भारतीय प्रौद्योगिकी संस्थान कानपुर
INDIAN INSTITUTE OF TECHNOLOGY KANPUR
कुलसचिव कार्यालय
Registrar Office

आज़ादी का अमृत महोत्सव

Tel. : +91-512-259 7808/6434 (O)
Fax : +91-512-259 0465
Email: registrar@iitk.ac.in

पत्रालय - आई.आई.टी., कानपुर-208 016 (भारत)
Post Office - I.I.T., KANPUR-208 016 (India)

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दिनांक/***Date:*** August 21, 2025

Notification

A Safety Policy meant for all contractors and outsourced agencies engaged in different works within the Institute premises has been developed as attached. This policy sets forth clear safety requirements, along with defined roles and responsibilities, for all contractors and outsourced agencies.

All Concerned are therefore requested to take a note of it for guidance and compliance.

21/8/25
(Vishwa Ranjan)
Registrar

Circulation:

1. All Deans
2. Heads of the Departments
3. Superintending Engineer, IWD
4. Executive Engineer (Electrical)
5. Safety Officer

Copy for informtion:

1. Director
2. Dy. Director

Contractor Safety Policy

IIT Kanpur

Version 1.0 Year: 2025

SAFETY CELL

Contents

1. Introduction

IIT Kanpur strives to maintain a safe and healthy workplace for Contractor. Institute is committed to protect health and safety of everybody involved with Institute activities and protects the environment in a sustainable manner. Hence Health, Safety, and Environmental (HSE) considerations are recognized as critical and integral to our core processes and our day-to-day activities. All Contractors must report any unsafe act/condition or environmental conditions which has or could have an adverse impact to human health or the environment. Contractors are to ensure the health and safety of their workers and any person likely to be affected by the workers' actions. Contractors have the right to know about hazards and the means used to control or eliminate the hazards. Contractors have the right to participate in workplace safety activities and to refuse to work in an unsafe or environmentally detrimental condition.

This document provides all Contractors with the minimum Health, Safety and Environmental (HSE) standards required while working on and/or adjacent to Institute premises. Non-compliance of HSE standards is treated the same as non-compliance with any contract provision and may result in work stoppage or Contractor removal from the premises. Repeated non-compliance may result in Contractor dismissal and contract termination.

IIT Kanpur requires that Contractors meet all guidelines outlined & Pre-Job Requirements, of this manual prior to commencing any work on Institute premises/ Project site. As a part of this commitment, IIT Kanpur ensures that contractors are aware of its policies and standards and require the contractors to comply with IIT Kanpur standards. It is the responsibility of the main contractors to ensure that all their sub-contractors fully comply with IIT Kanpur HSE requirements.

Contractor is responsible for complying with applicable Indian, State and local Health, safety and environment regulations. Contractor must also comply with the requirements listed in the Contractor Safety Manual and any site-specific and/or business unit policies and procedures that are applicable in the scope of Work. It is the Contractor's continuing and absolute responsibility for all aspects of Contractor safety on their jobsites during the execution of work. Contractors are important wings of IIT Kanpur & it is necessary that they know HSE norms and ensure healthy safety practices at IIT Kanpur.

2. Objective

The purpose of this protocol is to establish, implement and execute a safe and effective program for the prevention of incidents that may cause injury to persons or damage to the property. The specified responsibilities remain with the contractor for compliance.

These safety requirements have been designed to assist all Contractors, their supervisors and workmen to identify, evaluate, and subsequently adopt control measures in various activities or conditions to reduce the possibility of any undesired incident within their respective areas of contract responsibility.

3. Scope

The requirement of this manual is applicable to all contractors working within IIT Kanpur own, leased, managed, or associated assets / project sites and office premises. Contractors include short term, long term, Civil, Mechanical, Electrical and general to perform any job. All Contractors are required to ensure that they and their employees, Subcontractors, suppliers, vendors, and visitors, while on the job site or even off the job site, comply with the provisions of this standard.

4. Contractor selection

Selecting a qualified and skilled contractor is a major step toward achieving safe contractor performance. Proper framing of the scope of work, pre-qualification criteria, special contract requirement, experience profile of the contractor and its workmen/ supervisors etc. is essential for proper selection of a contractor.

The contractor's safety standard can be judged by the following attributes:

- The contractor's safety commitment, as demonstrated by its own safety programs supported by their top management.
- Experience profile of the contractor, its supervisor and workmen.
- Past safety performance of the contractor can be evaluated through old data tracking or through documentary evidence submitted by the contractor such as Accident data, Near-Miss data, safety violation during the job, system of safety training, hazard identification and mitigation plan, safety meeting, safety promotion program, safety enforcement and disciplinary action plan, safety standard available with contractor for similar jobs etc.
- Availability of safety equipment/ appliances with the contractor.
- Availability of qualified and skilled safety personnel with the contractor to monitor safety performance during the progress of the job.

After completion of the work as per contract, performance towards Health, Safety & Environment of the contractor will be evaluated & contractor assessment form will be filled in by the Engineer In-charge IWD dept. of IIT Kanpur.

5. HSE Management System

Contractor must have a defined Health, Safety & Environmental Management system in place aligned to IIT Kanpur requirements and demonstrate that it is implemented effectively. It should typically cover the following elements

- HSE Policy
- Organization, Resources & Documentation related to HSE.
- Evaluation & Risk Management.
- Planning & Procedure.
- Implementation & Monitoring.
- Auditing & Review.

The contractor should have an HSE policy backed by their management's commitment to create a safe work environment. The policy should state the intention and methodology of protecting the personnel at work site. Contractors shall demonstrate their HSE commitment in protecting the people, environment and assets by implementing the HSE Management system and various HSE programs that support their HSE Policy.

6. HSE Plans

Prior to the commencement of contractual activity, the contractor shall submit a written Project-specific/Work Specific HSE plan to IIT Kanpur for review and approval. Contractors shall prepare the Project HSE plan addressing their work activities, hazards and risk controls, training needs identification, audits and safety promotional activities. Purpose of the project HSE plan is to provide assurance of effective working of the interface between the HSE Management Systems of IIT Kanpur and contractors at specific work/project level.

