

# Improving Health and Safety Requirements relating to Suspended Access Equipment

## Summary of Proposal

The Ministry of Labour (MOL) is proposing to strengthen requirements relating to the use of suspended access equipment set out in the [Construction Projects Regulation](#) (O. Reg. 213/91, the “Regulation”) under the [Occupational Health and Safety Act](#) (OHSA).

Suspended access equipment generally refers to one or more work platforms or a seating surface suspended by wire ropes from an overhead fixed support (e.g., roof anchors) that can be lowered or raised along the façade of a building or structure by hoisting devices. Swing stages and boatswain’s chairs are examples of suspended access equipment.

Key proposals include:

- Enhancing operational, design, technical and engineering requirements;
- Introducing training requirements for suspended access equipment operators and workers;
- Strengthening inspection, testing and maintenance requirements;
- New references to national standards related to design, installation, inspection and maintenance;
- Introducing new requirements for roof plans and work plans; and,
- Introducing a new requirement for notifying the ministry prior to putting a suspended access equipment into service for the first time at a project.

The proposal would apply to all buildings and structures where suspended access equipment may be used and where the Regulation applies. The proposal would not apply to activities subject to the [Window Cleaning Regulation](#) (Regulation 859). An overview of the proposed regulatory changes is provided in the “[Details of Proposal](#)” section below.

The ministry is accepting feedback on the proposed amendments by **June 22, 2015**. The ministry is also interested in receiving feedback on questions noted in Recommendations 5, 6, 7, 8, 9, 11, 12, 13, 14, 15 and 16 of the “[Details of Proposal](#)” section. For more information on how to submit your comments please see the “[How to Participate](#)” section at the end of this document.

## Background

The MOL regularly reviews the [OHSA](#) and its regulations to ensure accuracy and consistency with current industry practices and standards to increase clarity for stakeholders and to improve enforcement.

The majority of the ministry's proposed requirements contained in this document reflect recommendations developed by an industry Working Group established by the Provincial Labour-Management Health and Safety Committee. This committee is an advisory committee to the Minister of Labour established under Section 21 of the [OHSA](#) to provide advice on health and safety concerns in the construction industry. The Working Group was comprised of representatives of companies using suspended access equipment, labour unions, equipment manufacturers and suppliers, the Infrastructure Health and Safety Association and the MOL.

## Details of Proposals

### ***Recommendation 1: Definitions***

The ministry proposes to add eight new definitions to the Regulation relating to the operation of suspended access equipment and revise the existing definition of "multi-point suspended scaffold."

#### *Proposed New Definition*

The ministry proposes to define

- a "critical weld" to mean, in relation to a suspended work platform, a weld whose failure could result in a catastrophic failure or complete or partial collapse of the suspended work platform system that could endanger a worker.

#### *Commentary*

"Critical weld" is an industry known term. The proposed definition is consistent with the general interpretation of the term used by professional engineers and would ensure consistency in its use.

#### *Proposed New Definitions*

The ministry proposes to define

- "allowable suspended load" to mean the combined weight of the suspended work platform or boatswain's chair, the hoisting device or devices, the rated platform capacity and the suspended portion of the suspension line;
- "anchorage connector" to mean a component or a system of components of a fixed support that secures a suspended work platform or boatswain's chair, and associated suspension lines and lifelines to a fixed support; and,

- “rated platform capacity” to mean the combined weight of occupants, tools, equipment and other material that can be safely carried by a suspended work platform, a work platform module or boatswain’s chair as specified by the manufacturer’s marking.

### *Commentary*

The proposed definitions are modelled on definitions in the Canadian Standards Association (CSA) Standard Z271-10, Safety Code for Suspended Platforms. CSA Standard Z271-10 is a national standard that outlines requirements for the design, construction, installation, inspection, testing, maintenance, alteration and repair of suspended work platform systems and boatswain’s chairs and is generally followed by suppliers and users of suspended access equipment in Ontario.

### *Proposed New Definitions*

The ministry proposes to define

- “generic installation drawing” to mean a drawing and related documentation, if any, provided by the manufacturer, supplier or owner of a suspended work platform system or powered boatswain’s chair, or by an employer using the suspended work platform system or powered boatswain’s chair, or prepared by a professional engineer that,
  - identifies components, configurations and load limitations of the suspended work platform system or powered boatswain’s chair; and
  - may be used at any project or at different locations on the same project where all of the requirements in the drawing are met; and
- “site-specific installation drawing” to mean a drawing and related documentation, if any, prepared by a professional engineer that identifies components, configurations and load limitations of a suspended work platform system or powered boatswain’s chair for one particular project.

### *Commentary*

The MOL’s proposed definitions are intended to clarify and clearly distinguish between the two types of installation drawings. A “generic installation drawing” refers to drawing(s) and related documentation that provides installation instructions for typical configurations of suspended access equipment commonly used by the industry. A “site-specific installation drawing” provides installation instructions for non-typical configurations of suspended access equipment that take into consideration the unique features of the building or structure from which the equipment will be suspended.

A “powered” boatswain’s chair refers to a boatswain’s chair that is equipped with a mechanical or electrical hoist and does not include a boatswain’s chair that uses a descent control device.

### *Proposed New Definitions*

The ministry proposes to define

- “suspended work platform system” to mean an access system comprised of one or more overhead fixed supports, one or more suspension lines, hoisting devices, if any, and one or more work platforms that can be moved vertically, but it does not include a boatswain’s chair or a multi-point suspended work platform; and
- “work platform” to mean a work surface for a worker that is constructed of wooden planks, fabricated decks or other manufactured materials and that may include stirrups, trusses and other structural members but does not include a boatswain’s chair.

### *Commentary*

“Suspended work platform system” and “work platform” are industry known terms. The proposed definitions are intended to ensure consistency in their use.

The proposed definition for “work platform” is meant to be generic and applicable to any work platform used by a worker, and includes, but is not limited to, suspended work platform systems.

### *Proposed Revision to an Existing Definition*

In addition, the ministry proposes to revise the existing definition for “multi-point suspended scaffold” by deleting references to “suspended scaffold” and replacing “overhead support system” with “overhead fixed support.” The ministry proposes to define

- “multi-point suspended work platform” to mean a suspended work platform more than 750 millimetres in width or a system of suspended work platforms, where any platform is more than 750 millimetres in width, that is supported from an overhead fixed support system by at least three primary load-carrying means of suspension to maintain the stability of the work platform or work platforms.

### *Commentary*

The proposed revision would align the definition with the new proposed defined terms of “suspended work platform system” and “work platform.”

## ***Recommendation 2: New Notice Requirements Before Using Suspended Access Equipment***

### *Proposed Regulatory Requirements*

The MOL proposes to add a new requirement for the constructor to provide written notice to the ministry at least 48 hours before a suspended work platform system is put into service for the first time at a project. The notice would have to be on an approved

form obtained from the ministry and be submitted in person, by fax, by electronic means or by other similar means to the ministry office located nearest to the project.

If it is necessary to use the suspended work platform system immediately to prevent personal injury or damage to property, the constructor may give oral notification to the ministry by telephone or in person despite the 48-hour notice requirement above. The oral notification must be followed by written notice within 24 hours.

The ministry proposes that the written notice must be posted in a conspicuous place at the project.

#### *Commentary*

The proposed notification requirement is similar to existing notice requirements under Sections 6 and 7 of the Regulation and the [Window Cleaning Regulation](#) (Regulation 859) under the [OHSA](#) which also addresses the use of suspended access equipment. It is intended to strengthen enforcement by alerting the ministry about projects where a suspended work platform system will be used.

### ***Recommendation 3: Application***

#### *Current Regulatory Requirement*

136.1 Sections 137 to 142 do not apply to multi-point suspended scaffolds.

#### *Proposed Changes*

To maintain consistency with the proposed new requirements for suspended access equipment and proposed changes to the current definition of “multi-point suspended scaffold,” the ministry proposes to replace current section 136.1 with the following requirements:

- Every suspended work platform system and boatswain’s chair must comply with Sections 137 to 141 inclusive of the Regulation; and
- Sections 137 to 142 inclusive of the Regulation do not apply to multi-point suspended work platforms.

