

## Section – Q Jobs Requiring Procedures

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<b>PURPOSE</b>	<p>Due to their inherent hazards and to ensure compliance with legislation various jobs on-site will require procedures, permits and/or other documentation, drawings or specifications. These will include, however should not be limited to:</p> <ul style="list-style-type: none"><li>• Lock-out/ Zero Energy Requirements</li><li>• Confined Space Entry Requirements</li><li>• Hot Work Requirements</li><li>• Access to and Work on Roof Areas</li><li>• Scaffold, Platforms and Tower Crane Erection and Dismantling</li><li>• Designated Substances and Subject Waste Disposal</li><li>• Shoring of Trenches</li><li>• Rigging and Hoisting/ Structural Steel Erection</li><li>• Formwork and Falsework</li><li>• Helicopter Lifts</li></ul> <p>Provision of these procedures will be the responsibility of the Trade Contractor performing the job.</p>
<b>PROCEDURE</b>	<p>The <b>Project Manager</b> and/or <b>Site Superintendent</b> must ensure that the above procedures, drawings, or specifications are provided by the Trade Contractor during ORIENTATION OF TRADE CONTRACTORS (this is a requirement specified in the Trade Contractor Guidelines).</p> <p>Where drawings or specifications can not be provided until equipment or material arrives on-site the job should not commence until these have been provided to the Project Manager and/or the Superintendent.</p> <p>All procedures, drawings and specifications must be reviewed by the Project Manager, Site Superintendent and where deemed necessary the Health and Safety Consultant to ensure compliance with legislation and site policy.</p>
<b>DISTRIBUTION</b>	<p>The distribution of procedures, drawings and specifications is the responsibility of the Trade Contractor. The Trade Contractor must submit to the Project Health and Safety Administrator their site specific procedures as they relate to potentially hazardous work.</p>
<b>RECORDS</b>	<p>Copies of all procedures, drawings or specifications will be maintained on file by the Superintendent and forwarded the Project Manager and Divisional Health and Safety Manager upon completion of the project.</p>

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### LOCK-OUT/ ZERO ENERGY REQUIREMENTS

- A project specific procedure must be prepared by the subcontractor to ensure the health and safety of all workers affected by or required to lock-out, block-out, and/ or blank-off a potential source of energy or work with live electrical components.

#### **Definition:**

- "Energy Control" - means to neutralize all potential sources of energy or power in the equipment/ machinery to be worked on. No part of the equipment should be capable of inadvertent activation or movement, which may lead to personal injury. Removing a fuse, closing a valve or turning a switch is not an acceptable isolation from the energy source.

#### **Be Aware Of All Potential Energy Sources**

**Hydraulic  
Electrical  
Chemical**

**Pneumatic  
Gravitational  
Radioactive**

**Thermal  
Residual  
Refer to specs**

#### **Requirements (ref. Reg. 213/91 s.188/189)**

- It is the responsibility of the subcontractor and their supervisor to identify when and where the work may require the de-energization and isolation of an energy source. The supervisor must also identify how the sources of energy will be de-energized, brought to a zero energy state, locked out of service and tested.
- Written procedures for lock-out and energy control shall be submitted to the Site Superintendent and implemented prior to performing work in accordance with legislative requirements.
- When a job requiring potential exposure to an energy source such as hot tapping, work on live electrical conductors or circuits, x-ray testing of pipes, etc. procedures must be prepared/ reviewed by the Site Superintendent prior to work.
- The supervisor must ensure the workers have been oriented to the project, the hazards and the Energy Control Procedures to be followed. Proof of training must be kept available for review.
- Where the procedures are affected by the facilities or workers of the client, procedures will follow the requirements of and be approved by the client.
- **Padlocks and Danger Tags** - Where there is a danger of equipment being energized, the motor switch on all individual motor drives shall be locked in the open position. It shall be the responsibility of each subcontractor to maintain an adequate supply of safety locks. Each subcontractor employee affected shall affix his/her own lock and, in addition, a danger tag shall also be applied to the switch handle bearing: a brief description of the work being done; the subcontractor's name, worker's name, supervisor's name, date and emergency phone numbers. The tag and locks shall remain in place until the work has been completed. In the case where air, steam or liquid is the motivating power, the valves shall be locked in the closed position after the system has been bled and then tested to assure it is de-energized.
- Where a lock has been abandoned or must be removed due to an emergency, the Site Superintendent shall be notified and the subcontractor must follow an approved lock abandonment procedure.