The Contractor's Project specific plan shall address the following:

- Title page
- Project title and brief scope of work

- Organization chart
- Hazard identification plan (clearly identifying project related to HSE risks, control measures and people responsible)
- Safety I Environmental policy and assignment of responsibilities
- HSE Training plan
- Management of sub-contractors
- Safety inspections
- Safety reports and records
- Welding and cutting equipment
- Personal protective equipment
- Tools and portable power tools
- Ladders
- Electrical installation and equipment
- Cranes and rigging equipment
- Mechanical equipment
- Transportation
- Incident reporting and investigation
- Excavation
- Fire prevention
- First-aid facilities
- General safety rules
- Emergency response and evacuation procedures
- Environmental regulatory compliance requirements and compliance process
- Manual Handling
- Checklists

7. Contractor HSE Organization & Responsibilities.

Contractor shall submit the HSE Organization chart with responsibilities to IIT Kanpur Safety office and obtain approval prior to startup of job.

Typical requirement of Safety personnel

Employee strength (including subcontractor)	**Minimum requirement of HSE Personnel.**
No of Employee≤ 25	1 no. Supervisor with background and knowledge of Fire & Safety.
No of Employee 25-50	1 no. HSE Supervisor with background and knowledge of Fire & Safety
No of Employee 50-500	1 no. HSE Supervisor for every 25 Employees + 1 no. HSE officer for every 100 workmen

The minimum qualification for Contractor safety Personnel-

HSE Supervisor-

- Should be diploma one-year industrial safety/ general safety diploma course.

HSE Officer-

- Should be degree holder in Engineering (Fire & Safety) or degree holder in Mechanical, Electrical, Civil and one-year industrial safety diploma course from recognized institute. Having two years of experience as a Fire & safety officer

- Responsibility of HSE Supervisor

  The field HSE supervisor will assist the HSE Engineer. This position is responsible for:

- Ensuring all the workmen & supervisor with safety gears (Safety shoes, safety helmet, cover all & other job specific PPE's).
- HSE training (organize the training programs as per the training matrix).
- Daily workplace safety inspections (to identify unsafe acts, unsafe conditions and take necessary actions).
- Identification of hazards and environmental impacts.
- Inspection of PPEs, tools / lifting accessories / slings / ropes/web belts/ D-shackles etc. (visual inspection once in week for their soundness and validity).
- Maintain daily HSE logbook (site HSE observations and preventive actions taken).
- Checking availability of safety work permit & review of work permits as per permit conditions.
- Reporting of Near miss incident, first aid & other incident to HSE Engineer.
- Identifying and correcting unsafe behaviors at work site.
- Training to their staff, supervisor & workmen regarding the operation & maintenance of Firefighting equipment's.
- Daily toolbox talk must be conducted for the workmen.

Responsibility of HSE Officer-

Contractor's HSE officer assumes the lead safety position for the contractor organization and is responsible for monitoring and administering a pro-active safety program designed to provide assistance in recognizing, evaluating, and subsequently controlling or eliminating hazardous acts or conditions He/She works in close coordination with IIT Kanpur HSE Management and in conjunction with his/her Principal employer assisting in the implementation of HSE programs. Broadly the responsibilities of HSE Officer are:

- Administer appropriate safe work practices I procedures within the worksite.
- Ensure that necessary records are maintained as per applicable HSE regulatory requirements and reports are submitted to statutory bodies as per the timelines defined by them in the applicable acts / rules.
- Ensure that all mobile lifting appliances are subjected to third party inspections as per statutory requirement & records are maintained by the responsible dept.
- Promote a high level of safety awareness of the project among the staff/workers through orientation/refresher training programs.
- Site safety visit.
- Ensure the safety work permit system.
- Ensure Safety gears (safety shoes, safety helmet, Cover all & other job specific PPE's) by all the workmen & supervisor at job site.
- Certification & testing Safety equipment & PPEs.
- Conduct Weekly Safety inspections, track performance and report trends to his/her site management.
- Maintain all HSE related records and files associated with the organization.
- Maintain pertinent information (i.e., phone number, locations) of Emergency Response Services, physicians, and hospitals.

- Lead and assist in accident / incident investigations to ensure all accidents and incidents are properly investigated including near-miss incidents, first aid cases, all recordable cases, property damage, etc. & report to IIT KANPUR Safety Officer.
- Evaluate subcontractor safety programs and performance and ensure they comply with the statutory and HSE requirements
- Review the Supervisor HSE Logbooks.
- Training to their staff, supervisor & workmen regarding the operation & maintenance of Firefighting equipment's.

8. Safety Training & Toolbox Talk

Training

Before start of any job, all the contractor personnel must be trained in a language they understand before issuing I-Card for working at IIT Kanpur premises & project site. The content of the training program should include the following:

- HSE management system of IIT Kanpur
- Safety standards and procedures relevant for carrying out jobs.
- Special precaution specific for a site Work based on its hazard perception.
- Hands on training for use of fire extinguisher & PPE.
- Use of PPEs in general and any special PPE specific for a particular job.
- Emergency preparedness plans include evacuation plan of IIT Kanpur.
- Near miss & incident reporting.

This training is meant to make contractor and their employees familiar with existing safety practices of IIT Kanpur.

Toolbox Talk

- Toolbox talks are quite effective means of communicating the workplace hazards and appropriate controls to the workers.
- It helps in better understanding and ensures proper controls to reduce the risks.
- Contractor supervisor shall deliver the toolbox talk in a reasonably peaceful area, before start of the activity.
- It should contain a brief description of work, probable hazards, controls planned and mitigation measures to be taken.
- Use & benefits of PPE's & safety gears as per the job requirements.
- The duration of the toolbox talk should not exceed 15 minutes.
- A record for each toolbox talk should be maintained by the contractor indicating

the topic and number of personnel attended.

- The environment of toolbox talk shall be supportive to clear doubt, if any, raised by workmen.
- The Contractor should ensure that Toolbox Talk are conducted on regular basis.

9. Issue of I-Card

Issue of I- card is more of a security issue than a safety issue. However, this system can also be used effectively for safety interventions. Following may be adapted to use the I card for safety controls:

- A photo I Card will be issued by the contractors for his supervisors/ workmen. Photo I card will contain identification marks and can be referred for future administrative controls.
- After imparting safety trainings, the I Card will be stamped as 'Safety Training given' or separate Safety Training card shall be issued by contractor to supervisor, Workmen and their employees. No contractor and their employees shall be allowed to enter inside the IIT KANPUR premises or project site for carrying out jobs unless the safety briefing has been given to them and stamping off, I card / Safety training certificate has been issued to them.

10. General Safety Requirement.

10.1 Work Permit System

The contractor Supervisors (or person in charge of the work) should ensure that:

- They have received training in the Safety work permit system as applied in that location
- The people working for them have received adequate instruction in the system
- They discuss the job fully with the person issuing the permit
- The workmen are briefed on the details of the permit including any potential hazards, and on all the precautions taken or to be taken.
- The precautions are maintained throughout the work activity
- The worker understands that if circumstances change work must be stopped and inform the supervisor.
- The work group stays within the limitations set on the permit (physical boundaries, type of work and validity time)
- On completion or suspension of the work the site is left in a safe condition, and the permit issuer is informed & permit has been returned for closing.