### ***Recommendation 4: New Work Plan Requirements for Suspended Work Platform Systems & Boatswain’s Chairs***

#### *Proposed Regulatory Requirements*

The MOL proposes that before a suspended work platform system or boatswain’s chair is put into service for the first time at a project, an employer must ensure that a competent person conducts a risk assessment of the work that would be undertaken. The competent person must also prepare and sign a written site-specific work plan based on the results of the risk assessment and must implement the written work plan. The work plan must set out information, measures and procedures adequate to ensure

the health and safety of workers using the suspended work platform system or boatswain's chair. This would include, but would not be limited to:

- a) procedures to install, move and dismantle the suspended work platform system or boatswain's chair;
- b) direction to use either a generic installation drawing or a site-specific installation drawing;
- c) the arrangement of the work platforms for the duration of the project;
- d) the manner in which all suspension lines and lifelines are to be attached to the fixed supports shown in a roof plan referred to in [Recommendation 7](#) of this proposal;
- e) the rated platform capacity of the suspended work platform, work platform module or boatswain's chair;
- f) a weight distribution plan to ensure equal loading across the work platform surface;
- g) the maximum number of workers allowed on the suspended work platform;
- h) the maximum amount or weight of construction debris, abrasive blasting grit and other materials allowed to accumulate on the work platform, and their permissible location on the work platform;
- i) directions on whether and how to use a material hoist or other similar device to transfer material to and from the work platform;
- j) the weights of all materials, tools and equipment permitted to be on the suspended work platform or boatswain's chair;
- k) procedures to be followed in the event of an emergency that requires rescue of a worker or workers from the suspended work platform system or boatswain's chair;
- l) methods of fall protection that cover all work to be undertaken and their installation;
- m) an identification of the hazards related to material hoisting, cutting, grinding and sandblasting associated with the work;
- n) protection for the public and workers who may be below the suspended work platform or boatswain's chair;
- o) overhead protection for workers on a suspended work platform or boatswain's chair from any work conducted above the suspended work platform or boatswain's chair;
- p) an identification of all electrical hazards, including close proximity to electrical conductors; and

- q) measures to be taken to protect workers from weather and other conditions that may endanger them.

The ministry also proposes that the employer must provide a copy of the work plan to a worker and review it with the worker before the worker begins installing or using a suspended work platform system or boatswain's chair. In addition, the employer would be required to keep a copy of the work plan readily available at the project.

The ministry proposes that the employer must post the rated platform capacity of a suspended work platform, work platform module or boatswain's chair conspicuously on the platform, module or boatswain's chair.

#### *Commentary*

The proposed requirements are modelled on similar requirements in the [Window Cleaning Regulation](#) (Regulation 859) under the [OHSA](#) which also addresses the use of suspended access equipment. The proposed risk assessment and written work plan are intended to ensure employers identify, evaluate and implement precautions to mitigate potential health and safety risks to workers using the suspended work platform system or boatswain's chair.

### ***Recommendation 5: New Requirements for Worker Training***

#### *Proposed Regulatory Requirements*

The ministry proposes to introduce new training and instruction requirements that would apply to any worker who may get on a suspended work platform or boatswain's chair.

- i. Under the proposed requirement, before a worker gets on a suspended work platform or a boatswain's chair for the first time at a project, the employer must ensure that the worker is trained on its use by completing a training program that
  - provides instruction on
    - applicable regulations under the [OHSA](#);
    - fall hazards related to the use of the suspended work platform or boatswain's chair;
    - how to select, put on, use, inspect and maintain personal protective equipment the worker would use and its components;
    - any fixed supports used for the suspended work platform or boatswain's chair and for the worker's fall arrest system;
    - the components, functions and limitations of the suspended work platform system or boatswain's chair, tiebacks and operational controls;
    - reading and understanding the work plan described in [Recommendation 4](#) of this proposal and the roof plan described in [Recommendation 7](#) of this proposal;

- the load limitations of the suspended work platform system or boatswain's chair; and
  - emergency rescue procedures; and
- enables the worker to demonstrate proficiency in
  - selecting, putting on, using, inspecting and maintaining personal fall protection equipment the worker will use;
  - rigging procedures and tying adequate knots;
  - identifying and selecting appropriate fixed supports from a roof plan described in [Recommendation 7](#) of this proposal; and
  - the safe operation of the suspended work platform system or boatswain's chair and its operating controls in accordance with the manufacturer's instructions.
- ii. The ministry proposes that the worker must have refresher training on the safe operation of a suspended work platform system or boatswain's chair as described in item "i" above as often as required and, in any case, at least every three years.
- iii. The ministry proposes that the employer must ensure that the person who provides the training program referred to in item "i" and the refresher training referred to in item "ii" above prepares a written training record for each worker who has successfully completed the training and signs the record. In addition, the employer must keep the written record readily available at the project and must make the record available to a MOL inspector upon request.
- iv. The ministry proposes that the worker must have written proof of completing the training, including refresher training, readily available at the project.

### *Commentary*

The proposed training requirements are modelled on Section 45 of the [Window Cleaning Regulation](#) which also addresses the use of suspended access equipment. The proposed requirements would ensure that any worker who may get on a suspended work platform system or boatswain's chair is proficient in its safe operation on a project. This would also apply to workers not directly involved in the operation of the suspended work platform (e.g., engineers, consultants, etc.), but who may get on the suspended work platform. This is to ensure that in the event of an emergency, equipment failure or incapacitation of the suspended work platform operator, all workers on the platform would be able to safely descend or safely get off the suspended work platform.

The proposed refresher training provision would ensure the requisite worker proficiency is retained.



### *Consultation Questions*

1. Do you agree with the list of training subjects and learning outcomes in item “i” above? Are there any training subjects or learning outcomes that should be added to or deleted from the proposed list in [Recommendation 5](#)?
2. What would be the estimated cost to employers of complying with the proposed training requirements in [Recommendation 5](#)?
3. How much time would the industry reasonably need to implement the ministry’s proposed training requirements in [Recommendation 5](#)?
4. How much time would the industry reasonably need (employers, workers, training providers) to comply with the proposed training requirements in [Recommendation 5](#)?

### ***Recommendation 6: New Training Requirements for a Competent Worker Who May Inspect a Suspended Work Platform or Boatswain’s Chair***

#### *Proposed Regulatory Requirements*

Under [Recommendation 13](#) of this proposal, the ministry proposes that only a competent worker, as defined under the Regulation, may inspect a suspended work platform system or boatswain’s chair under certain circumstances after it has been installed and verify in writing that the equipment has been installed correctly. This section outlines the training requirements for the competent worker conducting the inspections.

- i. The ministry proposes that the employer would be required to ensure that the competent worker, referred to in items “ii” and “iv” of [Recommendation 13A](#), successfully completes the training described in [Recommendation 5](#) of this proposal, and receives additional training to enable the worker to conduct the inspections and attest to the installation. The ministry proposes that the following subjects must be included in the training:
  - Rigging;
  - Methods to secure beams and equipment;
  - Fixed supports;
  - Principles of suspension lines, hoisting devices and load limits;
  - Manufacturers’ instructions for assembling, installing and disassembling suspended work platform systems or powered boatswain’s chairs;
  - Work plans and roof plans;
  - Securing suspended work platforms or powered boatswain’s chairs to the face of a building or structure; and,
  - Electrical systems.

