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# Workplace Health and Safety Policy and Procedures

**KABUL SCHOOLS PROGRAM**  
COOPERATIVE AGREEMENT NO. 306-A-00-07-00517-00



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### **Contract Information**

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## CONSTRUCTION SAFETY AND HEALTH POLICY AND PROCEDURES

This document is provided as a compliance aid and outlines general policies and procedures with which the employees/workers/visitors/contractors should be familiar. In the event of an emergency, it is too late for the manual to be consulted. This document is developed and maintained by the Safety and Health Office of UNOPS-AGOC. The H&S Office welcomes comments and suggestions from all parties to insure that all operations provide for a safe and healthful environment for work.

The document has been prepared to provide employees/workers/visitors/contractors with an understanding of the UNOPS-AGOC's concern for protecting employees/workers from job-related injuries or health impairments; to prevent accidents and fires on the job site; to inform employees of appropriate emergency medical procedures and plans; to monitor workplace hygiene and sanitation; and, to promote the adoption of safe practices which are reasonably designed to reduce employees exposure to unwarranted and unnecessary threats to their health and safety, and to provide procedural guidelines to promote campus security.

Though this document is intended to be consistent with OSHA Standards, if an area is considered by the reader to be inconsistent, the OSHA standard should be followed.

The Health & Safety Policy and Procedures is based on:

- ▶ **THE OCCUPATIONAL HEALTH AND SAFETY ACT OF CANADA (ONTARIO) - R.S.O. 1990, CHAPTER O.1**
- ▶ **ALBERTA OH&S ACT, REGULATION AND CODE**
- ▶ **ONTARIO REGULATION 213/91 - Amended to O. Reg. 628/05 - CONSTRUCTION PROJECTS**

*For additional reference you may also see:*

- ▶ **U.S. DEPARTMENT OF LABOR – OCCUPATIONAL SAFETY & HEALTH REGULATIONS FOR CONSTRUCTION - 1926**
- ▶ **HEALTH AND SAFETY AT WORK ACT. (ELIZABETH II 1974 CHAPTER 37)**
- ▶ **AUSTRALIAN WORKPLACE SAFETY STANDARDS ACT 2005**

*For further assistance you may want to visit the following websites:*

**U.S. Department of Labour - Occupational Safety & Health Administration (OSHA)**  
<http://www.osha.gov/>

**Ontario Ministry of Labour - Occupational Health & Safety Act (OHSA)**  
<http://www.labour.gov.on.ca/english/hs/index.html>

**Health and Safety Executive (HSE) - UK**  
<http://www.hse.gov.uk/index.htm>

**Health and Safety - Australia**  
[http://www.australia.gov.au/Occupational\\_Health\\_&\\_Safety](http://www.australia.gov.au/Occupational_Health_&_Safety)

**Industrial Accident Prevention Association (IAPA)**  
<http://iapa.ca/>

**Construction Safety Association of Ontario**  
<http://www.csao.org/>

**Canadian National Centre for Occupational Health and Safety (CCOHS)**  
<http://www.ccohs.ca/>

**REMEMBER: A WRITTEN SAFETY/HEALTH PROGRAM IS ONLY EFFECTIVE IF IT IS PUT INTO PLACE!**

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Title:	Policy No.:
<b>INTRODUCTION AND DEFINITION OF TERMS</b>	<b>HSP-000</b>
Effective date:	

It is UNOPS-AGOC's policy that the safety policy & procedures be strictly observed by every employee/contractor/worker/visitor, at all times. Although these rules are to be considered very important, it is impossible to publish a rule that covers every circumstance. If a rule that might cover a specific hazardous condition has been omitted, that shall not be an excuse for disregard of common sense in the safe performance of your work.

Each employee/contractor/worker/visitor is urged to cooperate and comply fully with this policy. Abuse or disregard of this policy is a violation and will be treated accordingly. Remember, your help in preventing accidents and injuries benefits you and your fellow employees/colleagues.

The major aim of the handbook is to provide information to assist employers/contractors and their employees and respective representatives to establish, implement and maintain systems that prevent work related injury, disease and death.

The handbook does not need to be read from cover to cover. An index allows the reader to look up subjects of particular interest.

Below are definitions of terms used in the Health & Safety Policy and the Construction Health & Safety Manual:

- **“competent person”** means a person who,
  - (a) is qualified because of knowledge, training and experience to organize the work and its performance,
  - (b) is familiar with the policy & procedures that apply to the work, and
  - (c) has knowledge of any potential or actual danger to health or safety in the workplace;
- **“construction”** includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project;
- **“construction manager”** means a person who,
  - (a) coordinates with the engineers and supervisors and ensures that the construction site runs smoothly.;
  - (b) plans preparation of the site
  - (c) deals with all kinds of trades, including workers
- **“constructor”** means a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer;
- **“contractor”** same definition as **“constructor”**;
- **“employer”** means a person who employs one or more workers or contracts for the services of one or more workers and includes a contractor or subcontractor who performs work or supplies services and a contractor or subcontractor who undertakes with an owner, constructor, contractor or subcontractor to perform work or supply services;
- **“health and safety officer”** means a person who is responsible for ensuring that safety requirements are met on site or at a workplace . Part of the Health & Safety Officer's job is to encourage and educate employees/workers to take precautions and adhere to safety rules to protect themselves and the equipment they use from damage. This is a very important job in construction. On occasions when accidents do occur, it is the Health and Safety Officer who leads the

- investigations, identifies the causes and advises on improvements in safety standards that need to be made.
- **“health and safety representative”** means a health and safety representative selected by the Project Manager & the Health & Safety Officer;  
A health and safety representative has the power,
    - (a) to obtain information from the constructor or employer concerning the conducting or taking of tests of any equipment, machine, device, article, thing, material or biological, chemical or physical agent in or about a workplace for the purpose of occupational health and safety;
    - (b) to obtain information from the constructor or employer pertaining to the health and safety experience and work practices and standards in similar or other industries of which the constructor or employer has knowledge.
  - **“owner”** includes a trustee, receiver, mortgagee in possession, tenant, lessee, or occupier of any lands or premises used or to be used as a workplace, and a person who acts for or on behalf of an owner as an agent or delegate;
  - **“project”** means a construction project, whether public or private, including,
    - (a) the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipe line, duct or well, or any combination thereof,
    - (b) the moving of a building or structure, and
    - (c) any work or undertaking, or any lands or appurtenances used in connection with construction;
  - **“project manager”** means a person who,
    - (d) is an experienced construction professional;
    - (e) ensure that everything runs smoothly and is completed on time - and on budget within the quality standards-scope agreed!
    - (f) overall responsibility for the planning, management, co-ordination and financial control of a project and to keep the client happy.
  - **“regulations”** means the regulations made under the Construction Health & Safety Policy and Procedures;
  - **“supervisor”** means a person who has charge of a workplace or authority over a worker;  
a “supervisor” can also mean a site engineer and/or a monitoring engineer who is responsible for overseeing the construction on site;
  - **“worker”** means a person who performs work or supplies services for monetary compensation but does not include an inmate of a correctional institution or like institution or facility who participates inside the institution or facility in a work project or rehabilitation program;
  - **“workplace”** means any land, premises, location or thing at, upon, in or near which a worker works.

## **ACCIDENT PREVENTION IS ESSENTIAL IN MAINTAINING AN EFFICIENT OPERATION.**

Safety and accident prevention is everyone’s responsibility.

Each employee/staff/worker is expected to follow all the rules set out in this policy and to perform their work in a safe manner.

Each Project Manager, Supervisor and Foreman is responsible for safety and implementing the safety program at the workplace/construction site.

The Health & Safety Officer has overall responsibility for safety at each location and has the corporate responsibility and authority for safety and accident prevention.

UNOPS's policy is to provide a safe and healthy place of employment for every employee and to abide by UNOPS Construction Health & Safety Policy & Procedures. The Health & Safety Policy and Procedures is designed to provide practical guidance on a range of health and safety issues. It is not possible to cover everything, therefore advice is given on how and where to obtain further information.

UNOPS also has a fully illustrated **CONSTRUCTION HEALTH & SAFETY MANUAL** which covers topics on "how to do" and "what to do" on the construction site, WHMIS & MSDS etc.



Title: <b>HAZARD MANAGEMENT</b>	Policy No.: <b>HSP-001</b>
Effective date:	

An essential step in the management of construction site is ensuring that all hazards are identified, the risks assessed, and effective control measures are developed and implemented.

### **Hazard identification**

A hazard is something that has the potential to harm the health, safety and welfare of people at work. Examples of hazards that may be found in the workplace include noise, hazardous substances, unguarded power-driven machinery, working at heights and stressful working conditions (e.g. threat of violence).

To identify hazards to health, safety and welfare:

- Check records of injuries and incidents (including near misses) which have occurred in the workplace or in other similar workplaces
- Read publications such as regulations and approved codes of practice, which identify potential hazards
- Conduct walk-through inspections of the workplace using a checklist to identify potential hazards.
- Consult with employees to find out what problems they have in their jobs

### **Risk assessment**

When hazards have been identified, assess the risk created by each hazard. The risk is the likelihood that the hazard will cause injury, illness or disease in the way that it is used or occurs in the workplace, and the severity of the injury, illness or disease which may result. Risk assessment means the process of evaluating the probability and consequences of injury, illness or disease arising from exposure to an identified hazard or hazards

Assessment of the risk involves consideration of:

- The nature of the hazard
- How it may affect health or safety (what type of injury, illness or disease could occur and how serious they are)
- How employees are exposed to the hazard
- Any workers affected (e.g. women, workers with disabilities etc.)
- How much, how often and for how long employees are exposed
- The location.

The risk assessment also takes into account the way that work is organized, the layout and condition of the work environment, the training and knowledge needed by a person to work safely and the type of control measures that are available.

The assessment of risk is a process of gathering information and making decisions. There is no 'right' answer. People will make certain decisions about risk because they have different ideas about what is acceptable. For this reason it is important that those who will be affected by the decisions made (the employer, relevant employees and their representatives) should be involved in the assessment.

An assessment should be made whenever there is a change in the workplace which could affect health, safety or welfare, or when there is new information about a hazard.



Title: <b>HAZARD MANAGEMENT (continued)</b>	Policy No.: <b>HSP-001</b>
Effective date:	

**Risk control**

When hazards have been identified and the risks assessed, appropriate control measures should be developed and implemented. The aim is to eliminate or minimize the risk.






There are many ways for employers to control risks to health, safety or welfare in the workplace. As far as possible a hazard should be controlled at its source rather than trying to make the employee 'work safely' in a dangerous environment or having the employee wear protective clothing and equipment.

Controlling the hazard at the source is much more effective in the prevention of injury, illness or disease. To do this, action needs to be taken to control risks in the order listed below. This is often called the hierarchy of controls. Control measures from the top of the list give better results. Measures from the bottom of the list are more difficult to maintain and usually less effective. They should be regarded as interim measures until preferred ones can be implemented.

Information about how to control the risks to health and safety can be found by:

- Consultation with employees who are exposed to the hazard
- Seeking information from employer
- Seeking information from relevant manufacturers or suppliers of hazardous substances or plant
- Contracting government agencies and other sources of health and safety information.

**The hierarchy of control measures table**

1. Eliminate the hazard If this is not practicable, then	For example, remove noisy equipment, purchase pre-cut items 
2. Substitute the hazard with something of a lesser risk If this is not practicable, then	For example, lift smaller package, use a less toxic chemical. Electric forklift in place of petrol-driven forklift. Vacuum rather than sweep. 
3. Isolate the hazard If this is not practicable, then	For example, place barriers around a spill until cleaned up, locate photocopier in separate, well-ventilated room. 
4. Use engineering controls If this is not practicable, then	For example, provide a trolley to move heavy loads, place guards on moving parts of machinery. 
5. Use administrative controls If this is not practicable, then	For example, introduce job rotation, shorter task shifts, ensure equipment is maintained regularly, safe work practices, instruction and training. 
6. Use personal protective clothing or equipment Until you have a better method of control	For example, provide hearing and eye protection, hard hats, gloves, masks.

Title: <b>HAZARD MANAGEMENT (continued)</b>	Policy No.: <b>HSP-001</b>
Effective date:	

### **Steps to managing hazards**

#### **See it – hazard identification**

Identify anything that has the potential to harm the health or safety of people at work.

#### **Assess it – risk control**

Consider the likelihood that someone will be hurt, how badly they will be hurt, how they could be hurt, how much, how long and how often a person is exposed to the hazard.

#### **Fix it – risk control**

Determine how the hazards are going to be controlled. If elimination of the hazard is not possible, other controls should be implemented to reduce potential risks.

#### **Evaluate**

Once the most appropriate fix has been selected it's important to evaluate whether the fix has been successful in controlling the hazard – reassess the risk again.

#### **Review**

After a period of time, when the work environment changes, a review of this entire process is required to continually control the hazard.

A safe system of work should be provided to ensure the total sets of methods are adopted for carrying out the operations required in a particular workplace. They cover all aspects of the employment situation including the organization of work processes, the methods of using machinery, plant and equipment, the methods of hiring labour, job training, instruction and supervision about associated hazards and their management, and what to do when things go wrong.

Title: <b>ADMINISTRATIVE / ORGANIZATIONAL POLICY</b>	Policy No.: <b>HSP-002</b>
Effective date:	

**Procedures for a breach of the act regulations**

If UNOPS believes that these Policies & Procedures are being breached, UNOPS may initiate the following procedures to protect the health, safety or welfare of a member of the representative's work group.

**Consultation**

A vital first step that shall be taken by the health and safety representative is to consult with the employer/contractor to try to resolve the problem. Consultation will involve the Health & Safety Officer and the representative informing the employer/contractor of the issue and providing information about why he/she believes there is a problem.

During consultation there shall be opportunity for both parties to consider and discuss the issue, to listen to each other's views and take these into account in deciding on further action. This approach will have the advantage of allowing the employer/contractor and health and safety representative to pool their knowledge to cooperate in evaluating the health and safety issue and jointly find a solution.

If after taking responsible steps to stop the breach of the Policies & Procedures, the Health & Safety Officer still considers that the problem has not been satisfactorily resolved, then UNOPS may issue a default notice requiring the employer to remedy the breach

**Issue of default notice**

A default notice is a formal declaration by the Health & Safety Officer that, in his or her opinion, provisions of the Policies & Procedures are being breached and that it has not been possible to resolve the problem by consultation.

The default notice must start the reasons why the health and safety representative considers the person is breaching the Policies & Procedures, or is likely to repeat a previous breach. The Health & Safety Officer may specify a time limit in which the breach is to be fixed.

Title: <b>ADMINISTRATIVE / ORGANIZATIONAL POLICY (continued)</b>	Policy No.: <b>HSP-002</b>
Effective date:	

The default notice will be addressed to the employer who has the legal responsibility to ensure it is complied with. It will be given directly to the employer or their representative, e.g. a manager, rather than to a worker.

**Action by person receiving default notice**

The person to whom the default notice is addressed must bring the notice to the attention of any worker whose work is affected by it. They must also display the notice in a prominent place close to the workplace(s) affected. The employer must keep a copy of the notice for the duration of the contract.

No person can remove the default notice while it is on display and in force.

It is the responsibility of the employer to take all reasonable steps to resolve the problem by the day specified in the default notice. If no day has been specified then the problem should be solved as soon as possible.

If the employer wishes to challenge the notice, they have 14 days from the date the default notice is received in which to do so.

**Producer for an immediate threat to health, safety and welfare**

Whenever possible, UNOPS will consult with the employer/contractor if he or she believes there is an immediate to the health safety or welfare of an employee.

If the problem cannot be resolved by consultation within a reasonable period of time, the matter will be referred to UNOPS Management.

If an immediate threat to health and safety is not resolved through consultation within a reasonable time, the UNOPS Health & Safety Officer or representative may direct that the unsafe work stops, if they believe that the nature of the threat and degree of risk warrants this. The order to stop unsafe work procedure is then followed.

**Order to stop unsafe work**

The UNOPS Health & Safety Officer or representative may direct that unsafe work stop immediately without prior consultation, if he or she believes that the nature of the threat and the degree of risk to health and safety justify stopping work, the direction to stop unsafe work may be given verbally by speaking to relevant employees and directing them to stop work. The health and safety representative must then consult with the employers as soon as possible after the order to stop unsafe work has been given.

Title: <b>ADMINISTRATIVE / ORGANIZATIONAL POLICY (continued)</b>	Policy No.: <b>HSP-002</b>
Effective date:	

The order to stop work will remain in force until the UNOPS Health and Safety Officer or representative is satisfied that adequate measures have been taken to protect the worker's health and safety.

**Action if an injury happens**

If a person is injured or becomes sick at work, the quality and speed of treatment provided and access to rehabilitation are all important for minimizing the severity of the injury or illness.

Within the workplace, provision of appropriate first aid helps reduce the severity of an injury or illness. Employers/Contractors have legal obligation to ensure that competent and suitable first aid services are provided, this depends on the number of employees, the nature of the work and the hazard involved in the job.

To prevent a similar injury happening again, the occurrence will be properly investigated and preventative action taken by the UNOPS Health & Safety Officer or representative.

Fatalities, serious injuries, and dangerous occurrences must all be reported to the UNOPS Health & Safety Office who will conduct an investigation. A record must also be kept at the workplace of all injuries that occur

There should be a procedure for injury management to ensure that if an injury does occur the following are carried out:

- Emergency first aid is administered
- Recording of the occurrence at the workplace
- Notification of the relevant health and safety representative
- Investigation of the occurrence and preventative action taken in consultation with the relevant health and safety representative
- Reporting to workplace services
- Compensation and rehabilitation is provided

Title: <b>MEDICAL EMERGENCIES AND FIRST AID</b>	Policy No.: <b>HSP-003</b>
Effective date:	

### **Construction Safety and first aid in the workplace**

The provision of timely and appropriate first aid treatment in the workplace can save lives and reduce the severity, the degree of pain and suffering, and the amount of lost work time due to work-related injuries and illness.

The Employer/Contractor must provide a First Aid Station on the construction site.

The First Aid Station shall be in the charge of a certified First Aider or Nurse.

The First Aid Station shall be so located as to be easily accessible for the prompt treatment of any worker at all times when work is in progress.

A First Aid box shall contain as a minimum the first aid items and all items in the box shall be maintained in good condition at all time. Also see **First aid kits** below.

The expense of furnishing and maintaining first aid appliances and services shall be borne by the employer/contractor

### **First aid kits**

There are two types of first aid kits – a Basic First kit for smaller workplaces and an Occupational First Aid Kit for larger workplaces. Where there are specific hazards additional first aid modules may be needed, eg for the treatment of eye injuries, burns or injuries to employees working in areas that are remote from medical services. First aid kits must be kept properly stocked and must be conveniently located in the workplace to allow ready access by employees.

All items in the 'basic' and 'occupational' first aid kits have been carefully considered to ensure quality and suitability of items for occupational first aid. As a general rule alternative items should not be added to kits or alternative products used. If this is done, care must be taken to ensure that the items are appropriate. They must be suitable for use in the provision of first aid treatment and be able to be used safely by first aiders. Kits should not contain anything other than first aid supplies.

#### List Of Basic First Aid Kit Supplies

- 1.) A pair of latex gloves. Many diseases are transmitted by touching bodily fluids such as blood and urine.
- 2.) Band Aids. The most common injury you will treat are small cuts and scrapes.
- 3.) Four inch sterile gauze bandages for those slightly larger cuts and bloody noses.
- 4.) One roll of cloth adhesive tape for taping bandages, and minor splitting like broken fingers.
- 5.) Ammonia inhalants for fainting.
- 6.) Cotton roll sterile dressing for holding bandages on the bigger lacerations and abrasions and to put direct pressure on wounds to stop the bleeding.
- 7.) One pair of blunt scissors for cutting bandages, and removing clothing if needed.
- 8.) Eye wash to flush out an eye if water is not readily available.
- 9.) Tweezers for removing those splinters.
- 10.) Cold packs for bumps on the head, sprains, and heat exhaustion.
- 11.) One tube of antiseptic ointment to clean minor cuts.
- 12.) Cotton swabs to get particles out of the eye, ear and to apply ointment.
- 13.) Plastic Zip-Lock bags for a variety of purposes, including cleaning up hazardous material or storing cut-off fingers, etc.
- 14.) Disinfectant wipes to clean yourself after you've treated someone's wounds.
- 15.) Benadryl, to help reduce swelling at any time. This can be used for bug bites and allergic reactions.
- 16.) Goggles to prevent fluids and other objects from getting into your eyes.

Title: <b>MEDICAL EMERGENCIES AND FIRST AID (<i>continued</i>)</b>	Policy No.: <b>HSP-003</b>
Effective date:	

17.) Flashlight in case someone is hurt in the dark or in a power outage situation. It would be wise to check the batteries frequently in the flashlight.

18.) If you're CPR-certified, carry around a CPR face shield. This will also help to prevent you from coming in contact with the injured party's bodily fluids and will help

**First aiders**

Some workplaces may need to have trained first aiders who are responsible for rendering first aid. First aiders must be properly trained and should have the First Aid Certificate or an occupational First Aid Certificate (if applicable).

Title: <b>ACCIDENT REPORTING</b>	Policy No.: <b>HSP-004</b>
Effective date:	

The term 'work-related injury' is defined in the Act as any death, injury, disease or disability that is attributable to work

Any injury must be considered to be work-related if it occurs at work or arises from a work practice or the conditions in the workplace.

Work-related injuries include the recurrence, aggravation or exacerbation of previous work-related injuries. For example, if the employee has previously had a work-related knee injury and the injury happens again because of work, the new injury may have to be reported to the Health & Safety Officer.

The following work-related injuries must be reported to the Health & Safety Officer immediately by telephone or email:

- Any death
- Any injury which has immediate symptoms associated with exposure to a substance at work e.g. the employee is burnt by acid or a solvent, they develop a serious rash after coming into contact with a chemical, they fall unconscious after breathing in a substance
- Any injury that requires treatment as an in-patient in a hospital immediately after the injury.

These are examples of immediately notifiable work-related injuries.

An employee/worker must report any accident or injury, regardless of how minor, to the UNOPS Health & Safety Officer and/or the Site Supervisor.

All inquiries concerning an incident/accident/injury/property damage shall be referred to the Health & Safety Officer and/or the Supervisor. The employee/worker will make no comments, provide no details, or express any opinion as to the cause of the incident, who was at fault, responsibility for, or any intent of the company regarding the incident.

The Site Supervisor will cooperate with the Health & Safety Officer and assist in investigating any personal injury accident, property damage claim or vehicle accident associated with the job and will complete an **ACCIDENT INVESTIGATION REPORT**. The purpose of this investigation is to assist in preventing this type of mishap in the future. The employee/worker will cooperate fully with the Supervisor and Health & Safety Officer in this investigation.

Injuries which must be reported by telephone or email, are serious injuries that the UNOPS Health & Safety Officer along with Higher Management may need to investigate immediately.

When the injury is reported the Health & Safety Officer will decide whether an immediate investigation is needed. If it is necessary an inspector will visit the workplace as soon as possible to gather information and examine the place where the injury occurred.

Injuries which need to be notified immediately should be reported to the Health and Safety Officer.

When making an immediate injury report the employer/contractor should give the following information:

- The name of the employer/contractor
- The name of the injured employee
- The address where the injury happened
- The name and location of any hospital where an injured employee has been taken
- Basic information about the nature and extent of injury
- Brief description of how the injury occurred.



Title: <b>ACCIDENT REPORTING (continued)</b>	Policy No.: <b>HSP-004</b>
Effective date:	

An employer should also submit a written report within 24 hours for all injuries reported by telephone, email or facsimile. Written injury reports should be made on a Work Injury Report Form. Copies of this form can be obtained from the Health and Safety office.

The Work Report Form and Employer Report Form are available from the Health & Safety Office.

If an employee is injured or killed or in the case of a dangerous occurrence, an employer may take such steps as are necessary to:

- Rescue an injured person
- Retrieve any dead body
- Protect the health and safety of any person who may be in the vicinity
- Prevent undue damage to property.

However, the employer must get permission from the Health & Safety Officer before they:

- Alter the site where the death or injury occurred
- Reuse, repair or remove any plant or substance that caused or was connected to the death or injury.

Title: <b>DANGEROUS OCCURANCES</b>	Policy No.: <b>HSP-005</b>
Effective date:	

A dangerous occurrence is any incident or event that arises from operations carried on at a workplace and which cause an immediate and significant risk to a person.

A person does not have to be injured – it is the risk which is important. The risk may arise if a person is or could have been in or near the incident or event.

### **Specific dangerous occurrences**

The regulations require employers to report all dangerous occurrences. The regulations also list some events which must be reported if they cause an immediate and significant risk. Specific dangerous occurrences which must be reported are:

- The collapse, overturning or failure of the load bearing of any scaffolding, lift, crane, hoist or mine-winding equipment
- Damage to or malfunction of any other major plant
- The unintended collapse or failure of an excavation more than 1.5 meters deep (including any shoring)
- The unintended collapse of the floor, wall or ceiling of a building being used as a workplace
- An uncontrolled explosion, fire or escape of gas, hazardous substance or steam
- An electrical short circuit, malfunction or explosion
- An unintended event involving a flood of water, rock-burst, rock fall or collapse of ground
- Breathing apparatus malfunctioning to the extent that the user's health is endangered.

### **Reporting a dangerous occurrence**

Dangerous occurrence must be reported to the Health & Safety Officer by telephone as soon as practicable. A written report must also be provided within 24 hours.

Dangerous occurrence must be reported even if nobody has been injured. Reports should be made to the Health & Safety Officer and should include the following information:

- The name and address of the person giving the notice
- Date and time of the event
- The place where the dangerous occurrence happened
- The apparent cause
- The nature and extent of damage
- The work that was being carried out.

The employer/contractor must also notify the relevant health and safety representative if there is an incident, work-related injury or dangerous occurrence that affects (or may affect) a member of their work group.

Investigations vary in scope depending on the severity or potential severity of the consequences of a particular occurrence. The general approach to investigation described here can be used for different types of occurrences, but how much information is collected will depend on whether the incident is minor or more serious.

This information is intended as a beginner's guide to be used by managers, supervisors, health and safety representatives and committee members who may be required to participate in an investigation.

Title: <b>INVESTIGATION</b>	Policy No.: <b>HSP-006</b>
Effective date:	

### **What is an investigation?**

Investigations are carried out to find out what happened and why in order to prevent a similar future occurrence. Any occurrence, which gives rise to injury, causes property damage and any near miss should be investigated.

### **Investigation of injuries and dangerous occurrences**

Every personal injury accident or illness, property damage, and vehicle accident will be investigated by the Site Engineer or the Supervisor in charge of the operation. The investigation will be recorded on the **ACCIDENT INVESTIGATION REPORT**. Every report will be reviewed by the Health & Safety Officer. Personal injury or illness will be recorded on the **OSHA Log 300**, as required. The completed Accident Investigation Reports will be reviewed during the monthly Supervisory Safety Meetings.

### **Identifying causes**

An investigation will aim to identify all possible causes of the occurrence.

In particular, investigators will look for causes other than 'human error' or 'worker carelessness'. It is important to identify underlying problems in the work environment, plant, equipment or materials used, the system of work and management practices. Addressing problems in these areas is more likely to prevent further injuries or incidents.

### **The investigation procedure**

The investigation of an occurrence will involve gathering information, analyzing it, drawing conclusions and making recommendations. The investigator will keep an open mind about all possible causes and not to draw conclusions before all relevant information has been gathered.

The investigation will commence as soon as possible after the injury, near miss or dangerous occurrence. By doing this investigators are most likely to be able to observe the conditions as they were at the time and to identify witnesses.

If there has been a death or immediately notifiable injury the site must not be altered in any way without the permission of the Health & Safety Office.

Before attempting to gather information the site should be examined for a quick overview, steps should be taken to preserve evidence and witnesses should be identified.

### **Physical evidence**

Physical evidence may be subject to rapid change or obliteration. For this reason it should be the first type of evidence recorded. Investigators may want to record items such as:

- The location of injured workers at the time of the occurrence
- The equipment in use
- Substances in use
- Safety devices or control measures in use
- Position of appropriate guards
- Position of controls on machinery
- Damage to equipment
- Housekeeping in the area
- Weather conditions
- Lighting levels
- Noise levels.

Title: <b>INVESTIGATION (continued)</b>	Policy No.: <b>HSP-006</b>
Effective date:	

Photographs may be taken both of the general area and specific items. Subsequent study of photographs may reveal conditions missed at first. Sketches of the scene based on measurements taken may also assist the subsequent analysis and will clarify the written report.

Broken equipment, debris and samples of material involved may be removed for further analysis by appropriate experts but check first with the Health & Safety Officer. Notes should be made to identify where these items came from.

### **Eyewitness accounts**

Eyewitness accounts represent another source of information. although there may be occasions when it is not possible, every effort should be made to interview witnesses. In situations where investigator must carry out the investigation without being able to examine the scene immediately after the event, eyewitnesses will be a primary source of information.

Witnesses should be interviewed as soon as possible after the occurrence. They will be interviewed individually rather than in a group to avoid losing individual perceptions of what happened. Interviews may be conducted at the scene where it may be easier to describe the occurrence, or in a quiet office.

Some points when interviewing witnesses will be:

- Try to put the witness, who may be upset, at ease
- Emphasize the reason for the investigation (to prevent a recurrence and identify underlying causes – not to blame individuals)
- Allow the witness to talk – do not interrupt, prompt or ask leading questions
- Make short notes during the interview (do not make lengthy notes while the witness talking)
- Confirm with the witness that the statement recorded is correct.

The actual questions asked of the witness will vary with the occurrence but there are some general questions, which will be asked each time. These are:

- Where were you at the time of the occurrence?
- What were you doing at the time?
- What did you see and/or hear?
- What were the environmental conditions at the time (weather, noise, fumes, light etc)?
- What were the injured workers doing at the time?
- In the witness' opinion, what caused the occurrence?
- How might similar occurrences be prevented in the future?

### **Background information**

Other information that will be checked are documents such as technical data sheets, maintenance reports, past reports of occurrences, formalized safe work procedures and training records. Any relevant information will be studied for indications of what might have happened and what should have been done.

### **Analysis and conclusions**

Once investigators know what happened and how it happened, the next step will be to consider why the occurrence happened. All possible answers to this question should be found. Consider especially how the organizational factors may have contributed, eg had safe systems of work been established?

A step by step account will be prepared describing what happened, how it occurred and the investigators' conclusions about why, listing all possible causes.

Conclusions may be checked to ensure that the evidence supports them. Not whether the evidence is direct (physical evidence), eyewitness accounts or based on assumption.

Title: <b>INVESTIGATION (continued)</b>	Policy No.: <b>HSP-006</b>
Effective date:	

**Recommendations**

The most important final step will be to make well considered recommendations for the prevention of a recurrence. Relevant supervisors and health and safety representatives will have the opportunity to comment on and contribute to the recommendations.