Individuals working within the Safety work permit system should ensure that:

- They have received instruction and have a good understanding of the safety work

permit system at the installation where they work

- They do not start any work requiring a permit, until it has been properly authorized and issued
- They receive a briefing from the supervisor on the particular task, and they understand the hazards and the precautions taken or to be taken
- They follow the instructions specified in the permit. When they stop work, the site and any equipment they are using is left in a safe condition
- If in any doubt or if circumstances change, they must stop working and consult with their supervisor.
- Work Permit formats attached in Annexure –I

10.2 Worksite /Construction Area Safety

- It is the responsibility of each Contractor or his authorized a nominated representative to inspect each work area at the beginning of each shift, and periodically thereafter, to ensure safe working conditions are maintained.
- Contractors must provide good illumination for work to proceed safely.
- Contractors must ensure protection from severe weather conditions. (Extreme wind, lighting storms, extreme heat, extreme cold etc...).
- The Contractor needs to evaluate /consider the environmental extremes of the project, such as the ability of their workers to work in areas of excessive cold or heat.
- Based on that evaluation the Contractor must implement the appropriate procedures to provide a safe work environment.
- The contractor shall depute at least one Safety Supervisor / HSE Officer for critical activities as follows,

i. Any excavation more than 1.5 mtr. Depth

ii. Work at height (working beyond 2.5 mtr. above ground)

iii. Materials and Material Handling which includes movement of material by crane, movement of tractor trolley on slopes, etc.

iv. Working near high voltage lines, electrical installations, etc.

v. Painting at height (beyond 2.5 mtr. above ground) and painting in confined space In addition to above list, IIT Kanpur may also recommend for some specific tasks, which are not covered, to depute HSE Officer/Safety Supervisor.

- The contractor has to provide appropriate Personal Protective Equipment's (PPE) like safety shoes, safety helmets, goggles, hand gloves, full body safety harnesses, etc. as required for safety of themselves, their workers and employees, sub-contractors, suppliers, vendors and visitors at site. All PPE must conform to relevant Indian and/or International Standards. These should be maintained in recommended condition by suitable storage, maintenance and inspection. IIT Kanpur shall have right to examine the PPE and determine their suitability, reliability, acceptability and adaptability.

- Fall Protection: Falls are one of the leading causes of construction site fatalities. Implementing fall protection measures such as guardrails, safety nets, and harness systems is crucial, especially when working at heights.

- The contractor shall provide and maintain proper illumination, fencing, guards, stairs, ladders, scaffolding, warning signs, caution boards, etc. as required to ensure safe working conditions at site.

- The contractor shall ensure that all floor and wall openings are fixed and properly guarded/barricaded during the course of work and at the end of each day's work with appropriate caution board.

- The contractor has to ensure to employ only persons who are medically fit and having sufficient skills for execution of work. The contractor must ensure efficient job supervision through qualified, experienced and responsible supervisors to ensure safety at site.

- All staff persons including workers must undergo Safety Induction Training prior to depute them at IIT Kanpur and associated centers/units/ departments/sections for any kind of work. Training module may include video film, clippings, photographs etc. related to work execution. In addition to this, Job specific training must be imparted to the workers concerned periodically.

- The contractor has to ensure that Daily Tool Box Talk shall be conducted at least for new workers by responsible work in-charge /safety supervisor/HSE officer for each activity and its record to be maintained.

- The contractors themselves, their workers and employees, sub-contractors, if any, shall comply with the instructions given by the Safety Officer or his authorized nominee or IIT Kanpur representative regarding safety precautions, protective measures, housekeeping requirements, etc. IIT Kanpur shall have the right at its sole discretion to stop the work, if the work is being carried out in such a way that it may cause accidents or harm to the workers or damage to the equipment's. Contractor shall get the unsafe condition removed and report to IIT Kanpur. The contractor shall have no right to claim any damages/compensation for stoppage of work due to safety reasons as provided above. The period of such stoppage of work will not be taken as an extension of time for completion of work or exemption from liquidated damages/compensation delay.

- The contractor should ensure that water, fuel and energy are used judiciously. The water & power points must be closed / put off when not in use. Good housekeeping practices must be followed strictly.

- All equipment's used for construction, fabrication and assembly work, etc. by the contractor must meet Indian/International standards. In case such standards do not exist, the contractor must ensure these to be absolutely safe. All equipment's shall be strictly operated and maintained in accordance with manufacturers' operation manual and safety instructions

- Contractor shall arrange adequate facilities for first aid, medical aid and treatment for his staff and workers engaged at the work site.

- The contractor has to fully be responsible for the behavior and conduct of themselves, their workers and employees and sub-contractors. Any cost of loss or damage to client's property caused by contractor's employees or workers will be recovered from the contractor.

- All necessary precautions shall be taken to prevent outbreak of fires at the site. Adequate provisions or as recommended by Safety Officer of IIT Kanpur must be made by the contractor to extinguish fires.

- The contractor shall issue photo identity cards for themselves, their workers and employees, sub-contractors to be deployed at site. They are required to be displayed prominently during the period of their stay within IIT Kanpur and associated centers/units/ departments /sections.

- Any person under the influence of any intoxicating beverage, even to the slightest degree

shall not be permitted at work site.

- Person below the age of 16 years must not be employed for any work at site. But it is always suggested to employ the person of minimum 18 years old.
- IIT Kanpur may from time to time add or amend to these protocols and issue directions
- The contractor shall comply with the Safety Instructions as laid down in as per attached Appendix.

10.3 Safety while working at height: -

Ladder safety

- The design of ladder shall confirm IS 3696 (Part 2): 1991. Makeshift ladders shall not be permitted.
- Metal ladder of aluminum alloy complying with the suitable grade of IS 617:1975.
- Ladder used at worksite should be capable of carrying their intended load.
- Slip-resistant shoes, lashing or other effective means shall be used to avoid danger or slipping.
- Overall length of stock ladders shall not exceed 10m.
- The overall height of step ladders shall not exceed 6m.
- Step ladders shall be provided with an automatic locking device or spreader to hold it in open position.
- The overall length of the extension ladder shall not exceed 18m.
- No ladder having a missing, defective rung or one which depends for its support solely on nails, shall be used. Defective ladders shall be promptly and properly repaired or replaced.
- Special care should be taken while working near electrical line.
- Three-point contact while working on ladder shall be practiced.
- A ratio of 1:4 in distance of resting points in bottom and top ladder points shall be maintained for stability.

