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<p>Submitted: Risk Management Support Group</p>	<p>Approved:  Vice-President, Administration</p>	<p>Authorized:  President and Vice-Chancellor</p>

## 1 PURPOSE


- 1.1 To provide for the safe use and maintenance of scaffolds, suspended scaffolds and powered elevating work platforms.
- 1.2 To ensure compliance with the Occupational Health and Safety Act.

## 2 SCOPE

- 2.1 All individuals (staff, contractors and students) who are required to work on scaffolds, suspended scaffolds or powered elevating platforms.


## 3 RELATED DOCUMENTS

- 3.1 Occupational Health and Safety Act and O. Reg.851, R.R.O. 1990, Industrial Establishments, and O. Reg. 213 / 91, Construction Projects. (See Appendix A).
- 3.2 Canadian Standards Association, S269.2-M87: Access Scaffolding for Construction Projects.
- 3.3 Canadian Standards Association, Z271-98 (R2004): Safety Code for Suspended Elevating Platforms.
- 3.4 National Standards of Canada CAN-B354.1-M82 for Elevating Rolling -Work Platforms.
- 3.5 National Standards of Canada CAW/CSA-B354.1-04 & CAN3-B354.3-M82 for Self-Propelled Elevating work Platforms.
- 3.6 National Standards of Canada CAN3-B354.4-M82 for Boom-Type Elevating Work Platforms.
- 3.7 National Standards of Canada CAN/CSA-C275-00 for Vehicle-Mounted Aerial Devices
- 3.8 RMM #100, Health and Safety Program.
- 3.9 RMM #314, Fall From Heights Protection Program
- 3.10 RMM #300, Safety Orientation and Training Program.
- 3.11 RMM #301, Standard Operating Procedures (SOP's) Program.
- 3.12 RMM #313, Head Protection Program.
- 3.13 RMM #312, Foot Protection Program.
- 3.14 RMM #304, Working Alone Program.
- 3.15 RMM #111, Contracting out Work Safety Program / Due Diligence Program.

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#### 4 DEFINITIONS

- 4.1 **Approved Scaffold** – A temporary structure for work above grade that has been approved as meeting all OHSA regulations and the above noted CSA standards.
- 4.2 **Approved Suspended Scaffold**- A working platform suspended by ropes or other means from an overhead structure that been approved as meeting all OHSA regulations and the above noted CSA standards.
- 4.3 **Authorized Workers** – Individuals who has been trained and certified as being competent to work safely on a specific task involving the use of scaffolds, suspended scaffolds or powered elevated platforms.
- 4.4 **Competent Person (OHSA)** – 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 Act and the regulations that apply to the work, and
  - (c) has knowledge of any potential or actual danger to health or safety in the workplace.
- 4.5 **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.
- 4.6 **Powered Elevating Platform** – A working platform attached to a hydraulically or pneumatically powered boom or mast that has been approved as meeting all OHSA regulations and the above noted CSA standards.
- 4.7 **Employer**- 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 the owner, constructor, contractor or subcontractor, to perform work or supply services.
- 4.8 **Ensure** – take every reasonable precaution to achieve the stated objective.
- 4.9 **Supervisor** – person who has charge of a workplace or authority over a worker.
- 4.10 **Worker** – A worker is a person who performs work or supplies services for monetary compensation.
- 4.11 **Acronyms**
- JHSC** – Joint Health and Safety Committee
  - CJHSC** – Central Joint Health and Safety Committee
  - EOHSS** – Environmental and Occupational Health Support Services
  - MOL** – Ministry of Labour
  - OHSA** - Occupational Health and Safety Act
  - RMSG** – Risk Management Support Group
  - SOP** – Standard Operating Procedure

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## 5 RESPONSIBILITIES

### 5.1 Role of Senior Managers (Directors / Deans / Chairs / Department Managers):

Senior Managers shall:

- provide the resources and direction necessary to support and maintain an effective Scaffolds / Suspended Scaffolds and Powered Elevated Work Platforms Safety Program.