All recommendations shall be realistic and indicate the specific action required and by whom in order to prevent a recurrence.

**Written report**

A written report will be prepared as a record of the investigation for consideration by relevant management, health and safety representatives and others who need to know.

This report may include the previously prepared draft of the sequence of events leading up to the occurrence and all relevant information sufficient to explain to those not involved in the investigation what happened. The source of evidence shall be identified and the reasons for conclusions will be stated.

Title: <b>SAFETY RULES AND PROCEDURES</b>	Policy No.: <b>HSP-007</b>
Effective date:	

The safety rules and procedures are developed to assist in achieving job safety by having no employee/worker accidents. For these reasons, every employee/worker is expected to abide by the safety rules and procedures at all times.

**General:**

Employees/Workers must follow the safety policy, rules and procedures established by UNOPS-AGOC. Violations may result in disciplinary action, which could include termination.

This health and safety policy and procedures also apply to inspectors, visitors and clients while they are on site visits.

Employees/Workers shall report any equipment or condition considered to be unsafe, as well as what they consider to be unsafe work practices. This type of information shall be immediately reported to the Health & Safety Officer or to the person in charge of the job.

Be courteous. Avoid distracting others as distractions may cause or contribute to accidents. Do not engage in horseplay on the job.

When lifting, bend your knees, grasp the load firmly, then raise the load with your legs, keeping the back as straight as possible. Don't twist body with a load, move your feet. GET HELP for HEAVY LOADS.

When in doubt about the safety of a situation that is out of the norm, contact the Health & Safety Officer to find the proper procedure.

**Restricted areas**

Access to the job/construction site or areas accommodating plant, main switch-gear, lift machinery, heating and ventilation equipment, central heating boilers and other areas within the construction site is restricted. Only authorized members of staff are permitted to enter such areas. Except for employees/workers directly involved on site work, all other personnel (visitors, clients, inspectors etc) must report first to the Health and Safety Office and fill out the Log prior to entering the job site. Failure to comply will result removal of the person from the job site.

**Smoking and Consumption of Alcohol**

It is now common knowledge that smoking presents a hazard to health and, in many instances, a discomfort to others. Smoking is not permitted and in any part of the UNOPS premises, site offices or on any vehicles owned and operated by UNOPS.

The possession or consumption of alcohol, drugs or any control substance in the workplace and/or the construction site is against policy and violators are subject to dismissal.

**Vehicle operations:**

Employees driving company vehicles or their personal vehicle on company business must have a current driver's license and an acceptable driving record.

When driving a company vehicle or their personal vehicle on company business, all traffic laws must be obeyed and the driver and any passengers must wear a seat belt.

**General tidiness & Good Housekeeping**

All staff/employees/workers and contractors should think and act positively in so far as good housekeeping is concerned. Wherever possible congestion is to be avoided, the need to retain redundant equipment which occupies much needed space, and the disposal of disused materials is to be periodically reviewed and, where necessary, approved disposal procedures are to be initiated.

Title: <b>SAFETY RULES AND PROCEDURES (continued)</b>	Policy No.: <b>HSP-007</b>
Effective date:	

Work surfaces, machinery, tools and general equipment must be left in a clean and safe condition. Entrances, exits and corridors must be free of obstruction and combustible material must not be stacked along fire/emergency exit routes. Walkways within rooms, including aisles in classrooms, are to be kept free of obstruction. Good housekeeping practices improve safety for everyone. When you create clutter, clean it up. When clutter is left in the work area by someone else, clean it up and report this to the Superintendent/Site Supervisor..

**Disciplinary policy**

Employees and contractors are expected to use good judgment when doing their work and to follow established safety rules. UNOPS is adopting a disciplinary policy to provide appropriate consequences for failure to follow the Health & Safety rules.

This policy is designed not so much to punish as to bring unacceptable behavior to the employee’s attention in a way that the employee will be motivated to make corrections. The following consequences apply to the violation of the same similar rule or the same/similar unacceptable behavior:

The following procedures provide a mechanism for the discipline of employees who repeatedly violate safety and health requirement.

1. **First Violation** - A verbal warning is to be given for the first violation of a safety and health requirement. The supervisor or the Safety and Health Officer will inform the employee of the violation, and will also inform the employee of the correct safe practice or procedure. The supervisor will review with the employee all applicable safety and health workplace requirements and the employee must sign a statement indicating understanding of those requirements. The supervisor will inform the employee that future violations will result in higher levels of discipline and may lead to dismissal.
2. **Second Violation** - the employee will receive a written warning for the second documented safety and health requirement violation. This warning will identify specifically the violation; the warning will also refer the employee to applicable safety and health requirements. The warning will also show the date the employee previously read and signed the statement of understanding of safety and health requirements. The employee, the employee’s supervisor, the Safety and Health Officer, the department head, and the employee's personnel file will receive copies of the warning.
3. **Third Violation** - the employee will receive a final warning for the third documented violation of safety and health requirements. This warning will specifically identify the violation; it will also state that any further violation of safety and health requirements will result in dismissal. All persons who received a copy of the written warning will receive a copy of the final warning and/or a 1-5 day suspension.
4. **Any Subsequent Violation** -the employee may be dismissed. If dismissed the employee will receive a letter specifically identifying the violation of the safety and health requirement (date, time, location and specific requirement), as well as any rights of appeal through the grievance process.

On occasion, an employee will commit a violation of a safety and health requirement that is so careless and reckless, or that so endangers life or property, that it can be considered a violation of the UNOPS-AGOC’s code of conduct. When that occurs, an employee may be dismissed immediately, with out benefit of any prior warnings. An employee dismissed in this fashion will receive a letter specifically identifying the violation and setting out his/her right of appeal within the grievance procedure.

An employee/worker may be subject to immediate termination when a safety violation places an employee or others at risk of permanent disability or death.

Title: <b>PLANNING OF NEW PROJECTS</b>	Policy No.: <b>HSP-008</b>
Effective date:	

Whenever new projects, new hazardous substances and new equipment are planned, or when the layout of any work area is significantly altered health and safety aspects are to be assessed at the initial appraisal or feasibility study stage. If any hazardous substances are to be used or produced as a result of experiments etc. the hazards must be identified, a written risk assessment made of the particular procedure to be used, and the appropriate safety measures included in all stages of the work i.e. - storage, use and disposal.

The risk assessment must be approved by the Project Manager and the Health & Safety Officer. A similar safety analysis is to be made in respect of the introduction of new processes or unfamiliar materials.

The operating instructions and safety advice of manufacturers and suppliers concerning the use of their products must be followed.

Project Managers / supervisors must regularly examine workers projects progress and recorded "method books" for potential hazards and to ensure that approved methods are being adopted.

Whenever new projects and new layouts involve new building construction, alterations to a building or fixed services, the Health & Safety Officer is to be informed at the planning stage to facilitate the consideration of safety features and regulations appropriate to buildings and fixed installations.

Unauthorized tools, equipment, materials etc should not be brought into the job site. Any personal items used within the job site must be subjected to the same safety assessment and monitoring procedures as the project equipment.

Equipment and/or tools not related to the job specific are not to be brought into the job site without express permission from the Project Manager, Site Engineer and/or the Health & Safety Officer.



Title: <b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	Policy No.: <b>HSP-009</b>
Effective date:	

UNOPS requires all employees/workers including contractors and all visitors on the construction to use personal protective equipment for eyes, face, head, and extremities, together with protective clothing, respiratory devices, and protective shields and barriers when potential hazard exist. All required personal protective equipment are provided by UNOPS and/or the contractor and are to be used and maintained in a sanitary and reliable condition wherever it is necessary due to the hazards associated with a process or the environment (e.g. chemical hazards, radiological hazards, or mechanical irritants.) Such hazards include the exposure to or performance of:

- (1) Hot solids, liquids, or molten metals
- (2) Milling, sawing, turning, shaping, cutting, or stamping of any solid materials
- (3) Heat treatment, tempering, or kiln firing of any metal or other materials
- (4) Gas or electric arc welding
- (5) Repair or servicing of any vehicle
- (6) Caustic or explosive chemicals or materials

**NOTE: Failure to use PPE on the construction site will result in immediate removal/denied access.**

### **Responsibility of Departments**

The provision of the necessary personal protective equipment, and requiring the wearing of PPE equipment at all appropriate times is the responsibility of each individual department head. All personal protective equipment has been furnished to those departments indicating a need for these items. All subsequent needs and requirements for eye and face protection devices, as well as needs for all other types of personal protective equipment and devices, should be met by departments with their regular budget allocations.

The maintenance of personal protective equipment in a sanitary, usable, and reliable condition, the issue and recovery of units of equipment, the replacement of worn or defective equipment, and the addition of inventory to meet current needs, is the responsibility of individual departments.

### **Personal protective equipment (mandatory where applicable for all employees, workers, clients, inspectors, visitors etc.)**

**Hard Hats** All employees are required to wear a hard hat on every job site at all times.

**Eye Protection** Certain areas of the construction site may be considered areas where eye protection is warranted at all times. These areas will be designated 100% Eye Protection Areas by the Safety and Health Officer and signs will be posted at appropriate locations informing employees, and visitors that they are entering an area requiring proper eye protection.

Employees are required to wear proper eye protection for all work that may expose them to any of the hazards listed in this Section. Employees with work assignments in close proximity to the performance of these tasks and with a potential for exposure to eye injuries are required to wear appropriate eye protection. Any visitors who enter areas that require the use of safety glasses must be provided with them for protection. Employees who require the use of corrective lenses and are required under this policy to wear eye protection will wear safety glasses designed to fit over their corrective lenses

**Fall Protection** All employees exposed to falls over 1.8m (6ft) are required to be trained on and use proper fall protection. On scaffolds, the trigger height is 3m (10ft). For steel erection activities, the trigger height is 4.6m (15 ft).

Title: <b>PERSONAL PROTECTIVE EQUIPMENT (PPE) (continued)</b>	Policy No.: <b>HSP-009</b>
Effective date:	

**Hand Protection** All employees involved in operations exposing hands to cuts, chemicals, burns, etc. are required to wear gloves. Some type of gloves must be worn by maintenance employees when their job duties may subject their hands to possible abrasion, cutting, or chemical exposure. Where the risk of injury to, or contamination, or infection of the hands exists suitable gloves must be worn. Care and the correct technique should be exercised when removing the gloves to ensure that any contaminants do not come into contact with the hands.

**Foot Protection** Sturdy work shoes are recommended for maintenance and shop work. Sandals, Flip-Flops, Athletic shoes and Canvas Loafers are not recommended as work shoes. Employees whose duties involve the use of certain types of power equipment or the movement of heavy objects should use safety work shoes with metal toes.

**Rubber Boots -** Employees involved in operations exposing the feet/legs to such hazards as concrete burns during placing uncured concrete are required to wear rubber boots in good condition.

**Other -** Specific jobs may cause the need for other personal protective equipment. When this occurs, the employee is expected to utilize this equipment. It is the Project Manager and Site Supervisor's responsibility to see that equipment in use is appropriate and in good condition.

**NOTE:** Employees/workers whose duties involve the use of certain types of power equipment (e.g. electric saws, drills and disc grinders etc.) must use the appropriate safety gear/equipment (protective eye wear, ear defenders, hard hats, safety work gloves etc., etc.). Failure to comply will result in the immediate removal of the individual from site.

**UNDER NO CIRCUMSTANCES SHOULD SAFETY EQUIPMENT BE MISUSED OR INTERFERED WITH.**

Title: <b>FIRE PREVENTION AND PROTECTION</b>	Policy No.: <b>HSP-010</b>
Effective date:	

**Fire Prevention Procedures**

The following procedures must be followed in an effort to reduce the risk of a fire:

- (1) Sufficient waste receptacle should be provided and emptied on a daily basis.
- (2) All oily cloths are to be kept in a covered metal can.
- (3) Accumulations of paper and flammable are to be kept at a minimum.
- (4) Combustible materials should be stored in a proper cabinet or container and away from heating or electrical devices.
- (5) Finely divided material produced in shops or laboratories (e.g. sawdust or fabric) should be frequently removed to prevent accumulation.

**Exits**

No obstructions may be placed in front of or upon any exit door. No aisle, exit access, or stairway may be obstructed with furniture or other obstructions so as to reduce the required width of the exits during hours the facility is open to students or employees.

**Doors, Hallways, Stairways, and Landings**

Fire doors separating stairwells from hallway or smoke partition doors must be maintained in working order. They are never to be blocked, wedged, or tied open. The storage of any kind, or the use of office or laboratory equipment in the hallways or the stairway, is strictly forbidden.

**Railings, Steps, Walks**

The area immediately outside of building exits will be maintained free of material at all times. Bicycles and vehicles are not permitted on sidewalks immediately adjacent to exit.

**Fire extinguisher**

Fire extinguishers are located throughout the working area in sizes and types appropriate for normal activities in each area. These extinguishers are inspected annually by a qualified contractor to assure proper operation if needed. The theft of or tampering with an extinguisher should be reported immediately to the Safety and Health Officer.

**Fire Evacuation Procedures**

As soon as the fire alarm is activated, all staff/workers will immediately exit the building by the nearest exit. Under no circumstances will anyone be allowed to reenter the building until the reason for the alarm has been determined and corrected. The Project Manager/Site Supervisor and the Safety and Health Officer or their designee will determine when it is safe to resume normal activities.

All staff members/workers must know where all exits are in the buildings. All employees should know all the fire evacuation routes from their work areas and be prepared to assist others to find proper exits. It is the responsibility of all employees to make certain that their areas are evacuated promptly and properly.

The purpose of these procedures is to reduce the likelihood of injury or death in the event of a fire or any other major catastrophe that would necessitate the evacuation of any of the buildings. Knowledge of the evacuation routes will reduce the possibility of panic or unsafe action in the event of an emergency.

Title: <b>SAFETY MEETINGS, TRAININGS AND INSPECTIONS</b>	Policy No.: <b>HSP-011</b>
Effective date:	

**Safety meetings and training**

The Health & Safety Officer will provide orientation and safety training for all new employees. This training will include: UNOPS's safety rules and procedures, required personal protective equipment and emergency. Employees/Contractors will be provided with a copy of the Safety Rules and Procedures.

Supervisory Safety Meetings - Top management will plan and arrange for meetings to be held at least once each month. Top management and all supervisors will attend and participate in this meeting to review jobsite accidents, near misses, required training, unsafe conditions/acts noted on safety inspections, etc.

**Safety inspections:**

The Health & Safety Officer along with the Project Manager and Site Supervisor will complete an inspection from a safety standpoint at the start of each new job and on Saturday mornings of on-going jobs. Areas to check would include, but should not be limited to, proper tools on the job site to do the job safely, any unusual hazards, stumbling hazards or fall exposures, any overhead objects that could fall, any special personal protective equipment needed or special procedures due to job location, areas-operations known to have contributed to employee accidents in the past, GFCI operation, fire extinguishers, first-aid supplies, other items that may be peculiar to the job or location. The results of each internal inspection will be recorded on the JOB SITE INSPECTION FORM.

Title: <b>VIOLENCE IN THE WORKPLACE</b>	Policy No.: <b>HSP-012</b>
Effective date:	

The purpose of this policy and procedure is to establish policy in providing a safe and secure workplace, free from threats and violence, for all those involved.

This policy and procedure applies to all employees/staff/workers/visitors/contractors.

UNOPS recognizes the high cost of violent incidents and the disruptive effect they have on employees and productivity. Personal harassment (including stalking), abusive behavior, and violence are not tolerated in this workplace.

- A. Threats (including those made by mail, over the telephone, by fax or by e-mail), intimidation, and acts of violence, with or without the presence of a weapon, will not be tolerated at any UNOPS locations/sites. Reported violations of this policy will be investigated, documented, and may result in disciplinary actions up to and including immediate suspension and/or dismissal, and the filing of appropriate criminal charges.
- B. All employees, regardless of position, are responsible for the immediate reporting of any threats received, witnessed, or communicated to them. Employees should also report unusual or threatening behavior, even though it may not be in the form of a direct threat, when such behavior makes the employee(s) fearful for their continued safety or the safety of others. Reportable threats include those made by co-workers, or outsiders entering the workplace - such as spouse, job applicants, etc. Employees must make such reports regardless of the relationship of the employee to the person who initiated the threat or behavior. Reports should be made immediately, without fear of retaliation, to a supervisor, personnel management, or to any senior member of UNOPS management.
- C. Nothing in this policy relieves a supervisor or manager from taking immediate action when the safety or security of employees is threatened and time is crucial. Such action may include a call to the Police, suspension, or the temporary separation of employees in the workplace. This policy does not replace routine management actions such as counseling, reprimands, or changes in work assignments, as applicable. This policy is intended for those cases of immediate and/or continuing inappropriate action(s) or threat(s) including those where normal management and personnel actions have been ineffective and the possibility of violence is such that the appropriate authorities and others need to be involved.

Title: <b>RIGHT TO CHANGE POLICY</b>	Policy No.: <b>RCP-000</b>
Effective date:	

UNOPS Health and Safety Office reserves the right to interpret, change, modify, amend or rescind any policy or procedure within the Safety Manual in whole or in part at any time without the consent of employees. In the event of a contradiction between the terms of this policy and procedures and any statement made by an agent or employee, the terms of this policy and procedures manual shall control in all cases.

Title: <b>DISCLAIMER</b>	Policy No.: <b>HSD-000</b>
Effective date:	

These policies and procedures are based upon the latest information developed by the Health and Safety Office and do not purport to be or to include the latest or most definitive information. The Health and Safety Office makes no such claim and offers no assurance that this is the case. This material is informational only and not contractual. Individuals affected by these policies and procedures are responsible for keeping themselves informed and to take any necessary precautions for their own safety and the safety of others relating to communicable diseases.

**HEALTH AND SAFETY OFFICER, MANAGEMENT, SECURITY STAFF AND EMERGENCY SERVICE  
CONTACT NUMBERS**

<b>Project Management Office</b>	<b>0700 025 989 0700 061 409</b>
<b>Health and Safety Office</b>	<b>0799 552 521 (Joseph Edward, UNOPS Health &amp; Safety Officer)</b>
<b>Security Office</b>	<b>0700 061 428 0797 563 307</b>
<b>UNAMA Clinic</b>	<b>0700 286 289 0790 005 587</b>
<b>Kabul Ambulance</b>	<b>0799 357 049 (General Incidents 24/7)</b>
<b>German Medical Hospital</b>	<b>0799 136 210</b>
<b>Fire Department (Main)</b>	<b>0202 300 308 (Manned 24/7)</b>
<b>Fire Department – Banayee</b>	<b>0202 300 304 (Manned 24/7)</b>
<b>Kabul Fire Department</b>	<b>0202 101 333 (Asmayee Watt PD #2)</b>



Title: <b>CONSTRUCTION PROJECT REGULATIONS (North American Standards)</b>	Policy No.: <b>CPR-000</b>
Effective date:	

## CONSTRUCTION PROJECTS

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**PART I: GENERAL  
DEFINITIONS AND APPLICATION**

1. (1) In this Regulation,

“adequate”, in relation to a procedure, material, device, object or thing, means,

- (a) sufficient for both its intended and its actual use, and
- (b) sufficient to protect a worker from occupational illness or occupational injury, and

“adequately” has a corresponding meaning;

“allowable unit stress”, in relation to a material, means,

- (a) the allowable unit stress assigned to a material by the standards required under the Building Code,  
or
- (b) if no allowable unit stress is assigned under clause (a), the allowable unit stress for the material as determined by a professional engineer in accordance with good engineering practice;

“boom” means the projecting part of a backhoe, shovel, crane or similar lifting device from which a load is likely to be supported;

“caisson” means,

- (a) a casing below ground or water level whether or not it is designed to contain air at a pressure greater than atmospheric pressure,
- (b) an excavation, including a waterwell drilled by an auger and into which a person may enter;

“cofferdam” means a structure constructed entirely or partially below water level or below the level of the groundwater table and intended to provide a work place that is free of water;

“competent worker”, in relation to specific work, means a worker who,

- (a) is qualified because of knowledge, training and experience to perform the work,
- (b) is familiar with the policy & procedures that apply to the work, and
- (c) has knowledge of all potential or actual danger to health or safety in the work;

“conduit” means a sewer, a water main, a duct or cable for a telegraphic, telephonic, television or electrical service, a pipe or duct for the transportation of any solid, liquid or gas or any combination of these items and includes a service connection made or intended to be made thereto;

“confined space” means a space to which or from which access or egress is restricted and in which, because of its construction, location or contents or the work activity therein, a hazardous gas, vapour, dust or fume or an oxygen-deficient atmosphere may occur;

“crash truck” means a blocker truck that is equipped with a crash-attenuating device;

“excavation” means the hole that is left in the ground, as a result of removing material;

“excavation depth” means the vertical dimension from the highest point of the excavation wall to a point level with the lowest point of the excavation;

“excavation width” means the least horizontal dimension between the two opposite walls of the excavation;

“fall arrest system” means an assembly of components joined together so that when the assembly is connected to a fixed support, it is capable of arresting a worker’s fall;

“fall restricting system” means a type of fall arrest system that has been designed to limit a worker’s fall to a specified distance;

“falsework”, in relation to a form or structure, means the structural supports and bracing used to support all or part of the form or structure;

“fixed support” means a permanent or temporary structure or a component of such a structure that can withstand all loads and forces the structure or component is intended to support or resist and is sufficient to protect a worker’s health and safety, and includes equipment or devices that are securely fastened to the structure or component;

“flammable liquid” means a liquid with a flash point below 37.8 degrees celsius and a vapour pressure not exceeding 275 kilopascals absolute at 37.8 degrees celsius;

“form” means the mould into which concrete or another material is to be placed;

“formwork” means a system of forms connected together;

“full body harness” means a device that can arrest an accidental vertical or near vertical fall of a worker and which can guide and distribute the impact forces of the fall by means of leg and shoulder strap supports and an upper dorsal suspension assembly which, after the arrest, will not by itself permit the release or further lowering of the worker;

“guardrail system” means an assembly of components joined together to provide a barrier to prevent a worker from falling from the edge of a surface;

“highway” means a common and public highway, street, avenue, parkway, driveway, square, place, bridge, viaduct or trestle, any part of which is intended for or used by the general public for the passage of vehicles;

“longitudinal buffer area” means the area of a project between the end of a lane closure taper and the start of a work area;

“magazine” means a place in which explosives are stored or kept, whether above or below ground;

“multi-point suspended scaffold” means a suspended scaffold or suspended work platform or a system of suspended scaffolds or suspended work platforms, each scaffold or platform being more than 750 mm in width, that is supported from an overhead support system by at least three primary load-carrying means of suspension to maintain the system’s stability;

“professional engineer” means a person who is a professional engineer within the meaning of the *Professional Engineers Act*;

“public way” means a highway or other street, avenue, parkway, driveway, square, place, bridge, viaduct, or other open space to which the public has access, as of right or by expressed or implied invitation;

“roadway” means the travelled portion of a highway;

“safety belt” means a belt worn around the waist of a worker and all the fittings for the belt appropriate for the use being made of it;

“safety factor” means the ratio of the failure load to the specified load or rated load;

“safety net” means a safety net that complies with section 26.8, and is located and supported in such a way that it arrests the fall of a worker who may fall into it without endangering the worker;

“service shaft” means a shaft by which people or materials are passed into or out of a tunnel under construction;

“shaft” means an excavation with a longitudinal axis at an angle greater than 45 degrees from the horizontal that is used to pass people or materials into or out of a tunnel or that leads to a tunnel or that is used as an access to a boring or augering operation;

“sheathing” means the members of shoring that are placed up against the walls of an excavation to directly resist the pressure exerted from the walls of the excavation;

“strut” means a transverse member of shoring that directly resists pressure from a wale;

“suitable”, in relation to a procedure, material, device, object or thing, means sufficient to protect a worker from damage to the worker’s body or health;

“tower crane” means a travelling, fixed or climbing mechanical device or structure that has,  
(a) a boom, a jib or both,  
(b) a power-driven drum and wire rope to raise, lower or move material, and  
(c) a vertical mast;

“travel restraint system” means an assembly of components capable of restricting a worker’s movement on a work surface and preventing the worker from reaching a location from which he or she could fall;

“traverse”, when used in relation to a multi-point suspended scaffold, means to move the scaffold horizontally, in a controlled manner, along the building or structure to which it is attached;

“trench” means an excavation where the excavation depth exceeds the excavation width;

“tunnel” means a subterranean passage into which a person may enter that is made by excavating beneath the overburden;

“underground”, in relation to work, means inside a shaft, tunnel or caisson;

“vehicle” means a vehicle propelled by mechanical power and includes a trailer, a traction engine and a road-building machine;

“wale” means a longitudinal member of the shoring that is placed against the sheathing to directly resist the pressure from the sheathing;

“work belt” means a belt that has a back support pad and a connecting hook at the front and that is capable of supporting a worker.

(2) In this Regulation, a short form listed in Column 1 of the Table to this subsection has the same meaning as the term set out opposite to it in Column 2.

**TABLE**

<b>Short forms</b>	<b>Corresponding terms</b>
ANSI	American National Standards Institute
CSA	Canadian Standards Association
CAN	National Standards of Canada
DIN	Deutsche Industrie Norm
Ga	Gauge

**1.1** In this Policy and Procedure, a requirement that something be done in accordance with good engineering practice includes a requirement that it be done in a manner that protects the health and safety of all workers.

**1.2** In this Policy and Procedure, a requirement that a design, drawing, instruction, report, specification, opinion or other document be prepared by a professional engineer includes a requirement that he or she sign and seal it.

2. This Part applies with respect to all projects

**ALTERNATIVE METHODS AND MATERIALS**

3. An employer, owner or constructor may vary a procedure required by this Health & Safety Plan or the composition, design, size or arrangement of a material, object, device or thing as required by this Regulation,
- (a) if the procedure, composition, design, size or arrangement as varied affords protection for the health and safety of workers that is at least equal to the protection that would otherwise be given; and
  - (b) if the employer, owner or constructor gives written notice of the varied procedure, composition, design, size or arrangement to the joint health and safety committee or the health and safety representative, if any, for the work place.

**PART II: GENERAL CONSTRUCTION**  
**APPLICATION**

20. This Part applies with respect to all projects. O. Reg. 213/91, s. 20.

**PROTECTIVE CLOTHING, EQUIPMENT AND DEVICES**

21. (1) A worker shall wear such protective clothing and use such personal protective equipment or devices as are necessary to protect the worker against the hazards to which the worker may be exposed.
- (2) A worker required to wear protective clothing or use personal protective equipment or devices shall be adequately instructed and trained in the care and use of the clothing, equipment or device before wearing or using it.
22. (1) Every worker shall wear protective headwear at all times when on a project.  
O. Reg. 213/91, s. 22 (1).
- (2) Protective headwear shall be a safety hat that,
- (a) consists of a shell and suspension that is adequate to protect a person's head against impact and against flying or falling small objects; and
  - (b) has a shell which can withstand a dielectric strength test at 20,000 volts phase to ground.  
O. Reg. 213/91, s. 22 (2).
23. (1) Every worker shall wear protective footwear at all times when on a project.  
O. Reg. 213/91, s. 23 (1).
- (2) Protective footwear shall be a safety shoe or safety boot,
- (a) with a box toe that is adequate to protect the wearer's toes against injury due to impact and is capable of resisting at least 125 joules impact; and
  - (b) with a sole or insole that is adequate to protect the wearer's feet against injury due to puncture and is capable of resisting a penetration load of 1.2 kilonewtons when tested with a DIN standard pin. O. Reg. 213/91, s. 23 (2).
24. A worker shall use protection appropriate in the circumstances when there is a risk of eye injury to the worker. O. Reg. 213/91, s. 24.
25. A worker shall use protection appropriate in the circumstances when there is a risk of injury on a project from contact between the worker's skin and,
- (a) a noxious gas, liquid, fume or dust;
  - (b) an object that may puncture, cut or abrade the skin;
  - (c) a hot object, hot liquid or molten metal; or
  - (d) radiant heat. O. Reg. 213/91, s. 25.
26. Sections 26.1 to 26.9 apply where a worker is exposed to any of the following hazards:
- 1. Falling more than 3 metres.
  - 2. Falling more than 1.2 metres, if the work area is used as a path for a wheelbarrow or similar equipment.
  - 3. Falling into operating machinery.
  - 4. Falling into water or another liquid.
  - 5. Falling into or onto a hazardous substance or object.
  - 6. Falling through an opening on a work surface. O. Reg. 145/00, s. 12; O. Reg. 85/04, s. 4.
- 26.1 (1) A worker shall be adequately protected by a guardrail system that meets the requirements of subsections 26.3 (2) to (8). O. Reg. 145/00, s. 12.

- (2) Despite subsection (1), if it is not reasonably possible to install a guardrail system as that subsection requires, a worker shall be adequately protected by at least one of the following methods of fall protection:
1. A travel restraint system that meets the requirements of section 26.4.
  2. A fall restricting system that meets the requirements of section 26.5.
  3. A fall arrest system, other than a fall restricting system designed for use in wood pole climbing, that meets the requirements of section 26.6.
  4. A safety net that meets the requirements of section 26.8. O. Reg. 145/00, s. 12; O. Reg. 85/04, s. 5 (1).
- (3) The components of any system listed in subsection (2) shall be designed by a professional engineer in accordance with good engineering practice, and shall meet the requirements of any of the following National Standards of Canada standards that are applicable:
1. CAN/CSA-Z259.1-95 (R1999): Safety Belts and Lanyards.
  2. CAN/CSA-Z259.2.1-98: Fall Arresters, Vertical Lifelines and Rails.
  3. CAN/CSA-Z259.2.2-98: Self-Retracting Devices for Personal Fall-Arrest Systems.
  4. CAN/CSA-Z259.2.3-99: Descent Control Devices.
  5. CAN/CSA-Z259.10-M90 (R1998): Full Body Harnesses.
  6. CAN/CSA-Z259.11-M92 (R1998): Shock Absorbers for Personal Fall-Arrest Systems.
  7. CAN/CSA-Z259.14-01: Fall Restrict Equipment for Wood Pole Climbing.
  8. CAN/CSA-Z259.12-01: Connecting Components for Personal Fall Arrest Systems (PFAS) O. Reg. 85/04, s. 5 (2).
- (4) Before any use of a fall arrest system or a safety net by a worker at a project, the worker's employer shall develop written procedures for rescuing the worker after his or her fall has been arrested. O. Reg. 145/00, s. 12.
- 26.2** (1) An employer shall ensure that a worker who may use a fall protection system is adequately trained in its use and given adequate oral and written instructions by a competent person. O. Reg. 145/00, s. 13.
- (2) The employer shall ensure that the person who provides the training and instruction referred to in subsection (1) prepares a written training and instruction record for each worker and signs the record. O. Reg. 145/00, s. 13.
- (3) The training and instruction record shall include the worker's name and the dates on which training and instruction took place. O. Reg. 145/00, s. 13.
- (4) The employer shall make the training and instruction record for each worker available to the Health & Safety Officer on request. O. Reg. 145/00, s. 13.
- 26.3** (1) Despite paragraph 1 of section 26, a guardrail system that meets the requirements of this section shall be used if a worker has access to the perimeter or an open side of any of the following work surfaces and is exposed to a fall of 2.4 metres or more:
1. A floor, including the floor of a mezzanine or balcony.
  2. The surface of a bridge.
  3. A roof while formwork is in place.
  4. A scaffold platform or other work platform, runway or ramp. O. Reg. 145/00, s. 14.
- (2) One of the following precautions shall be used to prevent a worker from falling through an opening on a work surface:
1. A guardrail system that meets the requirements of this section.
  2. A protective covering that,
    - i. completely covers the opening,
    - ii. is securely fastened,
    - iii. is adequately identified as covering an opening,
    - iv. is made from material adequate to support all loads to which the covering may be subjected, and



v. is capable of supporting a live load of at least 2.4 kilonewtons per square metre without exceeding the allowable unit stresses for the material used.  
O. Reg. 145/00, s. 14.