Scaffold safety- Mobile scaffolding for temporary work

- Scaffolds shall be braced by cross bracing or diagonal braces or both, for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square & align vertical members so that the erected scaffold always plumb, square & rigid. All brace connections shall be made square.
- Platforms shall be tightly decked for full width of the scaffold and scaffold boards shall be secured against displacement. Platforms shall be provided with guard rail.

- The force necessary to move the mobile scaffolding shall be applied near or as close to the base as practicable and provision shall be made to stabilize the tower during movement from one location to another. Scaffolds shall only be moved on level floors free from obstructions and openings.

- The wheels or casters shall be provided with rubber or similar resilient tires.
- Workmen shall not be allowed to ride on the mobile scaffold.
- All materials shall be removed before mobile scaffold is moved.
- The mobile scaffold in use shall rest upon a suitable footing and shall stand plumb.
- The casters or wheels shall be locked to prevent any movement.
- Mobile scaffolds shall also confirm to the applicable provision of tube & coupler scaffolding.
- Special care should be taken while working with ladder & scaffold near electrical lines.
- Care shall be taken to see that no part of scaffold struck by moving equipment & no materials shall be dumped against it. Area should be barricaded while working near moving vehicles.
- Scaffold should be designed to carry intended load. Safety for G.I Installation & Maintenance work
- For working below the above-mentioned height, suspended working platform with lifeline (other than load carrying rope) & fall arrestor may be used. Working platform & others load carrying equipment should be designed in such a way that, it is able to carry the adequate load. Materials used for construction of working platform should be of good quality. Suspended working platform must be tested by third party before using it & it must be retested every six months. All the equipment must be thoroughly checked before using it by the contractor or his representative. If any damage/cracks found the equipment, it must be discarded & checked by third party before using next time.
- All the safety gears & equipment's must be visually checked by supervisor at site before using it.
- Stability of structure will be ensured by contractor or his representative (supervisor) for carrying the suspended load.
- Work permits must be obtained for working at height.
- All the workmen for working at height must be medically & physically fit.
- Training must be given to all the workmen about the use & maintenance of safety gears & equipment's.

10.4 Gas Cutting & Welding

Gas cutting

- Oxygen has no smell, but whilst not inflammable itself, promotes & accentuates rapid combustion, hence it can be highly dangerous, particularly in confined spaces, where it may not dissipate quickly, because the addition of only a small amount of oxygen to the normal atmosphere can create a violent risk from any stray spark or welding flame.
- Acetylene is highly flammable and with air, forms an explosive mixture which can be set off by any spark, flame or heat in the vicinity. It is therefore essential that all

  joints, especially on the gas cylinder, are tight; that the hoses themselves are in good condition and all the valves are turned off on completion of work.
- Liquefied Petroleum Gas (LPG) is a mixture of Butane & Propane. It is highly inflammable and heavier than air. It flows along floors & tends to settle in low spots, such as basements and pits. Thus, should be kept in mind to avoid accidental ignition or suffocation hazards. Only industrial LPG cylinders will be allowed for gas cutting operations.
- Acetylene cylinders are filled with a porous substance such as charcoal or kapok substances, which is soaked with acetone. Because of their design they should always be

stored upright. The pressure in the cylinder is 250psi. Copper pipe must not be used for connecting hoses together, as copper & acetylene can form copper acetylides, which are sensitive explosive. Acetylene should not be used to cut silver also. Colour code of Acetylene cylinder is maroon.

- Oxygen is supplied in cylinders pressurized to 2200psi & painted in black colour.
- All cylinders shall be protected against excessive rise in temperature.
- Cylinders stored in the open shall be screened against the continuous direct rays of the sun.
- A serious accident may easily result if oxygen is used as a substitute for compressed air. Oxygen shall not be used in pneumatic tools, to blow out pipelines, to dust clothing or work, to create pressure or for ventilation.
- Oxygen cylinder & its parts should be free from grease, oil or any combustible materials.
- Fuel-gas cylinders shall be handled carefully, (rough handling, knocks or falls are liable to damage the cylinder, valve or safety device and cause leakage). Suitably designed equipment (trolley with chain for tying the cylinder) shall be used for transporting gas cylinders.
- Fuel- gas cylinder should be placed away from source of ignition.
- Regulators or automatic reducing valve shall be used only for the gas at pressure for which they are intended.
- Always double stage regulators shall be used with flash back arrestors.
- During gas cutting, Suitable PPEs should be worn.
- Blowpipes shall be shut off when not in use.
- Lighted blowpipes shall not be left on a bench or the floor as the force of flame may cause it to move.
- Work piece shall be clamped and not held by hand.
- Hoses shall be kept away from the working area to prevent contact with flames, heat, sparks or hot spatter.
- For cutting process SOP should be followed. SOP will be provided by concerned Engineer/ In charge of IIT Kanpur.
- Firefighting equipment should be kept nearby in case of fire.

Welding

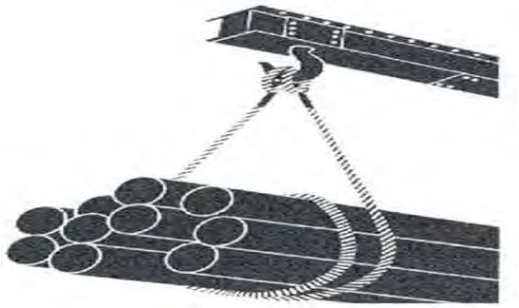
- All the moving & rotating parts of the welding equipment shall be guarded.
- In case of engine- run welding machines, refilling shall not be done while the machine is running and spilling of oil be avoided.
- All welding cable shall be of completely insulated, flexible type, joint free & capable of handling the maximum current requirement of the work in progress.
- Any current- carrying parts passing through the portion of the holder, which the welder grips in his hand shall be fully insulated against the maximum voltage

  encountered to ground. Insulation of all, metallic or current carrying parts, including the jaws, which grip the electrodes, is recommended.
- Welding current should be returned to the welding machine by a single, cable from work to the welding machine. Connection of a cable from the welding machine to a common conductor or structure on which the work rests, or to which the work is connected may be permitted.
- Pipelines containing gases or flammable liquids or conduits carrying electrical conductors shall not be used for a ground return circuit.
- Precaution shall be taken to prevent electric shock, where ELCB/ RCCB is required to be used.
- Welding equipment shall always be maintained in safe working order. Periodic inspection shall be conducted.
- Either the work- piece shall be moved to a safe location for carrying gas cutting work or Combustible materials and flammable materials shall be removed from the workplace.