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### **CONFINED SPACE ENTRY REQUIREMENTS**

- A project specific confined space entry procedure must be prepared by the subcontractor and submitted to the Site Superintendent at least forty eight (48) hours prior to a planned entry.

**Definition** (ref. OHSА, O. Reg. 213/91 s. 1, as amended by O. Reg. 628/05, s. 221.2):

- "Confined Space" means a fully or partially enclosed space,
  - that is not both designed and constructed for continuous human occupancy, and
  - in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

#### **Recognize Potential Confined Spaces:**

**Sewers  
Caissons  
Shafts**

**Tanks  
Vessels  
Vaults**

**Processes  
Pits/ Trenches  
etc.**

Requirements (ref. O. Reg. 628/05 s. 221.2 – 221.19):

- It is the responsibility of the Constructor to prepare co-ordination documents to ensure that that the duties imposed on employers by O. Reg. 628/05 s. 221.2 – 221.19 are performed in a way that protects the health and safety of all workers who perform work in a confined space or related work with respect to a confined space.
- Before a worker enters a confined space, the employer shall ensure that a written program is developed and maintained in accordance with O. Reg. 628/05 s. 221.2 – 221.19. The employers program must include:
  - a method for recognizing each confined space to which the program applies;
  - a method for assessing the hazards to which workers may be exposed;
  - a method for the development of one of more plans;
  - a method for the training of workers;
  - 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.
- The employer must provide a copy of the program to the Constructor.
- The Constructor must provide a copy of the program to the Joint Health and Safety Committee or Health and Safety Representative.
- All Trade Contractors who work in confined spaces must be fully aware of all legislative requirements.

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### **HOT WORK REQUIREMENTS**

Hot Work presents many hazards on a construction project. Not only do the risks of fire and explosion due to flammable gases, vapours, mists and dusts exist, there is also a potential for injury due to sparks and slag falling from above onto unsuspecting workers.

#### **Definition**

"Hot work is any work or process which produces higher temperature surfaces, flames, sparks, electrical discharges, flash or slag, etc."

Hot work is particularly hazardous when performed in locations where flammable or combustible materials are present.

#### **Requirements**

Hot work requirements will apply to designated areas only as determined by the Site Superintendent or client.

All cutting, welding and grinding equipment must conform to CSA and Fire Code requirements.

Where cutting or welding is to be done overhead, the Subcontractor shall have arranged for a fire watch with an approved fire extinguisher to be stationed below. Any cutting or welding done 1.5 metres (5 feet) above the floor must be roped off for 6 metres (20 feet) in all directions.

The subcontractor shall provide fireproof tarpaulins where it is necessary to cover equipment.

#### **BE AWARE OF CONDITIONS THAT MAY RESULT IN FIRES AND INJURIES**

- improper storage of flammables, combustibles and gases
- improper handling of flammables and gases
- welding, cutting and grinding near flammables and combustibles
- careless smoking
- failure to ground or bond while transferring flammable liquids
- damaged cylinders, hoses, torches, vehicles and tar kettles
- welding and cutting overhead without signage and fire watch
- lack of protective devices (fire blankets, extinguishers, standpipes)
- failure to clean up or purge systems of residual contaminants, etc.

It is the responsibility of the subcontractor to identify when, where, and how Hot Work is to be performed.

Procedures for performing of the Hot Work shall be provided in writing. When a request is made by a subcontractor supervisor to perform Hot Work they shall present their procedures to the Site Superintendent.

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### **ACCESS TO AND WORK ON ROOF AREAS**

The Occupational Health and Safety Act and Regulations for Construction Projects specify minimum requirements for fall prevention. Falls are the leading cause of injury and fatalities in construction.

The following requirements have been prepared to ensure the health and safety of workers on the project.

#### **Requirements**

The following requirements apply to all subcontractors, suppliers, inspectors and representatives of the owner who may require access to the roof area.