(3) The guardrail system or protective covering required under subsection (1) or (2) may be removed temporarily to perform work in or around the opening if a worker is adequately protected and signs are posted in accordance with subsections 44 (1) and (2).  
O. Reg. 145/00, s. 14.

(4) The following are the specifications for a guardrail system:

1. It shall have a top rail, an intermediate rail and a toe board.
2. The intermediate rail may be replaced by material that can withstand a point load of 450 newtons applied in a lateral or vertical downward direction.
3. The top of the guardrail system shall be located at least 0.9 metres but not more than 1.1 metres above the surface on which the system is installed.
4. The toe board shall extend from the surface to which the guardrail system is attached to a height of at least 100 millimetres or, if the toe board is made of wood, at least 89 millimetres.
5. If the guardrail system is located at the perimeter of a work surface, the distance between the edge of the surface and the guardrail system shall not be greater than 300 millimetres.

O. Reg. 145/00, s. 14.

(5) A guardrail system shall be capable of resisting anywhere along the length of the system the following loads when applied separately, without exceeding the allowable unit stress for each material used:

1. A point load of 675 newtons applied in a lateral direction to the top rail.
2. A point load of 450 newtons applied in a vertical downward direction to the top rail.
3. A point load of 450 newtons applied in a lateral or vertical downward direction to the intermediate rail, or midway between the top rail and the toe board.
4. A point load of 225 newtons applied in a lateral direction to the toe board.

O. Reg. 145/00, s. 14.

(6) If the distance between any two adjacent posts of the guardrail system is greater than 2.4 metres, the system shall be capable of resisting the loads specified in subsection (5) increased in proportion to the greater distance between the posts. O. Reg. 145/00, s. 14.

(7) The following additional requirements apply to a guardrail system that is made of wood:

1. The wood shall be spruce, pine or fir (S-P-F) timber of construction grade quality or better.
2. The wood shall be free of sharp objects such as splinters and protruding nails.
3. The system shall have posts that are at least 38 millimetres by 89 millimetres, are securely fastened to the surface and are spaced at intervals of not more than 2.4 metres.
4. The top rail and the intermediate rail shall each be at least 38 millimetres by 89 millimetres.

O. Reg. 145/00, s. 14.

(8) The following additional requirements apply to a guardrail system that is made of wire rope:

1. The top rail and intermediate rail shall be made of wire rope that is at least 10 millimetres in diameter, and the rope shall be kept taut by a turnbuckle.
2. The outward deflection of the top rail and intermediate rail resulting from the loads specified in subsection (5) shall not extend beyond the edge of a work surface.
3. The system shall have vertical separators at intervals of not more than 2.4 metres and horizontal supports at intervals of not more than 9 metres.
4. The intermediate rail shall be located midway between the top rail and the toe board.

O. Reg. 145/00, s. 14.

**26.4** (1) A travel restraint system shall consist of a full body harness with adequate attachment points or a safety belt. O. Reg. 145/00, s. 14.

(2) The full body harness or safety belt shall be attached by a lifeline or lanyard to a fixed support that meets the requirements of section 26.7. O. Reg. 145/00, s. 14.

- (3) The travel restraint system shall be inspected by a competent worker before each use.  
O. Reg. 145/00, s. 14.
- (4) If a component of the travel restraint system is found to be defective on inspection, the defective component shall immediately be taken out of service. O. Reg. 145/00, s. 14.
- 26.5** (1) A fall restricting system that is not designed for use in wood pole climbing shall consist of an assembly of components that is,  
(a) attached to an independent fixed support that meets the requirements of section 26.7; and  
(b) designed and arranged in accordance with the manufacturer's instructions and so that a worker's free fall distance does not exceed 0.6 metres. O. Reg. 85/04, s. 6.
- (2) A fall restricting system that is designed for use in wood pole climbing,  
(a) shall consist of an assembly of components that is designed and arranged in accordance with the manufacturer's instructions; and  
(b) shall not allow pole slippage in excess of the distances set out in the applicable National Standards of Canada standard referred to in subsection 26.1 (3). O. Reg. 85/04, s. 6.
- (3) A fall restricting system shall be inspected by a competent worker before each use.  
O. Reg. 85/04, s. 6.
- (4) If a component of the fall restricting system is found to be defective on inspection, the component shall be taken out of service immediately. O. Reg. 85/04, s. 6.
- (5) If a worker who is using the fall restricting system falls or slips more than the distance determined under clause (1) (b) or (2) (b), as the case may be, the system shall be taken out of service immediately and shall not be used again by a worker unless all components of the system have been certified by the manufacturer as being safe for reuse. O. Reg. 85/04, s. 6.
- 26.6** (1) A fall arrest system shall consist of a full body harness with adequate attachment points and a lanyard equipped with a shock absorber or similar device. O. Reg. 145/00, s. 14.
- (2) The fall arrest system shall be attached by a lifeline or by the lanyard to an independent fixed support that meets the requirements of section 26.7. O. Reg. 145/00, s. 14.
- (3) The fall arrest system shall be arranged so that a worker cannot hit the ground or an object or level below the work. O. Reg. 145/00, s. 14.
- (4) Despite subsection (1), the fall arrest system shall not include a shock absorber if wearing or using one could cause a worker to hit the ground or an object or level below the work.  
O. Reg. 145/00, s. 14.
- (5) The fall arrest system shall not subject a worker who falls to a peak fall arrest force greater than 8 kilonewtons. O. Reg. 145/00, s. 14.
- (6) The fall arrest system shall be inspected by a competent worker before each use.  
O. Reg. 145/00, s. 14.
- (7) If a component of the fall arrest system is found to be defective on inspection, the defective component shall immediately be taken out of service. O. Reg. 145/00, s. 14.
- (8) If a worker who is using the fall arrest system falls, the system shall be immediately removed from service and shall not be used again by a worker unless all components of the system have been certified by the manufacturer as being safe for re-use. O. Reg. 145/00, s. 14.
- (9) Subsections (1) to (8) do not apply to fall restricting systems designed for use in wood pole climbing. O. Reg. 85/04, s. 7.

- 26.7** (1) A permanent anchor system shall be used as the fixed support in a fall arrest system, fall restricting system or travel restraint system if the following conditions are met:
1. The anchor system has been installed according to the *Building Code*.
  2. It is safe and practical to use the anchor system as the fixed support.  
O. Reg. 145/00, s. 14.
- (2) If the conditions set out in subsection (1) are not met, a temporary fixed support shall be used that meets the following requirements:
1. Subject to paragraph 2, a support used in a fall arrest system shall be capable of supporting a static force of at least 8 kilonewtons without exceeding the allowable unit stress for each material used.
  2. If a shock absorber is also used in the fall arrest system, the support shall be capable of supporting a static force of at least 6 kilonewtons without exceeding the allowable unit stress for each material used.
  3. Subject to paragraph 4, a support used in a fall restricting system must be capable of supporting a static force of at least 6 kilonewtons without exceeding the allowable unit stress for each material used.
  4. Paragraph 3 does not apply to a support that is used in accordance with the manufacturer's written instructions and is adequate to protect a worker.
  5. A support used in a travel restraint system shall be capable of supporting a static force of at least 2 kilonewtons without exceeding the allowable unit stress for each material used.  
O. Reg. 145/00, s. 14.
- (3) Despite the requirements listed in subsection (2), the support capacity of a temporary fixed support used in a fall protection system may be determined by dynamic testing in accordance with good engineering practice to ensure that the temporary fixed support has adequate capacity to arrest a worker's fall. O. Reg. 145/00, s. 14.
- (4) A fixed support shall not have any sharp edges that could cut, chafe or abrade the connection between it and another component of the system. O. Reg. 145/00, s. 14.
- (5) Subsections (1) to (4) do not apply to fall restricting systems designed for use in wood pole climbing. O. Reg. 85/04, s. 8.
- 26.8** (1) A safety net shall be designed, tested and installed in accordance with ANSI Standard 10.11-1989, Personnel and Debris Nets for Construction and Demolition Operations.  
O. Reg. 145/00, s. 14.
- (2) The safety net shall be installed by a competent worker. O. Reg. 145/00, s. 14.
- (3) A professional engineer or a competent person under the engineer's supervision shall inspect and test the installation of the safety net before it is put in service. O. Reg. 145/00, s. 14.
- (4) The engineer shall document the inspection and testing of the safety net. O. Reg. 145/00, s. 14;  
O. Reg. 85/04, s. 9.
- (5) A copy of the document shall be kept at the project while the safety net is in service.  
O. Reg. 145/00, s. 14.
- 26.9** (1) This section applies to a lanyard or lifeline that is part of a travel restraint system or a fall arrest system. O. Reg. 145/00, s. 14.
- (2) The following requirements apply to a lanyard or a lifeline:
1. It shall not be used in such a way that it is likely to be cut, chafed or abraded.
  2. It shall not be subjected to extreme temperature, flame, abrasive or corrosive materials or other hazards that may damage it.
  3. The free end of the lanyard or lifeline shall be kept clear of equipment and machinery.  
O. Reg. 145/00, s. 14.

- (3) Only one person at a time may use a lanyard. O. Reg. 145/00, s. 14.
- (4) The connecting ends of a lanyard shall be wrapped around a protective thimble and securely fastened with a swaged fitting or eye splice supplied by the manufacturer of the lanyard. O. Reg. 145/00, s. 14.
- (5) A horizontal or vertical lifeline shall be kept free from splices or knots, except knots used to connect it to a fixed support. O. Reg. 145/00, s. 14.
- (6) Only one person at a time may use a vertical lifeline. O. Reg. 145/00, s. 14.
- (7) A vertical lifeline shall,
  - (a) extend to the ground; or
  - (b) have a positive stop that prevents the rope grab or other similar device from running off the end of the lifeline. O. Reg. 145/00, s. 14.
- (8) The following requirements apply to a horizontal lifeline system:
  - 1. It shall be designed by a professional engineer in accordance with good engineering practice.
  - 2. The design may be a standard design or a custom design.
  - 3. The design shall,
    - i. show the arrangement of the system including the anchorage or fixed support system,
    - ii. indicate the components used,
    - iii. state the number of workers that can safely be attached to it,
    - iv. set out instructions for installation or erection, and
    - v. show the design loads for the system.
  - 4. The system shall be installed or erected, and maintained, in accordance with the professional engineer's design.
  - 5. Before each use, the system shall be inspected by a professional engineer or a competent worker designated by a supervisor.
  - 6. The constructor shall keep the design at the project while the system is in use. O. Reg. 145/00, s. 14.

## HYGIENE

- 28. (1) A reasonable supply of potable drinking water shall be kept readily accessible at a project for the use of workers. O. Reg. 213/91, s. 28 (1).
- (2) Drinking water shall be supplied from a piping system or from a clean, covered container with a drain faucet. O. Reg. 213/91, s. 28 (2).
- (3) Workers shall be given a sanitary means of drinking the drinking water. O. Reg. 213/91, s. 28 (3).
- (4) Workers shall not be required to share a common drinking cup to drink water. O. Reg. 213/91, s. 28 (4).
- 29. (1) In this section,
  - "facilities" means toilet, urinal and clean-up facilities;
  - "service", when used as a verb, means to have waste pumped out and to have the facilities replenished where necessary. O. Reg. 527/00, s. 1.
- (3) The constructor shall ensure,
  - (a) that facilities are provided or arranged for workers before work has started at a project; and
  - (b) that workers at the project have reasonable access to these facilities. O. Reg. 145/00, s. 15.
- (8) The location of the facilities under subsection (7) shall provide reasonable accessibility for

workers. O. Reg. 145/00, s. 15.

- (10) The constructor shall,
  - (a) inform workers of the location of the facilities; and
  - (b) post the location of the facilities in a conspicuous place at the project if it is practical to do so. O. Reg. 145/00, s. 15.
- (11) The facilities shall be serviced, cleaned and sanitized as frequently as necessary to maintain them in a clean and sanitary condition. O. Reg. 145/00, s. 15.
- (12) The constructor shall keep at the project for the duration of the project,
  - (a) a record of the servicing, cleaning and sanitizing of the facilities;
- (13) Facilities that are not under the constructor's control satisfy the requirements of this section only if the constructor has received permission from the facilities' owner for workers to use the facilities. O. Reg. 145/00, s. 15.

**29.1 (0.1)** In this section,

“non-sewered flush toilet facilities” means water flush toilets or chemical flush toilets that have the features listed in subsection (0.2);

“sewered toilet facilities” means water flush toilets that are connected to a sanitary sewer system and equipped with a trap in accordance with Part 7 of the *Building Code*. O. Reg. 527/00, s. 2 (1).

(0.2) The features referred to in the definition of “non-sewered flush toilet facilities” in subsection (0.1) are:

- 1. The toilets are not connected to a sanitary sewer system.
- 2. They are equipped with a trap or a positive seal separating stored waste from the bowl.
- 3. The waste is first flushed from the bowl with water or with water containing chemical additives. Then the waste is deposited into a container and chemically treated sufficiently for the container's maximum capacity. O. Reg. 527/00, s. 2 (1).

(1) Each toilet facility shall meet the following requirements:

- 1. There shall be a toilet with an open-front toilet seat.
- 2. There shall be a toilet paper holder and an adequate supply of toilet paper. If the facility is intended for use by female workers, there shall be a disposal receptacle for sanitary napkins.
- 3. The facility shall afford the user privacy and protection from weather and from falling objects. There shall be a self-closing door that can be locked from inside the facility.
- 4. The facility shall be,
  - i. illuminated by natural or artificial light,
  - ii. adequately heated, if that is possible, and
  - iii. adequately ventilated.
- 5. If the facility is intended for use by males only or by females only, it shall have a sign indicating that fact.
- 6. The facility shall be kept in good repair at all times. O. Reg. 145/00, s. 15; O. Reg. 527/00, s. 2 (2, 3).

(2) Separate toilet facilities shall be provided for male and female workers, unless the facilities are intended to be used by only one worker at a time. O. Reg. 145/00, s. 15.

(3) Sewered toilet facilities or non-sewered flush toilet facilities shall be provided at a project, subject to subsection (4). O. Reg. 145/00, s. 15.

(4) If a project is being carried out in a remote unpopulated area and it is not reasonably possible to provide the toilet facilities required under subsection (3), other types of toilet facilities that come as close as possible to having the features of non-sewered flush toilet facilities shall be provided instead. O. Reg. 527/00, s. 2 (4).

(5) When water flush toilets or non-recirculating chemical flush toilets are provided, the minimum number of toilets required at the project is as follows:

**TABLE 1**

<b>Minimum number of toilets</b>	<b>Number of workers regularly employed at the project</b>
1	1-15
2	16-30
3	31-45
4	46-60
4, plus 1 additional toilet for each additional group of 15 or fewer workers	61 or more

O. Reg. 145/00, s. 15; O. Reg. 527/00, s. 2 (5).

(6) If the toilets are located in a multiple water flush toilet facility and are intended to be used by male workers, water flush urinals may be substituted for a maximum of two-thirds of the number of toilets required by subsection (5). O. Reg. 145/00, s. 15.

(7) When toilets other than water flush toilets or non-recirculating chemical flush toilets are provided, the minimum number of toilets required at the project is as follows:

**TABLE 2**

<b>Minimum number of toilets</b>	<b>Number of workers regularly employed at the project</b>
1	1-10
2	11-20
3	21-30
4	31-40
4, plus 1 additional toilet for each additional group of 15 or fewer workers	41 or more

O. Reg. 145/00, s. 15; O. Reg. 527/00, s. 2 (6).

(8) If the toilets are located in a portable single-unit toilet facility intended for use by male workers, there shall be at least one urinal for each toilet. O. Reg. 145/00, s. 15.

(9) Portable urinals equipped with clean-up facilities are permitted in addition to the requirements of this section. O. Reg. 145/00, s. 15.

**29.2** (1) Each single-toilet facility shall be provided with its own clean-up facility. O. Reg. 527/00, s. 3.

(1.1) In a multiple-toilet facility at a project, one clean-up facility shall be provided for every two toilets. O. Reg. 527/00, s. 3.

(2) Each clean-up facility shall meet the following requirements:

1. Subject to subsection (3), the facility shall have a wash basin with running water. Both hot and cold running water shall be available if reasonably possible.
2. Soap or hand cleanser shall be provided.
3. Paper towels or a hand dryer shall be provided. If paper towels are provided, there shall be a waste disposal receptacle nearby. O. Reg. 145/00, s. 15.

- (3) If it is not reasonably possible to have a wash basin with running water at a clean-up facility, hand cleanser that can be used without water shall be provided instead. O. Reg. 145/00, s. 15.
- 30.** Workers who handle or use corrosive, poisonous or other substances likely to endanger their health shall be provided with washing facilities with clean water, soap and individual towels. O. Reg. 213/91, s. 30.

### GENERAL REQUIREMENTS

- 31.** (1) Every part of a project, including a temporary structure,
- (a) shall be designed and constructed to support or resist all loads and forces to which it is likely to be subjected without exceeding the allowable unit stress for each material used; and
  - (b) shall be adequately braced to prevent any movement that may affect its stability or cause its failure or collapse. O. Reg. 213/91, s. 31 (1).
- (2) If two structural steel columns or structural steel beams are connected to a common column or common beam,
- (a) the connection shall be made using a clipped double connection; or
  - (b) the first column or beam shall be secured in a seated connection. O. Reg. 213/91, s. 31 (2).
- (3) No part of a project, including a temporary structure, shall be subjected to a load in excess of the load it is designed and constructed to bear. O. Reg. 213/91, s. 31 (3).
- 32.** (1) During the construction of a building, temporary or permanent flooring shall be installed progressively as the building is erected. O. Reg. 213/91, s. 32 (1).
- (2) Temporary flooring,
- (a) shall consist of material that, without exceeding the allowable unit stress for the material used, is capable of supporting,
    - (i) any load to which it is likely to be subjected, and
    - (ii) a load of at least 2.4 kilonewtons per square metre;
  - (b) shall be securely fastened to and supported on girders, beams or other structural members that are capable of supporting any load likely to be applied to the flooring without exceeding the allowable unit stress for the structural members; and
  - (c) shall extend over the whole area of the surface on or above which work is being carried out. O. Reg. 213/91, s. 32 (2).
- (3) Temporary flooring shall not be subjected to a load in excess of the load that it is designed and constructed to bear. O. Reg. 213/91, s. 32 (3).
- 33.** (1) Subject to subsection (2), work on a building shall not be carried out at a distance higher than the higher of two storeys or the first column splice above the temporary or permanent flooring. O. Reg. 213/91, s. 33 (1).
- (2) If the vertical distance between the tiers of column splices on a building exceeds two storeys, work shall not be carried out higher than three storeys above the temporary or permanent flooring. O. Reg. 213/91, s. 33 (2).
- (3) This section does not apply to work carried out by a worker,
- (a) who is working from a scaffold;
  - (b) whose fall would be arrested by means of a safety net without endangering the worker; or
  - (c) who is using a fall arrest system attached to the project. O. Reg. 213/91, s. 33 (3).
- 34.** (1) If material may fall on a worker, overhead protection shall be provided,
- (a) at every means of access to and egress from a building or other structure under construction; and
  - (b) above every area where work is being carried out. O. Reg. 213/91, s. 34 (1).

- (2) Overhead protection shall consist of material capable of supporting 2.4 kilonewtons per square metre without exceeding the allowable unit stress for the material used.  
O. Reg. 213/91, s. 34 (2).

## HOUSEKEEPING

- 35.** (1) Waste material and debris shall be removed to a disposal area and reusable material shall be removed to a storage area as often as is necessary to prevent a hazardous condition arising and, in any event, at least once daily. O. Reg. 213/91, s. 35 (1).
- (2) Rubbish, debris and other materials shall not be permitted to fall freely from one level to another but shall be lowered by a chute, in a container or by a crane or hoist. O. Reg. 213/91, s. 35 (2).
- (3) Despite subsection (2), rubbish, debris and other materials from demolition on a project may be permitted to fall or may be dropped into an enclosed designated area to which people do not have access. O. Reg. 213/91, s. 35 (3).
- (4) A chute,
- (a) shall be adequately constructed and rigidly fastened in place;
  - (b) if it has a slope exceeding a gradient of one in one, shall be enclosed on its four sides;
  - (c) shall have a gate at the bottom end if one is necessary to control the flow of material; and
  - (d) shall discharge into a container or an enclosed area surrounded by barriers.
- O. Reg. 213/91, s. 35 (4).
- (5) The entrance to a chute,
- (a) shall be constructed to prevent spilling over when rubbish, debris and other materials are being deposited into the chute;
  - (b) if it is at or below floor level, shall have a curb that is at least 100 millimetres high;
  - (c) shall not be more than 1.2 metres high;
  - (d) shall be kept closed when the chute is not in use; and
  - (e) shall be designed so that any person will be discouraged from entering it.
- O. Reg. 213/91, s. 35 (5).
- 36.** If a formwork tie, reinforcing steel, a nail or another object protruding from concrete or another surface may endanger a worker, the protrusion shall be removed, cut off at the surface or otherwise protected as soon as practicable. O. Reg. 213/91, s. 36.
- 37.** (1) Material or equipment at a project shall be stored and moved in a manner that does not endanger a worker. O. Reg. 213/91, s. 37 (1).
- (2) No material or equipment to be moved by a crane or similar hoisting device shall be stored under or in close proximity to an energized outdoor overhead electrical conductor.  
O. Reg. 213/91, s. 37 (2).
- 38.** Blocking, support chains, metal bands, wire rope and rigging components shall be removed from material or equipment in a manner that does not endanger a worker. O. Reg. 213/91, s. 38.
- 39.** Material and equipment at a project shall be piled or stacked in a manner that prevents it from tipping, collapsing or rolling. O. Reg. 213/91, s. 39.
- 40.** (1) No material shall be stored, stacked or piled within 1.8 metres of,
- (a) an opening in a floor or roof;
  - (b) the open edge of a floor, roof or balcony; or
  - (c) an excavation. O. Reg. 213/91, s. 40 (1).
- (2) Subsection (1) does not apply with respect to material in a building or a completely enclosed part of a building that is used solely for storing and distributing materials. O. Reg. 213/91, s. 40 (2).



- (3) Subsection (1) does not apply with respect to small masonry units including bricks, blocks and similar objects,
    - (a) that can be handled by one worker;
    - (b) that are to be used at the edge of a floor, a roof, an excavation or an opening in a floor or roof; and
    - (c) that are stacked in a pile whose height is less than the distance from the face of the pile to the edge of the floor, roof, excavation or opening in a floor or roof.
      - O. Reg. 213/91, s. 40 (3).
- 41.** A combustible, corrosive or toxic substance shall be stored in a suitable container.  
O. Reg. 213/91, s. 41.
- 42.** (1) A storage cylinder for compressed gas shall be secured in an upright position.  
O. Reg. 213/91, s. 42 (1).
- (2) The control valve of a storage cylinder for compressed gas, other than a cylinder connected to a regulator, supply line or hose, shall be covered by a protective cap that is secured in its proper position. O. Reg. 213/91, s. 42 (2).
  - (3) A spent storage cylinder shall not be stored inside a building. O. Reg. 213/91, s. 42 (3).
  - (4) No storage cylinder for propane shall be placed closer than three metres to a source of ignition or fire. O. Reg. 213/91, s. 42 (4).
  - (5) Subsection (4) does not apply to a storage cylinder,
    - (a) that forms part of hand-held propane equipment;
    - (b) that forms part of a lead pot used in plumbing or electrical work;
    - (c) that forms part of a propane-powered or propane-heated vehicle; or
    - (d) that is protected from a source of ignition by a barrier, wall or other means of separation.
      - O. Reg. 213/91, s. 42 (5).
- 43.** (1) A flammable liquid or gas shall be stored in a building or storage tank that is suitable for the purpose and, if practicable, not less than 100 metres from a magazine for explosives.  
O. Reg. 213/91, s. 43 (1).
- (2) No more than one work day's normal supply of a flammable liquid shall be stored in a building or structure on a project unless it is stored,
    - (a) in a container that is suitable for the particular hazards of the liquid; and
    - (b) in a controlled access area or a room,
      - (i) that has sufficient window area to provide explosion relief to the outside, and
      - (ii) that is remote from the means of egress from the building or structure.
        - O. Reg. 213/91, s. 43 (2).
  - (3) A portable container used to store or transport flammable liquids,
    - (a) shall be approved for use for that liquid by a recognized testing laboratory; and
    - (b) shall have a label stating the use for which the container is approved and the name of the testing laboratory which gave the approval required by clause (a).
      - O. Reg. 213/91, s. 43 (3).
- 44.** (1) Signs meeting the requirements of subsection (2) shall be posted in prominent locations and in sufficient numbers to warn workers of a hazard on a project. O. Reg. 213/91, s. 44 (1).
- (2) A sign shall contain the word "DANGER" written in legible letters that are at least 150 millimetres in height and shall state that entry by any unauthorized person to the area where the hazard exists is forbidden. O. Reg. 213/91, s. 44 (2).
  - (3) Without limiting the generality of subsection (1), a sign shall be posted,
    - (a) adjacent to a hoisting area;

- (b) under a boatswain's chair, a suspended scaffold or a suspended platform;
  - (c) at the outlet from a chute;
  - (d) at a means of access to a place where there may be a noxious gas, vapour dust or fume, noxious substance or a lack of oxygen; and
  - (e) where there is a potential hazard from an energized overhead electrical conductor at more than 750 volts. O. Reg. 213/91, s. 44 (3).
- (4) No person shall enter an area in which a sign is posted other than a worker authorized to work in the area. O. Reg. 213/91, s. 44 (4).
- 45.** (1) The areas in which a worker is present and the means of access to and egress from those areas shall be adequately lit. O. Reg. 213/91, s. 45 (1).
- (2) A light bulb used in a temporary lighting system shall be enclosed by a mechanical protection device. O. Reg. 213/91, s. 45 (2).
- 46.** (1) A project shall be adequately ventilated by natural or mechanical means,
- (a) if a worker may be injured by inhaling a noxious gas, vapour, dust or fume or from a lack of oxygen; or
  - (b) if a gas, vapour, dust or fume may be capable of forming an explosive mixture with air. O. Reg. 213/91, s. 46 (1).
- (2) If it is not practicable to provide natural or mechanical ventilation in the circumstances described in clause (1) (a), respiratory protective equipment suitable for the hazard shall be provided to and used by the workers. O. Reg. 213/91, s. 46 (2).
- 47.** No internal combustion engine shall be operated,
- (a) in an excavation unless provision is made to ensure that exhaust gases and fumes will not accumulate in the excavation; or
  - (b) in a building or other enclosed structure,
    - (i) unless the exhaust gases and fumes from the engine are discharged directly outside the building or structure to a point sufficiently remote to prevent the return of the gases and fumes, or
    - (ii) unless there is an adequate supply of air for combustion and adequate natural or mechanical ventilation to ensure exhaust gases and fumes will not accumulate. O. Reg. 213/91, s. 47.
- 48.** (1) When a drum, tank, pipeline or other container is to be repaired or altered,
- (a) its internal pressures shall be adjusted to atmospheric pressure before any fastening is removed;
  - (b) it shall be drained, cleaned and ventilated or otherwise rendered free from any explosive, flammable or harmful substance; and
  - (c) it shall not be refilled during repair or alteration if the substance which is to be placed in it may vaporize or ignite. O. Reg. 213/91, s. 48 (1).
- (2) Clauses (1) (a) and (b) do not apply with respect to a pipeline if hot-tapping and boxing-in are carried out by a competent worker under controlled conditions that provide for the protection of all persons. O. Reg. 213/91, s. 48 (2).

#### **TEMPORARY HEAT**

- 49.** (1) A fuel-fired heating device shall be located, protected and used in such a way that there is no risk of igniting a tarpaulin or similar temporary enclosure or combustible materials adjacent to it. O. Reg. 213/91, s. 49 (1).
- (2) No fuel-fired heating device shall be used in a confined or enclosed space unless there is an adequate supply of air for combustion and adequate general ventilation. O. Reg. 213/91, s. 49 (2).

- (3) A fuel-fired heating device shall be protected from damage and from overturning.  
O. Reg. 213/91, s. 49 (3).
  - (4) No fuel-fired heating device shall be located so as to restrict any means of egress.  
O. Reg. 213/91, s. 49 (4).
  - (5) A fuel-fired heating device that generates noxious products of combustion shall discharge the products of combustion outside the building or structure in which it is located.  
O. Reg. 213/91, s. 49 (5).
- 50.** All fuel supply lines shall be constructed, guarded or placed in such a way as to be protected from damage. O. Reg. 213/91, s. 50.
- 51.** (1) Temporary steam-piping shall be installed and supported so as not to endanger a worker.  
O. Reg. 213/91, s. 51 (1).
- (2) Temporary steam-piping shall be insulated or otherwise protected if a worker is likely to come into contact with it. O. Reg. 213/91, s. 51 (2).