- If combustible materials that cannot be moved shall be protected from close contact with flame, heat, sparks or hot slag. Suitable guards or covers such as fire-retardant blankets shall be used.
- Fire extinguishers shall be kept nearby.
- Suitable PPEs should be used while welding.
- IS 818- 1968 Code of practices for safety & health requirements in Electric & Gas welding & cutting operations should be followed.
- IS 3016-1 965 Code of practices for fire precautions in welding and cutting operations should be followed.
- Ensure that all electrical instruments and equipment are fitted with appropriate plug tops before use. Direct wiring into sockets should be strictly prohibited. Periodic inspections should be conducted to ensure compliance, and **penalties may be imposed on the responsible contractor or vendor** in case of violation.

10.5 Safety While Working with Machinery- (Hydra, JCB, Crane, Tractor etc.)

- All gears, pulleys, revolving shafts, couplings, belt Drives, chain drives and all other rotating and moving parts of machinery shall be effectively guarded unless they are so constructed, installed or placed as to be safe as if they were guarded.

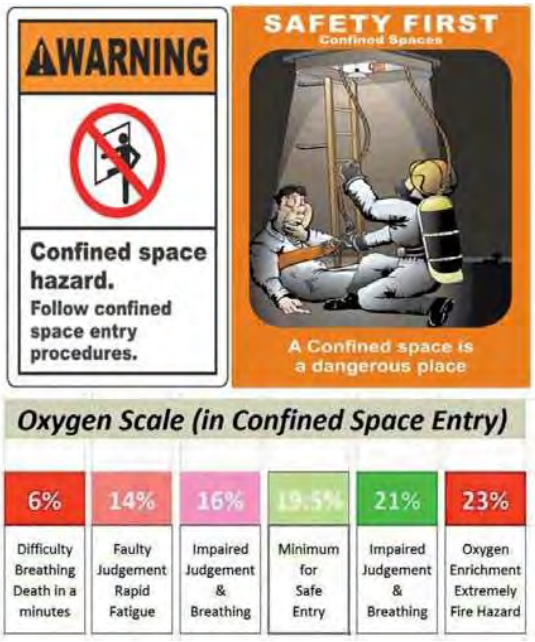


- Fencing (Guard) of rotating, moving and other dangerous parts of machinery shall not be removed while the machinery is in use or in motion and when removed, it shall be replaced as soon as practicable and, in any case, before the machinery is again brought into use.
- No part of machinery, while in motion or in operation shall be examined, lubricated, adjusted or repaired except by authorized workmen.
- All the limit switches & safety devices should be in working condition. It must be checked about its work before using the equipment.
- Electric power shall be shut off and relevant fuses removed when repairs are carried out to any electric machinery.
- Where the machinery in use is mobile type and during the course of operation it has to shift its location frequently, one 10 kgs stored pressure type Dry chemical powder fire extinguisher shall be carried on the machine at a suitable position on the machinery so as to ensure its easy availability.
- Only competent and reliable people shall be employed as drivers of earth moving and lifting machinery or as signallers to give signals to the driver.
- The Operators/ Drivers shall possess valid License.
- All the documents related to vehicle and legal documents should be available with operator & should be presented when asked by IIT Kanpur representative.
- The driver shall not leave his cabin while the engine or motor is running or the load is suspended, and in no case, shall the machinery be left unattended, even for short periods, until all loads are removed.
- Before leaving the machine, the operator shall switch off the electric power supply or stop the engine applying appropriate motion brakes and locks to keep the machine in safe

condition.

- No unauthorized person shall operate the machines.
- The driver/operator and signaller shall have good vision and undergo the medical test for vision once in a year.
- Hydra should be used only for lifting purposes; it must not be used to carry the load from one point to another point.

10.6 Safety in Confined Space-



Pic Source: google

Workplace, having restricted means of entry & exit and not designed for continuous human occupancy. Such as Steel Valve Chamber.

Hazards

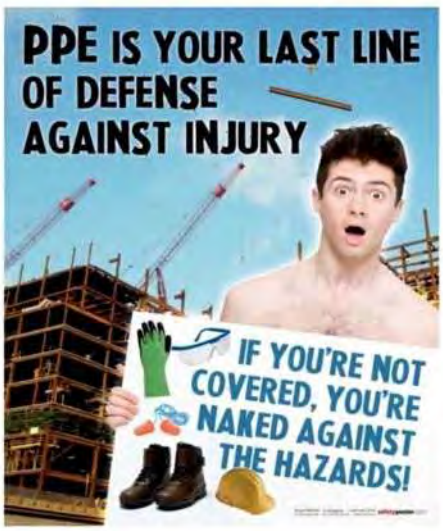
1. Oxygen deficiency
2. Flammable gas
3. Toxic gas (Carbon monoxide, Hydrogen sulphide, welding fumes)
4. Electricity
5. Mechanical Hazard

Safety requirement

- Work permit must be obtained for working in confined space. Work permit for working in confined space will be issued at site after physical verification.
- Entrant, the employee who will physically enter the confined space to perform work, shall be explained about the hazards and the relevant precautionary measures related to confined space.
- There shall be an attendant employed and he shall be outside the confined space and monitor the entrants.

- All person entering a confined space shall wear Full- body harness with a lifeline where entrances are restricted to prevent normal removal of a person. In such cases, one end of the lifeline shall be with attendant to facilitate removal of person.
- Before the initial entry is made into any confined space the atmosphere shall be tested to determine whether it is safe for entering without wearing breathing apparatus or whether it is hazardous & require the wearing of breathing apparatus.

10.7 Personal Protective Equipment-



Pic Source: google

- All the personal protective equipment's should be of good quality & reputed make & shall have the national or international certification.
- All the required & appropriate/ suitable PPEs will be provided to his workers by his contractor. If the contractor does not provide the required PPEs to his workmen,

  The job may be suspended. In case of urgent nature of job & depending upon the availability of PPE's with IIT Kanpur, the same may be provided by Institute & the deduction will be made from the contractor's account.

Helmet

- Safety Helmets are intended to protect the head from injuries caused by falling or flying objects, impacts, electrical shock, by bumping the head against a fixed object.
- A safety helmet should be worn by all persons at all times whenever there are overhead hazards.
- Safety helmets shall be certified to IS 2952 or internationally recognized such as CE.