- ii. In addition, the training must enable the competent worker to demonstrate proficiency in
  - installing and torqueing rigging hardware in accordance with the manufacturer's instructions;
  - inspecting suspension lines and terminations in accordance with the manufacturer's instructions;
  - adequately tying different knots (a minimum of two different knots);
  - properly setting up a suspended work platform system or boatswain's chair in accordance with roof plans described in [Recommendation 7](#) of this proposal and the manufacturer's instructions, including, but not limited to:
    - selection and use of fixed supports;
    - set-up of equipment;
    - use of hoists from reeving cables;
    - use of descent control devices and emergency controls;
    - impact of different work plans on set-up of equipment; and
    - protection of public ways.
- iii. The ministry proposes that the designated competent worker must have refresher training in the subjects listed in items "i" and "ii" above as often as required and, in any case, at least every three years.
- iv. The ministry proposes that the employer must ensure that the person who provides the training referred to in items "i," "ii" and "iii" above prepares a written training record for each worker who has successfully completed the training and signs the record. In addition, the employer must keep a record of the competent worker's training and make the record available to a MOL inspector upon request.
- v. The ministry proposes that the worker must have written proof of completing the training, including refresher training, readily available at the project.

### *Commentary*

The proposed training requirements would ensure that the designated competent worker is proficient in inspecting the installation of suspended work platform systems or boatswain's chairs. The proposed refresher training provision would ensure the requisite worker proficiency is retained.

*Consultation Questions*

5. Do you agree with the list of training subjects in item “i” and learning outcomes in item “ii” above of [Recommendation 6](#)? Are there any training subjects or learning outcomes that should be added to or deleted from the proposed lists in [Recommendation 6](#)?
6. How much detail should be included, if any, under each of the training subjects listed in item “i” above to ensure a worker is competent to inspect the installation of a suspended work platform system or boatswain’s chair?

As a guide, the ministry has included below the detailed content for each of the training subjects listed in item “i” that was recommended by the industry Working Group mentioned in the [Background](#) part of the proposal.

a) Rigging

- Torque procedures for hardware used in rigging
- Acceptable rigging hardware angles and means to obtain acceptable angles

b) Methods to secure beams and equipment

- Blocking methods
- Fulcrum points
- Strength of structure in relation to blocking and material placement

c) Fixed supports

- Structural elements used for anchorage including parapets, roof
- Use of various methods to secure anchorage connectors
- Use of temporary anchors on buildings under construction (i.e. reading drawings to select the appropriate fixed supports identified on approved roof drawings described in [Recommendation 7](#))

d) Principles of suspension lines, hoisting devices and load limits

- Identify when a professional engineer is required (regulatory requirements, specialty systems etc.)

e) Manufacturer’s instruction for assembly, installation and disassembly – more in-depth knowledge of load limits, inspection points, out of service criteria, annual inspections, record/log criteria, assembly drawings, use of different (not common but still in the manufacturer’s instructions) products such as truss beams and other beams

f) Work Plans and Roof Plans

- More in-depth use of roof plans (how to read, critical items, etc.)
- Know-how on development of a work plan
- Verifying roof plans versus actual on-site roof conditions

- g) Securing the suspended work platform or boatswain's chair to building face – further instruction on means to secure the suspended work platform to building face in accordance with manufacturer's instructions
- h) Electrical Systems:
  - Voltage drop issues
  - Proper set-up of electrical connections
  - Proximity to power lines
  - Assembly of power cords (waterproofing)
  - Use of ground fault circuit interrupters (GFCIs)
  - Instruction on required certification of components and identification of appropriate certification marks accepted by the Electrical Safety Authority e.g. Underwriters Laboratories of Canada (ULC) or CSA
  - Limitations on what the competent worker can and cannot do with respect to electrical components (i.e. no connecting of system to a panel etc.)
- 7. What would be the estimated cost to employers of complying with the proposed training requirements in [Recommendation 6](#)?
- 8. How much time would the industry reasonably need to implement the ministry's proposed training requirements in [Recommendation 6](#)?

### ***Recommendation 7: New Requirements for Roof Plans***

#### ***Proposed Regulatory Requirements***

The ministry proposes to introduce requirements for the preparation of roof plans that would show fixed supports including anchor points and related structures on the roof of a building or structure for supporting suspended work platforms or boatswain's chairs. Proposed requirements are described below.

- i. The owner of a building or structure, where a suspended work platform system or boatswain's chair is to be used, must prepare a roof plan that:
  - a) Is approved by a professional engineer;
  - b) Includes drawings and layout diagrams showing the positions of all fixed supports on the building or structure that are adequate for attaching the suspended work platform or boatswain's chair, and lifelines, if any; and
  - c) Meets the requirements of Clause 8.2 of CAN/CSA Standard Z91-02 (R2008), Health and Safety Code for Suspended Equipment Operations.
- ii. Where the building or structure owner does not have a roof plan, the ministry proposes that a plan must be prepared by the building owner, employer or constructor as described in item "i" above.

- iii. The building or structure owner or the preparer of the roof plan, as the case may be, would be required to provide a copy of the roof plan to the constructor and employer before any work using a suspended work platform system or boatswain's chair begins.
- iv. The ministry proposes that the building or structure owner or the preparer of the roof plan, as the case may be, would be required to post a legible copy of the roof plan near every entrance to the roof level or top level of the building or structure where the suspended work platform system or boatswain's chair is to be used.
- v. If the roof plan does not identify appropriate numbers of fixed supports that are adequate for attaching the suspended work platform or boatswain's chair, and lifelines, if any, the ministry proposes to require,
  - a) The building or structure owner to provide the constructor with structural drawings, if available, for the building or structure;
  - b) The constructor to have a professional engineer, using the structural drawings provided by the building or structure owner, prepare written procedures, including design drawings, indicating the manner in which the suspended work platform or boatswain's chair, and lifelines if any, is to be adequately supported from the building or structure during its operation; and,
  - c) If there are no structural drawings provided by the building or structure owner, the constructor to have a professional engineer prepare written procedures, including design drawings, indicating the manner in which the suspended work platform or boatswain's chair, and lifelines if any, is to be adequately supported from the building or structure during its operation.

### *Commentary*

The proposed requirements for a roof plan are modelled on Section 39 of the [Window Cleaning Regulation](#) for building owners to provide roof drawings of anchor points and related structures. Currently, the [Construction Projects Regulation](#) does not contain such requirements. The proposed requirements would provide relevant information to employers and constructors to help them determine which fixed supports are to be used to attach the suspended work platform or boatswain's chair to a building or structure for individual projects. Employers using suspended work platforms must be assured that the fixed supports they are to use to suspend their equipment are capable of supporting the weight of their work platform when loaded with workers and equipment and in operation.

### *Consultation Questions*

- 9. Do you agree that requirements should be added to the Regulation for roof plans which indicate fixed supports that can be safely used for supporting suspended work platforms or boatswain's chairs?

10. Currently, are roof plans for existing buildings and structures as described in [Recommendation 7](#) commonly available to constructors and SAE employers to help them identify the appropriate fixed supports to be used for their suspended work platforms or boatswain's chairs? Currently, are fixed supports on a building or structure identified as being able to support a stated maximum load?
11. Do you agree with the ministry's approach to referencing the roof plan requirements of the CAN/CSA Standard Z91-02 (R2008), Health and Safety Code for Suspended Equipment Operations and CSA Standard Z271-10, Safety Code for Suspended Platforms? What are the advantages or disadvantages to this approach? Would this approach ensure and promote a level playing field in the industry?

***Recommendation 8: New Requirements for Inspection and Maintenance of Fixed Supports***

*Proposed Regulatory Requirements*

- i. The ministry proposes that a building or structure owner mentioned under [Recommendation 7](#) of this proposal above must have a professional engineer inspect every fixed support identified in the roof plan
- before it is used for the first time after being installed on the roof or after it is repaired or modified;
  - thereafter as often as necessary but not less frequently than recommended by the manufacturer of the fixed support, and in any case, at least once a year; and
  - when advised by a professional engineer or by an employer, supervisor or worker who believes that the fixed support is defective or not adequate to support a suspended work platform, boatswain's chair or lifeline.
- ii. The professional engineer must prepare a written report for the building or structure owner indicating
- the fixed supports are adequate and meet the requirements proposed under [Recommendation 9](#); or
  - any defects or hazardous conditions detected in any of the fixed supports.
- iii. The ministry proposes that the building or structure owner must ensure that
- any defects or hazardous conditions of a fixed support specified in the professional engineer's report are repaired, modified or corrected; and
  - before being put back into service, the fixed support that has been repaired or modified is inspected and tested by a professional engineer in accordance with Clause 11.3.3 (Anchorage Connectors) of CSA Standard Z271-10, Safety Code for Suspended Platforms, and determined to be adequate to support a suspended work platform, boatswain's chair or lifeline.