### 5.2 Facilities Services/Other Departments Issuing Contracts for Construction Projects and/or Facilities and Equipment Repairs

Facility Services or other departments issuing contracts shall:

- ensure that the requirements outlined in the RRM #307 Scaffolds / Suspended Scaffolds and Powered Elevated Work Platforms Safety Program and other relevant policies and programs defined in the McMaster University Risk Management Manual are complied with;
- ensure that contractors and subcontractors demonstrate by documentation their ability to manage projects in compliance with McMaster University Health and Safety Policy and Risk Management Programs and the OHSA and related regulations under O. Reg. 851 RRO. 1990 and O. Reg. 213 / 91 and RRM #111 prior to being awarded a contract on University property; and
- ensure that regular inspections and safety audits are conducted on all project sites.

### 5.3 Contractors:


Contractors and Sub-contractors shall:

- ensure that all of the conditions outlined in the RRM #307- Scaffolds / Suspended Scaffolds and Powered Elevated Work Platforms Safety Program, and the McMaster Health and Safety Policy, and other relevant programs defined in the McMaster University Risk Management Manual are strictly enforced while working on McMaster University property;
- ensure that all related requirements under OHSA and O. Reg. 851 RRO. 1990 and O. Reg. 213 / 91 Construction Projects as noted in Appendix A are strictly enforced while working on McMaster University property; and
- ensure that only competent workers are assigned to the project.

### 5.4 Role of Supervisors:

Supervisors shall:

- be trained and authorized to supervise work involving the use of scaffolds, suspended scaffolds and powered elevated platforms;
- provide an SOP as required for all work involving the use of scaffolds, suspended scaffolds and powered elevated platforms;
- ensure that all of the conditions outlined in the RRM #307 Scaffolds / Suspended Scaffolds and Powered Elevated Platforms Safety Program and all regulations under

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the OHSA and O. Reg. 213 / 91, Construction Projects as noted in Appendix A are strictly enforced;

- ensure that all workers assigned to work on scaffolds, suspended scaffolds and powered elevated platforms are trained and deemed to be competent in the safe use, care and maintenance of the specific equipment being used;
- ensure that the erection and dismantling of a scaffold is carried out under the direct supervision of a competent person;
- ensure that fall protection is provided and used as prescribed under the regulations noted in Appendix A;
- provide and post at the job site an emergency rescue plan for all work on scaffolds that requires workers to use a fall arrest system (See Example Appendix B.);
- ensure that the requirements, for scaffolds and suspended scaffolds to be professionally engineered and inspected by that engineer, are complied with (See Appendix A);
- implement and maintain a preventative maintenance program in accordance with manufacturer's recommendations for all scaffolds, suspended scaffolds and powered elevated platforms; and
- inform the appropriate RMSG office in advance of the proposed use of scaffolds over 10 metres in height and the proposed use of suspended scaffolds (See Appendix D Metric Conversion Table).

### 5.5 **Role of Authorized Worker**


Authorized Workers shall:

- participate in the development of the SOP for all work involving the use of scaffolds, suspended scaffolds and powered elevated platforms;
- follow the safety procedures outlined in the SOP and observe the regulatory requirements noted in Appendix A;
- inspect the equipment daily and report all deficiencies to their immediate supervisor; and
- report all incidents involving personal injury or property damage to their immediate supervisor and fill out an injury / incident Report.

### 5.6 **Role of EOHSS/FHSc**

EOHSS/FHSc shall:

- provide advice regarding the development of SOPs for work involving the use of scaffolds, suspended scaffolds and powered elevated platforms; and
- conduct periodic audits of the effectiveness of RRM #307- Scaffolds/Suspended Scaffolds and Powered Elevating Platforms Safety Program and update the program as necessary.

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### 5.7 **Role of the Joint Health and Safety Committee**

The JHSC shall:

- review SOP's related to RRM #307- Scaffolds/Suspended Scaffolds and Powered Elevating Platforms Safety Program; and
- assess the effectiveness of the program as part of the safety inspection process.

### 5.8 **Role of the Central Joint Health and Safety Committee**

The CJHSC shall:

- Review and make comment on RRM #307- Scaffolds/Suspended Scaffolds and Powered Elevating Platforms Safety Program on a regular basis.