Hearing Protection

- The surest method of preventing occupational deafness is to reduce noise at the source by engineering methods. However, in certain workplaces, engineering methods may not be sufficient enough to reduce the noise level reaching the user below 85 dBA.
- In such workplaces, hearing protectors need to be used to reduce the amount of noise reaching the ears.
- Ear plugs should be used in high noise areas. Eye & Face Protection
- Eye & face protection devices should be used whenever workmen are exposed to hazards, which could injure eyes and/ or face.

Hand & Arm Protection

- Hand & arm protection is necessary to protect the workers from potential injuries like thermal & chemical burns, bruises, cuts, electrical shock and absorption of chemical through skin contact.

Foot Protection

- Foot protection shall be used to protect the workers from the following injuries-
- Impact Injuries
- Compression injuries
- Electrical shocks
- Puncture
- Safety shoes should always be worn by all people whenever they are at IIT Kanpur worksite.
- Using gumboots should be ensured whenever required.

Fall Protection

Full body harness shall be used by all personnel when working or travelling in elevated area more than 1.5m above ground level or adjacent surface where a fall exposure exists.

Eye Protection

The contractor shall provide suitable personal protective equipment to his workmen depending upon the nature of hazards and ensure their usage by the workers engaged in operations like welding, cutting, chipping, grinding or similar operations which may cause injuries to his eyes.

Specifications of PPE are given in Annexure-II

10.8 Safety in Grinding Operation-

- The wheels, which are properly labelled only, shall be used. Instructions given on the wheel must be followed.
- Grinding wheel shall never be used after its expiry date.

- Abrasive wheels shall carefully be inspected and shall not be used, if they are damaged any way.

- Wheel Guard shall be in position and fixed securely before starting the cutting- off or grinding operation. Grinding machines shall never be used without wheel guard.
- Wheel guards shall be oriented such that it prevents operator getting hit by broken pieces of wheel.

- PPEs required- Ear muffs, Gloves, dust mask, Leather apron or safety cloths, head cover, footwear.

10.9 Electrical Safety

- Proper size cables shall be selected based on the current rating to avoid overheating of cable.
- Double insulated three core/ four core cables only shall be used. Two core cables shall not be used.
- Cable must be joint free in hydrocarbon areas.
- Only metal clad and interlocked type combined switch plug- socket units shall be used. No loose wire shall be inserted in sockets without plugs.
- Cables shall be inspected before every use on all tools, lights and equipment.
- Insulation damaged cable will not be allowed for any work.
- The contractor should ensure that all electrical installations / equipment used in work area comply with the requirements of latest electricity acts/rules.
- The contractor shall take all adequate measures to prevent any worker from coming into physical contact with any electrical equipment or apparatus, machines or live electrical circuits which may cause electrical hazards during the construction work. The contractor shall provide the sufficient ELCBs, RCCBs for all the portable equipment, electrical Switch boards, distribution panels etc., to prevent electrical shocks to the workers.
- Ensure that all electrical instruments and equipment are fitted with appropriate plug tops before use. Direct wiring into sockets should be strictly prohibited, and periodic inspections should be carried out to ensure compliance.

10.10 Safety in Excavation work-

- Valid work permit shall be obtained for any excavation prior to the job.
- Clearances from different departments must be obtained for underground utilities. Common buried services found in a construction site are:
- Water mains (Fire, Industrial and Common Services)
- Electrical cables (High Voltage and Low Voltage, Permanent and Temporary).

- Drainages and Sewers
- Fuel pipes (Oil, Gas and Chemical).
- Communication and Optic Fiber cables (Telephone and Instrumentation)
- Contractor/Subcontractor will be responsible for detecting, identifying and marking of all buried services on work area affected by the excavation operation.
- Comply with hazard controls listed in the permit.
- Area around the excavated pit must be barricaded with sufficient height by appropriate means like sheets etc. in case of Project site for construction of new CNG stations, building etc so that no disturbance to the adjacent & from the adjacent should be made.
- Deploy a competent supervisor at work site during the work execution.
- Safe means of access and entry / exit shall be provided for all the excavation.
- Excavation should be done in V shape to avoid collapse of soil.
- Excavation more than man height, escape route with two ladder & rope should be provided.
- Excavated material should be kept at least 1.5 m away from the top edge of excavation.
- No heavy equipment or vehicle is permitted near to the edge of the excavated area.
- Stop blocks will be used to prevent construction plants and equipment from coming too close to the edge of an excavation.
- Excavation pit adjacent to public access will be adequately illuminated.
- Continuous mechanical ventilation will be provided in deep excavation to prevent the buildup of toxic or explosive gases.
- Atmospheric monitoring will be carried out in advance of any work and throughout the duration where work is being performed in a deep and narrow excavation.
- Workers working in excavation pit will be briefed on the potential hazards involved, escape routes and the emergency and rescue procedures when the need arises.
- Adequate first aid and effective rescue equipment will be provided in close proximity to an excavation.
- Workers will be trained in basic rescue procedures such as removing unconscious and injured workers from an excavation.
- Excavation of depth exceeding man height will be adequately supported by shoring kit or other suitable means to avoid collapse.
- Workmen working for excavation will use all the required PPEs.
- Area around the excavation to be cleared of all debris.

10.11 Safety in Radiography operation.

- Site radiography needs to be done in an area where specific protection measures and safety provisions are in place, i.e. in an area designated as a controlled area.
- The boundary of the controlled area has to be demarcated; when reasonably practicable, this is done by physical means. This may include using existing structures such as walls, using temporary barriers, or cordoning the area with tape.
- Notices are displayed at the controlled area boundary at suitable positions. The notices bear the national radiation symbol, warnings and appropriate instructions in the local language.
- In all cases adequate warning is to be given. Visible or audible signals or both are used where a radiographic source is exposed, or an X ray machine is energized, and surveillance is compromised. The use of visible and audible signals will help to reduce the likelihood of accidental exposures to radiation.
- Before the start of radiographic work, the area is to be cleared of all people except for authorized personnel.
- The boundary should be clearly visible and continuously patrolled to ensure that unauthorized people do not enter the controlled area.
- Whenever it is possible to take advantage of existing shielding, such as walls, vehicles or shielded enclosures or similar structures to reduce radiation dose levels,

  radiography personnel need to arrange the disposition of the equipment and parts within

the shielding afforded.