## **FIRE SAFETY**

- 52.** (1) Fire extinguishing equipment shall be provided at readily accessible and adequately marked locations at a project. O. Reg. 213/91, s. 52 (1).
- (1.1) Every worker who may be required to use fire extinguishing equipment shall be trained in its use.  
O. Reg. 145/00, s. 16.
- (2) Without limiting subsection (1), at least one fire extinguisher shall be provided,  
(a) where flammable liquids or combustible materials are stored, handled or used;  
(b) where oil-fired or gas-fired equipment, other than permanent furnace equipment in a building, is used;  
(c) where welding or open-flame operations are carried on; and  
(d) on each storey of an enclosed building being constructed or altered. O. Reg. 213/91, s. 52 (2).
- (3) At least one fire extinguisher shall be provided in a workshop for each 300 or fewer square metres of floor area. O. Reg. 213/91, s. 52 (3).
- (4) Clause (2) (d) and subsection (3) do not apply to a building,  
(a) that is to be used as a detached or semi-detached single-family dwelling;  
(b) that has two storeys or less and is to be used as a multiple family dwelling; or  
(c) that has one storey with no basement or cellar. O. Reg. 213/91, s. 52 (4).
- 53.** (1) Fire extinguishing equipment shall be of a suitable type and size to permit the evacuation of workers during a fire. O. Reg. 213/91, s. 53 (1).
- (2) Every fire extinguisher,  
(a) shall be a type whose contents are discharged under pressure; and  
(b) shall have an Underwriters' Laboratories of Canada 4A40BC rating. O. Reg. 213/91, s. 53 (2).
- 54.** (1) Fire extinguishing equipment shall be protected from physical damage and from freezing.  
O. Reg. 213/91, s. 54 (1).
- 55.** Every fire extinguisher shall be inspected for defects or deterioration at least once a month by a competent worker who shall record the date of the inspection on a tag attached to it.  
O. Reg. 213/91, s. 55.
- 56.** No work shall be carried out at a height of 84 metres or more in a building unless the building has temporary or permanent fire pumps that provide a minimum water flow of 1,890 litres per minute at a discharge pressure of at least 450 kilopascals at and above the 84-metre height.

O. Reg. 145/00, s. 17.

**57.** (1) As construction proceeds in a building with two or more storeys, a permanent or temporary standpipe shall be installed to within two storeys of the uppermost work level.

O. Reg. 145/00, s. 18 (1).

(2) Subsection (1) does not apply to work carried out in a building which is not required by the *Building Code* to have a permanent standpipe. O. Reg. 213/91, s. 57 (2).

(3) A permanent standpipe,

(a) shall have sufficient hose outlets to permit every part of the building to be protected by a hose not longer than twenty-three metres;

(b) shall have a connection for the use of the local fire department located on the street side of the building not more than 900 millimetres and not less than 300 millimetres above ground level and to which there is clear access at all times; and

(c) shall be maintained so as to be readily operable if required to be used.

O. Reg. 213/91, s. 57 (3).

(4) Every hose outlet in a permanent standpipe shall have a valve. O. Reg. 213/91, s. 57 (4).

(5) Every hose used with a permanent standpipe,

(a) shall be at least thirty-eight millimetres in diameter;

(b) shall have a combination straight stream and fog nozzle; and

(c) shall be stored on a rack in such a way as to protect it from damage and keep it available for immediate use. O. Reg. 213/91, s. 57 (5).

(6) If a temporary standpipe has been installed, it shall not be disconnected until the permanent standpipe is connected, so that there is always a standpipe in service. O. Reg. 145/00, s. 18 (2).

(7) A temporary standpipe shall be maintained so that it is readily operable. O. Reg. 145/00, s. 18 (2).

(8) A temporary standpipe shall have at least one hose outlet per floor, with a valve and a hose attached to each hose outlet and a nozzle attached to each hose. O. Reg. 145/00, s. 18 (2).

(9) In addition to the requirements of subsection (8), there shall be a connection to which there is clear access at all times, located between 30 and 90 centimetres above ground level on a side of the building that faces the street. O. Reg. 145/00, s. 18 (2).

(10) A hose outlet on a temporary standpipe,

(a) shall have a valve; and

(b) shall be capable of accepting a hose that is 38 millimetres in diameter.

O. Reg. 145/00, s. 18 (2).

(11) If a temporary standpipe is installed in a building under construction, the constructor shall post at the project, or have available for review, a floor plan of the building indicating,

(a) the location of the hose outlets on each floor;

(b) the location of the point on the perimeter of each floor that is furthest from the hose outlet on that floor; and

(c) the location of each exit on each floor. O. Reg. 145/00, s. 18 (2).

**58.** No flammable liquid shall be transferred from one container to another by the direct application of air under pressure. O. Reg. 213/91, s. 58.

## **DUST CONTROL**

**59.** If the dissemination of dust is a hazard to a worker, the dust shall be adequately controlled or each worker who may be exposed to the hazard shall be provided with adequate personal protective equipment. O. Reg. 145/00, s. 19.

## CONFINED SPACES

- 60.** (1) No worker shall be present in a confined space on a project unless,
- (a) there is a means of egress from the parts of the confined space that are accessible to workers;
  - (b) all mechanical equipment in the confined space is disconnected from its power source and locked out;
  - (c) all pipes and other supply lines in the confined space whose contents are likely to create a hazard are blanked off; and
  - (d) the confined space is certified in accordance with subsection (3) to be safe for workers.  
O. Reg. 213/91, s. 60 (1).
- (2) A competent worker shall test and evaluate a confined space before a worker enters it to determine whether it is free from hazard to a worker while the worker is present in it and as often as necessary to ensure that it remains free from hazard. O. Reg. 213/91, s. 60 (2).
- (3) The worker who performs the tests shall certify in writing whether the confined space may endanger a worker. O. Reg. 213/91, s. 60 (3).
- (4) The employer shall keep a permanent record of the results of all tests performed on a confined space. O. Reg. 213/91, s. 60 (4).
- 61.** (1) No worker shall be present in a confined space in which there is or is likely to be a hazardous gas, vapour, dust, mist, smoke or fume or an oxygen content of less than 18 per cent or more than 23 per cent, measured at atmospheric pressure, unless this section is complied with.  
O. Reg. 213/91, s. 61 (1).
- (2) The confined space shall be purged and ventilated to provide an atmosphere which does not endanger workers and measures necessary to maintain the atmosphere shall be taken.  
O. Reg. 213/91, s. 61 (2).
- (3) Suitable arrangements shall be made to remove a worker from the confined space should assistance be required. O. Reg. 213/91, s. 61 (3).
- (4) When a worker is present in the confined space, another worker shall be stationed outside it.  
O. Reg. 213/91, s. 61 (4).
- (5) If the person stationed outside the confined space is not adequately trained in artificial respiration, a person so trained shall be conveniently available. O. Reg. 213/91, s. 61 (5).
- 62.** (1) Despite subsections 60 (1) and 61 (1), a worker may be present in a confined space that is not purged and ventilated and for which no certificate under subsection 60 (3) has been given if this section is complied with. O. Reg. 213/91, s. 62 (1).
- (2) A worker in a confined space shall use suitable protective breathing apparatus and a full body harness securely attached to a rope,
- (a) whose free end is attached securely to a fixed support located outside the confined space; and
  - (b) that is being held by a worker outside the confined space who is equipped with an alarm.  
O. Reg. 213/91, s. 62 (2).
- (3) A means of communication between a worker in the confined space and the worker outside it shall be provided. O. Reg. 213/91, s. 62 (3).
- (4) A person trained in artificial respiration and equipped and able to perform rescue operations shall be readily available outside the confined space while a worker is inside it.  
O. Reg. 213/91, s. 62 (4).

- (5) A competent worker shall inspect all equipment mentioned in subsection (2) as often as is necessary to ensure that it is in working order. O. Reg. 213/91, s. 62 (5).
- 63.** (1) No worker shall be present in a confined space that contains or is likely to contain explosive or flammable gas, dust, mist or vapour except as provided in this section. O. Reg. 213/91, s. 63 (1).
- (2) A worker may engage in cleaning or inspecting activities that do not create a source of ignition in a confined space in which the concentration of explosive or flammable gas or vapour is not likely to exceed 50 per cent of the lower explosive limit of the gas or vapour. O. Reg. 213/91, s. 63 (2).
- (3) A worker may engage in cold work in a confined space in which the concentration of explosive or flammable gas or vapour is not likely to exceed 10 per cent of the lower explosive limit of the gas or vapour. O. Reg. 213/91, s. 63 (3).
- (4) In this section,  
“cold work” means a work procedure that does not generate heat and does not cause sparks or open flame, explosions or flash fires. O. Reg. 213/91, s. 63 (4).

### **PUBLIC WAY PROTECTION**

- 64.** (1) No work shall be carried out on a building or structure located within 4.5 metres of a public way unless a covered way is constructed over the part of the public way that is adjacent to the project. O. Reg. 213/91, s. 64 (1).
- (2) Subsection (1) does not apply with respect to a building or structure if the work being done is enclosed. O. Reg. 213/91, s. 64 (2).
- (3) A covered way,  
(a) shall have an unobstructed height of not less than 2.4 metres;  
(b) shall have an unobstructed width of not less than 1.1 metres or, if it is over a sidewalk that is less than 1.1 metres wide, have a width equal to the width of the sidewalk;  
(c) shall be capable of supporting any load likely to be applied to it and capable of supporting a load of at least 2.4 kilonewtons per square metre;  
(d) shall have a weather-tight roof;  
(e) shall have the side adjacent to the project covered with a partition that has a smooth surface on the public way side;  
(f) shall have a railing one metre high from ground level on the street side; and  
(g) shall have adequate lighting within the public way. O. Reg. 213/91, s. 64 (3).
- 65.** If work on a project may endanger a person using a public way, a sturdy fence at least 1.8 metres in height shall be constructed between the public way and the project. O. Reg. 213/91, s. 65.
- 66.** Machinery, equipment and material that is being used, left or stored where it may be a hazard to traffic on a public way shall be marked by flashing devices. O. Reg. 213/91, s. 66;  
O. Reg. 145/00, s. 20.

### **TRAFFIC CONTROL**

- 69.** (1) This section applies with respect to directing vehicular traffic that may be a hazard to workers on a public way. O. Reg. 145/00, s. 23.
- (2) A worker shall not direct vehicular traffic for more than one lane in the same direction. O. Reg. 145/00, s. 23.
- (3) A worker shall not direct vehicular traffic if the normal posted speed limit of the public way is more

than 90 kilometres per hour. O. Reg. 145/00, s. 23.

- (4) A worker who is required to direct vehicular traffic,
- (a) shall be a competent worker;
  - (b) shall not perform any other work while directing vehicular traffic;
  - (c) shall be positioned in such a way that he or she is endangered as little as possible by vehicular traffic; and
  - (d) shall be given adequate written and oral instructions, in a language that he or she understands, with respect to directing vehicular traffic, and those instructions shall include a description of the signals that are to be used. O. Reg. 145/00, s. 23.
- (5) The written instructions referred to in clause (4) (d) shall be kept at the project.  
O. Reg. 145/00, s. 23.

### **ACCESS TO AND EGRESS FROM WORK AREAS**

- 70.** (1) Access to and egress from a work area located above or below ground level shall be by stairs, runway, ramp or ladder. O. Reg. 213/91, s. 70 (1).
- (2) Subsection (1) does not apply to a work area that is a suspended scaffold able to be moved to give access to a floor, roof or platform or to ground level. O. Reg. 213/91, s. 70 (2).
- 71.** Adequate means of egress shall be provided from a work area to permit the evacuation of workers during an emergency. O. Reg. 213/91, s. 71.
- 72.** A work area, a route to and from a work area and a scaffold platform on which work is being performed shall be maintained at all times in a condition that does not endanger workers and, without limiting the generality of the foregoing,
- (a) shall be kept clear of obstructions;
  - (b) shall be kept clear of snow, ice or other slippery material; and
  - (c) shall be treated with sand or similar material when necessary to ensure a firm footing.  
O. Reg. 213/91, s. 72.

### **PLATFORMS, RUNWAYS AND RAMPS**

- 73.** (1) Runways, ramps and platforms other than scaffold platforms shall meet the requirements of this section. O. Reg. 213/91, s. 73 (1).
- (2) A runway, ramp or platform shall be designed, constructed and maintained to support or resist, without exceeding the allowable unit stresses for the materials of which it is made,
- (a) all loads and forces to which it is likely to be subjected; and
  - (b) at least 2.4 kilonewtons per square metre. O. Reg. 213/91, s. 73 (2).
- (3) No runway, ramp or platform shall be loaded in excess of the load that it is designed and constructed to bear. O. Reg. 213/91, s. 73 (3).
- (4) A runway, ramp or platform shall be at least 460 millimetres wide and shall be securely fastened in place. O. Reg. 213/91, s. 73 (4).
- 74.** (1) A ramp shall have,
- (a) a slope not exceeding a gradient of 1 in 3; and
  - (b) if its slope exceeds a gradient of 1 in 8, cross cleats made from nineteen millimetres by thirty-eight millimetres boards that are securely nailed to the ramp and spaced at regular intervals not exceeding 500 millimetres. O. Reg. 213/91, s. 74 (1).
- (2) Subsection (1) does not apply to a ramp installed in the stairwell of a building not exceeding two storeys in height if the ramp,

- (a) has a slope not exceeding a gradient of 1 in 1; and
- (b) has cross cleats made from thirty-eight millimetres by thirty-eight millimetres boards that are securely nailed to the ramp and spaced at regular intervals not exceeding 300 millimetres. O. Reg. 213/91, s. 74 (2).

## **STAIRS AND LANDINGS**

- 75.** (1) No work shall be performed in a building or structure that will be at least two storeys high when it is finished unless stairs are installed in accordance with this section. O. Reg. 213/91, s. 75 (1).
- (2) As the construction of a building or structure progresses, permanent or temporary stairs shall be installed up to,
- (a) the uppermost work level; or
  - (b) if stairs would interfere with work on the uppermost work level, to within the lesser of two storeys or nine metres below the uppermost work level. O. Reg. 213/91, s. 75 (2).
- (3) Subsection (2) does not apply with respect to,
- (a) a part of a building or structure in which only the structural steel beams or columns are erected; or
  - (b) a structure to which a permanent ladder is attached before the structure is raised into position. O. Reg. 213/91, s. 75 (3).
- 76.** (1) Temporary stairs and landings shall be designed, constructed and maintained to support a live load of 4.8 kilonewtons per square metre without exceeding the allowable unit stresses for each material used. O. Reg. 213/91, s. 76 (1).
- (2) No temporary stair or landing shall be loaded in excess of the load it is designed and constructed to bear. O. Reg. 213/91, s. 76 (2).
- 77.** (1) No work shall be performed in a building or structure with stairs unless the stairs meet the requirements of this section. O. Reg. 213/91, s. 77 (1).
- (2) Stairs shall have,
- (a) a clear width of at least 500 millimetres;
  - (b) treads and risers of uniform width, length and height;
  - (c) subject to subsection (3), stringers with a maximum slope of 50 degrees from the horizontal;
  - (d) landings that are less than 4.5 metres apart measured vertically;
  - (e) a securely fastened and supported wooden handrail on the open sides of each flight; and
  - (f) a guardrail on the open side of each landing. O. Reg. 213/91, s. 77 (2).
- (3) The stringers of prefabricated stairs erected inside a tower formed by scaffold frame sections shall have a maximum slope of 60 degrees from the horizontal. O. Reg. 213/91, s. 77 (3).
- (4) A wooden handrail shall measure thirty-eight millimetres by eighty-nine millimetres and shall be free of loose knots, sharp edges, splinters and shakes. O. Reg. 213/91, s. 77 (4).
- (5) Skeleton steel stairs shall have temporary wooden treads securely fastened in place that are made of suitable planking extending the full width and breadth of the stairs and landings. O. Reg. 213/91, s. 77 (5).

## **LADDERS**

- 78.** (1) A ladder shall be designed, constructed and maintained so as not to endanger a worker and shall be capable of withstanding all loads to which it may be subjected. O. Reg. 213/91, s. 78 (1).



- (2) A ladder,
- (a) shall be free from defective or loose rungs;
  - (b) shall have rungs spaced at 300 millimetres on centres;
  - (c) shall have side rails at least 300 millimetres apart;
  - (d) shall be placed on a firm footing; and
  - (e) shall be situated so that its base is not less than one-quarter, and not more than one-third, of the length of the ladder from a point directly below the top of the ladder and at the same level as the base of the ladder, if the ladder is not securely fastened.
- O. Reg. 213/91, s. 78 (2).
- (3) The maximum length of a ladder measured along its side rail shall not be more than,
- (a) five metres for a trestle ladder or for each of the base and extension sections of an extension trestle ladder;
  - (b) six metres for a step-ladder;
  - (c) nine metres for a single ladder or an individual section of a ladder;
  - (d) fifteen metres for an extension ladder with two sections; and
  - (e) twenty metres for an extension ladder with more than two sections.
- O. Reg. 213/91, s. 78 (3).
- (4) No ladder shall be lashed to another ladder to increase its length.
- O. Reg. 213/91, s. 78 (4).
- (5) In this section,  
 “extension trestle ladder” means a combination of a trestle ladder and a vertically-adjustable single ladder with a suitable means of securely locking the ladders together. O. Reg. 213/91, s. 78 (5).
- 79.** No ladder shall be present in an elevator shaft or a similar hoisting area when the shaft or area is being used for hoisting. O. Reg. 213/91, s. 79.
- 80.** A ladder used as a regular means of access between levels of a structure,
- (a) shall extend at the upper level at least 900 millimetres above the landing or floor;
  - (b) shall have a clear space of at least 150 millimetres behind every rung;
  - (c) shall be located so that an adequate landing surface that is clear of obstructions is available at the top and bottom of the ladder; and
  - (d) shall be secured at the top and bottom to prevent movement. O. Reg. 213/91, s. 80.
- 81.** (1) A wooden ladder,
- (a) shall be made of wood that is straight-grained and free of loose knots, sharp edges, splinters and shakes; and
  - (b) shall not be painted or coated with an opaque material. O. Reg. 213/91, s. 81 (1).
- (2) The side rails of a wooden ladder of the cleat type,
- (a) shall be not less than 400 millimetres and not more than 610 millimetres apart; and
  - (b) shall measure not less than,
    - (i) thirty-eight millimetres by eighty-nine millimetres if the ladder is 5.8 metres or less long, or
    - (ii) thirty-eight millimetres by 140 millimetres if the ladder is more than 5.8 metres long. O. Reg. 213/91, s. 81 (2).
- (3) The rungs of a wooden ladder of the cleat type,
- (a) shall measure not less than,
    - (i) nineteen millimetres by sixty-four millimetres if the side rails are 400 millimetres apart, or
    - (ii) nineteen millimetres by eighty-nine millimetres if the side rails are more than 400 millimetres and not more than 610 millimetres apart; and
  - (b) shall be braced by filler blocks that are nineteen millimetres thick and are located between the rungs. O. Reg. 213/91, s. 81 (3).

- 82.** A double-width wooden ladder,
- (a) shall have three evenly-spaced rails that measure at least thirty-eight millimetres by 140 millimetres;
  - (b) shall have rungs that,
    - (i) measure at least thirty-eight millimetres by eighty-nine millimetres,
    - (ii) extend the full width of the ladder, and
    - (iii) are braced by filler blocks that are at least 19 millimetres thick; and
  - (c) shall not be less than 1.5 metres wide and not more than two metres wide.  
O. Reg. 213/91, s. 82.
- 83.** (1) When a step-ladder is being used as a self-supporting unit, its legs shall be fully-spread and its spreader shall be locked. O. Reg. 213/91, s. 83 (1).
- (2) No worker shall stand on the top of or the pail shelf of a step-ladder. O. Reg. 213/91, s. 83 (2).
- 84.** (1) Subject to subsection (2), an access ladder fixed in position,
- (a) shall be vertical;
  - (b) shall have rest platforms at not more than nine metre intervals;
  - (c) shall be offset at each rest platform;
  - (d) where the ladder extends over three metres above grade, floor or landing, shall have a safety cage commencing not more than 2.2 metres above grade, floor or landing and continuing at least 90 centimetres above the top landing with openings to permit access by a worker to rest platforms or to the top landing;
  - (e) shall have side rails that extend 90 centimetres above the landing; and
  - (f) shall have rungs that are at least 15 centimetres from the wall and spaced at regular intervals.  
O. Reg. 631/94, s. 2.
- (2) Subsection (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure that has a safety device that will provide protection should a worker using the ladder fall.  
O. Reg. 631/94, s. 2.

### **FORMS, FORMWORK, FALSEWORK AND RE-SHORING**

- 87.** (1) Formwork, falsework and re-shoring shall be designed, constructed, supported and braced so that they are capable of withstanding all loads and forces likely to be applied to them,
- (a) without exceeding the allowable working loads established for any component of the structure; and
  - (b) without causing uplift, sliding, overturning or lateral displacement of the system.  
O. Reg. 213/91, s. 87 (1).
- (2) No formwork, falsework or re-shoring shall be loaded in excess of the load that it is designed and constructed to bear. O. Reg. 213/91, s. 87 (2).
- (3) The allowable working load of the formwork, falsework or re-shoring shall be established,
- (a) by a professional engineer in accordance with good engineering practice; or
  - (b) by testing the principal components to their ultimate strength in a manner that simulates the actual loading conditions to which the formwork, falsework or re-shoring is likely to be subjected and by applying a reduction factor, in accordance with good engineering practice, to the values of ultimate strength. O. Reg. 213/91, s. 87 (3).
- (4) The results of the testing in clause (3) (b) shall be verified and certified by a professional engineer  
O. Reg. 213/91, s. 87 (4).
- (5) If single post shores are placed more than one tier high, the junction of each tier shall be braced against a fixed support in at least two directions in order to prevent any lateral movement.  
O. Reg. 213/91, s. 87 (5).

- 88.** Formwork and falsework shall not be removed unless,
- (a) the concrete is strong enough to support itself and any loads that may be applied to the structure; or
  - (b) the concrete and the structure are adequately re-shored. O. Reg. 213/91, s. 88.
- 89.** (1) This section applies with respect to formwork, falsework and re-shoring that includes,
- (a) a tubular metal frame;
  - (b) a column whose effective length is dependent upon lateral restraints between the ends of the column;
  - (c) shores placed one upon another to form a supporting system that is more than one tier in height;
  - (d) shores which are three metres or more in height;
  - (e) a truss;
  - (f) members so connected to one another that a load applied to one member may alter or induce stress in another member; or
  - (g) a unitized modular formwork or falsework structure intended to be moved as a unit.  
O. Reg. 213/91, s. 89 (1).
- (2) Formwork and falsework shall be designed by a professional engineer in accordance with good engineering practice and be installed or erected in accordance with the design drawings.  
O. Reg. 213/91, s. 89 (2).
- (3) Formwork and falsework shall, before the placement of concrete, be inspected by a professional engineer or by a competent worker designated in writing by the professional engineer.  
O. Reg. 213/91, s. 89 (3).
- (4) The person carrying out the inspection shall state in writing whether the formwork and falsework is installed or erected in accordance with the design drawings for it. O. Reg. 213/91, s. 89 (4).
- (5) The constructor shall keep the design drawings and the statements on the project while the formwork or the falsework is in use. O. Reg. 213/91, s. 89 (5).
- 90.** Re-shoring shall be designed by a professional engineer in accordance with good engineering practice and be erected in accordance with the design drawings. O. Reg. 213/91, s. 90.
- 91.** Falsework and re-shoring,
- (a) shall have sound and rigid footings capable of carrying the maximum load to which the footings may be subjected without settlement or deformation of the soil or structure below the footings; and
  - (b) shall be adequately protected to prevent deformation caused by frost heave.  
O. Reg. 213/91, s. 91.
- 92.** (1) Design drawings by a professional engineer for the formwork, falsework or re-shoring,
- (a) if a manufactured system is used, shall identify the components;
  - (b) if non-manufactured system components are used, shall show the size, grade and specifications of the non-manufactured system components;
  - (c) shall show the design loads for the structure and shall detail the bracing and external ties required to adequately support the design loads;
  - (d) if the structure is a unitized modular formwork or falsework structure intended to be lifted or moved as a unit, shall show the attachment points for rigging and hoisting; and
  - (e) shall set out the erection instructions that are specified by the manufacturer or by the professional engineer.
- (2) The constructor shall keep the design drawings on the project while the formwork, falsework or re-shoring is in use. O. Reg. 213/91, s. 92 (2).

## **EQUIPMENT, GENERAL**

- 93.** (1) All vehicles, machinery, tools and equipment shall be maintained in a condition that does not endanger a worker. O. Reg. 213/91, s. 93 (1).
- (2) No vehicle, machine, tool or equipment shall be used,
- (a) while it is defective or hazardous;
  - (b) when the weather or other conditions are such that its use is likely to endanger a worker; or
  - (c) while it is being repaired or serviced, unless the repair or servicing requires that it be operated. O. Reg. 213/91, s. 93 (2); O. Reg. 145/00, s. 25 (1).
- (3) All vehicles, machines, tools and equipment shall be used in accordance with any operating manuals issued by the manufacturers. O. Reg. 145/00, s. 25 (2).
- (4) For vehicles, machines, tools and equipment rated at greater than 10 horsepower, copies of any operating manuals issued by the manufacturers shall be kept readily available at the project. O. Reg. 145/00, s. 25 (2).
- 94.** (1) All mechanically-powered vehicles, machines, tools and equipment rated at greater than 10 horsepower shall be inspected by a competent worker to determine whether they can handle their rated capacity and to identify any defects or hazardous conditions. O. Reg. 145/00, s. 26.
- (2) The inspections shall be performed before the vehicles, machines, tools or equipment are first used at the project and thereafter at least once a year or more frequently as recommended by the manufacturer. O. Reg. 145/00, s. 26.
- 95.** (1) Every replacement part for a vehicle, machine, tool or equipment shall have at least the same safety factor as the part it is replacing. O. Reg. 213/91, s. 95 (1).
- (2) No modification to, extension to, repair to or replacement of a part of a vehicle, machine, tool or equipment shall result in a reduction of the safety factor of the vehicle, machine, tool or equipment. O. Reg. 213/91, s. 95 (2).
- 96.** (1) No worker shall operate a vehicle at a project unless he or she is competent to do so. O. Reg. 145/00, s. 26.
- (2) However, a worker being trained in the operation of a vehicle may operate it while being instructed and supervised by a competent person. O. Reg. 145/00, s. 26.
- 97.** (1) Every vehicle other than a trailer shall be equipped with brakes and a seat or other place for the vehicle operator. O. Reg. 213/91, s. 97 (1).
- 98.** The means of access to any operator's station in a vehicle, machine or equipment shall not endanger the operator and shall have skid-resistant walking, climbing and work surfaces. O. Reg. 213/91, s. 98.
- 99.** A cab or screen shall be provided to protect a worker who is exposed to an overhead hazard while operating a vehicle. O. Reg. 213/91, s. 99.
- 100.** (1) No vehicle, machine or equipment shall be drawn or towed by another vehicle on a project unless there are two separate means of attachment to the vehicle drawing or towing it. O. Reg. 213/91, s. 100 (1).
- (2) Subsection (1) does not apply with respect to a vehicle being drawn or towed in which there is an operator and that has brakes that are able to stop the vehicle with its load, if any. O. Reg. 213/91, s. 100 (2).
- (3) Each means of attachment referred to in subsection (1) shall be constructed and attached in such a way that the failure of one means of attachment does not permit the vehicle, machine or

equipment being drawn or towed to become detached from the other vehicle.  
O. Reg. 213/91, s. 100 (3).

- 101.** (1) No worker shall remain on or in a vehicle, machine or equipment while it is being loaded or unloaded if the worker might be endangered by remaining there. O. Reg. 213/91, s. 101 (1).
- (2) Such action as may be necessary to prevent an unattended vehicle, machine or equipment from being started or set in motion by an unauthorized person shall be taken.  
O. Reg. 213/91, s. 101 (2).
- (3) An unattended vehicle, machine or equipment shall have its brakes applied and its wheels blocked to prevent movement when the vehicle, machine or equipment is on sloping ground or is adjacent to an excavation. O. Reg. 213/91, s. 101 (3).
- 102.** No operator shall leave unattended the controls of,
- (a) a front-end loader, backhoe or other excavating machine with its bucket raised;
  - (b) a bulldozer with its blade raised;
  - (c) a fork-lift truck with its forks raised; or
  - (d) a crane or other similar hoisting device with its load raised. O. Reg. 213/91, s. 102.
- 103.** (1) No worker shall operate a shovel, backhoe or similar excavating machine in such a way that it or part of its load passes over a worker. O. Reg. 213/91, s. 103 (1).
- (2) No worker shall operate a crane or similar hoisting device in such a way that part of its load passes over another worker unless the other worker is receiving the load or is engaged in sinking a shaft. O. Reg. 213/91, s. 103 (2).
- (3) If practicable, a worker who is receiving a load or is engaged in sinking a shaft shall be positioned so that no load or part of a load carried by a crane or similar hoisting device passes over the worker. O. Reg. 213/91, s. 103 (3).
- 104.** (1) Every project shall be planned and organized so that vehicles, machines and equipment are not operated in reverse or are operated in reverse as little as possible. O. Reg. 145/00, s. 27.
- (2) Vehicles, machines and equipment at a project shall not be operated in reverse unless there is no practical alternative to doing so. O. Reg. 145/00, s. 27.
- (3) Operators of vehicles, machines and equipment shall be assisted by signallers if either of the following applies:
- 1. The operator's view of the intended path of travel is obstructed.
  - 2. A person could be endangered by the vehicle, machine or equipment or by its load.  
O. Reg. 145/00, s. 27.
- (4) Subsection (3) also applies to shovels, backhoes and similar excavating machines and to cranes and similar hoisting devices. O. Reg. 145/00, s. 27.
- (5) The operator and the signaller shall,
- (a) jointly establish the procedures by which the signaller assists the operator; and
  - (b) follow those procedures. O. Reg. 145/00, s. 27.
- (6) If subsection (3) applies to the project and it is not possible to carry out the project without some operation of vehicles and equipment in reverse, signs shall be posted at the project in conspicuous places warning workers of the danger. O. Reg. 145/00, s. 27.
- 105.** A dump truck shall be equipped with an automatic audible alarm that signals when the truck is being operated in reverse. O. Reg. 145/00, s. 27.
- 106.** (1) A signaller shall be a competent worker and shall not perform other work while acting as a signaller. O. Reg. 213/91, s. 106 (1).