It is the responsibility of all subcontractors or other party requiring roof access to prepare a fall prevention plan that includes the precautions and emergency/ rescue plan for work on the roof. The subcontractor must identify why, when, where, and how their work is to be performed.

Procedures for the work, the method of fall arrest or travel restraint, barriers, signage and supervision must be provided. Procedures should also address such issues as work during inclement weather (wind, ice, snow, etc.)

The subcontractor must then ensure the workers have been oriented to the job, the hazards and the Roof Access Procedures to be followed.

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### **SCAFFOLD, PLATFORMS AND TOWER CRANE ERECTION AND DISMANTLING**

The Occupational Health and Safety Act and Regulations for Construction Projects specify minimum requirements for the erection and dismantling of scaffold and work performed where the hazard of falling may exist. The Project Safety Program has further defined these requirements as they apply to work on scaffold. Falls are the leading cause of injury and fatality in construction.

The following requirements have been prepared to ensure the health and safety of workers on the project.

#### **Requirements**

The following requirements apply to all subcontractors and suppliers who may erect or dismantle a scaffold, swingstages or a tower crane on the project.

It is the responsibility of the subcontractor requiring the use of scaffolding and/ or tower crane to identify when, where, and how their work is to be performed.

Procedures for the progress of work, method(s) of fall arrest, emergencies/ rescue and pre-use certification/ inspection activities must be provided.

Every scaffold and tower crane must be erected/ dismantled and inspected by competent person(s). Proof of training or competency must be available and provided when requested.

Based on the completion of an inspection tag, permit and report and the provision of the applicable Engineering Drawings, where required, work may commence.

All scaffolds must be tagged. Scaffolds which have been authorized for use by the subcontractor or competent person will have a green tag affixed. Partially erected/ dismantled scaffolds or deficient scaffolds must have a red tag affixed.

The subcontractor must then ensure their workers are oriented to the project, the hazards and the procedures to be followed.

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### **DESIGNATED SUBSTANCES AND SUBJECT WASTE DISPOSAL**

The Occupational Health and Safety Act, Designated Substance Regulations, WHMIS Regulations and Material Safety Data Sheets specify minimum requirements for use, handling, storage, handling and disposal of hazardous and designated substances. The Environmental Protection Act also specifies the requirements for clean-up and disposal of subject waste.

The following requirements have been prepared to ensure compliance with the above legislation and the health and safety of workers and the environment. Any hazardous material present on-site must be identified to the Site Superintendent so that the appropriate control measures may be reviewed.

#### **Definition**

Designated Substance as defined in the Occupational Health and Safety Act “means a biological, chemical or physical agent or combination thereof prescribed as a designated substance to which the exposure of a worker is prohibited, regulated, restricted, limited or controlled;” These include; Acrylonitrile, Arsenic, Asbestos, Benzene, Coke Oven Emissions, Ethylene Oxide, Isocyanates, Lead Mercury, Silica and Vinyl Chloride.

Asbestos is the only designated substance regulated in construction. Safe handling, use, storage and disposal procedures are required as good management practices (general duty of due diligence) for all designated, other hazardous/ controlled (WHMIS, TDG) and waste materials.

#### **Requirements**

It is the responsibility of the project owner to identify to the constructor and in turn the constructor to the subcontractors where designated substances will be present. In these cases a control or removal program will be established and subcontractors will be made aware of work activities, control measures and reporting requirements.

For all other hazardous waste materials generated through production, applications or to be removed from the project, the subcontractor must identify when and where these materials will be present and how they will be removed, transported and disposed of.

These procedures must be in writing and provided during the Subcontractor Orientation to the project, prior to work being performed.

The subcontractor must then ensure their workers are oriented to the project, the hazards and the procedures to be followed.

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### **SHORING OF TRENCHES (EXCAVATIONS)**

The Occupational Health and Safety Act and Regulations for Construction Projects specify minimum requirements for the design and installation of support systems in trenches (excavations). (Regulation 213/91, sec. 222- 241).

The following standards have been prepared to ensure the health and safety of all workers affected by or required to work in, or near excavations.

#### **Definitions**

**Excavation** is a man made cavity or depression in the ground, formed by the removal of earth. (e.g. trenches, tunnels shafts, deep foundations, or open excavations).