- Personal dosimeters such as film dosimeters or direct reading dosimeters are to be worn when radiographers are working with ionizing radiation. A personal dosimeter is worn only by the radiographer to whom it is issued, and it is securely stored in a non- radiation environment when not being worn.
- Personal dosimeters are to be regularly assessed for the radiation to which they have been exposed, as required by the Regulatory Authority. Direct reading dosimeters have to be periodically assessed by the radiographers to monitor doses received during radiography.
- Storage facilities for radioactive are designed to restrict exposure, keep radiographic sources, exposure containers and control sources secure against theft or damage, and prevent any unauthorized persons from carrying out any actions which would be dangerous to themselves or the public. Clear warning notices are to be displayed at the storage facilities.
- A suitable storage facility for radiographic sources, exposure containers, control sources and ancillary equipment is one that provides protection from the prevailing environmental conditions. Resistance to fire is considered in constructing the storage facility in order to minimize loss of shielding and containment. The storage facility is to be located at a remote distance from corrosive and explosive hazards in line with the guidelines of sourcing Agency.

11. Disciplinary Action

- If any Contractor allows workers to work in unsafe conditions or violates environmental permits or regulations, IIT Kanpur may remove the Contractor or any of its individual workers from Institute premises or Penalty may be imposed to the contractor as decided by Engineer/ In charge of IIT Kanpur for that particular site.
- Immediate and permanent removal may occur if any of the following activities are observed:
- Openly exhibits disregard, defiance, or disrespect for the safety program
- Violates established safety or environmental rules, regulations, procedures or codes
- Participates in fighting, violence, threats of violence, theft, or destruction of property
- Possesses weapons including but not limited to firearms or knives not typically used in conjunction with normal work tasks.
- Falsifying documents or information.

12. Accident /Incident Reporting and Investigation

- The Contractor must immediately report all accidents/incidents and near misses to the Institute Representative.
- The Contractor must investigate all accidents/incidents that result in, or have the potential to result in, injury or illness, property damage, process/product loss or harm to the environment.
- The investigative process must include the identification of root causes or causal factors that contributed to the occurrence. The Contractor must determine the necessary corrective actions and ensure closure/completion in timely manner. In addition to the Contractor's analysis/investigation, IIT Kanpur retains the right to conduct their own investigation for any illnesses, injuries, fatalities, incidents or near misses occurring on its premises.
- The Contractor must conduct the thorough investigation required by and submit a copy of the written report to the IIT Kanpur Representative, unless otherwise specified, within 48 hours of occurrence. Contractors must maintain injury logs for their respective workers.

13. Alcohol, illegal Drugs and Firearms

Contractor must develop and enforce a policy that prohibits the possession, distribution,

promotion, manufacture, sale, use, and use of illegal drugs, drug paraphernalia, controlled substances, alcoholic beverages and weapons by workers while on Institute premises or during work at site.

14. Emergency Evacuation

- In the event of emergency, the Contractor and their personnel are to follow the direction of Institute emergency action plan.
- Familiarize your workers with the emergency plan systems used at each specific work location. If any Contractor suspects that an emergency condition exists, they must immediately contact the IIT Kanpur Representative.

15. Housekeeping

- Good housekeeping is mandatory. Work areas must be kept neat, clean, and orderly.
- If a contractor's work area is not kept clean, IIT Kanpur may have the area cleaned and charge the cost to the Contractor.
- IIT Kanpur may also stop work until the area has been cleaned.
- Keep work areas, passageways, fire exits, fire lanes, and stairs in and around the buildings and structures always clear of debris.
- Properly store all tools and equipment's after use.
- Keep walkways free of cords, cables, obstructions, and debris.
- Changes in walkway elevations or dangerous depressions must be cleared marked with cones, barricade tape or other appropriate warning signs.
- Clean the work area daily and dispose of debris in dumpsters, or off site in accordance with the environmental regulations.
- Contractors must remove all unused material and equipment upon the completion of the work.

16. Fire Prevention and Protection

- IIT Kanpur utilizes the Hot Work Permit system for all working involving open flames, welding, cutting, grinding or brazing. A Fire Watcher is an individual who has been designated for monitoring the hot work site where open flames are present, where work on in-service equipment is being performed or where sparks have the potential for landing on adjacent in-service equipment. This individual must be capable of evaluating unsafe conditions and taking necessary actions to mitigate and communicate the conditions. The Fire Watcher shall have no other assigned duties while conducting this task.
- Obtain appropriate Work Permit from respective Control room to perform work activity.
- Make sure that firefighting equipment is available near work area for emergencies.
- Make sure that workers engaged in activities are capable to use of firefighting equipment in case of fire or emergency.
- Smoking is not allowed near work locations or near flammable materials.

17. Environmental Requirements

- Contractors are required to comply with all applicable environmental laws, rules and regulations over the specific location where work activities are being performed.
- Contractor must review and comply with all applicable environmental conditions, laws, regulations and Institute requirements prior to the start and during work.
- Contractor must participate in and comply with all applicable work-specific environmental training prior to commencing work.
- Contractors shall use only approved access roads and stay within approved and designated working, staging, temporary use, and parking area boundaries.
- Contractor must handle, treat, characterize and dispose of all waste in accordance with all applicable federal and state/provincial regulations and any specific contract requirements,

such as IIT Kanpur approval of the disposal site. Trash, debris, and other wastes shall not be burnt or otherwise disposed of on site without proper permission. Waste materials must be secured while on the worksite.

- Contractors shall maintain a clean and safe worksite. Trash and debris will be collected at the end of each day & disposed of properly.

18. Legal Requirement

- Contractors & their representative shall comply with all applicable health, safety & Environment legal requirement. For example- Factory Act-1948, PNGRB Guidelines, Gas cylinder Rules, BOCW Act & Rules etc.

Right to stop work

- The IWD Engineer or Safety officer shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and / or property, and / or equipment's. In such cases, the contractor shall be informed in writing about the nature of hazards and possible injury / accident, and he shall comply to remove shortcomings promptly.
- 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.

19. PENALTIES

1. If the contractor fails in providing safer working environment as prescribed in General Conditions of Contract relating to safety and health or continue the work even after being instructed to stop the work by IWD Engineers/Safety officer, the contractor shall be penalizing @ Rs.5,0001- per day or part thereof till the instructions are complied with and so certified by the Engineer in-Charge. However, in case of accident-causing major injury or fatal, the provisions contained below shall also apply in addition to the penalties mentioned in this clause.

2. If the Contractor does not take all safety precautions and / or fails to comply with the Safety Rules as prescribed by the Institute or under the applicable law for the safety of the Plant and equipment and for the safety of personnel and the contractor does not prevent hazardous conditions which cause injury to this own employees o employees of other contractors, or the Employer's employees or any other person who are at the site or adjacent thereto, the Contractor shall be responsible for payment of penalty to IIT Kanpur as per the following schedule:

a) Fatal accident / injury causing death Penalty @ 10% of the contract Value or Rs.5 lakh whichever is less for each fatal accident / injury causing death.

b) Major injury or accident causing 25% or more permanent disablement to workmen Penalty @ 2.5% of contract value or Rs.1 lakh whichever is less for each disablement injury.