- (1.1) The signaller shall wear a garment that covers at least his or her upper body and has the following features:
1. The garment shall be fluorescent blaze or international orange in colour with stripes.
- (1.2) If the garment is a vest, it shall have adjustable fit. O. Reg. 145/00, s. 28.
- (1.5) The employer shall,
- (a) ensure that the signaller has received adequate oral training in his or her duties and has received adequate oral and written instructions in a language that he or she understands; and
  - (b) keep the written instructions at the project. O. Reg. 145/00, s. 28.
- (2) A signaller,
- (a) shall be clear of the intended path of travel of the vehicle, machine or equipment, crane or similar hoisting device, shovel, backhoe or similar excavating machine or its load;
  - (b) shall be in full view of the operator of the vehicle, machine or equipment, crane or similar hoisting device, shovel, backhoe or similar excavating machine;
  - (c) shall have a clear view of the intended path of travel of the vehicle, machine or equipment, crane or similar hoisting device, shovel, backhoe or similar excavating machine or its load; and
  - (d) shall watch the part of the vehicle, machine or equipment or crane or similar hoisting device, shovel, backhoe or similar excavating machine or its load whose path of travel the operator cannot see. O. Reg. 213/91, s. 106 (2).
- (3) The signaller shall communicate with the operator by means of a telecommunication system or, where visual signals are clearly visible to the operator, by means of prearranged visual signals. O. Reg. 213/91, s. 106 (3).
- 107.** No worker shall use as a work place a platform, bucket, basket, load, hook or sling that is capable of moving and that is supported by a fork-lift truck, front-end loader or similar machine. O. Reg. 213/91, s. 107.
- 108.** Blocking shall be installed to prevent the collapse or movement of part or all of a piece of equipment that is being dismantled, altered or repaired if its collapse or movement may endanger a worker. O. Reg. 213/91, s. 108.
- 109.** Every gear, pulley, belt, chain, shaft, flywheel, saw and other mechanically-operated part of a machine to which a worker has access shall be guarded or fenced so that it will not endanger a worker. O. Reg. 213/91, s. 109.
- 110.** (1) Safety chains, cages or other protection against blown-off side or lock rings shall be used when inflating a tire mounted on a rim. O. Reg. 213/91, s. 110 (1).
- (2) If a cage is used, the tire shall be inflated by remote means. O. Reg. 213/91, s. 110 (2).
- 111.** (1) A lifting jack shall have its rated capacity legibly cast or stamped on it in a place where it can be readily seen. O. Reg. 213/91, s. 111 (1).
- (2) A lifting jack shall be equipped with a positive stop to prevent overtravel or, if a positive stop is not practicable, with an overtravel indicator. O. Reg. 213/91, s. 111 (2).
- 112.** (1) Every chain-saw shall have a chain that minimizes kickback and a device to stop the chain in the event of a kickback. O. Reg. 213/91, s. 112 (1).
- (1.1) No worker shall use a chain-saw unless he or she has been adequately trained in its use. O. Reg. 145/00, s. 29.
- (1.2) No worker shall use a chain-saw unless he or she is wearing,
- (a) adequate personal protective equipment and clothing, including gloves; and
  - (b) adequate eye protection and hearing protection. O. Reg. 145/00, s. 29.

- (2) A worker shall hold a chain-saw firmly when starting it and firmly in both hands when using it. O. Reg. 213/91, s. 112 (2).
- (3) The chain of a chain-saw shall be stopped when not cutting. O. Reg. 213/91, s. 112 (3).
- 113.** No object or material shall be placed, left or stored in a location or manner that may endanger a worker. O. Reg. 213/91, s. 113.
- 114.** A hose that may whip shall be attached to a rope or chain in order to prevent whipping. O. Reg. 213/91, s. 114.
- 115.** No barrel, box or other loose object shall be used as a work place or as a support for a ladder, scaffold or work platform. O. Reg. 213/91, s. 115.
- 116.** No stilts or leg extension devices shall be present at or used on a project. O. Reg. 213/91, s. 116.

### **EXPLOSIVE ACTUATED FASTENING TOOL**

- 117.** (1) No worker shall use an explosive actuated fastening tool unless he or she has been adequately trained in its use. O. Reg. 145/00, s. 30.
- (2) When using an explosive actuated fastening tool, the worker shall carry proof of his or her training in its use. O. Reg. 145/00, s. 30.
- (3) No worker shall use an explosive actuated fastening tool unless he or she is wearing,
- (a) adequate personal protective equipment; and
  - (b) adequate eye protection. O. Reg. 145/00, s. 30.
- 118.** A worker using an explosive actuated fastening tool shall inspect it before using it to ensure,
- (a) that it is clean;
  - (b) that all moving parts operate freely;
  - (c) that its barrel is free from obstruction; and
  - (d) that it is not defective. O. Reg. 213/91, s. 118.
- 119.** (1) No worker shall use an explosive actuated fastening tool unless it has a suitable protective guard,
- (a) that is at least seventy-five millimetres in diameter;
  - (b) that is mounted at right angles to the barrel of the tool; and
  - (c) that is centred on the muzzle end of the tool, if practicable. O. Reg. 213/91, s. 119 (1).
- (2) An explosive actuated fastening tool shall be inoperable unless,
- (a) its muzzle end is held against a surface using a force at least 22 newtons greater than the force equivalent of the weight of the tool measured in newtons; and
  - (b) when a protective guard is centred on the muzzle end of the tool, the bearing surface of the guard is not tilted more than eight degrees from the work surface. O. Reg. 145/00, s. 31.
- (3) Subsection (1) and clause (2) (b) do not apply with respect to an explosive actuated fastening tool if the velocity of a fastener fired from it does not exceed 90 metres per second measured at a distance of two metres from its muzzle end when propelled by the maximum commercially-available explosive load it is chambered to accept. O. Reg. 213/91, s. 119 (3).
- (4) An explosive actuated fastening tool that is designed to require dismantling into separate parts for loading shall be inoperable unless the separate parts are locked together. O. Reg. 145/00, s. 31.

- (5) An explosive actuated fastening tool shall have a firing mechanism that prevents the tool from being fired if it is dropped or while it is being loaded and prepared for firing.  
O. Reg. 213/91, s. 119 (5).
- (6) The firing movement for an explosive actuated fastening tool shall be a separate action from the operation of bringing the tool into firing position. O. Reg. 145/00, s. 31.
- (7) An explosive actuated fastening tool shall not be capable of being fired until the operator performs the two separate actions described in subsection (6). O. Reg. 145/00, s. 31.
- 120.** (1) Every explosive actuated fastening tool shall be stored in a locked container when not in use.  
O. Reg. 213/91, s. 120 (1).
- (2) No explosive actuated fastening tool shall be left unattended when out of its container.  
O. Reg. 213/91, s. 120 (2).
- (3) No explosive actuated fastening tool shall be loaded unless it is being prepared for immediate use. O. Reg. 213/91, s. 120 (3).
- (4) No explosive actuated fastening tool, whether or not it is loaded, shall be pointed at a person.  
O. Reg. 213/91, s. 120 (4).
- 121.** (1) Every explosive load for an explosive actuated fastening tool,
  - (a) shall be marked or labelled so that a worker can easily identify its strength; and
  - (b) shall be stored in a locked container unless it is required for immediate use.  
O. Reg. 213/91, s. 121 (1).
- (2) No explosive load for an explosive actuated fastening tool,
  - (a) shall be stored in a container with explosive loads of other strengths; or
  - (b) shall be left unattended where it may be available to a worker who is not qualified to operate an explosive actuated fastening tool. O. Reg. 213/91, s. 121 (2).
- (3) A misfired explosive load removed from an explosive actuated fastening tool shall be placed in a water-filled container on the project until the misfired explosive load is removed from the project.  
O. Reg. 213/91, s. 121 (3).

## **WELDING AND CUTTING**

- 122.** (1) Cylinders, piping and fittings used in welding and cutting shall be protected against damage.  
O. Reg. 213/91, s. 122 (1).
- (2) No cylinder of compressed gas used in welding and cutting shall be dropped, hoisted by slings or magnets or transported or stored in a horizontal position. O. Reg. 213/91, s. 122 (2).
- (3) The valve of a cylinder shall be closed when the cylinder is spent or is not being used.  
O. Reg. 213/91, s. 122 (3).
- 123.** Precautions to prevent a fire shall be taken when using a blow torch or welding or cutting equipment or a similar piece of equipment. O. Reg. 213/91, s. 123.
- 124.** (1) No arc welding electrode or ground lead shall be hung over a compressed gas cylinder.  
O. Reg. 213/91, s. 124 (1).
- (2) An area where electric welding is carried on shall be kept free of electrode stubs and metal scrap. O. Reg. 213/91, s. 124 (2).



(3) Receptacles for electrode stubs shall be provided and used. O. Reg. 213/91, s. 124 (3).

### **SCAFFOLDS AND WORK PLATFORMS**

- 125.** (1) A scaffold which meets the requirements of sections 126, 128, 129, 130, 134, 135, 137, 138, 139, 140, 141 and 142 shall be provided for workers where work cannot be done on or from the ground or from a building or other permanent structure without hazard to the workers. O. Reg. 213/91, s. 125 (1).
- (2) A worker who is on or under a scaffold while it is being erected, altered or dismantled shall be on a part of the scaffold or scaffold platform that meets the requirements of sections 126, 128, 129, 130, 134, 135, 137, 138, 139, 140, 141 and 142. O. Reg. 213/91, s. 125 (2).
- 126.** (1) Every scaffold shall be designed and constructed to support or resist,
- (a) two times the maximum load or force to which it is likely to be subjected, without exceeding the allowable unit stresses for the materials of which it is made; and
  - (b) four times the maximum load or force to which it is likely to be subjected without overturning. O. Reg. 213/91, s. 126 (1).
- (2) Despite clause (1) (a), a scaffold with structural components whose capacity can only be determined by testing shall be designed and constructed to support or resist three times the maximum load or force to which it is likely to be subjected without causing the failure of any component. O. Reg. 213/91, s. 126 (2).
- (3) No scaffold shall be loaded in excess of the load that it is designed and constructed to bear. O. Reg. 213/91, s. 126 (3).
- 127.** (1) The failure load of a scaffold which consists of structural components whose capacity cannot be determined by testing shall be established by testing the components in a manner that simulates the actual loading conditions for which each of the components is fabricated. O. Reg. 213/91, s. 127 (1).
- (2) A professional engineer shall verify and certify the results of a test and the corresponding rated load of the scaffold. O. Reg. 213/91, s. 127 (2).
- (3) The constructor shall make available to an inspector upon request a copy of the certification by the professional engineer. O. Reg. 213/91, s. 127 (3).
- 128.** (1) Every scaffold,
- (a) shall have uprights braced diagonally in the horizontal and vertical planes to prevent lateral movement;
  - (b) shall have horizontal members that are adequately secured to prevent lateral movement and that do not have splices between the points of support;
  - (c) shall have footings, sills or supports that are sound, rigid and capable of supporting at least two times the maximum load to which the scaffold may be subjected without settlement or deformation that may affect the stability of the scaffold;
  - (d) shall have all fittings and gear, including base plates or wheels, installed in accordance with the manufacturer's instructions;
  - (e) shall have connecting devices between frames that provide positive engagement in tension and compression;
  - (f) shall have safety catches on all hooks; and
  - (g) shall be adequately secured at vertical intervals not exceeding three times the least lateral dimension of the scaffold, measured at the base, to prevent lateral movement. O. Reg. 213/91, s. 128 (1).
- (2) A scaffold shall be constructed of suitable structural materials and, if lumber is used, it shall be construction grade. O. Reg. 213/91, s. 128 (2).
- (3) A scaffold mounted on pneumatic tires shall not be supported by the pneumatic tires while the scaffold is being erected, used or dismantled. O. Reg. 213/91, s. 128 (3).

- (4) If tubular metal frames are used to support masonry units on a scaffold platform, each frame leg shall have a minimum working load of,  
(a) twenty-two kilonewtons for standard frames; and  
(b) 16.7 kilonewtons for walk-through frames. O. Reg. 213/91, s. 128 (4).
- 129.** (1) A scaffold mounted on castors or wheels,  
(a) shall be equipped with a suitable braking device on each castor or wheel; and  
(b) shall have the brakes applied when a worker is on the scaffold. O. Reg. 213/91, s. 129 (1).
- (2) A scaffold mounted on castors or wheels shall be equipped with guy wires or outriggers to prevent its overturning if the height of the scaffold platform exceeds three times the least lateral dimension of the scaffold,  
(a) measured at the base of the scaffold; or  
(b) if outriggers are used, measured between the outriggers. O. Reg. 213/91, s. 129 (2).
- (3) No scaffold mounted on castors or wheels that has a scaffold platform more than 2.4 metres above the base shall be moved when a worker is on it unless,  
(a) the worker is wearing a full body harness as part of a fall arrest system attached to a fixed support; and  
(b) the scaffold is being moved on a firm level surface. O. Reg. 213/91, s. 129 (3).
- 130.** (1) A scaffold shall be designed by a professional engineer and shall be erected in accordance with the design if the scaffold exceeds,  
(a) fifteen metres in height above its base support; or  
(b) ten metres in height above its base support if the scaffold is constructed of a tube and clamp system. O. Reg. 213/91, s. 130 (1).
- (2) Design drawings for a scaffold shall set out erection instructions and the rated loads for the scaffold. O. Reg. 85/04, s. 12.
- (3) A professional engineer or a competent worker designated by the supervisor of the project shall inspect the scaffold before it is used to ensure that it is erected in accordance with the design drawings. O. Reg. 213/91, s. 130 (3).
- (4) The person carrying out an inspection shall state in writing whether the scaffold is erected in accordance with the design drawings. O. Reg. 213/91, s. 130 (4).
- (5) The constructor shall keep at a project the design drawings and the written statement for a scaffold while the scaffold is erected. O. Reg. 213/91, s. 130 (5).
- 131.** Only a competent worker shall supervise the erection, alteration and dismantling of a scaffold.  
O. Reg. 213/91, s. 131.
- 132.** (1) A professional engineer shall inspect and give a written opinion as to the structural adequacy of a centre pole scaffold used in silo construction when required by subsection (2).  
O. Reg. 213/91, s. 132 (1).
- (2) An inspection shall be performed on the earlier of,  
(a) the twenty-fourth time the scaffold is erected following the most recent inspection; or  
(b) for a scaffold used in the construction of,  
(i) a monolithic silo, two years after the scaffold is erected or after the most recent inspection, and  
(ii) a stave silo, one year after the scaffold is erected or after the most recent inspection. O. Reg. 213/91, s. 132 (2).
- (3) The employer responsible for constructing the silo shall keep with a scaffold every written opinion by a professional engineer concerning the scaffold while it is in use on a project.  
O. Reg. 213/91, s. 132 (3).

- (4) The employer responsible for constructing the silo shall record information about the frequency of use of the scaffold in a log book which shall be kept with the scaffold while it is in use on a project. O. Reg. 213/91, s. 132 (4).
- 133.** (1) This section applies with respect to a worker who is installing reinforcing steel on a vertical surface consisting of horizontal reinforcing steel bars. O. Reg. 213/91, s. 133 (1).
- (2) A scaffold shall be provided for a worker who is working more than 3.7 metres above the ground or a floor. O. Reg. 213/91, s. 133 (2).
- (3) If a scaffold cannot be erected, a worker shall use and wear a work belt.  
O. Reg. 213/91, s. 133 (3).
- (4) No worker who is climbing the vertical surface shall carry reinforcing steel bars.  
O. Reg. 213/91, s. 133 (4).
- 134.** (1) Every scaffold platform and other work platform shall be designed, constructed and maintained to support or resist, without exceeding the allowable unit stresses for the materials of which it is constructed,  
(a) all loads and forces to which it is likely to be subjected; and  
(b) at least 2.4 kilonewtons per square metre. O. Reg. 213/91, s. 134 (1).
- (2) Each component of a scaffold platform or other work platform shall be capable of supporting a load of at least 2.2 kilonewtons without exceeding the allowable unit stress for each material used. O. Reg. 213/91, s. 134 (2).
- (3) No scaffold platform or other work platform shall be loaded in excess of the load that it is designed and constructed to bear. O. Reg. 213/91, s. 134 (3).
- 135.** (1) A scaffold platform or other work platform,  
(a) shall be at least 460 millimetres wide;  
(b) if it is 2.4 metres or more above a floor, roof or other surface, consist of planks laid tightly side by side for the full width of the scaffold;  
(c) shall be provided with a guardrail as required by section 26.3;  
(d) shall be provided with a means of access as required by section 70;  
(e) shall not have any unguarded openings; and  
(f) shall have each component secured against slipping from its supports.  
O. Reg. 213/91, s. 135 (1); O. Reg. 527/00, s. 4.
- (2) A scaffold platform or other work platform made of sawn lumber planks shall have planks  
(b) that are at least forty-eight millimetres thick by 248 millimetres wide;  
(c) that are arranged so that their span does not exceed 2.1 metres;  
(d) that overhang their supports by not less than 150 millimetres and not more than 300 millimetres; and  
(e) that are cleated or otherwise secured against slipping. O. Reg. 213/91, s. 135 (2).
- 136.** (1) Cubes of masonry units on a scaffold platform shall be placed directly over the scaffold frame.  
O. Reg. 213/91, s. 136 (1).
- (2) If it is not practicable to comply with subsection (1), the masonry units shall be placed on the scaffold platform in a manner that conforms with the load capability provisions of the scaffold platform as set out in section 134. O. Reg. 213/91, s. 136 (2).
- (3) The surface of an outrigger bracket platform used by a masonry worker shall be not more than one metre below the associated material storage platform. O. Reg. 213/91, s. 136 (3).
- (4) Masonry units to be installed in a building or structure shall be distributed along the scaffold platform before being used. O. Reg. 213/91, s. 136 (4).

## SUSPENDED PLATFORMS AND SCAFFOLDS AND BOATSWAIN'S CHAIRS

**136.1** Sections 137 to 142 do not apply to multi-point suspended scaffolds. O. Reg. 85/04, s. 13.

- 137.** (1) Every suspended platform, suspended scaffold and boatswain's chair shall meet the requirements of this section. O. Reg. 213/91, s. 137 (1).
- (2) A suspended platform, suspended scaffold or boatswain's chair shall be attached to a fixed support or outrigger beam in accordance with the manufacturer's instructions. O. Reg. 213/91, s. 137 (2).
- (3) A fixed support or outrigger beam shall be capable of supporting at least four times the maximum load to which it may be subjected without exceeding the allowable unit stresses for the materials of which it is constructed and without overturning. O. Reg. 213/91, s. 137 (3).
- (4) An outrigger beam shall be tied back to a fixed support with a secondary line, each of which is capable of supporting the weight of the suspended load and the supporting system. O. Reg. 213/91, s. 137 (4).
- (5) An outrigger beam shall be secured against horizontal and vertical movement. O. Reg. 213/91, s. 137 (5).
- (6) An outrigger beam shall have securely attached counterweights that are designed and manufactured for the purpose. O. Reg. 213/91, s. 137 (6).
- (7) Adequate legible instructions for the use of the counterweights shall be affixed to the outrigger beam. O. Reg. 213/91, s. 137 (7).
- (8) Every part of the hoisting and rigging system for a suspended platform, suspended scaffold or boatswain's chair shall be capable of supporting at least ten times the maximum load to which the part is likely to be subjected. O. Reg. 213/91, s. 137 (8).
- (9) A suspended platform, suspended scaffold or boatswain's chair that is capable of moving either horizontally or vertically shall have,
- (a) supporting cables,
    - (i) that are vertical from the fixed support or outrigger beam,
    - (ii) that are parallel if there is more than one supporting cable, and
    - (iii) that extend to the ground or have a positive stop that prevents the suspended platform, suspended scaffold or boatswain's chair from running off the end of the supporting cables; and
  - (b) rope falls equipped with suitable pulley blocks or a mechanical hoisting device that,
    - (i) has legible operating and safety instructions affixed to it in a conspicuous location, and
    - (ii) is equipped with a positive device to prevent the platform, scaffold or boatswain's chair from falling freely. O. Reg. 213/91, s. 137 (9).
- (10) A suspended platform, suspended scaffold or boatswain's chair shall have steel wire rope support cables,
- (a) if the distance between the platform, scaffold or boatswain's chair and the fixed support exceeds 90 metres;
  - (b) if a corrosive substance is in the vicinity of the support rope; or
  - (c) if mechanical grinding or flame-cutting equipment is used in the vicinity of the support rope. O. Reg. 213/91, s. 137 (10).
- (11) A competent worker shall inspect a suspended platform, suspended scaffold or boatswain's chair before each day's use if it is operated by mechanical power. O. Reg. 213/91, s. 137 (11).

- 138.** (1) Every suspended platform and suspended scaffold shall meet the requirements of this section. O. Reg. 213/91, s. 138 (1).
- (2) A suspended platform or suspended scaffold shall have hangers located at least 150 millimetres but not more than 450 millimetres from the ends of the platform or scaffold that are securely attached to it. O. Reg. 213/91, s. 138 (2).
- (3) A suspended platform or suspended scaffold shall be firmly anchored to the building or structure if practicable unless the platform or scaffold is being raised or lowered. O. Reg. 213/91, s. 138 (3).
- (4) Wire mesh at least 1.6 millimetres in diameter and capable of rejecting a ball thirty-eight millimetres in diameter shall be securely fastened in place from the toe-board to the top rail of the guardrails of a suspended platform or suspended scaffold. O. Reg. 213/91, s. 138 (4).
- 139.** (1) Every suspended scaffold that consists of more than one platform and every suspended platform that, together with its components, weighs more than 525 kilograms shall meet the requirements of this section. O. Reg. 213/91, s. 139 (1).
- (2) A professional engineer shall design a suspended scaffold or suspended platform in accordance with good engineering practice. O. Reg. 213/91, s. 139 (2).
- (3) There shall be design drawings for a suspended scaffold or suspended platform that,
- (a) set out the size and specification of all components of the scaffold or platform including the type and grade of all materials to be used;
  - (b) state the maximum live load of the scaffold or platform; and
  - (c) state that, in the opinion of the professional engineer who designed the scaffold or platform, the design meets the requirements of this section.
- (4) A suspended scaffold or suspended platform shall be erected in accordance with the design drawings. O. Reg. 213/91, s. 139 (4).
- (5) Before a suspended scaffold or suspended platform is used, a professional engineer shall inspect it and state in writing that it has been erected in accordance with the design drawings. O. Reg. 213/91, s. 139 (5).
- (6) No person shall use a suspended scaffold or suspended platform until the statement required by subsection (5) has been given. O. Reg. 213/91, s. 139 (6).
- (7) The constructor shall keep a copy of the design drawings and the statement required by subsection (5) on a project while the suspended scaffold or suspended platform is on the project. O. Reg. 213/91, s. 139 (7).
- (8) If it is stacked or tiered a suspended platform or suspended scaffold shall have at least two independent means of support which shall be so arranged that the failure of one support will not result in the failure of the suspended platform or suspended scaffold. O. Reg. 213/91, s. 139 (8).
- 140.** (1) A boatswain's chair shall be at least 600 millimetres long and 250 millimetres wide. O. Reg. 213/91, s. 140 (1).
- (2) A boatswain's chair which is or is to be used by a worker who is using a corrosive substance or mechanical-grinding or flame-cutting equipment shall be supported by a sling consisting of wire rope at least nine millimetres in diameter. O. Reg. 213/91, s. 140 (2).

- 141.** (1) A worker who is on or is getting on or off a suspended platform, suspended scaffold or boatswain's chair shall wear a full body harness connected to a fall arrest system. O. Reg. 213/91, s. 141 (1).
- (2) Every lifeline used with a suspended platform, suspended scaffold or boatswain's chair,  
(a) shall be suspended independently from the platform, scaffold or boatswain's chair; and  
(b) shall be securely attached to a fixed support so that the failure of the platform, scaffold or boatswain's chair or its supporting system will not cause the lifeline to fail. O. Reg. 213/91, s. 141 (2).
- (3) Despite clause (2) (a), the fall arrest system shall be securely fastened to the suspended platform or suspended scaffold if,  
(a) all or part of the platform or scaffold has more than one means of support or suspension; and  
(b) the platform or scaffold is so designed, constructed and maintained that the failure of one means of support or suspension will not cause the collapse of all or part of the platform or scaffold. O. Reg. 213/91, s. 141 (3).
- 142.** (1) The distance between the platform of an outrigger scaffold and the wall beyond which the scaffold extends shall not exceed 75 millimetres. O. Reg. 213/91, s. 142 (1).
- (2) The outrigger beams of an outrigger scaffold shall be secured against horizontal and vertical movement. O. Reg. 213/91, s. 142 (2).

### **MULTI-POINT SUSPENDED SCAFFOLDS**

**142.1** Sections 142.2 to 142.8 apply to every multi-point suspended scaffold. O. Reg. 85/04, s. 15.

- 142.2** (1) A multi-point suspended scaffold and all its components shall be designed by a professional engineer in accordance with good engineering practice and with this section. O. Reg. 85/04, s. 15.
- (2) A multi-point suspended scaffold shall be designed to support, in addition to its dead load, live loads uniformly distributed over the platform surface of at least,  
(a) 2.4 kilonewtons per square metre if the platform is to be used for masonry work;  
(b) 3.6 kilonewtons per square metre if the platform is to be used for demolition work or for storage of masonry units or other related material or equipment; or  
(c) 1.2 kilonewtons per square metre in any other case. O. Reg. 85/04, s. 15.
- (3) In addition to the loads specified in subsection (2), a multi-point suspended scaffold shall be able to support or resist,  
(a) 1.1 kilonewtons concentrated on an area measuring 0.3 metres by 0.3 metres that is located on the platform at the position having the most adverse effect on the component under consideration;  
(b) the wind load determined in accordance with Table 2.5.1.1. (Design Data for Selected Locations in Ontario) of the Building Code, assuming a probability factor of at least one in ten; and  
(c) any other loads likely to be applied to it. O. Reg. 85/04, s. 15.
- (4) The wind load referred to in clause (3) (b) may be reduced by 30 per cent if the professional engineer who designs the scaffold determines that it is appropriate to do so and indicates in writing that he or she has made the determination. O. Reg. 85/04, s. 15.
- (5) Subject to clause (2) (c) and subsections (3) and (4), the professional engineer who designs the scaffold shall determine the minimum specified loads for erecting, dismantling, traversing, or otherwise moving multi-point suspended scaffolds. O. Reg. 85/04, s. 15.

- (6) If a multi-point suspended scaffold is to be used for abrasive blasting operations, there shall be an additional load allowance for the accumulation of grit on the platform to a depth of at least 25 millimetres. O. Reg. 85/04, s. 15.
- (7) Subject to subsection (8), in designing a multi-point suspended scaffold and its structural members, the following values of load factors, as described in Section 4.1.3. (Limit States Design) of the Building Code, shall be applied to the load requirements referred to in subsections (2) to (6):
1. Live load factor  $\alpha_L = 3.0$ .
  2. Dead load factor  $\alpha_D = 1.5$ .
  3. Wind load factor  $\alpha_W = 1.5$ . O. Reg. 85/04, s. 15.
- (8) In designing the suspension and anchorage system of a multi-point suspended scaffold,
- (a) the value of the live load factor  $\alpha_L$  shall be 4.0;
  - (b) the value of the dead load factor  $\alpha_D$  shall be 2.0; and
  - (c) the value of the wind load factor  $\alpha_W$  shall be 2.0. O. Reg. 85/04, s. 15.
- (9) Despite subsections (7) and (8), a multi-point suspended scaffold and its components may be designed by working stress design if the safety factors for the scaffold and the structural members are at least equal to what would otherwise be provided under those subsections. O. Reg. 85/04, s. 15.
- (10) Despite subsections (7) and (8), if the failure load of a component has been determined by testing, the minimum safety factors shall be,
- (a) 3.0 for components of the multi-point suspended scaffold;
  - (b) 4.0 for components of the suspension and anchorage system; and
  - (c) 10.0 for wire ropes, cables or chains used for hoisting, traversing or otherwise moving the multi-point suspended scaffold. O. Reg. 85/04, s. 15.
- (11) The failure load of a component referred to in subsection (10) shall be verified in writing by a professional engineer. O. Reg. 85/04, s. 15.
- (12) A multi-point suspended scaffold shall be designed, constructed and maintained in such a way that,
- (a) the failure of one means of support or suspension will not cause any part of the scaffold to collapse or fail, under the most adverse loading condition as determined by the professional engineer who designs the scaffold; and
  - (b) compliance with subsections (7), (8), (9) and (10) is maintained in all fixed and moving conditions. O. Reg. 85/04, s. 15.
- (13) The design of a multi-point suspended scaffold shall include adequate movement-limiting devices to be used when traversing or otherwise moving it. O. Reg. 85/04, s. 15.
- (14) Before a multi-point suspended scaffold is erected, the constructor shall ensure that the professional engineer responsible for the structural integrity of the permanent building or structure from which the scaffold is suspended provides a written report approving the design loads imposed on the building or structure by the scaffold. O. Reg. 85/04, s. 15.
- (15) Design drawings for a multi-point suspended scaffold shall include,
- (a) a statement by the professional engineer that the design meets the requirements of this Regulation;
  - (b) the size and specifications of all components, including the type and grade of all materials to be used;
  - (c) the load factors and safety factors for the scaffold and all its components;
  - (d) all the specified loads, including the loads during erection, dismantling, traversing and

otherwise moving; and

(e) the procedures for erection, dismantling, traversing and otherwise moving.  
O. Reg. 85/04, s. 15.

(16) The design drawings shall be followed, subject to subsection (17). O. Reg. 85/04, s. 15.

(17) A deviation from the design drawings is permitted if the deviation,  
(a) is approved, in advance and in writing, by a professional engineer; and  
(b) complies with this Regulation. O. Reg. 85/04, s. 15.

**142.3** (1) Before erecting or dismantling a multi-point suspended scaffold, the constructor shall give notice, to the Project Manager and the Health & Safety Office. O. Reg. 85/04, s. 15.

(2) A multi-point suspended scaffold shall be inspected by a professional engineer to determine whether it complies with the design drawings, or the design drawings subject to any deviations approved under subsection 142.2 (17), as the case may be,  
(a) after it is erected but before it is first used; and  
(b) if the scaffold is moved to another anchorage position, before it is used there.  
O. Reg. 85/04, s. 15.

(3) The inspection under subsection (2) shall include a determination of whether all components are in adequate condition. O. Reg. 85/04, s. 15.

(4) The professional engineer who conducts the inspection under subsection (2) shall prepare a written report of the inspection. O. Reg. 85/04, s. 15.

(5) The written report is a positive report if it indicates that,  
(a) the multi-point suspended scaffold complies with the design drawings, or the design drawings subject to any deviations approved under subsection 142.2 (17), as the case may be; and  
(b) all components are in adequate condition. O. Reg. 85/04, s. 15.

(6) Subsections (1), (2), (3), (4) and (5) do not apply to a multi-point suspended scaffold whose platform area is six square metres or less. O. Reg. 85/04, s. 15.

(7) A competent worker shall inspect a multi-point suspended scaffold each day before it is used.  
O. Reg. 85/04, s. 15.

**142.4** The constructor shall keep at the project a copy of,  
(a) the written report under subsection 142.2 (14);  
(b) the design drawings under subsection 142.2 (15);  
(c) any written approvals under subsection 142.2 (17); and  
(d) the written reports under subsection 142.3 (4). O. Reg. 85/04, s. 15.

**142.5** (1) A multi-point suspended scaffold shall be erected, dismantled, traversed or otherwise moved only by a competent worker under the supervision of a competent person and in accordance with the design drawings, or the design drawings subject to any deviations approved under subsection 142.2 (17), as the case may be. O. Reg. 85/04, s. 15.

