricity Act, 2003
- Agreement with IRCON/ Client
- ISO 14001 Standards

3.1 Nomination of Environmental Officer

Contractor shall nominate one Environmental Officer^{1}. The Environmental Officer shall monitor and control environmental matters associated with the execution of Contract.

{1} If the Contract Price is equal or more than Rs. 100 Crore, then a full time qualified Environment Officer^{2} is to be appointed by the Contractor. For works having Contract Price less than 100Crore, an Engineer (Degree in Engineering) can be nominated as Environment Officer^{3}

{2} Minimum Qualification of Environment Officer

- i) Govt. recognized PG Degree / PG Diploma / Degree in Environmental Engineering / Science;
- or
- ii) Post Graduate Diploma in Industrial Safety & Environmental Management (PGDISEM) from any of the National Institute of Industrial Engineering.

{3} For nominated Environmental Officer :

- i) Degree in Engineering or Technology or Architecture with practical experience of at least 2 years;
- or
- ii) Diploma Engineering or Technology with practical experience of at least 5 years

3.2 Responsibilities & Accountability of the Contractor / Agency

It is the obligation of all Contractors, Sub-contractors and their petty contractors to become familiar with and adhere to the provisions of the Environment (and Safety & Health) Management System as per relevant BS/ ISO standards and contractual obligation to prevent the environment de-gradation due to construction activities and other construction related activities and do something good to enhance the environment.

The contractor/agency shall submit CVs of Environment Officer/s for engagement at site/s.

3.3 (i) Documented Information: The contractor/ Agency shall formulate and maintain the following documents:

1. Development of Environmental Management Plan for the project activities
2. Setting of 'Environmental Objectives' of the project or particular process.
3. Maintaining of Applicable Legal & Other Requirements Register and to ensure that all statutory and environmental requirements are being met.
4. Preparation of Environmental Aspect of activities and its significant Impacts.
5. Preparation of Operational Control procedures for significant impacts

SAFETY, HEALTH, AND ENVIRONMENT MANAGEMENT SYSTEM

6. Ensure proper liaison with Department of Forest and other Local Government Departments and to provide support to the officers of IRCON and external agencies during their inspection
7. A plan should be in place to face any Environmental Emergencies
8. Emergency Control Procedures
9. Training Records
10. Records of Internal Audit

3.3 (ii) Provision of Environment Protection Arrangements at Sites: The contractor/ Agency shall make the following provisions at sites:

1. Environment Control requirements at borrows areas, quarries and Construction Camps.
2. Environment Control requirements at Crusher plant, Hot mix plant, WMM plant, Batching plant, Casting yard etc. such as control of dust (in cement silo filter should be provided), reduction in noise generation.
3. Environment Control Requirements during transport of material like covering of dump trucks, avoid over loading.
4. Environment Control requirements during Drilling and Blasting
5. Environment Control Requirements at Dumping Sites
6. Monitoring of Air Quality including dust pollution and Control
7. Water Quality Monitoring and Control
8. Ensure PUCC for all DGs, vehicles and all construction machines & equipment having IC Engine.
9. Noise Monitoring and Control
10. Hazardous Waste Monitoring and Control
11. Contaminated Site Monitoring and Control
12. Increase awareness level through environmental training for the construction supervision site staff.

For all the above said Environment points, Documented Information are to be maintained by the Contractor / Agency and shall be checked by IRCON from time to time. With the monthly bills original copies of all these Documented Information are to be submitted to IRCON.

For the convenience, the above said Documented Information on Safety, Health and Environment may be submitted in book form on monthly / quarterly basis after taking the approval for such submittals from Project Head/ the Engineer.