**Trench** is an excavation in the ground in which its depth is greater than its width (measured at the bottom).

**Engineered** 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.

#### **(Systems)**

**Hydraulic** means a system capable of being moved as a unit, designed to resist the earth's pressure from the walls of the excavation by applying a hydraulic counter pressure through the struts.

**Pressure** in relation to the 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.

**Shoring** is a construction procedure used solely to maintain the wall stability in an excavation. Shoring is used for the protection of any workers who may be required to enter the excavation.

**Trench** is an excavation in the ground in which its depth is greater than its width (measured at the bottom).

**Trench Box** is a unit which is capable of protecting workers in case of cave-in of trench walls. Trench boxes must be capable of supporting trench walls granted the space between the trench wall and the box must be backfilled.

**Surcharge** excessive load or weight which can affect trench stability.

#### **Soil Types [section 226 Reg. 213/91]**

**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 a high degree of internal strength;
- (c) has no signs of water seepage; and
- (d) can be excavated only by mechanical equipment.



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**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.

**Type 3 Soil** (a) is stiff to firm and compact and loose in consistency or is previously excavated soil;  
(b) exhibits signs of surface cracking;  
(c) exhibits signs of water seepage;  
(d) if it is dry, may run into a well defined conical pile; and  
(e) has a low degree of internal strength.

**Type 4 Soil** (a) is soft to very soft and 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.

### Requirements

There are many hazards associated with trenching. The following is a listing of some of the more typical hazards present; prior to, during and after excavating.

**Soil Conditions** - supervisors and workers must understand that different types of soil conditions can influence the stability of the trench walls. The following is a listing of soil conditions which must be assessed prior to excavating and/or working in and around trenches;

- soil type
- soil properties from the top to bottom and along the length of the excavation
- water, vibration, cracks, surcharge, exposure to the weather
- trenches left open
- previously excavated soil
- moisture content in the soil

Soil conditions dictate the measures and procedures for trenching. The types of support systems for trenches will relate directly to the soil conditions, the required depth of the trench and whether workers are required to enter the trench.

The three means for supporting trench walls other than solid rock are sloping, shoring and trench boxes. Trenches must be made safe prior to workers' entry whenever the following conditions are true:

- the trench is deeper than 1.2 metres (4') (even if the trench is not 4' deep, the potential for a cave-in exists, and precautions must be taken to make it safe)
- a worker is required to enter the trench
- a worker is required to be closer to a wall than the height of the wall
- if an excavation may affect the stability of an adjacent building or structure, precautions must be taken to prevent damage to the structure. The precautions shall be specified in writing by a professional engineer.

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### Acceptable Sloping Methods (for excavations not requiring support systems)

An excavation made in Type 1 or Type 2 soil shall have walls sloped to within 1.2 meters of its bottom with a slope having a minimum gradient of one horizontal to one vertical.

An excavation made in Type 3 soil shall have walls sloped from its bottom with a slope having a minimum gradient of one horizontal to one vertical.

An excavation made in Type 4 soil shall have walls sloped from its bottom with a slope having a minimum gradient of three horizontal to one vertical.

An excavation made in soil of more than one type shall be classified as the type with the highest number, as described in section 226 of the OHSA and Regulations, among the types present and shall have its walls sloped accordingly.

### Shoring

Shoring is a means of supporting trench walls and prevent the movement of soil, foundations, underground utilities and roadways. The two most commonly means of shoring are timber and hydraulic. These two methods are described and well illustrated in Appendix A [Trenching Safety - Construction Safety Association].

The minimum requirements for shoring are included in Appendix B [Excavation Shoring And Timbering (metric Sizes)- Regulation 213/91]

Support systems for the walls of excavations must be installed as follows;

- progressively in an excavation of Type 1, 2 or 3 soil and;
- in advance on an excavation in Type 4 soil (if practicable)

These support systems must provide continuous support.

Removal Of support systems shall only be done;

- immediately prior to the excavation being backfilled
- under the supervision of a competent person

### Trench Boxes

Trench boxes are used to protect workers from the possibility of cave-ins, however, are not intended to support the walls of a trench. Boxes are placed into trenches which have not been shored-up. As with shoring systems, after the placement of the trench box and prior to workers entering the trench box, the space between the box and the trench wall must be backfilled.