- iv. The ministry proposes that the building or structure owner must ensure that all fixed supports identified in the roof plan are inspected, tested and maintained in accordance with Clause 11 (Inspection and Testing) of CSA Standard Z271-10, Safety Code for Suspended Platforms and manufacturer's instructions.
- v. In addition, the ministry proposes that the building/structure owner must
  - keep a record of all inspections, tests, repairs, modifications and maintenance performed under this section, in accordance with Clause 13 (Equipment Log) of CSA Standard Z271-10, Safety Code for Suspended Platforms, while the fixed supports are used; and
  - make the record available upon request to an inspector or an employer using the suspended work platform or boatswain's chair.

### *Commentary*

The proposed requirements for inspection and maintenance of fixed supports are modelled on Section 41 of the [Window Cleaning Regulation](#) which also addresses the use of suspended access equipment. The proposed requirements would apply to fixed supports identified in the building or structure owner's roof plan. Currently, the [Construction Projects Regulation](#) does not require a roof plan or fixed supports to be inspected and maintained. The proposal would ensure employers using suspended work platforms or boatswain's chairs are aware of the condition of the fixed supports they are to use to suspend their equipment.

### *Consultation Questions*

- 12. What kind of inspection and maintenance program do you currently have for the fixed supports or roof anchors on your building or structure?
- 13. How much time would building or structure owners, constructors and employers reasonably need to implement the ministry's proposed requirements in [Recommendation 8](#)?
- 14. Currently, do fixed supports that are to be used to support SAE undergo regular inspections and maintenance and are the inspection and maintenance records readily available to SAE employers?
- 15. Would this requirement impose a significant burden and/or cost on building or structure owners?

## ***Recommendation 9: Fixed Supports, Suspension Lines and Hoisting Devices***

### *Current Regulatory Requirement*

137 (1) Every suspended platform, suspended scaffold and boatswain's chair shall meet the requirements of this section.

- (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.
- (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.
- (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.
- (5) An outrigger beam shall be secured against horizontal and vertical movement.
- (6) An outrigger beam shall have securely attached counterweights that are designed and manufactured for the purpose.
- (7) Adequate legible instructions for the use of the counterweights shall be affixed to the outrigger beam.
- (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 (10) times the maximum load to which the part is likely to be subjected.
- (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.
- (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.

- (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.

### *Proposed Regulatory Changes*

The ministry proposes to provide more clarity regarding the design and installation of fixed supports, anchorage connectors, suspension lines and hoisting devices by harmonizing the existing regulatory requirements with the CSA Standard Z271-10, Safety Code for Suspended Platforms. According to industry representatives, it is common industry practice to follow the CSA standard. The ministry's proposal would update current design requirements in the Regulation, allow for the use of the limit states design methodology, and ensure consistency and a level playing field for the industry. Below is a description of the proposed changes to Section 137 of the Regulation.

- i. The ministry proposes to replace the current terms "suspended platform" and "suspended scaffold" throughout Section 137 of the Regulation with the terms "suspended work platform" or "suspended work platform system" depending on the context of the requirement.

### *Commentary*

The MOL proposes to no longer refer to "suspended scaffolds" in Sections 136.1 to 141 of the Regulation. The ministry also proposes that the term "scaffold" would refer only to a scaffold that is supported from underneath. Structures previously considered to be "suspended scaffolds" would be considered to be stacked or tiered suspended work platforms. This would be consistent with the ministry's proposal to have Sections 136.1 to 141 inclusive apply to "suspended work platform systems and boatswain's chairs" to clearly differentiate them from other requirements applicable to scaffolds.

- ii. The MOL proposes to replace subsection 137(2) of the Regulation with the following proposal:
  - a) A suspended work platform and boatswain's chair, and their suspension lines, must be attached to a fixed support in accordance with the manufacturer's instructions;
  - b) (i) A fixed support must be designed and constructed to support all loads to which it may be subjected, and
    - (ii) in designing an outrigger and supporting structure, excluding anchorage connectors, the following values of load factors must be used, using the Limit States Design Methodology in the Ontario Building Code:

Live Load factor  $\alpha_L = 3.0$ , and

Dead Load factor  $\alpha_D = 1.25$

### *Commentary*

The proposed load factors are consistent with the CSA Standard Z271-10, Safety Code for Suspended Platforms which references the National Building Code of Canada. This Code is an umbrella code meant to apply nationally to all provinces and territories. Since the Ontario Building Code (rather than the National Building Code) is the applicable code in Ontario, the ministry proposes that the Ontario Building Code as defined under the [OHSA](#) be the code that is used when complying with the CSA Standard. The ministry proposes to provide more clarity and consistency regarding the design of fixed supports used for suspended work platforms by indicating the load factors to be used.

- iii. The ministry proposes to amend the current subsection 137(3) to clarify that a component of a fixed support that may be subject to overturning must be designed and constructed to support at least four times the allowable suspended load or force to which the component may be subjected without overturning.
- iv. The ministry proposes that:
  - (a) Subject to item (b) below, an anchorage connector must be designed to:
    - resist the application of 22.2 kilonewtons in any direction without fracture of any component or pullout, or both, from the fixed support; and,
    - resist a test loading of 11.1 kilonewtons without permanent deformation of any component when subjected to test loading in the direction(s) that generate the most critical effect on the fixed support with respect to stability and strength.
  - (b) For a work platform with a span greater than 12 metres and up to 30 metres between adjacent points of suspension, the anchorage connectors used to support a suspended work platform system must be designed in accordance with good engineering practice to support the allowable suspended load and the minimum live loads specified in item “vii” of [Recommendation 11](#) of this proposal for the length of the work platform to be used.

### *Commentary*

The design requirements for anchorage connectors proposed by the ministry for work platforms with spans less than 12 metres are consistent with the CSA Standard Z271-10, Safety Code for Suspended Platforms. This standard is generally followed by the industry. According to an internal ministry study, typical anchorage connectors for swing stages with spans in excess of 12 metres would not meet the current loading requirements of 2.4 kilonewtons per square metre as required in the CSA Standard and current section 134 of the Regulation. This means the design requirements in the CSA Standard for swing stages with spans greater than 12 metres are less stringent than currently required in the Regulation, thus putting workers’ safety at risk.

- v. The ministry proposes to revise subsection 137(4) of the Regulation to clarify that if an outrigger beam is to be used as a fixed support, it must be tied back and securely fastened to the structure or a component of such a structure by a secondary cable or wire rope capable of supporting the allowable suspended load.
- vi. The ministry proposes to amend subsection 137(8) of the Regulation to make it consistent with Clause 7.3.2.6.1 of the CSA Standard Z271-10, Safety Code for Suspended Platforms. The proposed amendment would require
  - (a) every part of a suspension line, including its attachment components, to be capable of supporting at least 10 times the maximum load to which the part may be subjected.
  - (b) a suspension line to have fastenings and terminations that
    - are corrosion-resistant,
    - develop at least 80 per cent of the rated breaking strength of the suspension line itself,
    - are recommended by the manufacturer for use with suspended work platforms or boatswain's chairs, and
    - are installed in accordance with the manufacturer's instructions.
- vii. The ministry proposes to replace subsection 137(9) of the Regulation with a requirement for a suspension line to
  - be wire rope, except when the boatswain's chair is equipped with a descent control device in which case the suspension line may be other than wire rope;
  - be vertical from the fixed support including the outrigger beam;
  - be parallel if there is more than one suspension line;
  - extend to the ground or have a positive stop that prevents the work platform or boatswain's chair from running off the end of the suspension line or lines; and,
  - have each connecting end wrapped around a protective thimble and adequately fastened.