(2) Before a worker is on a multi-point suspended scaffold for the first time, the employer shall provide the worker with adequate oral and written instructions for using the scaffold, including,  
(a) the manufacturer's instructions or a professional engineer's instructions;  
  
(b) instructions on the load limitations;  
(c) instructions in, and a hands-on demonstration of, the proper operation of the scaffold.  
O. Reg. 85/04, s. 15.

(3) A worker who is to erect, dismantle, traverse or otherwise move a multi-point suspended scaffold



shall, in addition to the instructions set out in subsection (2), be given instructions in the procedures described in clause 142.2 (15) (e). O. Reg. 85/04, s. 15.

(4) No person shall use a multi-point suspended scaffold until the design drawings described in subsection 142.2 (15) have been given to the constructor and the following documents have been prepared and given to the constructor:

1. The report described in subsection 142.2 (14).
2. A positive report described in subsections 142.3 (4) and (5), if applicable.
3. Any approval described in subsection 142.2 (17), if applicable. O. Reg. 85/04, s. 15.

**142.6** (1) A multi-point suspended scaffold shall not be loaded in excess of the specified loads indicated on the design drawings for the scaffold. O. Reg. 85/04, s. 15.

(2) Signs indicating the specified live loads shall be posted in conspicuous places on the scaffold. O. Reg. 85/04, s. 15.

**142.7** (1) A worker who is on a multi-point suspended scaffold while it is being erected, dismantled, traversed or otherwise moved shall use a fall arrest system that is,

- (a) connected to a fixed support independent from the scaffold; and
- (b) designed, constructed and maintained in accordance with this Regulation.

O. Reg. 85/04, s. 15.

(2) Despite subsection (1), a worker is not required to use a fall arrest system while the scaffold is stationary if guardrails are installed in accordance with section 26.3. O. Reg. 85/04, s. 15.

**142.8** (1) The constructor of a project where a multi-point suspended scaffold is used shall keep a written record of all inspections, tests, repairs, modifications and maintenance performed on the scaffold and make copies of the record available to an inspector upon request.

O. Reg. 85/04, s. 15.

(2) The record referred to in subsection (1) shall,

- (a) be kept up to date;
- (b) include the signature, name and business address of each person who performs an inspection, test, repair, modification or maintenance; and
- (c) be kept at the project while the scaffold is there. O. Reg. 85/04, s. 15.

## ELEVATING WORK PLATFORMS

TABLE

Elevating Work Platform	National Standards of Canada standard
Elevating Rolling Work Platform	CAN3-B354.1-M82
Self-Propelled Elevating Work Platform	CAN3-B354.2-M82 and CAN3-B354.3-M82
Boom-Type Elevating Work Platform	CAN3-B354.4-M82
Vehicle-Mounted Aerial Device	CAN-CSA-C225-M88

O. Reg. 213/91, s. 144 (6).

(7) An elevating work platform shall be equipped with guardrails. O. Reg. 213/91, s. 144 (7).

(8) An elevating work platform shall have signs that are clearly visible to an operator at its controls indicating,

- (a) the rated working load;
- (b) all limiting operating conditions including the use of outriggers, stabilizers and extendable axles;

- (c) the specific firm level surface conditions required for use in the elevated position;
  - (d) such warnings as may be specified by the manufacturer;
  - (e) other than for a boom-type elevating work platform, the direction of machine movement for each operating control;
  - (g) the name and address of the owner. O. Reg. 213/91, s. 144 (8).
- 145.** (1) The owner of an elevating work platform shall maintain it such that the safety factors of the original design are maintained. O. Reg. 213/91, s. 145 (1).
- (2) The owner of an elevating work platform shall keep a permanent record of all inspections, tests, repairs, modifications and maintenance performed on it. O. Reg. 213/91, s. 145 (2).
- (3) The permanent record required by subsection (2),
- (a) shall be kept up-to-date;
  - (b) shall include complete records from the more recent of,
    - (i) the date of purchase, or
    - (ii) the date this Regulation is filed; and
  - (c) shall include the signature and name of the person who performed the inspection, test, repair, modification or maintenance. O. Reg. 213/91, s. 145 (3).
- 146.** A maintenance and inspection record tag,
- (a) shall be provided and attached to the elevating work platform near the operator's station; and
  - (b) shall include,
    - (i) the date of the last maintenance and inspection,
    - (ii) the signature and name of the person who performed the maintenance and inspection, and
    - (iii) an indication that the maintenance has been carried out in accordance with the manufacturer's recommendations. O. Reg. 213/91, s. 146.
- 147.** (1) A worker who operates an elevating work platform shall, before using it for the first time, be given oral and written instruction on the operation and be trained to operate that class of elevating work platform. O. Reg. 213/91, s. 147 (1).
- (2) The instruction and training required by subsection (1) shall include,
- (a) the manufacturer's instruction;
  - (b) instruction in the load limitations;
  - (c) instruction in and a hands-on demonstration of the proper use of all controls; and
  - (d) instruction in the limitations on the kinds of surfaces on which it is designed to be used. O. Reg. 213/91, s. 147 (2).
- 148.** An elevating work platform,
- (a) shall not be loaded in excess of its rated working load;
  - (b) shall be used only on a firm level surface;
  - (c) shall be used only in accordance with the written instructions of the manufacturer;
  - (d) shall not be loaded and used in such a manner as to affect its stability or endanger a worker; and
  - (e) shall not be moved unless all workers on it are protected against falling by a safety belt attached to the platform. O. Reg. 213/91, s. 148.
- 149.** An operator's manual for an elevating work platform shall be kept with it while it is on a project. O. Reg. 213/91, s. 149.

## CRANES, HOISTING AND RIGGING

- 150.** (1) No worker shall operate a crane or similar hoisting device that is capable of raising, lowering or moving material that weighs more than 7,260 kilograms unless the worker is certified as a hoisting engineer.  
O. Reg. 631/94, s. 3.
- (1.1) Subsection (1) does not apply when a worker is using excavation equipment to place pipes into a trench. O. Reg. 631/94, s. 3.
- (2) No worker shall operate a crane or similar hoisting device, other than one described in subsection (1), unless,
- (a) the worker has written proof of training indicating that he or she is trained in the safe operation of the crane or similar hoisting device; or
  - (b) the worker is being instructed in the operation of the crane or similar hoisting device and is accompanied by a person who meets the requirements of clause (a).
- O. Reg. 213/91, s. 150 (2).
- (3) A worker shall carry his or her proof of training while operating a crane or similar hoisting device.  
O. Reg. 213/91, s. 150 (3).
- 151.** (1) No crane or similar hoisting device shall be subjected to a load greater than its rated load-carrying capacity. O. Reg. 213/91, s. 151 (1).
- (2) The manufacturer of a crane or similar hoisting device or a professional engineer shall determine its rated load-carrying capacity.
- (3) Every crane or similar hoisting device shall have affixed to it a load rating plate,
- (a) that the operator can read while at the controls; and
  - (b) that contains enough information for the operator to determine the load that can be lifted for each configuration of the crane. O. Reg. 213/91, s. 151 (3).
- (4) A luffing boom crane, other than a tower crane, shall have affixed to it a boom angle indicator that the operator can read while at the controls. O. Reg. 213/91, s. 151 (4).
- 152.** (1) The owner of a crane or similar hoisting device shall keep a permanent record of all inspections of, tests of, repairs to, modifications to and maintenance of the crane or similar hoisting device.  
O. Reg. 213/91, s. 152 (1).
- (2) The owner of a crane or similar hoisting device shall prepare a log book for it for use at a project that shall include the record referred to in subsection (1) covering the period that is the greater of,
- (a) the immediately preceding twelve months; and
  - (b) the period the crane or similar hoisting device is on the project. O. Reg. 213/91, s. 152 (2).
- (3) The log book shall be kept with the crane or similar hoisting device. O. Reg. 213/91, s. 152 (3).
- (4) The owner of a crane or similar hoisting device shall retain and make available to the constructor on request copies of all log books and records for the crane or similar hoisting device.  
O. Reg. 213/91, s. 152 (4).
- 153.** (1) No worker shall use as a workplace a platform, bucket, basket, load, hook, sling or similar device that is capable of moving and is supported by a cable attached to the boom of a crane or similar hoisting device, except in accordance with this section. O. Reg. 631/94, s. 4.
- (2) A crane may be used to raise, support or lower a worker only if,
- (a) conventional access equipment cannot be used;
  - (b) the platform that the worker is on,
    - (i) is designed by a professional engineer in accordance with good engineering practice,

- (ii) is constructed in accordance with the design drawings,
  - (iii) is equipped with more than one means of suspension or support,
  - (iv) is equipped with anchor points for the attachment of the worker's fall arrest systems,
  - (v) is equipped with a guardrail in accordance with section 26.3,
  - (vi) is suspended from, or supported by, a direct attachment to the boom of the crane,
  - (vii) is designed, constructed and maintained so that the failure of one means of support or suspension will not cause the collapse of all or part of the platform, and
  - (viii) has its maximum rated load capacity legibly and permanently marked in a conspicuous place on it; and
- (c) the crane,
- (i) is equipped with fail-safe mechanisms that will prevent the boom and the suspended platform from free falling in the event of a power source or system failure or the inadvertent release of any operating controls,
  - (ii) is not used to hoist material while the platform is being used to support a worker,
  - (iii) is not loaded in excess of 25 per cent of its maximum rated load,
  - (iv) has a revised load rating chart prepared by a professional engineer in accordance with good engineering practice and affixed in a conspicuous place on the crane,
  - (v) has, on its hoist line, hooks equipped with self-closing safety catches at the point where the platform is suspended, and
  - (vi) is equipped with an automatic limit switch that prevents the platform and load from reaching beyond the highest permissible position specified by the crane manufacturer. O. Reg. 631/94, s. 4; O. Reg. 527/00, s. 5.
- (3) Any modifications or repairs to the boom of the crane shall be made in accordance with the instructions of the crane manufacturer or a professional engineer. O. Reg. 631/94, s. 4.
- (4) Every worker on the platform shall wear a full body harness connected independently to anchor points on the platform and used in conjunction with a lanyard fitted with a shock absorber. O. Reg. 631/94, s. 4.
- (5) The design drawings of the platform shall,
- (a) set out the size and specifications of all components of the platform, including the type and grade of materials used for it;
  - (b) state the maximum live load of the platform;
  - (c) specify the model and type of crane to be used in conjunction with the platform; and
  - (d) include a statement that, in the opinion of the professional engineer who designed the platform, the design meets the requirements of clauses (a), (b) and (c).
- (6) Before the platform is used, a competent worker shall inspect it and verify in writing that it has been constructed in accordance with the design drawings. O. Reg. 631/94, s. 4.
- (7) No person shall use the platform until the verification required under subsection (6) is given. O. Reg. 631/94, s. 4.
- (8) A professional engineer or a competent worker designated by the professional engineer shall inspect the crane to ensure its structural integrity using non-destructive testing methods before the crane is used to lift persons and then at least once every 12 months after that. O. Reg. 631/94, s. 4.
- (9) A competent worker shall visually inspect the crane's structural elements and the rigging equipment for defects before each use of the crane. O. Reg. 631/94, s. 4.
- (10) The employer shall ensure that an adequate means of communication between the worker on the platform and the crane operator is established, maintained and used. O. Reg. 631/94, s. 4.
- (11) Before beginning any hoisting operation under this section, the constructor shall notify by telephone the UNOPS Health & Safety Officer O. Reg. 631/94, s. 4.

- (12) The employer shall ensure that every worker involved with the hoisting operation receives adequate instructions about the requirements, restrictions and hazards associated with the hoisting operation. O. Reg. 631/94, s. 4.
  - (13) The employer shall develop adequate emergency rescue procedures and communicate these in writing to all workers involved with the hoisting operation. O. Reg. 631/94, s. 4.
  - (14) The constructor shall keep all design drawings, test reports, written statements and certification documents required under this section with the crane at all times during the hoisting operation. O. Reg. 631/94, s. 4.
  - (15) On request, the constructor shall provide an inspector with copies of any document described in subsection (14). O. Reg. 631/94, s. 4.
- 154.** (1) A crane or similar hoisting device shall be set up, assembled, extended and dismantled only by a competent worker acting in accordance with the written instructions of the manufacturer and in such a manner as to not endanger any person or property. O. Reg. 213/91, s. 154 (1).
- (2) No crane or similar hoisting device shall include sections that are not designed for it or that are damaged. O. Reg. 213/91, s. 154 (2).
  - (3) No crane or similar hoisting device shall include nuts, bolts, pins or fastenings that are not the size and quality specified by the manufacturer. O. Reg. 213/91, s. 154 (3).
- 155.** Unless otherwise specified by its manufacturer, a crane or similar hoisting device,  
(a) shall be equipped with a device to indicate whether its turntable is level; and  
(b) shall be operated with its turntable level. O. Reg. 213/91, s. 155.
- 156.** An outrigger or stabilizing device used on a crane or similar hoisting device,  
(a) shall be extended to meet load capacity chart requirements; and  
(b) shall rest on blocking able to support the crane or similar hoisting device and its maximum load without failure or without deformation or settlement which affects its stability.  
O. Reg. 213/91, s. 156.

## **TOWER CRANES**

- 157.** (1) No tower crane shall be erected at a project except in accordance with this section.  
O. Reg. 213/91, s. 157 (1).
- (2) The foundations supporting a tower crane shall be designed by a professional engineer in accordance with the crane manufacturer's specifications and shall be constructed in accordance with the design. O. Reg. 213/91, s. 157 (2).
  - (3) The shoring and bracing that support a tower crane or tie it in place shall be designed by a professional engineer in accordance with the crane manufacturer's specifications and shall be installed in accordance with the design. O. Reg. 213/91, s. 157 (3).
  - (4) The structural engineer responsible for the structural integrity of the building or structure shall review the design drawings for the foundation, shoring and bracing for a tower crane before the crane is erected at a project to ensure the structural integrity of the building or structure.  
O. Reg. 213/91, s. 157 (4).
  - (5) The structural engineer who reviews the design drawings shall sign the drawings upon approving them. O. Reg. 213/91, s. 157 (5).
  - (6) The constructor shall keep at the project while a tower crane is erected a copy of the signed design drawings for its foundation, shoring and bracing and any written opinion about the drawings by a structural engineer. O. Reg. 213/91, s. 157 (6).

- 158.** (1) Before a tower crane is erected at a project, a professional engineer or a competent worker designated by a professional engineer shall inspect its structural elements and components using methods of non-destructive testing O. Reg. 213/91, s. 158 (1); O. Reg. 631/94, s. 5.
- (2) The professional engineer conducting an inspection or under whose direction an inspection is done shall prepare a written report of the test results.  
O. Reg. 213/91, s. 158 (2); O. Reg. 85/04, s. 17.
- (3) The constructor shall keep the report at the project while the crane is erected.  
O. Reg. 213/91, s. 158 (3).
- 159.** (1) A professional engineer or a competent worker designated by a professional engineer shall visually inspect for defects the structural elements and components of a tower crane,  
(a) after the crane is erected and before it is used; and  
(b) after the inspection under clause (a), at intervals not greater than twelve months.  
O. Reg. 213/91, s. 159 (1).
- (2) No tower crane shall be used until any defects found during an inspection are repaired in accordance with the instructions of the crane's manufacturer or a professional engineer.  
O. Reg. 213/91, s. 159 (2).
- (3) A professional engineer or a competent worker designated by a professional engineer shall inspect a tower crane that has been repaired to ensure that the defects are corrected.  
O. Reg. 213/91, s. 159 (3).
- (4) The professional engineer conducting an inspection or under whose direction the inspection is done shall prepare a written report of the test results.  
O. Reg. 213/91, s. 159 (4); O. Reg. 85/04, s. 18.
- (5) The constructor shall keep the report at a project while the crane is erected.  
O. Reg. 213/91, s. 159 (5).
- 160.** (1) A tower crane shall have automatic limit switches and automatic overload limit devices that prevent,  
(a) overloading at relative radii;  
(b) a load on the crane from reaching beyond the highest permissible position specified by the manufacturer; and  
(c) the trolley from reaching beyond the permissible travel limit specified by the manufacturer.  
O. Reg. 213/91, s. 160 (1).
- (2) In addition to automatic limit switches and overload limit devices, a tower crane shall have such other switches and devices as the manufacturer specifies. O. Reg. 213/91, s. 160 (2).
- 161.** (1) A competent worker shall perform operational tests on a tower crane to ensure that its automatic limit switches and overload limit devices are installed and functioning in accordance with the manufacturer's specifications, if any. O. Reg. 213/91, s. 161 (1).
- (2) Operational tests shall be done,  
(a) after the tower crane is erected on the project and before it is used; and  
(b) at one-week intervals after the test under clause (a) while the crane is erected on the project. O. Reg. 213/91, s. 161 (2).
- (3) Overload limit devices for a tower crane shall be tested using test blocks designed for the purpose that have their weight clearly marked on them. O. Reg. 213/91, s. 161 (3).
- (4) The test blocks shall be kept on the project while the crane is erected.  
O. Reg. 213/91, s. 161 (4).

- 162.** (1) A tower crane boom shall be able to slew freely when the crane is unattended except when,  
(a) the boom may collide with another crane, a structure or another object; or  
(b) to slew freely would be contrary to the written procedures of the crane's manufacturer.  
O. Reg. 213/91, s. 162 (1).
- (2) When a tower crane boom is not permitted to slew freely it shall be secured in accordance with the written procedures of the crane's manufacturer. O. Reg. 213/91, s. 162 (2).
- 163.** (1) Subject to subsection (2), the operator's cabin of a tower crane shall be located on and attached to or positioned on the crane in accordance with the instructions of the crane's manufacturer for the specific model and configuration of the crane and in such a manner that in the event of a failure of the boom, the cabin will not be crushed against the mast. O. Reg. 213/91, s. 163 (1).
- (2) The operator's cabin shall not be located on or attached to the boom unless,  
(a) the cabin and its attachments have been specifically designed and fabricated for that purpose by the original manufacturer of the crane in accordance with good engineering practice;  
(b) the boom of the crane cannot affect or be affected by the operation of another crane or make contact with a structure or equipment;  
(c) the crane is not overlapped by any part of another crane;  
(d) because of specific site conditions, the location of the cabin on the boom provides greater visibility for the operator than does the manufacturer's standard cabin location;  
(e) the means of access to the cabin or other locations on the boom is by a catwalk constructed of skid resistant expanded metal or similar material and fitted with solidly constructed guardrails and devices which provide fall protection for the operator;  
(f) the structural, environmental and ergonomic design of the cabin is equal to or greater than that of the crane's manufacturer's standard cabin design; and  
(g) the proposed location and attachment method provide a structural and mechanical safety factor equal to or greater than that of a cabin located on the crane mast or attached to the slewing ring. O. Reg. 213/91, s. 163 (2).
- (3) If the crane manufacturer specifies the location of the operator's cabin to be on the boom of a tower crane, the crane manufacturer shall provide to the owner of the crane a report for the specific model and specific configuration of crane on a project. O. Reg. 213/91, s. 163 (3).
- (4) The crane manufacturer's report shall include,  
(a) the crane load restrictions, reductions or modifications resulting from the effect of the cabin weight and its offset from the boom centreline;  
(b) the crane configuration and operating restrictions resulting from the effect of the cabin location and attachment method; and  
(c) engineering design drawings that include,  
(i) the structural and ergonomic design of the cabin,  
(ii) the location of the cabin on the boom,  
(iii) the attachment method including all fittings and hardware, and  
(iv) all means of access. O. Reg. 213/91, s. 163 (4).
- 164.** A load block of an unattended tower crane shall be left empty, at the top position and located at minimum radius. O. Reg. 213/91, s. 164.
- 165.** (1) The track bed of a rail-mounted tower crane shall have a sound and rigid base capable of carrying all loads to which it is likely to be subjected without deformation or settlement which affects the stability of the crane. O. Reg. 213/91, s. 165 (1).
- (2) The undercarriage of a rail-mounted tower crane shall be fitted with rail clamps that can be firmly attached to the rails to lock the crane in position. O. Reg. 213/91, s. 165 (2).
- (3) A rail-mounted tower crane shall be locked in position on the rails when not in use.  
O. Reg. 213/91, s. 165 (3).

- (4) A rail-mounted tower crane shall have rail stops or bumpers that extend at least as high as the centre of the undercarriage wheels and that are securely attached to the rail at both ends. O. Reg. 213/91, s. 165 (4).

### **DERRICKS, STIFF-LEG DERRICKS AND SIMILAR HOISTING DEVICES**

- 166.** (1) No derrick, stiff-leg derrick or similar hoisting device shall be attached to a building or structure unless this section is complied with. O. Reg. 213/91, s. 166 (1).
- (2) A professional engineer shall prepare design drawings and specifications for the attachment of a derrick, stiff-leg derrick or similar hoisting device to a building or structure. O. Reg. 213/91, s. 166 (2).
- (3) The design drawings and specifications shall include,
- (a) the location of the derrick, stiff-leg derrick or similar hoisting device on the building or structure;
  - (b) the location of anchor bolts, guy wires, supports and shoring for it;
  - (c) particulars of the weight of the loads and the radius at which the loads are to be lifted; and
  - (d) particulars of the loads and forces on the building or structure imposed by the derrick, stiff-leg derrick or similar hoisting device. O. Reg. 213/91, s. 166 (3).
- (4) The constructor shall ensure that the structural engineer responsible for the structural integrity of a building or structure reviews and approves in writing the design drawings and specifications for a derrick, stiff-leg derrick or similar hoisting device before it is installed. O. Reg. 213/91, s. 166 (4).
- (5) A professional engineer shall inspect a derrick, stiff-leg derrick or similar hoisting device before it is first used on a building or structure to ensure that it is installed in accordance with the design drawings and specifications. O. Reg. 213/91, s. 166 (5).
- (6) The professional engineer conducting the inspection shall prepare a written report of the inspection. O. Reg. 213/91, s. 166 (6); O. Reg. 85/04, s. 19.
- (7) The constructor shall keep a copy of the design drawings and specifications for a derrick, stiff-leg derrick or similar hoisting device and the report prepared under subsection (6) at a project while the derrick, stiff-leg derrick or similar hoisting device is on the project. O. Reg. 213/91, s. 166 (7).

### **CABLES, SLINGS, RIGGING**

- 168.** (1) A cable used by a crane or similar hoisting device,
- (a) shall be steel wire rope of the type, size, grade and construction recommended by the manufacturer of the crane or similar hoisting device;
  - (b) shall be compatible with the sheaves and the drum of the crane or similar hoisting device;
  - (c) shall be lubricated to prevent corrosion and wear;
  - (d) shall not be spliced; and
  - (e) shall have its end connections securely fastened and shall be kept with at least three full turns on the drum. O. Reg. 213/91, s. 168 (1).
- (2) No cable used by a crane or similar hoisting device,
- (a) subject to subsection (3), shall contain six randomly-distributed wires that are broken in one rope lay or three or more wires that are broken in one strand in a rope lay;
  - (b) shall be smaller than its nominal rope diameter by more than,
    - (i) one millimetre for a diameter up to and including nineteen millimetres,
    - (ii) two millimetres for a diameter greater than nineteen millimetres up to and including twenty-nine millimetres, and
    - (iii) three millimetres for a diameter greater than twenty-nine millimetres;



- (c) shall be worn by more than one-third of the original diameter of its outside individual wires;
  - (d) shall show evidence of kinking, bird-caging, corrosion or other damage resulting in distortion of the rope structure; or
  - (e) shall show evidence of possible rope failure including rope damage caused by contact with electricity. O. Reg. 213/91, s. 168 (2).
- (3) No cable that is static or is used for pendants,
- (a) shall contain three or more broken wires in one lay or in a section between end connectors; or
  - (b) shall have more than one broken wire at an end connector. O. Reg. 213/91, s. 168 (3).
- (4) Rotation-resistant wire rope shall not be used for a cable for boom hoist reeving and pendants. O. Reg. 213/91, s. 168 (4).
- (5) Rotation-resistant wire rope shall not be used where an inner wire or strand for a cable is damaged or broken. O. Reg. 213/91, s. 168 (5).
- 169.** A cable used by a crane or similar hoisting device shall be capable of supporting at least,
- (a) three and one-half times the maximum load to which it is likely to be subjected if it is used on a device other than a tower crane and it winds on a drum or passes over a sheave;
  - (b) five times the maximum load to which it is likely to be subjected if it is used on a tower crane and it winds on a drum or passes over a sheave;
  - (c) three times the maximum load to which it is likely to be subjected if it is a pendant or is not subject to winding or bending; and
  - (d) ten times the maximum load to which it is likely to be subjected if the crane or similar hoisting device is used for supporting persons. O. Reg. 213/91, s. 169.
- 170.** (1) All cable used by a crane or similar hoisting device shall be visually inspected by a competent worker at least once a week when the crane or similar hoisting device is being used. O. Reg. 213/91, s. 170 (1).
- (2) The worker performing an inspection shall record the condition of the rope or cable inspected in the log book for the crane or similar hoisting device. O. Reg. 213/91, s. 170 (2).
- 171.** (1) A cable used by a crane or similar hoisting device shall be securely attached,
- (a) by binding and fastening the cable around an oval thimble in a way that is strong enough to prevent the cable thimble from separating; or
  - (b) by fastening the cable within either a tapered socket by means of virgin zinc or a wedge-type socket fitted with a wire rope clip at the dead end to prevent the accidental release or loosening of the wedge. O. Reg. 213/91, s. 171 (1).
- (2) The dead end cable of a wedge socket assembly on a hoisting line shall extend between 100 millimetres and 300 millimetres out of the socket. O. Reg. 213/91, s. 171 (2).
- 172.** (1) A container, sling or similar device for rigging or hoisting an object, including its fittings and attachments,
- (a) shall be suitable for its intended use;
  - (b) shall be suitable for and capable of supporting the object being rigged or hoisted;
  - (c) shall be so arranged as to prevent the object or any part of the object from slipping or falling;
  - (d) shall be capable of supporting at least five times the maximum load to which it may be subjected; and
  - (e) shall be capable of supporting at least ten times the load to which it may be subjected if it is to be used to support a person. O. Reg. 213/91, s. 172 (1).
- (2) A sling or similar device made of web-type fabric or nylon shall be labelled to indicate its load rating capacity. O. Reg. 213/91, s. 172 (2).

- (3) No sling or similar device for rigging or hoisting made of web-type fabric or nylon shall be used if it may be cut. O. Reg. 213/91, s. 172 (3).
- 173.** (1) Every hoisting hook shall be equipped with a safety catch. O. Reg. 213/91, s. 173 (1).
- (2) No safety catch is required on a hoisting hook used in placing structural members if the method of placing protects workers to the same standard as a safety catch does. O. Reg. 213/91, s. 173 (2).
- (3) A hoisting hook shall have its load rating legibly cast or stamped on it in a location where the person using the hook can readily see it. O. Reg. 213/91, s. 173 (3).
- (4) A hoisting hook shall not be used if it is cracked, has a throat opening that is greater than as manufactured or is twisted from the plane of the unbent hook. O. Reg. 213/91, s. 173 (4).
- 174.** A hook block shall have its load rating and weight legibly cast or stamped on it in a conspicuous location. O. Reg. 213/91, s. 174.
- 175.** (1) An overhauling weight used on the cable of a crane or similar hoisting device,  
(a) shall be prevented from sliding up or down the cable; and  
(b) shall be securely attached to the load hook and the cable. O. Reg. 213/91, s. 175 (1).
- (2) No overhauling weight used on the cable of a crane or similar hoisting device shall be split. O. Reg. 213/91, s. 175 (2).
- 176.** Only an alloy steel chain or a chain manufactured for the purpose shall be used for hoisting. O. Reg. 213/91, s. 176.
- 177.** (1) No alloy chain shall be annealed or welded. O. Reg. 213/91, s. 177 (1).
- (2) A chain used for hoisting shall be selected, annealed, normalized and repaired in accordance with the specifications of its manufacturer. O. Reg. 213/91, s. 177 (2).
- 178.** A friction-type clamp used in hoisting materials shall be constructed so that an accidental slackening of the hoisting cable does not release the clamp. O. Reg. 213/91, s. 178.
- 179.** (1) If a worker may be endangered by the rotation or uncontrolled motion of a load being hoisted by a crane or similar hoisting device, one or more guide ropes or tag lines shall be used to prevent the rotation or uncontrolled motion. O. Reg. 213/91, s. 179 (1).
- (2) No guide rope or tag line shall be removed from a load referred to in subsection (1) until the load is landed and there is no danger of it tipping, collapsing or rolling. O. Reg. 213/91, s. 179 (2).
- 180.** (1) Piles and sheet-piling shall be adequately supported to prevent their uncontrolled movement while they are being hoisted, placed, removed or withdrawn. O. Reg. 213/91, s. 180 (1).
- (2) No worker shall be in an area where piles or sheet-piling are being hoisted, placed, removed or withdrawn unless the worker is directly engaged in the operation. O. Reg. 213/91, s. 180 (2).

## **ELECTRICAL HAZARDS**

- 182.** (1) No worker shall connect, maintain or modify electrical equipment or installations unless,  
(a) the worker is a qualified electrician, or  
(b) the worker is otherwise permitted to connect, maintain or modify electrical equipment or Installations.
- (2) A worker who does not meet the requirements of clause (1) (a) or (b) may insert an attachment plug cap on the cord of electrical equipment or an electrical tool into, or remove it from, a convenience receptacle. O. Reg. 627/05, s. 4.
- 183.** Every reasonable precaution shall be taken to prevent hazards to workers from energized electrical equipment, installations and conductors. O. Reg. 627/05, s. 6.
- 184.** (1) No person, other than a person authorized to do so by the supervisor in charge of the project, shall enter or be permitted to enter a room or other enclosure containing exposed energized electrical parts. O. Reg. 627/05, s. 7.
- (2) The entrance to a room or other enclosure containing exposed energized electrical parts shall be marked by conspicuous warning signs stating that entry by unauthorized persons is prohibited. O. Reg. 627/05, s. 7.
- 185.** (1) Electrical equipment, installations, conductors and insulating materials shall be suitable for their intended use and shall be installed, maintained, modified and operated so as not to pose a hazard to a worker. O. Reg. 627/05, s. 7.
- (2) For greater certainty, the Health & Safety Policy and Procedures apply to electrical equipment, installations, conductors and insulating materials and to temporary wiring installations on projects. O. Reg. 627/05, s. 7.
- 186.** Electrical equipment, installations and conductors that are not to be used for the purpose for which they were designed shall be,  
(a) removed; or  
(b) left in an electrically non-hazardous condition by being disconnected, de-energized, tagged and,  
(i) grounded, in the case of power lines,  
(ii) locked out, in the case of electrical equipment. O. Reg. 627/05, s. 7.
- 187.** Tools, ladders, scaffolding and other equipment or materials capable of conducting electricity shall not be stored or used so close to energized electrical equipment, installations or conductors that they can make electrical contact. O. Reg. 627/05, s. 7.
- 188.** (1) This section applies unless the conditions set out in clauses 189 (a) and (b) are satisfied. O. Reg. 627/05, s. 7.
- (2) No object shall be brought closer to an energized overhead electrical conductor with a nominal phase-to-phase voltage rating set out in Column 1 of the Table to this subsection than the distance specified opposite to it in Column 2.