Trench boxes must be designed to ensure that they are able to withstand any lateral forces that they may be subjected to. These boxes should be designed by a professional engineer, with a signed letter stating the conditions for the trench boxes' intended use.

**Vibration** - can affect the stability of trench walls. Vibration will often emanate from sources such as equipment, vehicular/pedestrian traffic and or other nearby operations such as blasting, pile driving, earth moving and compacting. All workers must be aware of the effects and dangers associated with vibration and ensure that appropriate precautions are taken to ensure that vibration does not affect the walls of trenches.

**Conditions at the top of the trench** - sources of surcharge must be identified and appropriately placed at the top of the trench to ensure that the walls of the trench are not adversely affected. [e.g. ensure that equipment, machinery and excavated soil is placed back as

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far as possible from the edge of the trench (minimum of 1 metre from the edge of the walls). Furthermore, workers must also remain back as far as possible from the edge of the trench walls].

Equipment, materials and tools must always be placed a safe distance back from the top of the excavation walls, to ensure that they are not accidentally knocked into the trench possibly hitting a worker in the trench.

**Utilities** - hidden and/or visible utilities pose many potential hazards to those excavating and/or entering trenches, therefore, appropriate precautions must be taken prior to digging. Making contact with utilities can possibly affect the stability of the trench, cause an explosion upon contact, create an explosive/toxic environment in the trench, and/or pose an electrocution hazard.

**Underground Utilities** - such as gas, electrical, water and telephone must be located prior to digging. Utility companies will locate and mark their underground services free of charge.

**Overhead Power Lines** - special precautions must be taken in and around overhead power lines to avoid contact and/or encroaching on the minimum allowable distances as outlined in Regulation 213/91 Section 186 (see below). Never assume power lines are de-energized.

<b>nominal phase-to phase voltage rating minimum distance</b>	
750 to 150, 000 volts	3 metres
more than 150,000 to 250,000 volts	4.5 metres
more than 250,000	6 metres

**Loose Rocks** - precautions must be taken to ensure that loose rocks or other materials that may slide roll or fall onto a worker, are stripped.

**Barriers** - must be placed around excavation/ trench walls more than 2.4 metres deep which a person could fall into and which are not sloped in accordance with legislated requirements. The barrier must be at least 1.1 metres high.

**Confined Spaces** - may exist in trenches if the trench has limited access/egress and/or where the atmosphere may pose a hazard to the worker (toxic, oxygen deficient or explosive atmosphere). Special precautions must be taken to ensure that entry into confined spaces is done in accordance with company policies.

**Surrounding Foundations** - may become a source of a potential hazard if they are near trench walls and/or if they are in the failure zone. In this type of circumstance, you may usually consider the soil to be Type 3 soil and therefore, should take the appropriate precautions.

**Access/ Egress** - a properly secured ladder should always be used to gain access to or egress from a trench. Always maintain three point contact and follow proper ladder safety precautions as outlined in our Employee Guidelines.

**Housekeeping** - maintaining good housekeeping practices in the trench and above trenches will reduce many slip and trip hazards.

**Traffic** - vehicle and pedestrian traffic (construction and/or public) may pose a hazard, to the trenching operation. Precautions must be taken to ensure the safety of traffic around trenches. This may include the use of traffic barriers, signal persons and signs.

All workers must be made aware of the above noted common hazards associated with work in and around trenches and follow established safe work procedures.

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### Safe Trenching Guidelines

Assess the site conditions:

- contact all applicable local utilities and ensure that they locate and mark all existing and old underground utilities
- determine the type of soil and when required have a professional engineer determine the soil type (obtain written description of the soil type for the area of the trench)
- determine the safest means for making the trench safe (sloping of walls/shoring of walls or use of trench boxes). This will be done, based on the type of soil and the location of the work area (e.g. overhead electrical conductors, adjacent structures, etc.)
- never enter a trench or excavation which is not adequately sloped or otherwise protected!

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### HOISTING AND RIGGING

The Occupational Health and Safety Act and Regulations for Construction Projects specify minimum requirements for hoisting and rigging. (Regulation 213/91, sec. 150 - 156, 168 - 180).

The following standards have been prepared to ensure the health and safety of all workers affected by or required to work with or near hoisting and rigging operations.