### *Commentary*

The ministry proposes that all suspension lines used for suspended work platform systems and boatswain's chairs must be made of wire rope, except when the boatswain's chair is equipped with a descent control device in which case the suspension line may be made of organic or polymer fibres. [Recommendation 16](#) outlines additional proposed requirements for suspension lines used for boatswain's chairs. Currently, the Regulation allows suspension lines to be non-wire rope and specifies under which circumstances suspension lines must be wire rope (e.g., if corrosive substances or mechanical grinding or flame cutting equipment is to be used in

the vicinity of a suspension line). The second, third and fourth proposed criteria of item “vii” above currently required in the Regulation. The last criterion related to protective thimbles is consistent with clause 27(1)(d) of the [Window Cleaning Regulation](#).

viii. The ministry proposes to delete subsection 137(10) of the Regulation and add a new requirement that would prohibit the use of U-type rope clamps on suspension lines or tie-backs.

#### *Commentary*

The ministry believes that since item “vii” above would require all suspension lines used for suspended work platform systems to be made of wire rope, there is no reason to retain subsection 137(10) of the Regulation, which specifies under which circumstances wire rope must be used. In its place, the ministry proposes a new requirement that is consistent with Clause 7.3.2.6.1 of the CSA Standard Z271-10, Safety Code for Suspended Platforms, with clarification that it also applies to tie-backs.

- ix. The ministry proposes to delete subsection 137(11) and instead require a hoisting device,
- to have legible operating and safety instructions affixed to it in a conspicuous location, and,
  - to meet the requirements in the CSA Standard Z271-10, Safety Code for Suspended Platforms, Clause 8 (Hoisting) where applicable.

#### *Commentary*

The ministry proposes to relocate the current requirement in subsection 137(11) for a competent worker to inspect a suspended work platform system and boatswain’s chair before each day’s use to item “i” under [Recommendation 13E](#) of this proposal. In its place, the ministry proposes to add a new requirement referencing Clause 8 of the CSA Standard Z271-10, Safety Code for Suspended Platforms, which would ensure all hoists and hoisting devices meet minimum design and manufacturing requirements as well as operational, inspection and maintenance requirements. Hoists are critical parts of a suspended work platform system and boatswain’s chair and the CSA Standard outlines how hoists must be designed, operated, maintained and serviced.

- x. The ministry proposes to add a new requirement to Section 137 that would prohibit a suspended work platform system and boatswain’s chair from being loaded in such a manner as to exceed the rated platform capacity for an individual suspended work platform and boatswain’s chair or to exceed the rated lifting capacity of the hoisting device.

### *Commentary*

The ministry's proposed requirement reflects good industry practice and is consistent with clause 22(1)(b) of the [Window Cleaning Regulation](#) which also addresses the use of suspended access equipment.

### *Consultation Questions*

16. Do you agree with the ministry's approach to referencing the Clause 8 of CSA Standard Z271-10, Safety Code for Suspended Platforms in [Recommendation 9](#)? What are the advantages or disadvantages to this approach? Would this approach ensure and promote a level playing field in the industry?
17. Are there any challenges for suppliers or employers to implementing the ministry's [Recommendation 9](#)?
18. What would be the estimated costs in implementing the ministry's [Recommendation 9](#)?
19. Do you believe that by explicitly specifying load factors and loading requirements, the proposed design requirements for fixed supports and anchorage connectors would provide clarity, facilitate compliance and level the playing field for the industry? Would the proposed design requirements help ensure fixed supports and anchorage connectors are maintained in good condition and are strong enough to safely support the SAE an employer wants to use, particularly work platforms that are longer than 12 metres? Would this requirement impose a significant burden and cost on building or structure owners, and on constructors and employers using SAE?

### ***Recommendation 10: Fall Protection***

#### *Current Regulatory Requirement*

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.

- (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.
- (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.

### *Proposed Regulatory Changes*

- i. The ministry proposes to revise subsection 141(1) by:
  - adding the phrase “subject to section 70 of the Regulation;” and
  - replacing the terms “suspended platform” and “suspended scaffold” with the term “suspended work platform.”
- ii. The ministry proposes to revise subsection 141(2) by:
  - replacing the terms “suspended platform”, “suspended scaffold,” “platform” and “scaffold” with the term “suspended work platform system;”
  - deleting the phrase “or its supporting system” from clause (b);
  - adding a new requirement that every lifeline used with a suspended work platform system or boatswain’s chair must be protected from damage and abrasion; and,
- iii. The ministry proposes to add a new requirement under Section 141 that would require every lifeline used with a suspended work platform system that is subject to wind conditions to:
  - not be suspended a vertical distance of more than 150 metres below the fixed support, and
  - be restrained at or near the midpoint if suspended a vertical distance of more than 100 metres.

### *Commentary*

The proposed changes to subsection 141(2) are consistent with Clause 9.6 (Maximum height and restraint of lifelines) of the CSA Standard Z271-10, Safety Code for Suspended Platforms.

- iv. The ministry proposes to retain the intent of subsection 141(3) but clarify that, despite clause 141(2)(a), the fall arrest system may be securely fastened to the work platform if
  - all or part of the work platform has more than one means of suspension; and
  - the suspended work platform is so designed, assembled and maintained that the failure of one means of suspension will not cause the collapse of all or part of the suspended work platform.
- v. The ministry proposes to add a new requirement under Section 141 that would require every worker on a suspended work platform or boatswain’s chair to have an effective means of summoning assistance in case of emergency.

- vi. The ministry proposes to add a new requirement to Section 141 that would require a stationary suspended work platform to be attached or restrained to the exterior face of the building or structure from which it is suspended when the suspension height is 15 metres or greater.

#### *Commentary*

With respect to item “v,” the movement of a suspended work platform due to wind increases as the suspension height increases. The proposed requirement would prevent inadvertent movement and swaying of a suspended work platform at longer suspension heights that could endanger workers on the platform. The proposed threshold of 15 metres and higher for some form of restraint is consistent with Clause 9.5.2 (Platform Restraint) of the CSA Standard Z271-10, Safety Code for Suspended Platforms.

- vii. The ministry proposes to add a new requirement to Section 141 that, notwithstanding item “i” above and regardless of the suspension height, would require a work platform to be restrained to the building or structure when the suspended work platform is stationary and its guardrail adjacent to the face of the building or structure has been removed or lowered.

### ***Recommendation 11: New Design Requirements for Suspended Work Platform Systems***

#### *Proposed Regulatory Requirements*

The ministry proposes to add new design requirements for suspended work platform systems and powered boatswain’s chairs to ensure they are adequately designed for all loads that they will experience during their operation.

- i. The ministry proposes that a suspended work platform system and powered boatswain’s chair, including all its components and connections, must be designed by a professional engineer in accordance with good engineering practice, the requirements of [Recommendation 11](#), and the CSA Standard Z271-10, Safety Code for Suspended Platforms except for the rated platform capacity values in Clause 6.1 (Platform Design Loads) of the CSA standard. Instead, the rated platform capacity values must conform to item “vii” below.
- ii. Despite Section 26.3 of the Regulation, the ministry proposes that the guardrail system on a suspended work platform must meet the requirements of CSA Standard Z271-10, Safety Code for Suspended Platforms, Clause 6.4, (Guardrail System) except for Clause 6.4.1(b).
- iii. The ministry proposes that the Ontario Building Code as defined under the [OHSA](#) rather than the National Building Code of Canada be the code that is used when complying with CSA Standard Z271-10, Safety Code for Suspended Platforms.
- iv. The ministry proposes that a suspended work platform must not have a span greater than 30 metres between adjacent points of suspension.