## 6 **PROCEDURES**

### 6.1 **Approval of Work Involving the use of Scaffolds / Suspended Scaffolds and Powered Elevating Platforms**

- 6.1.1 All work procedures involving the use of scaffolds, suspended scaffolds or powered elevated work platforms shall be drafted in compliance with the OHSA and the regulatory procedures outlined in **Appendix A** and reviewed by the appropriate JHSC;
- 6.1.2 The appropriate RMSG office will be consulted prior to the use of scaffolds more than 10 metres in height or suspended scaffolds;
- 6.1.3 When scaffold heights exceed 15 metres (10 metres for a tube and clamp system), the site specific scaffolding must be approved by a professional engineer, erected according to the design, inspected by that engineer, and approved in writing by that engineer; and
- 6.1.4 Suspended scaffolds that consist of more than one platform or weigh more than 525 kg must, before they can be used, be designed by a professional engineer, erected in according to the design, inspected by that engineer and approved in writing by that engineer.

### 6.2 **Work Procedures**

- 6.2.1 The regulatory procedures for work involving the use of scaffolds, suspended scaffolds or powered elevated work platforms as outlined in **Appendix A** shall be deemed to be minimum standards of protection for work involving such equipment;
- 6.2.2 An SOP must be written for all work involving the use of scaffolds, suspended scaffolds or powered elevated work platforms;
- 6.2.3 The erection of, alteration, and dismantling of scaffolds will be carried out under the direction of a competent person;
- 6.2.4 Before scaffolding is erected an assessment of ground surface conditions, overhead electrical wires and obstructions, secure tie-in and outrigger locations and the potential for wind loading shall be performed;

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- 6.2.5 Only trained and certified workers will work on scaffolds, suspended scaffolds or powered elevated work platforms;
- 6.2.6 Prior to being used scaffolds and powered elevated platforms shall be inspected for safety by an authorized supervisor and / or authorized worker;
- 6.2.7 Special purpose ladders and work platforms shall be used in accordance with the manufacturer's directions and only for the intended application;
- 6.2.8 Fall protection shall be provided and used when scaffolding is being erected and dismantled. (See RMM # 314 Fall from Heights Protection Program);
- 6.2.9 Workers on scaffolds that are more than one tier in height, that have no guard rails, shall tie off with safety harness and shock-absorbing lanyards to secure anchor points (See RMM #314 Fall from Heights Protection Program); and
- 6.2.10 Workers on powered elevated work platforms shall wear securely anchored fall protection and other personal protective equipment appropriate for the assigned work (See RMM #314 Fall from Heights Protection Program).

### 6.3 **Emergency Procedures**


- 6.3.1 A two-way communications system will be provided for all work involving suspended scaffold; and
- 6.3.2 An emergency rescue procedure must be written and posted at the site of all projects that require the use of fall arrest equipment for work on scaffolds.

### 6.4 **Preventative Maintenance**

- 6.4.1 Preventative maintenance programs shall be established and maintained in accordance with the manufacture's recommendations for all McMaster University-owned scaffolds and powered elevating work platforms.

### 6.5 **Training**


- 6.5.1 All McMaster University supervisors and staff who are involved with work involving the use of scaffolds, suspended scaffolds or powered elevated work platforms, shall undertake and successfully complete an approved training course that includes but shall not be limited to the following:
  - (i) the requirements of RMM #307- Scaffolds / Suspended Scaffold and Powered Elevated Platforms Safety Program;
  - (ii) the regulatory procedures for work involving the use of scaffolds, suspended scaffolds or powered elevated work platforms as outlined in **Appendix A**;
  - (iii) hands- on training on the use, inspection, care and maintenance of scaffolds, suspended scaffolds or powered elevated work platforms safe use and care of fall arrest equipment; and
  - (iv) emergency procedures.

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6.5.2 Such training to be provided by the Facilities Services and EOHSS.

## 7 RECORDS

7.1 Preventative maintenance and safety training records for work with University owned scaffolds, suspended scaffolds or powered elevated work platforms shall be maintained, by, while owned by, the operating department and thereafter for a period of three years.


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Appendix A.