**TABLE**

<b>Column 1</b>	<b>Column 2</b>
Nominal phase-to-phase voltage rating	Minimum distance
750 or more volts, but no more than 150,000 volts	3 metres
more than 150,000 volts, but no more than 250,000 volts	4.5 metres
more than 250,000 volts	6 metres

O. Reg. 627/05, s. 7.

- (3) Subsections (4) to (9) apply if a crane, similar hoisting device, backhoe, power shovel or other vehicle or equipment is operated near an energized overhead electrical conductor and it is possible for a part of the vehicle or equipment or its load to encroach on the minimum distance permitted under subsection (2). O. Reg. 627/05, s. 7.
- (4) A constructor shall,
- (a) establish and implement written measures and procedures adequate to ensure that no part of a vehicle or equipment or its load encroaches on the minimum distance permitted by subsection (2); and
  - (b) make a copy of the written measures and procedures available to every employer on the project. O. Reg. 627/05, s. 7.
- (5) The written measures and procedures shall include taking the following precautions to protect workers:
- 1. Adequate warning devices, visible to the operator and warning of the electrical hazard, shall be positioned in the vicinity of the hazard.
  - 2. The operator shall be provided with written notification of the electrical hazard before beginning the work.
  - 3. A legible sign, visible to the operator and warning of the potential electrical hazard, shall be posted at the operator's station. O. Reg. 627/05, s. 7.
- (6) Before a worker begins work that includes an activity described in subsection (3), the employer shall provide a copy of the written measures and procedures to the worker and explain them to him or her. O. Reg. 627/05, s. 7.
- (7) The worker shall follow the written measures and procedures. O. Reg. 627/05, s. 7.
- (8) A competent worker, designated as a signaller, shall be stationed so that he or she is in full view of the operator and has a clear view of the electrical conductor and of the vehicle or equipment, and shall warn the operator each time any part of the vehicle or equipment or its load may approach the minimum distance. O. Reg. 627/05, s. 7.
- (9) Section 106 also applies with respect to the signaller designated under subsection (8). O. Reg. 627/05, s. 7.
- 189.** Section 188 does not apply if,
- (a) under the authority of the owner of the electrical conductor, protective devices and equipment are installed, and written measures and procedures are established and implemented, that are adequate to protect workers from electrical shock and burn; and
  - (b) the workers involved in the work use protective devices and equipment, including personal protective equipment, and follow written measures and procedures that are adequate to protect workers from electrical shock and burn. O. Reg. 627/05, s. 7.

- 190.** (1) This section applies if work is to be done on or near energized exposed parts of electrical equipment or of an electrical installation or conductor. O. Reg. 627/05, s. 7.
- (2) An employer shall,
- (a) establish and implement written measures and procedures for complying with this section to ensure that workers are adequately protected from electrical shock and burn; and
  - (b) make a copy of the written measures and procedures available to every worker on the project. O. Reg. 627/05, s. 7.
- (3) The worker shall follow the written measures and procedures. O. Reg. 627/05, s. 7.
- (4) Subject to subsection (9), the power supply to the electrical equipment, installation or conductor shall be disconnected, locked out of service and tagged in accordance with subsection (6) before the work begins, and kept disconnected, locked out of service and tagged while the work continues. O. Reg. 627/05, s. 7.
- (5) Hazardous stored electrical energy shall be adequately discharged or contained before the work begins and shall be kept discharged or contained while the work continues. O. Reg. 627/05, s. 7.
- (6) The following rules apply to the tagging of the power supply under subsection (4):
- 1. The tag shall be made of non-conducting material and shall be installed so as not to become energized.
  - 2. The tag shall be placed in a conspicuous location and shall be secured to prevent its inadvertent removal.
  - 3. The tag shall indicate,
    - i. why the equipment, installation or conductor is disconnected,
    - ii. the name of the person who disconnected the equipment, installation or conductor,
    - iii. the name of the person's employer, and
    - iv. the date on which the equipment, installation or conductor was disconnected.
  - 4. The tag shall not be removed unless it is safe to do so. O. Reg. 627/05, s. 7.
- (7) A worker, before beginning work to which this section applies, shall verify that subsections (4) and (5) have been complied with. O. Reg. 627/05, s. 7.
- (8) If more than one worker is involved in work to which this section applies, a means shall be provided to communicate the purpose and status of,
- (a) the disconnecting, locking out and tagging of the electrical equipment, installation or conductor; and
  - (b) the discharging and containment of any hazardous stored electrical energy.
- O. Reg. 627/05, s. 7.
- (9) Locking out is not required under subsection (4) if,
- (a) in the case of a conductor, it is adequately grounded with a visible grounding mechanism;
  - (b) in the case of equipment or an installation,
    - (i) the power supply is less than 300 volts, the equipment or installation was not manufactured with provision for a locking device for the circuit breakers or fuses, and a written procedure has been implemented that is adequate to ensure that the circuit is not inadvertently energized, or
    - (ii) the power supply is 300 or more volts but not more than 600 volts, the equipment or installation was not manufactured with provision for a locking device for the circuit breakers or fuses, a written procedure as to how work is to be done has been implemented and the work is supervised by a competent worker to ensure that the circuit is not inadvertently energized. O. Reg. 627/05, s. 7.
- 191.** (1) This section applies instead of section 190 if work is to be done on or near energized exposed parts of electrical equipment or of an electrical installation or conductor and,
- (a) it is not reasonably possible to disconnect the equipment, installation or conductor from the power supply before working on or near the energized exposed parts;

- (b) the equipment, installation or conductor is rated at a nominal voltage of 600 volts or less, and disconnecting the equipment, installation or conductor would create a greater hazard to a worker than proceeding without disconnecting it; or
    - (c) the work consists only of diagnostic testing of the equipment, installation or conductor. O. Reg. 627/05, s. 7.
  - (2) Subsection (10) applies, in addition to subsections (3) to (9), if the equipment, installation or conductor is nominally rated at,
    - (a) greater than 400 amperes and greater than 200 volts; or
    - (b) greater than 200 amperes and greater than 300 volts. O. Reg. 627/05, s. 7.
  - (3) Only a worker who meets the requirements of clause 182 (1) (a) or (b) shall perform the work. O. Reg. 627/05, s. 7.
  - (4) The constructor shall,
    - (a) ensure that written measures and procedures for complying with this section are established and implemented, so that workers are adequately protected from electrical shock and burn; and
    - (b) make a copy of the written measures and procedures available to every employer on the project. O. Reg. 627/05, s. 7.
  - (5) Before a worker begins work to which this section applies, the employer shall provide a copy of the written measures and procedures to the worker and explain them to him or her. O. Reg. 627/05, s. 7.
  - (6) The worker shall follow the written procedures. O. Reg. 627/05, s. 7.
  - (7) A worker shall use mats, shields or other protective devices or equipment, including personal protective equipment, adequate to protect the worker from electrical shock and burn. O. Reg. 627/05, s. 7.
  - (8) If the electrical equipment, installation or conductor is rated at a nominal voltage of 300 volts or more, an adequately equipped competent worker who can perform rescue operations, including cardiopulmonary resuscitation, shall be stationed so that he or she can see the worker who is performing the work. O. Reg. 627/05, s. 7.
  - (9) Subsection (8) does not apply if the work consists only of diagnostic testing of the equipment, installation or conductors. O. Reg. 627/05, s. 7.
  - (10) In the case of equipment or of an installation or conductor described in subsection (2), a worker shall not perform the work unless the following additional conditions are satisfied:
    1. The owner of the equipment, installation or conductor has provided the employer and the constructor with a record showing that it has been maintained according to the manufacturer's specifications.
    2. A copy of the maintenance record is readily available at the project.
    3. The employer has determined from the maintenance record that the work on the equipment, installation or conductor can be performed safely without disconnecting it.
    4. Before beginning the work, the worker has verified that paragraphs 1, 2 and 3 have been complied with. O. Reg. 627/05, s. 7.
- 192.** All tools, devices and equipment, including personal protective equipment, that are used for working on or near energized exposed parts of electrical equipment, installations or conductors shall be designed, tested, maintained and used so as to provide adequate protection to workers. O. Reg. 627/05, s. 7.
- 193.** (1) A worker who may be exposed to the hazard of electrical shock or burn while performing work shall use rubber gloves,
- (a) that are adequate to protect him or her against electrical shock and burn;
  - (b) that have been tested and certified in accordance with subsection (2), if applicable; and

- (c) that have been air tested and visually inspected for damage and adequacy immediately before each use. O. Reg. 627/05, s. 7.
  - (2) Rubber gloves rated for use with voltages above 5,000 volts AC shall be tested and certified to ensure that they can withstand the voltages for which they are rated,
    - (a) at least once every three months, if they are in service;
    - (b) at least once every six months, if they are not in service. O. Reg. 627/05, s. 7.
  - (3) Rubber gloves shall be worn with adequate leather protectors and shall not be worn inside out. O. Reg. 627/05, s. 7.
  - (4) Leather protectors shall be visually inspected for damage and adequacy immediately before each use. O. Reg. 627/05, s. 7.
  - (5) Rubber gloves or leather protectors that are damaged or not adequate to protect workers from electrical shock and burn shall not be used. O. Reg. 627/05, s. 7.
  - (6) Workers shall be trained in the proper use, care and storage of rubber gloves and leather protectors. O. Reg. 627/05, s. 7.
- 194.** (1) A switch and panel board controlling a service entrance, service feeder or branch circuit shall meet the requirements of this section. O. Reg. 627/05, s. 7.
- (2) A switch and panel board shall be securely mounted on a soundly constructed vertical surface and shall have a cover over uninsulated parts carrying current. O. Reg. 627/05, s. 7.
  - (3) A switch and panel board shall be located,
    - (a) in an area where water will not accumulate; and
    - (b) within easy reach of workers and readily accessible to them. O. Reg. 627/05, s. 7.
  - (4) The area in front of a panel board shall be kept clear of obstructions. O. Reg. 627/05, s. 7.
  - (5) A switch that controls a service entrance, service feeder or branch circuit providing temporary power,
    - (a) shall not be locked in the energized position; and
    - (b) shall be housed in an enclosure that can be locked and is provided with a locking device. O. Reg. 627/05, s. 7.
- 195.** All electrical extension cords used at a project shall have a grounding conductor and at least two other conductors. O. Reg. 627/05, s. 7.
- 195.1** (1) Cord-connected electrical equipment or tools shall have a casing that is adequately grounded. O. Reg. 627/05, s. 7.
- (3) Subsections (1) and (2) do not apply to cord-connected electrical equipment or tools that are adequately double-insulated and whose insulated casing shows no evidence of cracks or defects. O. Reg. 627/05, s. 7.
  - (4) Subsection (1) does not apply to a portable electrical generator in which the electrical equipment or tools are not exposed to an external electric power source if the casing of portable electrical equipment or tools connected to the generator is bonded to a non-current-carrying part of the generator. O. Reg. 627/05, s. 7.
- 195.2** When a portable electrical tool is used outdoors or in a wet location,
  - (a) if the source of power is an ungrounded portable generator having a maximum output of 1.8 kilowatts or less, a ground fault circuit interrupter of the Class A type shall be located in the cord feeding the tool, as close to the tool as possible;
  - (b) in all other cases, the tool shall be plugged into a receptacle protected by a ground fault circuit interrupter of the Class A type. O. Reg. 627/05, s. 7.

- 195.3** (1) Defective electrical equipment and tools that may pose a hazard shall be immediately disconnected, removed from service and tagged as being defective. O. Reg. 627/05, s. 7.
- (2) The cause of a ground fault or the tripping of a ground fault circuit interrupter shall be immediately investigated to determine the hazard and corrective action shall be taken immediately. O. Reg. 627/05, s. 7.

## **EXPLOSIVES**

- 196.** (1) If explosives are to be used on a project, the employer responsible for blasting shall designate a competent worker to be in charge of blasting operations. O. Reg. 213/91, s. 196 (1).
- (2) The employer shall post the name of the worker in charge of blasting operations for a project in a conspicuous place on the project and in every magazine. O. Reg. 213/91, s. 196 (2).
- (3) The worker in charge of blasting operations for a project shall personally supervise blasting operations at the project, including the loading, priming and initiating of all charges. O. Reg. 213/91, s. 196 (3).
- (4) The worker in charge of blasting operations for a project,
- (a) shall inspect for hazardous conditions explosives and the magazines in which they are stored,
    - (i) at least once a month, and
    - (ii) on the day they are to be used;
  - (b) shall promptly report the results of inspections under clause (a) to the supervisor in charge of the project;
  - (c) shall take immediate steps to correct any hazardous condition; and
  - (d) shall dispose of all deteriorated explosives. O. Reg. 213/91, s. 196 (4).
- (5) If an act of careless placing or handling of explosives on the project is discovered by, or reported to the worker in charge of blasting operations, the worker shall promptly investigate the circumstances and report the results of the investigation to the supervisor in charge of the project. O. Reg. 213/91, s. 196 (5).
- 197.** Only a competent worker or a worker who is working under the direct personal supervision of a competent worker shall handle, transport, prepare and use explosives on a project. O. Reg. 213/91, s. 197.
- 198.** (1) A magazine containing an explosive shall be securely locked at all times when the competent worker described in section 197 is not present. O. Reg. 213/91, s. 198 (1).
- (2) No explosive shall be outside a magazine unless the explosive is required for immediate use. O. Reg. 213/91, s. 198 (2).
- (3) An explosive outside a magazine shall be attended at all times. O. Reg. 213/91, s. 198 (3).
- 199.** An explosive shall remain in its original wrapper unless it is manufactured and intended for use other than in its original wrapper. O. Reg. 213/91, s. 199.
- 200.** (1) No fire or other naked flame shall be located in a magazine or within eight metres of any explosive. O. Reg. 213/91, s. 200 (1).
- (2) No person shall smoke in a magazine or within eight metres of any explosive. O. Reg. 213/91, s. 200 (2).
- 201.** Blasting mats shall be used to prevent flying objects caused by blasting operations from endangering persons and property located on or adjacent to a project. O. Reg. 213/91, s. 201.



- 202.** (1) This section applies if electric blasting caps are used on a project. O. Reg. 213/91, s. 202 (1).
- (2) The protective shunt shall not be removed from the leg wire until connections are made. O. Reg. 213/91, s. 202 (2).
- (3) The firing circuit shall be short-circuited while the leads from the blasting caps are being connected to each other and to the firing cables. O. Reg. 213/91, s. 202 (3).
- (4) The short circuit shall not be removed until immediately before blasting and until all workers have left the area affected by the blasting operations. O. Reg. 213/91, s. 202 (4).
- (5) The source of energy for a blasting operation shall be disconnected from the firing circuit immediately after firing. O. Reg. 213/91, s. 202 (5).
- 203.** (1) Before blasting begins, the worker in charge of blasting operations shall post workers at the approaches to the affected area in order to prevent access to it. O. Reg. 213/91, s. 203 (1).
- (2) Before blasting begins, the worker in charge of blasting operations shall ensure,
- (a) that only workers required to carry out the blasting are located in the affected area;
  - (b) that no workers remain in an area whose means of egress passes the affected area; and
  - (c) that a warning that is clearly audible within a radius of one kilometre of the blast is given by siren. O. Reg. 213/91, s. 203 (2).
- 204.** (1) Before a drill hole for loading explosives is drilled, the exposed surface shall be examined for drill holes or remnants of drill holes that may contain explosives and any explosive found shall be removed if practicable. O. Reg. 213/91, s. 204 (1).
- (2) No drill hole shall be drilled,
- (a) within 7.5 metres of another hole that is being loaded with or contains explosives; and
  - (b) within 150 millimetres of another hole or remnant of a hole that has been charged or blasted unless adequate precautions have been taken to ensure that the other hole is free from explosives. O. Reg. 213/91, s. 204 (2).
- (3) Clause (2) (a) does not apply to a hole being drilled adjacent to another hole that is being loaded with explosives,
- (a) if a professional engineer prepares a specification showing the location of the drill hole and the adjacent hole and describing the precautions to be taken to prevent the accidental detonation by the drilling operation of the explosives in the adjacent hole; and
  - (b) if the drilling is done as described in the specification referred to in clause (a). O. Reg. 213/91, s. 204 (3).
- (4) No drill hole permitted under subsection (3) shall be drilled within one metre of another hole containing explosives. O. Reg. 213/91, s. 204 (4).
- (5) The professional engineer's specification shall be in writing. O. Reg. 213/91, s. 204 (5); O. Reg. 85/04, s. 20.
- (6) The employer responsible for blasting shall keep a copy of the specification at the project until the blasting to which the specification refers is completed. O. Reg. 213/91, s. 204 (6).
- 205.** (1) If cartridges of explosives are to be used in a drill hole, the hole shall be made large enough that a cartridge can be inserted easily to the bottom of the hole. O. Reg. 213/91, s. 205 (1).
- (2) No drill hole shall be charged with explosives unless a properly prepared detonation agent is placed in the charge. O. Reg. 213/91, s. 205 (2).
- (3) Drill holes charged with explosives in one loading operation shall be fired in one operation. O. Reg. 213/91, s. 205 (3).

(4) No drill hole that is charged with explosives shall be left unfired for any longer than is required in a continuing operation to complete the charging and blasting of adjacent holes.  
O. Reg. 213/91, s. 205 (4).

**206.** Only a non-sparking tool or rod shall be used in the charging of a drill hole or in a drill hole containing explosives. O. Reg. 213/91, s. 206

## **ROOFING**

**207.** (1) If a built-up roof is being constructed, repaired or resurfaced, a barrier shall be placed in the immediate work area at least two metres from the perimeter of the roof.  
O. Reg. 213/91, s. 207 (1).

(2) The barrier shall consist of portable weighted posts supporting a taut chain, cable or rope that is located 1.1 metres above the roof level. O. Reg. 213/91, s. 207 (2).

**208.** (1) A pipe that supplies hot tar or bitumen to a roof shall be securely fixed and supported to prevent its deflection. O. Reg. 213/91, s. 208 (1).

(2) If a pipe discharges hot tar or bitumen within two metres of the edge of a roof, a guardrail shall be provided at the edge of the roof. O. Reg. 213/91, s. 208 (2).

**209.** (1) A hoist used on a roof,

- (a) shall have a guardrail installed on both sides of the frame at the edge of the roof; and
- (b) shall be positioned in such a way that the hoist cable is vertical at all times while a load is being hoisted. O. Reg. 213/91, s. 209 (1).

(2) Only a competent worker shall operate a hoist used on a roof. O. Reg. 213/91, s. 209 (2).

**210.** The counterweights on a roofer's hoist,

- (a) shall be suitable for the purpose;
- (b) shall not consist of roofing or other construction material;
- (c) shall be securely attached to the hoist; and
- (d) shall provide a safety factor against overturning of not less than three.  
O. Reg. 213/91, s. 210.

## **HOT TAR OR BITUMEN ROADTANKERS**

**211.** (1) Only a competent worker shall operate a hot tar or bitumen roadtanker or kettle.  
O. Reg. 213/91, s. 211 (1).

(2) If a hot tar or bitumen roadtanker or kettle is fitted with a propane-fuelled heater,

- (a) the storage cylinder for propane shall not be placed closer than three metres to a source of fire or ignition;
- (b) the lines connecting the storage cylinder for propane to the heating device shall be located so that they do not come into contact with the hot tar or bitumen in the case of a spill or a failure of a component of the system; and

(c) a fire extinguisher shall be provided with the roadtanker or kettle.  
O. Reg. 213/91, s. 211 (2).

(3) A propane burner used on a bitumen roadtanker or kettle,

- (a) shall have a thermal rating no greater than that recommended by the manufacturer of the roadtanker or kettle; and
- (b) shall consist of components that are adequate for their intended use.  
O. Reg. 213/91, s. 211 (3).

- (4) Hot tar or bitumen shall be transferred from a roadtanker to a kettle through enclosed piping.  
O. Reg. 213/91, s. 211 (4).

### **DEMOLITION AND DAMAGED STRUCTURES**

- 212.** (1) If a structure is so damaged that a worker is likely to be endangered by its partial or complete collapse,  
(a) the structure shall be braced and shored; and  
(b) safeguards appropriate in the circumstances shall be provided to prevent injury to a worker. O. Reg. 213/91, s. 212 (1).
- (2) Safeguards shall be installed progressively from a safe area towards the hazard so that the workers installing the safeguards are not endangered. O. Reg. 213/91, s. 212 (2).
- 213.** (1) Only a worker who is directly engaged in the demolition, dismantling or moving of a building or structure shall be in, on or near it. O. Reg. 213/91, s. 213 (1).
- (2) If the demolition or dismantling of a building or structure is discontinued, barriers shall be erected to prevent access by people to the remaining part of the building or structure.  
O. Reg. 213/91, s. 213 (2).
- (3) A worker shall enter only the part of a building or structure being demolished that will safely support the worker. O. Reg. 213/91, s. 213 (3).
- 214.** (1) No building or structure shall be demolished, dismantled or moved until this section is complied with. O. Reg. 213/91, s. 214 (1).
- (2) Precautions shall be taken to prevent injury to a person on or near the project or the adjoining property that may result from the demolition, dismantling or moving of a building or structure.  
O. Reg. 213/91, s. 214 (2).
- (3) All gas, electrical and other services that may endanger persons who have access to a building or structure shall be shut off and disconnected before, and shall remain shut off and disconnected during, the demolition, dismantling or moving of the building or structure.  
O. Reg. 213/91, s. 214 (3).
- (4) All toxic, flammable or explosive substances shall be removed from a building or structure that is to be demolished, dismantled or moved. O. Reg. 213/91, s. 214 (4).
- 215.** (1) Sections 216, 217, 218 and 220 do not apply with respect to a building or structure that is being demolished by,  
(a) a heavy weight suspended by cable from a crane or similar hoisting device;  
(b) a power shovel, bulldozer or other vehicle;  
(c) the use of explosives; or  
(d) a combination of methods described in clauses (a) to (c). O. Reg. 213/91, s. 215 (1).
- (2) The controls of a mechanical device used to demolish a building or structure shall be operated from a location that is as remote as is practicable from the building or structure.  
O. Reg. 213/91, s. 215 (2).
- (3) If a swinging weight is used to demolish a building or structure, the supporting cable of the weight shall be short enough or shall be so restrained that the weight does not swing against another building or structure. O. Reg. 213/91, s. 215 (3).
- 216.** (1) Demolition and dismantling of a building or structure shall proceed systematically and continuously from the highest to the lowest point unless a worker is endangered by this procedure. O. Reg. 213/91, s. 216 (1).

- (2) Despite subsection (1), the skeleton structural frame in a skeleton structural frame building may be left in place during the demolition or dismantling of the masonry if the masonry and any loose material are removed from the frame systematically and continuously from the highest to the lowest point. O. Reg. 213/91, s. 216 (2).
- (3) The work above a tier or floor of a building or structure shall be completed before the support of the tier or floor is affected by demolition or dismantling operations. O. Reg. 213/91, s. 216 (3).
- 217.** No exterior wall of a building or structure shall be demolished until all glass is removed from windows, doors, interior partitions and components containing glass or is protected to prevent the glass from breaking during the demolition. O. Reg. 213/91, s. 217.
- 218.** (1) Masonry walls of a building or structure being demolished or dismantled shall be removed in reasonably level courses. O. Reg. 213/91, s. 218 (1).
- (2) No materials in a masonry wall of a building or structure being demolished or dismantled shall be loosened or permitted to fall in masses that are likely to endanger,
- (a) a person; or
  - (b) the structural stability of a scaffold or of a floor or other support of the building or structure. O. Reg. 213/91, s. 218 (2).
- 219.** No worker shall stand on top of a wall, pier or chimney to remove material from it unless flooring, scaffolding or staging is provided on all sides of it not more than 2.4 metres below the place where the worker is working. O. Reg. 213/91, s. 219.
- 220.** No truss, girder or other structural member of a building or structure being demolished or dismantled shall be disconnected until,
- (a) it is relieved of all loads other than its own weight; and
  - (b) it has temporary support. O. Reg. 213/91, s. 220.
- 221.** (1) A basement, cellar or excavation left after a building or structure is demolished, dismantled or moved,
- (a) shall be backfilled to grade level; or
  - (b) shall have fencing along its open sides. O. Reg. 213/91, s. 221 (1).
- (2) Subsection (1) does not apply to a basement or cellar that is enclosed by a roof, floor or other solid covering if all openings in the roof, floor or covering are covered with securely fastened planks. O. Reg. 213/91, s. 221 (2).

## **PART II.1: CONFINED SPACES** **DEFINITIONS AND APPLICATION**

**221.1** This Part applies with respect to all projects. O. Reg. 628/05, s. 3.

**221.2** In this Part,

“acceptable atmospheric levels” means that,

- (a) the atmospheric concentration of any explosive or flammable gas or vapour is less than,
  - (i) 25 per cent of its lower explosive limit, if paragraph 1 of subsection 221.17 (4) applies,
  - (ii) 10 per cent of its lower explosive limit, if paragraph 2 of subsection 221.17 (4) applies,
  - (iii) 5 per cent of its lower explosive limit, if paragraph 3 of subsection 221.17 (4) applies,
- (b) the oxygen content of the atmosphere is at least 19.5 per cent but not more than 23 per cent by volume, and
- (c) if atmospheric contaminants, including gases, vapours, fumes, dusts or mists, are present, their concentrations do not exceed what is reasonable in the circumstances for the protection of the health and safety of workers;

“assessment” means an assessment of hazards with respect to one or more confined spaces at a project, as described in section 221.6;

“atmospheric hazards” means,

- (a) the accumulation of flammable, combustible or explosive agents,
- (b) an oxygen content in the atmosphere that is less than 19.5 per cent or more than 23 per cent by volume, or
- (c) the accumulation of atmospheric contaminants, including gases, vapours, fumes, dusts or mists, that could,
  - (i) result in acute health effects that pose an immediate threat to life, or
  - (ii) interfere with a person’s ability to escape unaided from a confined space;

“cold work” means work that is not capable of producing a source of ignition;

“confined space” means a fully or partially enclosed space,

- (a) that is not both designed and constructed for continuous human occupancy, and
- (b) in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it;

“emergency work” means work performed in connection with an unforeseen event that involves an imminent danger to the life, health or safety of any person;

“hot work” means work that is capable of producing a source of ignition;

“plan” means a plan for one or more confined spaces at a project, as described in section 221.7;

“program” means a program for one or more confined spaces at a project, as described in section 221.5;

“purging” means displacing contaminants from a confined space;

“related work” means work that is performed near a confined space in direct support of work inside the confined space. O. Reg. 628/05, s. 3.

### **DUTY OF EMPLOYERS**

**221.4** (1) This section applies if the workers of more than one employer perform work in the same confined space or related work with respect to the same confined space. O. Reg. 628/05, s. 3.

- (2) Before any worker enters the confined space or begins related work with respect to the confined space, the constructor shall prepare a co-ordination document to ensure that the duties imposed on employers by this Part are performed in a way that protects the health and safety of all workers who perform work in the confined space or related work with respect to the confined space. O. Reg. 628/05, s. 3.

- (3) A copy of the co-ordination document shall be provided to,
  - (a) each employer of workers who perform work in the same confined space or related work with respect to the same confined space; and
  - (b) UNOPS Health & Safety Officer or representative, if any. O. Reg. 628/05, s. 3.

### **CONFINED SPACE PROGRAM**

- 221.5** (1) If a project includes a confined space that workers may enter to perform work, the employer shall ensure that a written program for the confined space is developed and maintained in accordance with this Part before a worker enters the confined space. O. Reg. 628/05, s. 3.
- (2) The program may apply to one or more confined spaces. O. Reg. 628/05, s. 3.
  - (3) The program shall be adequate and shall provide for,
    - (a) a method for recognizing each confined space to which the program applies;
    - (b) a method for assessing the hazards to which workers may be exposed, in accordance with section 221.6;
    - (c) a method for the development of one or more plans, in accordance with section 221.7;
    - (d) a method for the training of workers, in accordance with section 221.8; and
    - (e) an entry permit system that sets out the measures and procedures to be followed when work is to be performed in a confined space to which the program applies.O. Reg. 628/05, s. 3.
  - (4) The employer shall provide a copy of the program to the constructor, who shall provide a copy of it to the project's joint health and safety committee or health and safety representative, if any. O. Reg. 628/05, s. 3.
  - (5) The constructor shall ensure that a copy of the program is available to,
    - (a) any other employer of workers who perform work to which the program relates; and
    - (b) every worker who performs work to which the program relates, if the project has no joint health and safety committee or health and safety representative. O. Reg. 628/05, s. 3.
- 221.6** (1) Before any worker enters a confined space, the employer shall ensure that an adequate assessment of the hazards related to the confined space has been carried out by a competent worker. O. Reg. 628/05, s. 3.
- (2) The assessment shall be recorded in writing and shall consider, with respect to each confined space,
    - (a) the hazards that may exist due to the design, construction, location, use or contents of the confined space; and
    - (b) the hazards that may develop while work is done inside the confined space.O. Reg. 628/05, s. 3.
  - (3) The record of the assessment may be incorporated into an entry permit under section 221.9. O. Reg. 628/05, s. 3.
  - (4) If two or more confined spaces are of similar construction and present the same hazards, their assessments may be recorded in a single document, but each confined space shall be clearly identified in the assessment. O. Reg. 628/05, s. 3.
  - (5) The employer shall maintain a record containing details of the knowledge, training and experience of the competent worker who carries out the assessment. O. Reg. 628/05, s. 3.
  - (6) The assessment shall contain the name of the competent worker who carries out the assessment. O. Reg. 628/05, s. 3.
  - (7) The competent worker shall sign and date the assessment and provide it to the employer. O. Reg. 628/05, s. 3.