- v. The ministry proposes that a suspended work platform system and powered boatswain's chair must be designed to be able to support or resist
  - (a) the minimum rated platform capacity for each suspended work platform and boatswain's chair, and
  - (b) any other loads likely to be applied to it including wind loads on shielding, tarpaulins, enclosures, signs and banners.
- vi. The ministry proposes to prohibit the use of shielding, tarpaulins, enclosures, signs or banners on or attached to a suspended work platform or powered boatswain's chair unless the suspended work platform system or powered boatswain's chair has been designed by a professional engineer who has taken into consideration the increased loads due to wind on all components of the suspended work platform system or powered boatswain's chair.

The ministry also proposes that a boatswain's chair or work platform of a suspended work platform system must not be suspended or used when the wind velocity exceeds 40 km/hour.

#### *Commentary*

With respect to item "vi" above, the ministry proposes that suspended work platforms and powered boatswain's chairs not be used in strong winds because of the danger this may pose to workers on the work platforms and boatswain's chairs. The proposed maximum wind velocity of 40 km/hour is consistent with Clause 5.4.3.2 of the CSA Standard Z271-10, Safety Code for Suspended Platforms.

- vii. The ministry proposes that a minimum live load be established for designing a suspended work platform or a powered boatswain's chair, its components and connections. The live load used in the design is to be considered the rated platform capacity.

The ministry proposes that the rated platform capacity must be in accordance with the following minimum live loads depending on the maximum span of the work platform between adjacent points of suspension:

- 340 kilograms (approximately 750 pounds) for a platform with a maximum span of 12 metres or less;
- 450 kilograms (approximately 1,000 pounds) for a platform with a maximum span greater than 12 metres and up to and including 15 metres;
- 680 kilograms (approximately 1,500 pounds) for a platform with a maximum span greater than 15 metres and up to and including 20 metres;
- 900 kilograms (approximately 2,000 pounds) for a platform with a maximum span greater than 20 metres and up to and including 25 metres; and
- 1130 kilograms (approximately 2,500 pounds) for a platform with a maximum span greater than 25 metres and up to and including 30 metres.



*Commentary*

With respect to item “vii” above, based on calculations using the rated platform capacity values listed in Clause 6.1 of the CSA Standard Z271-10, Safety Code for Suspended Platforms, the ministry believes the values in the CSA Standard for suspended work platforms with spans of 12 metres and greater are less stringent than the current requirements in the Regulation and therefore not sufficiently protective of worker safety. Consequently, the ministry developed the proposed rated platform capacity values listed above based on good engineering practice and believes that the proposed values are more protective than those in the CSA Standard.

viii. The ministry proposes that in designing a suspended work platform or powered boatswain’s chair, the factored load combination must be calculated as follows:

$\rho(\alpha_D D + \gamma \alpha_L L)$ , where:

$\rho$  = impact factor of 1.25

$\alpha_D$  = Dead load factor of 1.25

D = Dead load

$\gamma$  = importance factor of 1.9

$\alpha_L$  = Live Load factor of 1.5

L = Live load

*Commentary*

The calculation and load factors proposed by the ministry in “viii” above are consistent with Clause 5.4 (Design loads) of the CSA Standard Z271-10, Safety Code for Suspended Platforms, which is generally followed by the industry.

- ix. The ministry proposes that there must be an additional load allowance for the work platform for any construction debris, abrasive blasting grit to a depth of at least 25 millimetres, or other materials that may accumulate or be placed on the work platform as a result of the work.
- x. The ministry proposes that for a modular suspended work platform system, all connections used to transfer load from one module to another must be designed to withstand at least the design loads for the suspended work platform system as specified in the other proposed requirements of [Recommendation 11](#), and any other external loads or forces.

*Commentary*

Experience has shown that although individual modules of swing stages may be designed to support the rated load, the connection between these modules is not always considered by designers. Based on past failures in the field, the ministry wants

the designers of these swing stages to include the connections between modules when designing a suspended work platform system.

### *Consultation Questions*

20. Do you agree with the ministry's approach to referencing the CSA Standard Z271-10, Safety Code for Suspended Platforms in [Recommendation 11](#)? What are the advantages or disadvantages to this approach? Would this approach ensure and promote a level playing field in the industry?
21. Do you agree that an employer using a suspended work platform system or powered boatswain's chair should have design drawings of the work platform or boatswain's chair available at the project and that the design drawings should include the items specified in [Recommendation 11](#)? Do employers currently keep work platform design drawings at the project where they are using a suspended work platform or boatswain's chair? If not at the project, where are the design drawings kept?
22. Are there any challenges for the industry to implementing the ministry's [Recommendation 11](#)?
23. What would be the estimated costs in implementing the ministry's [Recommendation 11](#)?
24. How much time would the industry reasonably need to implement the ministry's proposed design requirements in [Recommendation 11](#)?

### ***Recommendation 12: New Design Verification Requirements for Suspended Work Platforms***

- i. The ministry proposes that design drawings for a work platform that is to be part of a suspended work platform system must:
  - set out the size and specification of all components of the work platform including the type and grade of all materials to be used;
  - state the maximum rated platform capacity of the work platform;
  - state the welding specifications for all welds used on the work platform, including but not limited to, weld length, locations and welding fillers to be used; and,
  - identify all critical welds used on the work platform, as identified by the manufacturer of the work platform.
- ii. The ministry proposes that an employer who is to use a suspended work platform must have a copy of the design drawings for the work platform at the project and make them available to an inspector on request.
- iii. The ministry proposes that, before a suspended work platform is used on a project, the employer who is to use the suspended work platform must obtain a report from the manufacturer or supplier of the work platform prepared by a professional engineer:

- (a) confirming that the work platform design and configuration have been tested and meet the performance requirements in sections 7 through 11 of the American National Standards Institute/Underwriters Laboratories Inc. (ANSI/UL) 1322-2004 “Fabricated Scaffold Planks and Stages” Standard for the desired rated load and worst case configurations; and
  - (b) containing the test results in (a).
- iv. The ministry proposes that the employer who is to use the suspended work platform must have a written report prepared by a professional engineer that:
  - includes the design drawings of the work platform;
  - verifies that the design of the work platform meets [Recommendation 11](#) of this proposal;
  - includes the report from the manufacturer or supplier of the work platform in item “iii” above; and,
  - is kept at the project while the suspended work platform is at the project and made available to an inspector on request.
- v. The ministry proposes that after a work platform or work platform module is manufactured and before it is used for the first time,
  - (a) there must be written documentation confirming certification of the manufacturer under a recognized quality management system, or
  - (b) if the manufacturer does not operate in accordance with a recognized quality management system, a written inspection report must be prepared by a professional engineer of all critical welds identified in bullet 4 of item “i” above and structural components identified in item “i” of [Recommendation 14](#) below. The critical welds and structural components are to be inspected using methods of non-destructive testing in accordance with item “vi” below, and the test results of the non-destructive testing are to be included in the engineer’s inspection report.
- vi. The ministry proposes that the methods of non-destructive testing required in item “v” above must be recognized by the CAN/CGSB Standard 48.9712-2014 as applicable in accordance with
  - (a) for steel, CSA Standard W59-13, Welded Steel Construction (metal arc welding) and CSA Standard W47.1-09, Certification of companies for fusion welding of steel; and
  - (b) for aluminum, CSA Standard W59.2-M1991 (R2008), Welded Aluminum Construction and CSA Standard W47.2-11, Certification of companies for fusion welding of aluminum.

The non-destructive testing, and interpretation and evaluation of testing results, must be conducted by a person certified in accordance with CAN/CGSB 48.9712-2014, Non-destructive Testing – Qualification and Certification of Personnel standard.

- vii. The ministry proposes that the employer who is to use the suspended work platform must keep a copy of the documentation required in item “v”(a) above or the inspection report required in item “v”(b) above at the project while the suspended work platform is at the project and make it available to an inspector on request.
- viii. The ministry proposes that a suspended work platform must be assembled in accordance with the design drawings in item “i” above.