#### Definition

**Hoisting** is the action that occurs when a load is raised or lowered either by manual or mechanical means.

**Rigging** is the means of attaching a load to a hoisting device by means of either a combination of ropes, chains, slings, hooks, etc.

#### Requirements

Everyone involved with a rigging and hoisting operation has specific responsibilities. Accountability must start from the employer through to the worker.

The employer is responsible for:

- developing and implementing a safe hoisting and rigging procedure
- training all personnel
- appointing competent supervision
- utilizing competent operators, and
- ensuring that all material, hoisting and rigging equipment is in good repair and properly load rated

The supervisors/foremen are responsible for:

- overall supervision of the hoisting and rigging crew
- ensuring that the materials and equipment are properly rated and in good repair
- appointing a competent and trained signalperson
- ensuring that proper procedures are followed, and
- ensuring the overall safety of the hoisting/ rigging crew and other personnel

The worker is responsible for:

- inspecting equipment and materials for damage
- reporting all deficiencies to their supervisor
- following the approved hoisting/ rigging procedures
- wearing all necessary PPE pertaining to the task
- only performing tasks when proper training has been provided (e.g. signaling, rigging, etc.)

#### Hoisting and Rigging Guidelines

Determining the weight of all loads is the single most important hoisting and rigging precaution, however other factors must be addressed during hoisting and rigging operations:

- never exceed the safe working load of the equipment, hardware, and gear being used
- examine all equipment, hardware, and gear before each use. Destroy all damaged goods immediately
- report all unsafe conditions, material, equipment, etc. immediately to your supervisor
- take weather conditions into account before attempting any hoisting and rigging operations

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- make sure all signals are understood and communicated clearly and concisely
- be aware of all overhead power lines. Minimum safe distances are:

**nominal phase-to phase voltage rating minimum distance**

750 to 150, 000 volts	3 metres
more than 150,000 to 250,000 volts	4.5 metres
more than 250,000	6 metres

- do not pass raised loads over other workers
- hoisting equipment shall be operated only by competent, authorized operators
- full visibility must be obtained by the operator of the hoisting equipment at all times
- operators shall not attempt to raise a load that is in excess of the maximum rated load
- hoisting of personnel on cranes, machinery, or mechanized equipment is prohibited except when:
  - conventional access equipment cannot be used and
  - the platform that the worker(s) is on is designed by an engineer and meets all the requirements of applicable legislation
- barriers, warning signs and/ or ground spotters shall be utilized when loads are being raised
- operators shall not leave any raised load unattended
- all equipment logs, documentation, and mechanical certifications shall be made available at all times
- daily pre-operational checks using a checklist should be followed
- avoid sharp bends, pinching, and kinks in cables, slings, ropes, chains, etc.
- do not use a hook unless it has a safety catch that is operational
- always attach the load to the hook of the crane and not to the rope or ball
- ensure that all outriggers of the hoisting equipment are on a solid surface
- ensure that the hoisting equipment is level after the outriggers are engaged
- the operator shall be in possession of a written Record of Training at all times when operating hoisting equipment
- the owner of a crane or a similar hoisting device shall keep a permanent record of all inspections, tests, and modifications to each unit
- a crane or a similar hoisting device shall be set up, assembled, extended, and dismantled only by a competent worker

Where the procedures of the subcontractor are affected by another subcontractor or the owner, the Site Superintendent will coordinate the procedures to be used by all parties.

The subcontractor supervisor must ensure their workers have been oriented to the project, the hazards, and the Hoisting and Rigging Procedures to be followed. Proof of training of meeting must be available.

All inspection reports maintained on file by the foreman, will be forwarded to head office upon completion of the project. These records will be maintained on file for a period of 5 years.

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### **FORMS/ FORMWORK/ FALSEWORK**

The Occupational Health and Safety Act and Regulations for Construction Projects specify minimum requirements for the design and installation of forms, formwork and falsework. (Regulation 213/91, sec. 87 - 92).

The following standards have been prepared to ensure the health and safety of all workers affected by or required to work in, on, or near forms, formwork and/ or falsework.

### **Definition**

**Forms** means the moulds into which concrete or another material is to be placed.

**Formwork** means a system of forms connected together.

**Falsework** in relation to a form or structure, means the structural support and bracing used to support all or part of the form or structure.