- (8) On request, the employer shall provide copies of the assessment and of the record mentioned in subsection (5) to,
    - (a) UNOPS Health & Safety Officer;
    - or
    - (b) every worker who performs work to which the assessment relates, if the project has no health and safety representative. O. Reg. 628/05, s. 3.
  - (9) The employer shall ensure that assessments of confined spaces at the project are reviewed as often as is necessary to ensure that the relevant plans remain adequate. O. Reg. 628/05, s. 3.
- 221.7** (1) Before any worker enters a confined space, the employer shall ensure that an adequate written plan, including procedures for the control of hazards identified in the assessment, has been developed and implemented by a competent person for the confined space.  
O. Reg. 628/05, s. 3.
- (2) The plan may be incorporated into an entry permit under section 221.9. O. Reg. 628/05, s. 3.
  - (3) The plan shall contain provisions for,
    - (a) the duties of workers;
    - (b) co-ordination in accordance with section 221.4, if applicable;
    - (c) on-site rescue procedures, in accordance with section 221.10;
    - (d) rescue equipment and methods of communication, in accordance with section 221.11;
    - (e) protective clothing and personal equipment and devices, in accordance with section 221.12;
    - (f) isolation of energy and control of materials movement, in accordance with section 221.13;
    - (g) attendants, in accordance with section 221.14;
    - (h) adequate means of access and egress;
    - (i) atmospheric testing, in accordance with section 221.16;
    - (j) adequate procedures for working in the presence of explosive or flammable substances, in accordance with section 221.17; and
    - (k) ventilation and purging, in accordance with section 221.18. O. Reg. 628/05, s. 3.
  - (4) One plan may deal with two or more confined spaces that are of similar construction and present the same hazards as identified by the assessment. O. Reg. 628/05, s. 3.
  - (5) The employer shall ensure that the plan is reviewed as often as is necessary to ensure that it remains adequate. O. Reg. 628/05, s. 3.
- 221.8** (1) The employer shall ensure that every worker who enters a confined space or who performs related work receives adequate training to perform the work safely, in accordance with the relevant plan. O. Reg. 628/05, s. 3.
- (2) Training under subsection (1) shall include training in,
    - (a) the recognition of hazards associated with confined spaces; and
    - (b) safe work practices for working in confined spaces and for performing related work.  
O. Reg. 628/05, s. 3.
  - (3) The employer shall maintain up-to-date written records showing who provided and who received training under this section and the date when it was provided. O. Reg. 628/05, s. 3.
  - (4) The employer shall provide the training records under subsection (3) to the project's joint health and safety committee or health and safety representative, if any, on request.  
O. Reg. 628/05, s. 3.
  - (5) The records may be incorporated into an entry permit under section 221.9. O. Reg. 628/05, s. 3.
- 221.9** (1) The employer shall ensure that a separate entry permit is issued each time work is to be performed in a confined space, before any worker enters the confined space.  
O. Reg. 628/05, s. 3.

- (2) An entry permit shall be adequate and shall include at least the following:
  1. The location of the confined space.
  2. A description of the work to be performed there.
  3. A description of the hazards and the corresponding control measures.
  4. The time period for which the entry permit applies.
  5. The name of the attendant described in section 221.14.
  6. A record of each worker's entries and exits.
  7. A list of the equipment required for entry and rescue, and verification that the equipment is in good working order.
  8. Results obtained in atmospheric testing under section 221.16.
  9. If the work to be performed in the confined space includes hot work, adequate provisions for the hot work and corresponding control measures. O. Reg. 628/05, s. 3.
- (3) Before each shift, a competent person shall verify that the entry permit complies with the relevant plan. O. Reg. 628/05, s. 3.
- (4) The employer shall ensure that the entry permit, during the time period for which it applies, is readily available to every person who enters the confined space or performs related work with respect to the confined space. O. Reg. 628/05, s. 3.

### **RESCUE PROCEDURES AND EQUIPMENT**

- 221.10** (1) The employer shall ensure that no worker enters or remains in a confined space unless, in accordance with the relevant plan, adequate written on-site rescue procedures that apply to the confined space have been developed and are ready for immediate implementation. O. Reg. 628/05, s. 3.
- (2) Before a worker enters a confined space, the employer shall ensure that an adequate number of persons trained in the matters listed in subsection (3) are available for immediate implementation of the on-site rescue procedures mentioned in subsection (1). O. Reg. 628/05, s. 3.
  - (3) The persons shall be trained in,
    - (a) the on-site rescue procedures mentioned in subsection (1);
    - (b) first aid and cardio-pulmonary resuscitation; and
    - (c) the use of the rescue equipment required in accordance with the relevant plan. O. Reg. 628/05, s. 3.
- 221.11** (1) The employer shall ensure that the rescue equipment identified in the relevant plan is,
  - (a) readily available to effect a rescue in the confined space;
  - (b) appropriate for entry into the confined space; and
  - (c) inspected by a competent worker as often as is necessary to ensure it is in good working order. O. Reg. 628/05, s. 3.
- (2) The inspection under clause (1) (c) shall be recorded in writing by the competent worker, and the record of the inspection may be incorporated into the entry permit under section 221.9. O. Reg. 628/05, s. 3.
  - (3) The employer shall establish methods of communication that are appropriate for the hazards identified in the relevant assessment, and shall make them readily available for workers to communicate with the attendant described in section 221.14. O. Reg. 628/05, s. 3.



## PROTECTIVE CLOTHING AND EQUIPMENT

- 221.12** The employer shall ensure that each worker who enters a confined space is provided with adequate protective clothing and personal equipment and devices, in accordance with the relevant plan. O. Reg. 628/05, s. 3.
- 221.13** The employer shall, in accordance with the relevant plan, ensure that each worker entering a confined space is adequately protected,
- (a) against the release of hazardous substances into the confined space,
    - (i) by blanking or disconnecting piping, or
    - (ii) if compliance with subclause (i) is not practical in the circumstances for technical reasons, by other adequate means;
  - (b) against contact with electrical energy inside the confined space that could endanger the worker,
    - (i) by disconnecting, de-energizing, locking out and tagging the source of electrical energy, or
    - (ii) if compliance with subclause (i) is not practical in the circumstances for technical reasons, by other adequate means;
  - (c) against contact with moving parts of equipment inside the confined space that could endanger the worker,
    - (i) by disconnecting the equipment from its power source, de-energizing the equipment, locking it out and tagging it, or
    - (ii) if compliance with subclause (i) is not practical in the circumstances for technical reasons, immobilizing the equipment by blocking or other adequate means; and
  - (d) against drowning, engulfment, entrapment, suffocation and other hazards from free-flowing material, by adequate means. O. Reg. 628/05, s. 3.

## ATTENDANT AND UNAUTHORIZED ENTRY

- 221.14** (1) Whenever a worker is to enter a confined space, the employer shall ensure that an attendant,
- (a) is assigned;
  - (b) is stationed outside and near,
    - (i) the entrance to the confined space, or
    - (ii) if there are two or more entrances, the one that will best allow the attendant to perform his or her duties under subsection (2);
  - (c) is in constant communication with all workers inside the confined space, using the means of communication described in the relevant plan; and
  - (d) is provided with a device for summoning an adequate rescue response.  
O. Reg. 628/05, s. 3.
- (2) The attendant shall not enter the confined space at any time and shall, in accordance with the relevant plan,
- (a) monitor the safety of the worker inside;
  - (b) provide assistance to him or her; and
  - (c) summon an adequate rescue response if required. O. Reg. 628/05, s. 3.
- 221.15** If there is a possibility of unauthorized entry into a confined space at a project, the constructor shall ensure that each entrance to the confined space,
- (a) is adequately secured against unauthorized entry; or
  - (b) has been provided with adequate barricades, adequate warning signs regarding unauthorized entry, or both. O. Reg. 628/05, s. 3.

## ATMOSPHERIC TESTING

- 221.16** (1) The employer shall appoint a competent worker to perform adequate tests as often as necessary before and while a worker is in a confined space to ensure that acceptable atmospheric levels are maintained in the confined space in accordance with the relevant plan. O. Reg. 628/05, s. 3.
- (2) If the confined space has been both unoccupied and unattended, tests shall be performed before a worker enters or re-enters. O. Reg. 628/05, s. 3.
- (3) The person performing the tests shall use calibrated instruments that are in good working order and are appropriate for the hazards identified in the relevant assessment. O. Reg. 628/05, s. 3.
- (4) The employer shall ensure that the results of every sample of a test are recorded, subject to subsection (5). O. Reg. 628/05, s. 3.
- (5) If the tests are performed using continuous monitoring, the employer shall ensure that test results are recorded at adequate intervals. O. Reg. 628/05, s. 3.
- (6) The tests shall be performed in a manner that does not endanger the health or safety of the person performing them. O. Reg. 628/05, s. 3.
- (7) In this section,  
“sample” means an individual reading of the composition of the atmosphere in the confined space;  
“test” means a collection of samples. O. Reg. 628/05, s. 3.

## ATMOSPHERIC HAZARDS

- 221.17** (1) This section applies only in respect of atmospheric hazards described in clause (a) of the definition of “atmospheric hazards” in section 221.2. O. Reg. 628/05, s. 3.
- (2) The employer shall ensure that this section is complied with, by ventilation, purging, rendering the atmosphere inert or other adequate means, in accordance with the relevant plan. O. Reg. 628/05, s. 3.
- (3) The employer shall ensure that no worker enters or remains in a confined space that contains or is likely to contain an airborne combustible dust or mist whose atmospheric concentration may create a hazard of explosion. O. Reg. 628/05, s. 3.
- (4) The employer shall ensure that no worker enters or remains in a confined space that contains or is likely to contain an explosive or flammable gas or vapour, unless one of the following applies:
1. The worker is performing only inspection work that does not produce a source of ignition. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 25 per cent of its lower explosive limit, as determined by a combustible gas instrument.
  2. The worker is performing only cold work. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 10 per cent of its lower explosive limit, as determined by a combustible gas instrument.
  3. The worker is performing hot work. All the following conditions are satisfied:
    - i. In the case of an explosive or flammable gas or vapour, the atmospheric concentration is less than 5 per cent of its lower explosive limit, as determined by a combustible gas instrument.
    - ii. The atmosphere in the confined space does not contain, and is not likely to contain while a worker is inside, an oxygen content greater than 23 per cent.
    - iii. The atmosphere in the confined space is monitored continuously.

- iv. The entry permit includes adequate provisions for hot work and corresponding control measures.
  - v. An adequate alarm system and exit procedure are provided to ensure that workers have adequate warning and are able to exit the confined space safely if either or both of the following occur:
    - A. In the case of an explosive or flammable gas or vapour, the atmospheric concentration exceeds 5 per cent of its lower explosive limit.
    - B. The oxygen content of the atmosphere exceeds 23 per cent by volume. O. Reg. 628/05, s. 3.
- (5) Subsections (3) and (4) do not apply if,
- (a) the atmosphere in the confined space,
    - (i) has been rendered inert by adding an inert gas, and
    - (ii) is monitored continuously to ensure that it remains inert; and
  - (b) a worker entering the confined space uses,
    - (i) adequate respiratory protective equipment,
    - (ii) adequate equipment to allow persons outside the confined space to locate and rescue the worker if necessary, and
    - (iii) such other equipment as is necessary to ensure the worker's safety.
- O. Reg. 628/05, s. 3.

**221.18** (1) This section applies only in respect of atmospheric hazards described in clause (b) or (c) of the definition of "atmospheric hazards" in section 221.2. O. Reg. 628/05, s. 3.

- (2) If atmospheric hazards exist or are likely to exist in a confined space, the confined space shall be purged, ventilated or both, before any worker enters it, to ensure that acceptable atmospheric levels are maintained in the confined space while any worker is inside. O. Reg. 628/05, s. 3.
  - (3) If mechanical ventilation is required to maintain acceptable atmospheric levels, an adequate warning system and exit procedure shall also be provided to ensure that workers have adequate warning of ventilation failure and are able to exit the confined space safely. O. Reg. 628/05, s. 3.
  - (4) If compliance with subsection (2) is not practical in the circumstances for technical reasons,
    - (a) compliance with subsection (3) is not required; and
    - (b) a worker entering the confined space shall use,
      - (i) adequate respiratory protective equipment,
      - (ii) adequate equipment to allow persons outside the confined space to locate and rescue the worker if necessary, and
      - (iii) such other equipment as is necessary to ensure the worker's safety.
- O. Reg. 628/05, s. 3.

## RECORDS

**221.19** (1) The employer shall keep available for inspection at the project every assessment, plan, co-ordination document under section 221.4, record of training under subsection 221.8 (3), entry permit under section 221.9, record of an inspection under subsection 221.11 (2) and record of a test under section 221.16, including records of each sample. O. Reg. 628/05, s. 3.

- (2) If section 221.4 applies, the documents described in subsection (1) shall be retained by the employer responsible for creating them. O. Reg. 628/05, s. 3.

## PART III: EXCAVATIONS

### DEFINITIONS AND APPLICATION

- 222.** In this Part,  
“engineered support system” means an excavation or trench shoring system, designed for a specific project or location, assembled in place and which cannot be moved as a unit;  
“hydraulic support system” means a system capable of being moved as a unit, designed to resist the earth pressure from the walls of an excavation by applying a hydraulic counterpressure through the struts;  
“prefabricated support system” means a trench box, trench shield or similar structure, composed of members connected to each other and capable of being moved as a unit, and designed to resist the pressure from the walls of an excavation but does not include a hydraulic support system;  
“pressure”, in relation to a wall of an excavation, means the lateral pressure of the earth on the wall calculated in accordance with generally accepted engineering principles and includes hydrostatic pressure and pressure due to surcharge. O. Reg. 213/91, s. 222.
- 223.** This Part applies to all excavating and trenching operations. O. Reg. 213/91, s. 223.

### ENTRY AND WORKING ALONE

- 224.** No person shall enter or be permitted to enter an excavation that does not comply with this Part. O. Reg. 213/91, s. 224.
- 225.** Work shall not be performed in a trench unless another worker is working above ground in close proximity to the trench or to the means of access to it. O. Reg. 213/91, s. 225.

### SOIL TYPES

- 226.** (1) For the purposes of this Part, soil shall be classified as Type 1, 2, 3 or 4 in accordance with the descriptions set out in this section. O. Reg. 213/91, s. 226 (1).
- (2) Type 1 soil,  
(a) is hard, very dense and only able to be penetrated with difficulty by a small sharp object;  
(b) has a low natural moisture content and a high degree of internal strength;  
(c) has no signs of water seepage; and  
(d) can be excavated only by mechanical equipment. O. Reg. 213/91, s. 226 (2).
- (3) Type 2 soil,  
(a) is very stiff, dense and can be penetrated with moderate difficulty by a small sharp object;  
(b) has a low to medium natural moisture content and a medium degree of internal strength;  
and  
(c) has a damp appearance after it is excavated. O. Reg. 213/91, s. 226 (3).
- (4) Type 3 soil,  
(a) is stiff to firm and compact to loose in consistency or is pre-viously-excavated soil;  
(b) exhibits signs of surface cracking;  
(c) exhibits signs of water seepage;  
(d) if it is dry, may run easily into a well-defined conical pile; and  
(e) has a low degree of internal strength. O. Reg. 213/91, s. 226 (4).
- (5) Type 4 soil,  
(a) is soft to very soft and very loose in consistency, very sensitive and upon disturbance is significantly reduced in natural strength;  
(b) runs easily or flows, unless it is completely supported before excavating procedures;  
(c) has almost no internal strength;  
(d) is wet or muddy; and  
(e) exerts substantial fluid pressure on its supporting system. O. Reg. 213/91, s. 226 (5).

- 227.** (1) The type of soil in which an excavation is made shall be determined by visual and physical examination of the soil,  
(a) at the walls of the excavation; and  
(b) within a horizontal distance from each wall equal to the depth of the excavation measured away from the excavation. O. Reg. 213/91, s. 227 (1).
- (2) The soil in which an excavation is made shall be classified as the type described in section 226 that the soil most closely resembles. O. Reg. 213/91, s. 227 (2).
- (3) If an excavation contains more than one type of soil, the soil shall be classified as the type with the highest number as described in section 226 among the types present.  
O. Reg. 213/91, s. 227 (3).

### **PRECAUTIONS CONCERNING SERVICES**

- 228.** (1) Before an excavation is begun,  
(a) gas, electrical and other services in and near the area to be excavated shall be accurately located and marked; and  
(b) if a service may pose a hazard, the service shall be shut off and disconnected.  
O. Reg. 213/91, s. 228 (1).
- (2) The employer who is responsible for the excavation shall request the owner of the service to locate and mark the service. O. Reg. 213/91, s. 228 (2).
- (3) If a service may pose a hazard and cannot be shut off or disconnected, the owner of the service shall be requested to supervise the uncovering of the service during the excavation.  
O. Reg. 213/91, s. 228 (3).
- (4) Pipes, conduits and cables for gas, electrical and other services in an excavation shall be supported to prevent their failure or breakage. O. Reg. 213/91, s. 228 (4).

### **PROTECTION OF ADJACENT STRUCTURES**

- 229.** (1) If an excavation may affect the stability of an adjacent building or structure, the constructor shall take precautions to prevent damage to the adjacent building or structure.  
O. Reg. 213/91, s. 229 (1).
- (2) A professional engineer shall specify in writing the precautions required under subsection (1).  
O. Reg. 213/91, s. 229 (2).
- (3) Such precautions as the professional engineer specifies shall be taken.  
O. Reg. 213/91, s. 229 (3).

### **GENERAL REQUIREMENTS**

- 230.** Every excavation that a worker may be required to enter shall be kept reasonably free of water.  
O. Reg. 213/91, s. 230.
- 231.** An excavation in which a worker may work shall have a clear work space of at least 450 millimetres between the wall of the excavation and any formwork or masonry or similar wall.  
O. Reg. 213/91, s. 231.
- 232.** (1) The walls of an excavation shall be stripped of loose rock or other material that may slide, roll or fall upon a worker. O. Reg. 213/91, s. 232 (1).
- (2) The walls of an excavation cut in rock shall be supported by rock anchors or wire mesh if support is necessary to prevent the spalling of loose rock. O. Reg. 213/91, s. 232 (2).

- 233.** (1) A level area extending at least one metre from the upper edge of each wall of an excavation shall be kept clear of equipment, excavated soil, rock and construction material. O. Reg. 213/91, s. 233 (1).
- (2) The stability of a wall of an excavation shall be maintained where it may be affected by stockpiling excavated soil or rock or construction materials. O. Reg. 213/91, s. 233 (2).
- (3) No person shall operate a vehicle or other machine and no vehicle or other machine shall be located in such a way as to affect the stability of a wall of an excavation. O. Reg. 213/91, s. 233 (3).
- (4) If a person could fall into an excavation that is more than 2.0 metres deep, a barrier at least 1.0 metres high shall be provided at the top of every wall of the excavation that is not sloped as described in clauses 234 (2) (e), (f) and (g). O. Reg. 213/91, s. 233 (4).

### **SUPPORT SYSTEMS**

- 234.** (1) The walls of an excavation shall be supported by a support system that complies with sections 235, 236, 237, 238, 239 and 241. O. Reg. 213/91, s. 234 (1).
- (2) Subsection (1) does not apply with respect to an excavation,
- (a) that is less than 1.2 metres deep;
  - (b) that no worker is required to enter;
  - (c) that is not a trench and with respect to which no worker is required to be closer to a wall than the height of the wall;
  - (d) that is cut in sound and stable rock;
  - (e) made in Type 1 or Type 2 soil and whose walls are sloped to within 1.2 metres of its bottom with a slope having a minimum gradient of one horizontal to one vertical;
  - (f) made in Type 3 soil and whose walls are sloped from its bottom with a slope having a minimum gradient of one horizontal to one vertical;
  - (g) made in Type 4 soil and whose walls are sloped from its bottom with a slope having a minimum gradient of three horizontal to one vertical; or
  - (h) that is not a trench and is not made in Type 4 soil and with respect to which a professional engineer has given a written opinion that the walls of the excavation are sufficiently stable that no worker will be endangered if no support system is used. O. Reg. 213/91, s. 234 (2).
- (3) The opinion in clause (2) (h) shall include details of,
- (a) the specific project and the location thereon;
  - (b) any specific condition for which the opinion applies; and
  - (c) the frequency of inspections. O. Reg. 213/91, s. 234 (3).
- (4) The constructor shall keep on the project a copy of every opinion given by a professional engineer for the purpose of clause (2) (h) while the project is in progress. O. Reg. 213/91, s. 234 (4).
- (5) The professional engineer who gives an opinion described in clause (2) (h), or a competent worker designated by him or her, shall inspect the excavation to which the opinion relates as frequently as the opinion specifies. O. Reg. 213/91, s. 234 (5).
- 235.** (1) Subject to subsection (2), a support system shall consist of,
- (a) timbering and shoring that meets the requirements of subsection 238 (2), if no hydrostatic pressure is present in the soil, and if the width and depth of the excavation are equal to or less than the width and depth indicated in the Table to section 238;
  - (b) a prefabricated support system that complies with sections 236 and 237;
  - (c) a hydraulic support system that complies with sections 236 and 237; or
  - (d) an engineered support system that complies with section 236. O. Reg. 213/91, s. 235 (1).

- (2) Where the excavation is a trench and the depth exceeds six metres or the width exceeds 3.6 metres, the support system shall consist of an engineered support system designed for the specific location and project. O. Reg. 213/91, s. 235 (2); O. Reg. 631/94, s. 7.
- 236.** (1) Every prefabricated, hydraulic or engineered support system shall be designed by a professional engineer. O. Reg. 213/91, s. 236 (1).
- (2) Every prefabricated, hydraulic or engineered support system shall be constructed, installed, used and maintained in accordance with its design drawings and specifications. O. Reg. 213/91, s. 236 (2).
- (3) The design drawings and specifications for a prefabricated, hydraulic or an engineered support system,
- (a) shall indicate the size of the system and the type and grade of materials of which it is to be made;
  - (b) shall indicate the maximum depth and the types of soil for which it is designed;
  - (c) shall indicate the proper positioning of the system in the excavation, including the maximum allowable clearance between the walls of the support system and the walls of the excavation; and
  - (d) shall indicate how to install and remove the system.
- (4) In addition to the requirements of subsection (3), the design drawings and specifications for a hydraulic support system,
- (a) shall indicate the minimum working pressure required for the system; and
  - (b) shall require the use of a device to ensure the protection of workers if a loss of hydraulic pressure occurs in the system. O. Reg. 213/91, s. 236 (4).
- (5) Before a variation from the design drawings and specifications for a prefabricated, hydraulic or an engineered support system is permitted, the variation shall be approved in writing by a professional engineer. O. Reg. 213/91, s. 236 (5).
- (6) If the soil conditions on a project differ from those assumed by the professional engineer in designing a prefabricated, hydraulic or an engineered support system, a professional engineer shall modify the design drawings and specifications for the actual soil conditions or shall approve the support system for use in the actual soil conditions. O. Reg. 213/91, s. 236 (6).
- (7) The constructor shall keep the design drawings and specifications for a prefabricated, hydraulic or an engineered support system at a project while the system is on the project. O. Reg. 213/91, s. 236 (7).
- (8) The constructor shall file with the Project Manager two copies of the design drawings and specifications for an engineered support system before it is used on the project. O. Reg. 213/91, s. 236 (8); O. Reg. 145/00, s. 32.
- 237.** (1) Subject to subsection (2),
- (a) no prefabricated or hydraulic support system shall be used in type 4 soil;
  - (b) the space between the walls of a prefabricated support system and the walls of the excavation shall be restricted to the minimum clearance required for the forward progression of the support system; and
  - (c) the walls of a hydraulic support system shall touch the walls of the excavation. O. Reg. 631/94, s. 8.
- (2) A prefabricated or hydraulic support system may be used for repairing underground pipe breaks if the system,
- (a) meets the requirements of section 236;
  - (b) has four side walls;
  - (c) is designed for a maximum depth of 3.6 metres;
  - (d) is not used at a greater depth than 3.6 metres;
  - (e) is designed to resist all hydrostatic and earth pressures found in type 3 and type 4 soils;
  - (f) is installed so as to extend to the bottom of the excavation;

- (g) is installed so that the walls of the system touch the walls of the excavation; and
- (h) is not pulled forward after being installed in the excavation. O. Reg. 631/94, s. 8.

- (3) Before a support system is used as described in subsection (2), the constructor shall submit two copies of its design drawings and specifications UNOPS Health & Safety Officer.  
O. Reg. 631/94, s. 8.

**238. (1)** In this section,

“cleat” means a member of shoring that directly resists the downward movement of a wale or strut;

“o/c” means the maximum distance measured from the centre of one member of sheathing, wale or strut to the centre of the adjacent member of sheathing, wale or strut;

“post” means a vertical member of shoring that acts as a spacer between the wales;

“10 millimetres gap” means that the space between two adjacent members of sheathing is a maximum of ten millimetres. O. Reg. 213/91, s. 238 (1).

- (2) Timbering and shoring referred to in clause 235 (1) (a) for the walls of an excavation with a depth and located in a soil type described in Column 1 of the Table to this section shall meet the corresponding specifications set out in Columns 2 to 4 of the Table. O. Reg. 213/91, s. 238 (2).
- (3) Every piece of sheathing referred to in the Table to this section shall be made of sound Number 1 Grade spruce and,
  - (a) shall be placed against the side of the excavation so that it is vertical;
  - (b) shall be secured in place by wales; and
  - (c) shall be driven into the soil and firmly secured in place if the excavation is made in Type 3 or 4 soil. O. Reg. 213/91, s. 238 (3).
- (4) Every strut referred to in the Table to this section shall be made of sound number 1 structural grade spruce and,
  - (a) shall be placed in the excavation so that it is horizontal and at right angles to the wales;
  - (b) shall be cut to the proper length and held in place by at least two wedges driven between the strut and the wales; and
  - (c) shall be cleated with cleats that extend over the top of the strut and rest on the wales or that are attached securely to the wales by spikes or bolts. O. Reg. 213/91, s. 238 (4).
- (5) Every wale referred to in the Table to this section shall be made of sound number 1 structural grade spruce and,
  - (a) shall be placed in the excavation so that it is parallel to the bottom, or proposed bottom, of the excavation; and
  - (b) shall be supported by either cleats secured to the sheathing or posts set on the wale next below it or, if it is the lowest wale, on the bottom of the excavation.  
O. Reg. 213/91, s. 238 (5).



**TABLE**

**EXCAVATION SHORING AND TIMBERING (METRIC SIZES)**

Excavation Depth	Soil Type	Sheathing	Struts				Wales
			Width of Excavation at Strut Location		Strut Spacing		
			1.8m x 3.6m	Up to 1.8m	Vertical	Horizontal	
3.0m or less	1	50 mm x 200 mm at 1.2m o/c	200 mm x 200 mm	150 mm x 150 mm	1.2m	*2.4m	*200 mm x 200 mm
	2	50 mm x 200 mm at 1.2m o/c	200 mm x 200 mm	150 mm x 150 mm	1.2m	*2.4m	*200 mm x 200 mm
	3	50 mm x 200 mm at 10mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2m	2.4m	250 mm x 250 mm
	4	50 mm x 200 mm at 10mm gap	250 mm x 250 mm	200 mm x 200 mm	1.2m	2.4m	300 mm x 300 mm
Over 3.0m to 4.5m	1	50 mm x 200 mm at 10mm gap	200 mm x 200 mm	150 mm x 150 mm	1.2m	2.4m	200 mm x 200 mm
	2	50 mm x 200 mm at 10mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2m	2.4m	250 mm x 250 mm
	3	50 mm x 200 mm at 10mm gap	250 mm x 250 mm	250 mm x 250 mm	1.2m	2.4m	250 mm x 250 mm
Over 3.0m to 4.0m	4	50 mm x 200 mm at 10mm gap	300 mm x 300 mm	300 mm x 300 mm	1.2m	2.4m	300 mm x 300 mm
Over 4.5m to 6.0m	1	50 mm x 200 mm at 10mm gap	200 mm x 200 mm	200 mm x 200 mm	1.2m	2.4m	200 mm x 200 mm
	2	50 mm x 200 mm at 10mm gap	250 mm x 250 mm	250 mm x 250 mm	1.2m	2.4m	250 mm x 250 mm
	3	50 mm x 200 mm at 10mm gap	300 mm x 300 mm	300 mm x 300 mm	1.2m	2.4m	300 mm x 300 mm

\* Note: For excavations to 3 m deep in soil types 1 and 2, the wales can be omitted if the struts are used at 1.2 m horizontal spacings.

O. Reg. 213/91, s. 238, Table; O. Reg. 631/94, s. 9.

- 239.** (1) A support system for the walls of an excavation shall be installed,
- (a) progressively in an excavation in Type 1, 2 or 3 soil; and
  - (b) in advance of an excavation in Type 4 soil, if practicable. O. Reg. 213/91, s. 239 (1).
- (2) A support system for the walls of an excavation shall provide continuous support for it. O. Reg. 213/91, s. 239 (2).
- (3) No support system for the walls of an excavation shall be removed until immediately before the excavation is backfilled. O. Reg. 213/91, s. 239 (3).
- (4) A competent person shall supervise the removal of a support system for the walls of an excavation. O. Reg. 213/91, s. 239 (4).
- 240.** If a support system is used for the walls of an excavation, a ladder for access to or egress from the excavation shall be placed within the area protected by the support system. O. Reg. 213/91, s. 240.
- 241.** (1) A support system for the walls of an excavation shall extend at least 0.3 metres above the top of the excavation unless otherwise permitted or required by this section. O. Reg. 213/91, s. 241 (1).
- (2) If an excavation is located where there is vehicular or pedestrian traffic and if the excavation will be covered when work on or in it is not in progress, the support system for the walls of the excavation shall extend at least to the top of the excavation. O. Reg. 213/91, s. 241 (2).
- (3) If the upper portion of the walls of an excavation are sloped for the soil types as described in clauses 234 (2) (e), (f) and (g) and the lower portion of the walls are vertical or near vertical, the

walls shall be supported by a support system which extends at least 0.5 metres above the vertical walls. O. Reg. 213/91, s. 241 (3).

- 242.** (1) A metal trench-jack or trench-brace may be used in place of a timber strut,
- (a) if the allowable working load of the trench-jack or trench-brace is equal to or greater than that of the timber strut; and
  - (b) if the size of the replaced timber strut is shown on the trench-jack or trench-brace.  
O. Reg. 213/91, s. 242 (1).
- (2) The allowable working load of a metal trench-jack or trench-brace shall be determined by a professional engineer in accordance with good engineering practice and shall be legibly cast or stamped on the trench-jack or trench-brace. O. Reg. 213/91, s. 242 (2).
- (3) No metal trench-jack or trench-brace shall be extended beyond the length used to establish its maximum allowable working load. O. Reg. 213/91, s. 242 (3).
- (4) Every metal trench-jack or trench-brace, when it is used,
- (a) shall be placed against the wales in such a way that the load from the wales is applied axially to the trench-jack or trench-brace; and
  - (b) shall be adequately supported so that it does not move out of position.  
O. Reg. 213/91, s. 242 (4).

### **Supplement**

- 243.** The walls or shields of any support system shall be constructed of material adequate for the anticipated or potential loading;
- (1) Plywood pressboard, or similar manufactured materials shall not be used as walls or shields.
  - (2) Walls or shields shall not be modified such that they extend the area or height/width of the wall or shield.