### *Consultation Questions*

- 25. Do you agree that the proposed item “iii” (to have the work platform design and configuration tested by the manufacturer or supplier to meet the performance requirements in sections 7-11 of the ANSI/UL 1322-2004 “Fabricated Scaffold Planks and Stages” Standard) would help ensure a suspended work platform is structurally safe for workers to use? If not, do you believe untested designs or configurations should be allowed? Even though the work platform manufacturer or supplier would be responsible for getting the testing performed, would the proposed requirement for an employer to obtain a test report from the work platform manufacturer or supplier before using a suspended work platform impose a significant burden and/or cost on an employer?
- 26. Do you agree with the proposed item “v” and that vigilance is required at the manufacturing stage of a work platform to address quality assurance and ensure the structural adequacy of work platforms particularly with respect to critical welds? Would the proposed item “v” impose a significant burden and/or cost on an employer using a suspended work platform?
- 27. Are there any challenges for the industry to implementing the ministry’s [Recommendation 12](#)?
- 28. How much time would the industry reasonably need to implement the ministry’s proposed design requirements in [Recommendation 12](#)?

### ***Recommendation 13: New Installation requirements for suspended work platform systems***

#### *Current Regulatory Requirement*

- 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.
- (2) A professional engineer shall design a suspended scaffold or suspended platform in accordance with good engineering practice.
- (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.
- (d) Revoked: O. Reg. 85/04, s. 14.
- (4) A suspended scaffold or suspended platform shall be erected in accordance with the design drawings.
- (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.
- (6) No person shall use a suspended scaffold or suspended platform until the statement required by subsection (5) has been given.
- (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.
- (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.

#### *Recommendation 13A – Proposed Regulatory Requirements*

The ministry proposes to replace the current Section 139 with a new set of installation requirements for suspended work platform systems and powered boatswain's chairs outlined below.

- i. The ministry proposes that a suspended work platform system or powered boatswain chair, including all its components and connections, must be erected, installed, used and dismantled in accordance with the manufacturer's instructions and either a generic installation drawing or a site-specific installation drawing.
- ii. The ministry proposes that the installation, alteration and dismantling of a suspended work platform system or powered boatswain's chair be done by a competent worker trained in accordance with [Recommendation 6](#) of this proposal.
- iii. Subject to [Recommendation 13C](#), the ministry proposes that every suspended work platform system and powered boatswain's chair must be installed in accordance with a generic installation drawing and, if all of the conditions of the generic installation drawing cannot be met, then in accordance with a site-specific installation drawing.
- iv. The ministry proposes that an employer must designate a competent worker trained in accordance with [Recommendation 6](#) of this proposal to inspect a suspended work platform system and to verify in writing that it has been installed in accordance with the corresponding generic installation drawing or site-specific installation drawing.

### *Commentary*

Under the ministry's proposal, a generic installation drawing would need to be reviewed only once by a professional engineer before it is used to install a suspended work platform system on a project for the first time in Ontario. Engineering design in the province of Ontario must be by a professional engineer licensed in Ontario.

After that initial review and unless it has been revised, the generic installation drawing would not have to be reviewed again by a professional engineer when the suspended work platform system or powered boatswain's chair is subsequently moved to another location on the same project or moved to another project. A ministry inspector may request to see a copy of an engineer's report indicating that a particular generic installation drawing complies with Recommendations 9, 11 and 12.

### *Recommendation 13B – Proposed Generic Installation Drawings Requirements*

The ministry proposes that if a generic installation drawing is used:

- i. A professional engineer must review the drawing before the suspended work platform system or powered boatswain's chair is installed at a project and must prepare a written report indicating the drawing complies with Recommendations 9, 11 and 12 of this proposal.
- ii. A competent worker trained in accordance with the [Recommendation 6](#) of this proposal must inspect a suspended work platform system after it has been installed for the first time on a project and before it is put into service, and after each subsequent move to a new location on the building, structure or project and before it is put into service, to determine whether it complies with the generic installation drawing.
- iii. The competent worker must provide a written report of the inspection indicating whether the suspended work platform system complies with the generic installation drawing.
- iv. The suspended work platform system cannot to be put into service unless the competent worker's written report indicates it has been installed in accordance with the generic installation drawing.
- v. While the suspended work platform system is at the project, the employer must keep at the project a copy of the
  - generic installation drawing,
  - professional engineer's report required under item "i" above, and
  - the competent worker's inspection report required under item "iii" above

The employer must make these documents available to an inspector on request.

*Recommendation 13C – Proposed Site-Specific Installation Drawing Requirement*

In addition to item “iii” of [Recommendation 13A](#), the ministry proposes that a site-specific installation drawing, prepared by a professional engineer, must be used instead of a generic installation drawing if a suspended work platform system is to be used in any of the following circumstances:

1. There are stacked or tiered suspended work platforms.
2. A work platform, including its components, weighs more than 525 kilograms.
3. A work platform has a span greater than 12 metres between adjacent points of suspension.
4. A suspended work platform has more than two primary suspension lines.
5. More than two hoisting devices are used to move a suspended work platform.
6. A suspended work platform has any shielding, tarpaulin, enclosure, sign or banner on it that may increase the wind loads on the components of the suspended work platform system.
7. The weight of any construction debris, abrasive blasting grit or other materials that may accumulate on a work platform may alter the specified loading requirements of the work platform.
8. The vertical distance between the top of a suspension line and the lowest point on the street, ground or other horizontal surface under a suspended work platform exceeds 150 metres.

*Commentary*

The ministry proposes that a site specific installation drawing, prepared by a professional engineer, must be used in any of the listed circumstances listed in [Recommendation 13C](#) above because the engineering requirements for suspended work platform systems in such circumstances are more complicated and may depend on the particular features of the building or structure from which they are to be suspended at a project. The reference to 150 metres in item 8 above is based on a provision in Clause 9.6 (Maximum Height and Restraint of Lifelines) of CSA Standard Z271-10, Safety Code for Suspended Platforms, that prohibits lifelines from being suspended a vertical distance of more than 150 metres below the anchorage connector.

*Recommendation 13D –Additional Site-Specific Installation Drawing Requirement*

The ministry proposes that if a site-specific installation drawing is used:

- i. A professional engineer must
  - inspect a suspended work platform system after it has been installed for the first time at a project and before it is put into service, and



- prepare a written report indicating whether the installed system complies with the drawing.
- ii. A suspended work platform system cannot be put into service unless the professional engineer's report indicates it has been installed in accordance with the drawing.
- iii. While the suspended work platform system is at the project, the employer must keep at the project a copy of the
  - site-specific installation drawing and
  - professional engineer's report required under item "i" above.

The employer must make these documents available to an inspector on request.

- iv. If a suspended work platform system is subsequently moved and installed at a new location on the building, structure or project, it must be inspected before it is put into service,
  - (a) by a professional engineer if any of the requirements of the site-specific installation drawing could not be met or were changed; or
  - (b) by a competent worker trained in accordance with [Recommendation 6](#) of this proposal if the relocation was completed in accordance with the site-specific installation drawing.
- v. After the inspection in item "iv" above, a written report must be prepared by
  - (a) the professional engineer identifying and approving any deviations from the site-specific installation drawing in the relocation of the suspended work platform system; or
  - (b) the competent worker indicating that the relocation of the suspended work platform system complies with the site-specific installation drawing.
- vi. A suspended work platform system that is moved and installed at a new location on the building, structure or project, cannot be put into service until the inspection report prepared under item "v" above is provided to the employer.
- vii. While the suspended work platform system is at the project, the employer must keep a copy of the inspection report required under item "v" above at the project and make it available to an inspector on request.

*Recommendation 13E – Proposed Inspection and Use of a Suspended Work Platform Requirement*

The ministry proposes that:

- i. A competent worker must inspect the suspended work platform system and boatswain's chair before it is used for the first time each day and identify any defects or hazardous conditions and document these in writing.