3. Permanent disablement shall have the same meaning as indicated in Workmen's Compensation Act, 1923. The penalty mentioned above shall be in addition to the compensation payable to the workmen / employees under the relevant provisions of the Workmen's Compensation Act and Rules framed there under or any other applicable laws as applicable from time to time.

4. If any contractor worker found working without using the safety equipment like safety helmet, safety shoes, safety belts etc., or without anchoring the safety belts while working at height. The Engineer / Safety Officer of IIT Kanpur shall have the right to penalize the contractor for Rs.200/- per person per day and such workers shall be sent out of the workplace immediately and shall not be allowed to work on that day. IWD Engineer / Safety Officer of IIT Kanpur will also issue a notice in this regard to the contractor.

20.Annexure-I Work Permit Format

Permit No: _____Date: _____

Section 1: General Information

1. **Type of Work:** (e.g., Hot Work, Confined Space, Electrical Work, etc.)
2. **Location of Work:** _____
3. **Description of Work:** _____
4. **Date & Time of Work Start:** _____
5. **Date & Time of Work Completion:** _____

Section 2: Personnel Information

1. **Person in Charge:** _____
   Contact Number: _____
2. **Supervisor/Issuer Name:** _____
3. **Workers Involved (Names):**
   - _____
   - _____

Section 3: Risk Assessment

1. **Potential Hazards Identified:**
   - _____
   - _____
   - _____
2. **Control Measures to Be Implemented:**
   - _____

Section 4: Permit Approval

1. **Pre-Work Safety Checklist Completed?** (Yes/No)
2. **PPE Provided and Worn?** (Yes/No)
3. **Area Inspected Before Work Starts?** (Yes/No)

Authorized Signatures:

- **Permit Issuer:** _____ Date: _____
- **Person in Charge:** _____ Date: _____

Section 5: Completion & Closure

1. **Work Completed Satisfactorily?** (Yes/No)
2. **Area Restored to Safe Condition?** (Yes/No)

Authorized Signatures:

- **Permit Issuer:** _____ Date: _____
- **Person in Charge:** _____ Date: _____

21. Annexure- II

Specification of PPE's

SAFETY SHOES

- Shoe- derby shoe occupational footwear as per ISO: 20347, anti-static, high voltage resistant
- Upper leather- Buff Barton
- Sole- oil & skid resistant P.U
- Manufacture- shoe to be manufactured by direct moulded system after Strobel lasting on lasts confirming to h fitting.
- Toe puff- good quality fibre thermoplastic.
- Heel grip- leather lining
- Insole- antistatic
- Eyelets - 3 nos.
- Thread—nylon
- Electric resistant - 100 0 to 1000 MD
- High voltage - up to 15k volt
- Size-38to46(4to12)

Helmet, industrial safety (v-guard)

- Advance vented protective cap with 4-point fas-trac suspension padded for comfort & helmet should have cooling vents for improved air circulation. Approval ANSI/ISEA Z89.1 .2009.

- Helmet, chemical resistant HDPE

- Safety helmet made of chemical resistant HDPE with structured brim designed for additional side, protection designed to take clip on accessories. Safety helmet made of chemical resistant HDPE with structured brim designed for additional side, protection designed to take clip on accessories.

- Ear plug - high quality foam, non-irritant and allergy-free material, suitable for protection against long term, exposure to, medium noise levels. Corded in fluorescent orange colour.

- Chemical splash protective goggle- Soft vinyl frame, high- impact polycarbonate lens, can be worn over prescription spectacles, indirect ventilation, approvals

- Cotton hands gloves - netted cotton gloves H.D.

- Safety goggles- lens material -polycarbonate, spherical refractive power tolerance: - within0.06/m

- Gum boots - full size gum boots with lining up to knee and anti- skid sole black color

Full body harness-

Light weight full body harness easily adjustable, durable with specially designed seat strap for optimizing comfort and energy absorbing dorsal d-ring for user safety to be used for confined space entry and for protection against falling from height.

- Must ensure adequate distribution of fall impact to the various parts of human body
- Should have not less than 2-meter polyamide rope attached with self closing auto locking steel hook.

- Must have adjustable primary straps of not less than 44 mm polyamide webbing & secondary straps of not less than 20mm equipped with shoulder, waist & thigh straps differentiated by a different colour.
- Must have seat strap which must be ideally positioned for more comfort. Must be provided with two chest attachment textile loops and a dorsal attachment steel d-ring
- Must be provided with tool holder loops and rings.
- Must confirm to EN361 & EN358 standard and must submit a test certificate from authorized govt. Agency.
- The harness shall withstand a minimum 15 KN load when tested as per BIS3521.

SELECTION CRITERIA FOR SUITABLE PPEs

PPE / Job Activity	Safety Helmet	Safety goggles	face shield	Welding helmet	Foot protection	Safety Harness / Fall arrest system	Hearing Protection	Hand Protection	Body Protection	Respiratory Protection	Protection against dust
Site Inspection	✓				✓		✓			✓	✓
GI Works	✓	✓	✓		✓	✓		✓			✓
MDPE Works	✓	✓	✓		✓		✓	✓			✓
Gas Line charging / Commissioning / Venting	✓	✓	✓		✓		✓	✓			✓
Steel Line coating	✓	✓	✓		✓			✓			
Electro fusion	✓	✓	✓		✓			✓			✓
Welding				✓	✓			✓	✓		
Grinding / Cutting	✓	✓	✓			✓			✓		✓
Electrical Works	✓				✓		✓	✓			
Rigging	✓				✓			✓			✓
Painting	✓	✓			✓			✓	✓		
Working at Height above 1.8m	✓	✓			✓	✓		✓			
Excavation	✓	✓			✓		✓	✓			✓
Odourant Dosing	✓	✓			✓			✓		✓	
Operation & Maintenance (CNG / PNG)	✓	✓			✓		✓	✓			✓

Note :
The selection of suitable PPE will be on the basis of Job safety Analysis/Site Inspection and Work Permit.
Requirement of Respiratory Protection i.e. Self Contained Breathing Apparatus is applicable for confined spaces only.
Safety harness / Fall arrest system is mandatory to use if the job height goes beyond 1.8 mts.

22.Contractor Certification.

I/We hereby Certify that I/We have read and understood the IIT Kanpur Contractor Safety Policy and I/We will follow the HSE Standards while working at my job.

Signature with Stamp. Date

Name of Contractor