There are three stages involved with formwork operations:

1. assembly and erection
2. concrete placement
3. stripping and dismantling

Each of these jobs require proper planning at each phase and must be constantly monitored as weather and other variations may affect the original design.

Other factors that must be considered when working with forms/ formwork/ falsework are workplatforms, fall arrest systems, seasonal weather factors, etc.

### **Requirements**

All forms/ formwork/ falsework must be installed according to the engineer's drawings. Inspections will be conducted by a professional engineer or a by a competent person designated in writing by a professional engineer. This must be done prior to the placement of concrete.

The person conducting the inspection will use the form found on the following page to state in writing that the forms/ formwork/ falsework is installed or erected according to the design drawings.

A copy of these inspections will be maintained by the foreman on site and provided to the constructor prior to the placement of concrete.

Where the procedures of the subcontractor are affected by another subcontractor or the owner, the Site Superintendent will coordinate the procedures to be used by all parties.

The subcontractor supervisor must ensure their workers have been oriented to the project, the hazards, and the Forms/ Formwork/ Falsework Procedures to be followed. Proof of training or meeting must be available.

All inspection reports maintained on file by the foreman, will be forwarded to head office upon completion of the project. These records will be maintained on file for a period of 5 years.

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FORMS/ FORMWORK/ FALSEWORK INSPECTION FORM	
Project : _____	Constructor : _____
Date: _____	Time : _____
Subcontractor: _____	Supervisor : _____

DETAILS OF INSPECTION
(False work)
(Formwork)

Engineer/ Competent Person: \_\_\_\_\_



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### HELICOPTER LIFTS

Two weeks prior to any helicopter lift, a written action plan and flight plan shall be submitted to the Site Superintendent. A meeting shall be held one week prior to review the protective equipment or special apparatus unique to the lift that shall be provided by the subcontractor. Helicopter lifting operations shall comply with all Federal, Provincial and Local Regulations.

Constructor: \_\_\_\_\_  
 Site Superintendent: \_\_\_\_\_  
 Subcontractor in charge: \_\_\_\_\_  
 Supervisor in charge: \_\_\_\_\_  
 Helicopter Operators: \_\_\_\_\_  
 Supervisor in charge: \_\_\_\_\_  
 Lift date/time: \_\_\_\_\_  
 Alternate date/time: \_\_\_\_\_

Required Action	Action by	In Progress (date)	Completed (date)	n/a
<b>1. Notifications</b> Ontario Ministry of Labour _____ Ph _____ O.P.P. _____ ph _____ Fire Department _____ ph _____ Police Department _____ ph _____ Town/City of _____ ph _____ Security _____ ph _____ Adjacent Subcontractors _____ _____				
<b>2. Approvals (attach)</b> Transport Canada approval _____ flight path approved by _____ landing area approved by _____ refueling area approved by _____ refueling fire safety approved by _____ letdown area approved by _____ Insurance, WSIB approvals by _____ Filming, video approval by _____				

## Section – Q Jobs Requiring Procedures

<p>3. List of all authorized people involved with the lifts and locations during lifts (attach)</p>				
<p>4. <b>Security Tour (one week prior)</b>  Identify controlled areas  Fire/ Security initial walkthrough  Identify people to inspect areas prior to lift  <b>Security (Pre-flight)</b>  Pre-flight inspection completed  Roadways and other access signed/ secured  Doors (affected plants) locked and signed  Authorized personnel only in lift area</p>				
<p>5. <b>Safety Tour (one week prior)</b>  Loads identified, weighed and sequenced  Rigging designed and approved by engineer  Work areas, workplatforms, ladders and fall arrest set-up and inspected by competent person (designed by P. Eng where req'd)  Identify hazards, light materials and general conditions  Personal protective equipment determined and purchased  <b>Safety (preflight meeting)</b>  Ground crew, Connecting crew and Flight crew radios set to channel _____  Safety and Security radios set to channel _____  Flight crew preflight inspections of roof areas and landing areas  Flight crew preflight inspection of rigging components  Emergency procedures identified</p>				

NOTE: This form and all attachments must be completed by the subcontractor in charge of the lift and reviewed with all parties involved with the lift