(Note Appendix C Metric Conversion Table)

**Requirements of O Reg. 851, Industrial Establishments, Sections 51 (2), (3), 52, 54, 56-60**

51. (2) A lifting device shall be operated,
- (a) only by,
    - (i) a competent person, or
    - (ii) a worker being instructed who is accompanied by a competent person; and
  - (b) in such a way that,
    - (i) no part of the load passes over any worker,
    - (ii) where a worker may be endangered by the rotation or uncontrolled motion of a load, one or more guide ropes is used to prevent rotation or other uncontrolled motion, and
    - (iii) subject to subsection (3), when its load is in a raised position the controls are attended by an operator.
- (3) Subclause (2) (b) (iii) does not apply to,
- (a) a hydraulic hoist that supports the load from below and is fixed in one location; and
  - (b) an assembly line hoist temporarily unattended during a stoppage of the assembly line.
- (4) Hoisting controls operated from other than a cab or cage shall,
- (a) be located so that they can be operated at a safe distance from a load being lifted; and
  - (b) automatically return to their neutral position when released.
- (5) Where a lifting device is equipped with limit switches, the switches shall,
- (a) automatically cut off the power and apply the brake; and
  - (b) not be used as an operating control unless designed for such use, in which case a second limit switch shall be located behind the control limit switch.
- R.R.O. 1990, Reg. 851, s. 51.
52. A crane, lift truck or similar equipment shall be used to support, raise or lower a worker only when,
- (a) the worker is on a platform,
    - (i) equipped with adequate safety devices that will automatically prevent the platform and load from falling if the platform's normal support fails,
    - (ii) suspended from a boom that does not move, and the person is attached to a separate lifeline suspended from the boom or a fixed support capable of supporting at least four times the weight of the worker, or

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- (iii) attached to a mast, or boom which,
      - (A) is hydraulically or pneumatically operated, and
      - (B) is equipped with a safety device that will prevent free fall of the platform in the event of a pressure line failure;
    - (b) where the equipment is not designed for the specific purpose of hoisting personnel, the load applied to the crane, lift truck or similar equipment is less than one half the maximum rated load;
    - (c) the platform has a sign indicating the load described in clause (b);
    - (d) where controls are provided at more than one location,
      - (i) each control station is provided with means whereby the operator can shut off power to the equipment, and
      - (ii) interlocks have been provided so that only one station can be operative at any time; and
    - (e) except when the controls are operated from the platform, the controls are attended and operated by another worker. R.R.O. 1990, Reg. 851, s. 52.
- 54. (1) Mobile equipment shall,
  - (a) when lighting conditions are such that its operation may be hazardous, have head lights and tail lights that provide adequate illumination;
  - (b) when exposed to the hazard of falling material, have a scene or canopy guard adequate to protect the operator;
  - (c) be used to transport a person, other than the operator, only when that worker is seated in a permanently installed seat; and
  - (d) subject to Section 51 subsection (2), be operated only by a competent person.
- 56. Where the operator of a vehicle, mobile equipment, crane or similar material handling equipment does not have a full view of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment or its load, the vehicle, mobile equipment, crane or similar material handling equipment shall only be operated as directed by a signaler who is a competent person and who is stationed,
  - (a) in full view of the operator;
  - (b) with a full view of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment and its load; and
  - (c) clear of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment and its load. R.R.O. 1990, Reg. 851, s. 56.
- 57. A vehicle left unattended shall be immobilized and secured against accidental movement. R.R.O. 1990, Reg. 851, s. 57.
- 58. Powered equipment shall not be left unattended unless forks, buckets, blades and similar parts are in the lowered position or solidly supported. R.R.O. 1990, Reg. 851, s. 58.

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59. Except for the purpose of a test of the material handling equipment, no material handling equipment shall be loaded in excess of its maximum rated load. R.R.O. 1990, Reg. 851, s. 59.

60(1) Except as prescribed by section 42.2, where a vehicle, crane or similar equipment is operated near a live power line carrying electricity at more than 750 volts, every part of the equipment shall be kept at least the minimum distance from the live power line set out in Column 2 of the Table for the particular voltage set out opposite thereto in Column 1 of the Table:

TABLE


Minimum distance from live power lines for electricity	
Column 1	Column 2
Voltage of live power line	Minimum Distance
750 to 150,000 volts	3 metres
150,001 to 250,000 volts	4.5 metres
250,001 volts and over	6 metres

R.R.O. 1990, Reg. 851, s. 60 (1); O. Reg. 630/94, s. 3 (1).

## Requirements of O.Reg.213/ 91 for Construction


### 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


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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 or Number 1 Grade spruce. 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,

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- (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.
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

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- (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 of number 1 grade spruce that do not have any defect affecting their load-carrying capacity and,
  - (a) that bears a legible grade identification stamp or is permanently identified as being number 1 grade spruce;
  - (b) that is at least forty-eight millimetres thick by 248 millimetres wide;
  - (c) that is 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 to 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**


- 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).

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- (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 is 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).

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- (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,
- 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;
  - state the maximum live load of the scaffold or platform; and
  - state that, in the opinion of the professional engineer who designed the scaffold or platform, the design meets the requirements of this section.
- (d) Revoked: O. Reg. 85/04, s. 14.
- O. Reg. 213/91, s. 139 (3); O. Reg. 85/04, s. 14.
- (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).

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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).

### **Elevating Work Platforms**

143. (1) Subject to subsection (2), every elevating work platform, including elevating rolling work platforms, self-propelled elevating work platforms, boom-type elevating work platforms and vehicle-mounted aerial devices shall comply with section 144. O. Reg. 213/91, s. 143 (1).
- (2) Subsection (1) does not apply to,
- (a) suspended scaffolds or suspended work platforms; and
- (b) buckets or baskets suspended from or attached to the boom of a crane. O. Reg. 213/91, s. 143 (2).
144. (1) An elevating work platform shall be designed by a professional engineer in accordance with good engineering practice,
- (a) to meet the requirements of the applicable National Standards of Canada standard, set out in the Table to subsection (6); and

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- (b) to support a minimum of 1.3 kilonewtons rated working load as determined in accordance with the applicable National Standards of Canada standard set out in the Table to subsection (6). O. Reg. 213/91, s. 144 (1).
- (2) An elevating work platform shall be manufactured in accordance with the design referred to in subsection (1). O. Reg. 213/91, s. 144 (2).
- (3) An elevating work platform,
  - (a) shall be tested in accordance with the National Standards of Canada standard set out in the Table to subsection (6); and
  - (b) shall be inspected each day before use, in accordance with the manufacturer’s instructions by a worker trained in accordance with section 147. O. Reg. 213/91, s. 144 (3).
- (4) An elevating work platform shall only be used if a professional engineer has certified in writing that it complies with the National Standards of Canada standard set out in the Table to subsection (6). O. Reg. 213/91, s. 144 (4).
- (5) The certification required by subsection (4) shall include the details of testing. O. Reg. 213/91, s. 144 (5).
- (6) The National Standards of Canada standard applicable to the type of elevating work platform listed in Column 1 of the Table to this subsection are the standards set out opposite it in Column 2:

TABLE


Column 1	Column 2
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;

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- (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;
  - (f) the name and number of the National Standards of Canada standard to which it was designed; and
  - (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,


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- (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.

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## Appendix B

### EMERGENCY RESCUE PLAN

For

**Swing Stage Rescue  
At  
McMASTER UNIVERSITY – Central Campus**

1. Workers to carry cellular phone/radio at all times during hours of duty when on the swing stage
2. Coworker at ground level to carry cellular phone/radio at all times during hours of duty.
3. Workers both on swing stage and on ground are to liaison before start of work.
4. Daily, before work begins, complete a cellular/radio check with Security and give both call back numbers.
5. Before starting work assess what rescue equipment may be needed in case of emergency i.e. aerial ladder truck, scissor lift, type of windows (pulled through window), what floor will worker be on etc.
6. Report state of injured/ill worker to contact/supervisor
7. All people commencing work on the emergency rescue plan shall identify their phone extension and keep it available.
8. This procedure must be placed in a conspicuous place on the swing stage itself and each person working on or with the swing stage crew must carry a copy on his/her person, during hours of swing stage operation.



**Appendix C.**

**Metric Conversion Table**

Metric	Imperial Equivalent
2.1 metres	6 ft 10.7 ins
3 metres	9ft 10.1 ins
4.5 metres	14 ft 9.2 ins
6 metres	19 ft 8.2 ins
10 metres	32 ft 9.72 ins
15 metres	49 ft 2.58 ins
1.6 millimetres	.63 ins
38 millimetres	1.496 ins
48 millimetres	1.8897 ins (nominal 2ins)
75 millimetres	2.95275 ins
150 millimetres	5.9055 ins
248 millimetres	9.76376 ins (nominal 10 ins)
300 millimetres	11.8 ins
450 millimetres	17.7165 ins
600 millimetre	23.622 ins
525 kg	1157.4315 lbs
1.3 kilonewtons	292.266 lbs. force
16.7 kilonewtons	3754.496 lbs. force
22 kilonewtons	4946.043 lbs. force