- ii. The suspended work platform system and boatswain's chair cannot be put into service until the identified defects or hazardous conditions have been corrected or removed.
- iii. The employer must keep a copy of the competent worker's inspection document at the project and make it available to an inspector on request.

*Recommendation 13F – Proposed Functional Test of a Suspended Work Platform Requirement*

The ministry proposes that:

- i. A supplier of, or an employer who owns and uses, a suspended work platform system must have a functional test of the system conducted by a competent worker,
  - (a) after it has been installed for the first time at a project and before it is put into service;
  - (b) after it is subsequently moved and installed at a new location on the building, structure or project and before it is put into service; and,
  - (c) before it is used for the first time each day,to ensure that the suspended work platform system is operating in accordance with the manufacturer's instructions.
- ii. If the hoisting device of the suspended work platform system is not equipped with a remote operating device, the height of the functional test must not exceed 30 centimetres.

*Consultation Questions*

- 29. Do you support the proposed two-level inspection process in [Recommendation 13](#) that uses both competent workers (with specific training) and professional engineers to inspect and verify the installation of suspended work platform systems using generic and site-specific installation drawings? Is the proposed inspection process generally consistent with the industry's current work practices? Would the proposed requirements impose a significant burden and/or cost on employers using suspended work platform systems?
- 30. Do you agree that the circumstances related to the use of suspended work platforms listed in [Recommendation 13C](#) warrant having a professional engineer prepare a site-specific installation drawing for the suspended work platform system for the particular project? Are there circumstances related to the use of suspended work platforms that should be added to or deleted from the proposed list and, if so, why?

***Recommendation 14: New Inspection Requirements for suspended work platform systems***

*Proposed Regulatory Requirement*

To ensure suspended work platform systems are maintained in good condition, the ministry proposes to add new requirements for suppliers of suspended work platforms systems and employers who own and use suspended work platforms systems. The requirements would require the identification of certain structural components of suspended work platforms, inspection of suspended work platform systems and annual non-destructive testing of certain structural components of work platforms. The proposed requirements are outlined below.

- i. The ministry proposes that the structural components of a suspended work platform listed below must be marked with a unique identifier that is visible while the work platform is in use:
  1. Truss
  2. End frame
  3. Stirrup
  4. Module connector
  5. Corner or angled section
- ii. The ministry proposes that if the entire work platform is manufactured as a single module, the work platform may be marked with a single unique identifier that is visible while the work platform is in use.
- iii. The ministry proposes that the suspended work platform system, including its suspension lines, must be inspected, tested and maintained in accordance with the manufacturer's instructions and with CSA Standard Z271-10, Safety Code for Suspended Platforms, Clause 11 (Inspection and Testing) and Clause 12 (Maintenance).

The ministry proposes that the inspection, testing and maintenance be performed by a competent worker unless otherwise prescribed in the Regulation or specified in the CSA Standard.

- iv. The ministry proposes that a suspension line, after being manufactured and before being used for the first time on a project, must have all wire rope terminations tested after being installed onto the wire rope.
  - Wire rope terminations must include swaged socket and poured socket terminations, spliced eye terminations and turnback eye terminations.
  - Wire rope terminations must be tested in accordance with the recommendations of the manufacturer of the wire rope or the termination, as the case may be, but in any case to no more than 50 per cent of the wire rope's nominal or minimum rated breaking strength.

- The wire rope termination testing records must be kept at the project while the suspended work platform system is at the project and for the service life of the termination.
- v. The ministry proposes that a suspension line of a suspended work platform system must have its wire rope terminations protected from contact with the motor of the line's hoisting device.
- vi. The ministry proposes that the structural components of a work platform listed below must be inspected and examined at least once a year in accordance with the following Table using non-destructive testing methods in accordance with items "ix" and "x" below.
  1. Truss
  2. End frame
  3. Stirrup
  4. Module connector
  5. Corner or angled section
  6. Modular platform section

TABLE: Inspections – number of representative samples that constitute the "batch" of the specified structural component that must be tested

Number of structural components	Trusses, Corner or angled sections, Modular platform sections	Stirrups, Module connectors, End frames
2 – 15	2	2
16 – 50	3	5
51 – 150	5	8
151 – 500	8	13
501 – 1200	13	20

"Number of structural components" refers to the specific number of trusses, end frames, stirrups, module connectors, corner or angled sections, or modular platform sections, as the case may be, that are within the employer's or supplier's total number ("fleet") of work platforms used in suspended work platform systems.

- vii. The ministry proposes that:

- If any defect is found in the testing conducted under item “vi” above, a professional engineer must review the test results to determine whether the defect affects the structural integrity of the structural component and whether the defective structural component can still be used or should be taken out of service.
- The professional engineer must prepare a written report of his or her review and determination.
- If a defective structural component cannot be used, four more batches of that structural component must be tested.

viii. The ministry proposes that all other parts of the suspended work platform system not listed in item “vi” above must be inspected for damage at least once a year.

ix. The ministry proposes that the non-destructive testing methods used under item “vi” above must be recognized by the CAN/CGSB 48.9712-2014 Standard as being applicable,

(a) for steel, in accordance with CSA Standard W59-13, Welded Steel Construction (metal arc welding) and CSA Standard W47.1-09, Certification of Companies for Fusion Welding of Steel; and

(b) for aluminum, in accordance with CSA Standard W59.2-M1991 (R2008), Welded Aluminum Construction and CSA Standard W47.2-11, Certification of Companies for Fusion Welding of Aluminum.

x. The ministry proposes that the non-destructive testing must be conducted by a person certified in accordance with CAN/CGSB Standard 48.9712-2014, Non-destructive Testing – Qualification and Certification of Personnel.

xi. The ministry proposes that a supplier of a suspended work platform system or an employer who owns and uses a suspended work platform system must keep a permanent equipment log related to the system in accordance with Clause 13 (Equipment Log) of CSA Standard Z271-10, Safety Code for Suspended Platforms.

The ministry proposes that the equipment log:

- must also include a record of the inspections, tests, repairs, modifications and maintenance required under this Recommendation; and,
- must be readily available to an inspector on request.

### *Commentary*

CSA Standard Z271-10, Safety Code for Suspended Platforms, has comprehensive provisions for the inspection, testing and maintenance of suspended work platform systems and boatswain's chairs. Since it is currently common industry practice, according to industry representatives, to follow the CSA Standard Z271-10, the ministry

proposes to adopt the inspection, testing and maintenance provisions of the CSA Standard Z271-10 for clarity and consistency, and to level the playing field.

Given the nature of the construction industry, swing stages in the field are constantly being assembled, used and disassembled during their life span. Maintaining work platforms in good condition is critical for the safety of the workers using them. The ministry believes that in addition to the requirements of CSA Standard Z271-10 regarding inspection, testing and maintenance, other provisions are also needed to ensure an acceptable level of worker safety, based on past industry and ministry experience with this equipment, particularly swing stages.

Visual inspections of key structural components, connections and welds of work platforms are not sufficient to identify microscopic cracks that are not visible to the naked human eye. Nonetheless, such microscopic cracks can lead to the failure of a structural component, connection or weld either under conditions of overloading or routine cyclical use. Consequently, the ministry proposes that non-destructive testing (NDT), which can detect microscopic cracks not visible to the naked human eye, be performed at least annually on specific structural components of work platforms identified in item "vi" above. The ministry proposes that only a representative number of the specified structural components of work platforms in a company's inventory be required to undergo annual NDT as outlined in item "vi" above. Annual NDT can identify microscopic cracks at an early stage, at which time they should be addressed/repaired.

In addition, the specified structural components need to be marked with "unique identifiers" in order to enable companies to track inspection and NDT results (both NDT and "unique identifiers" go hand-in-hand). The ministry's proposal for "unique identifiers" is intended to enable an effective inspection and maintenance program for work platforms including the associated records and documentation. For example, unique identifiers would enable an employer using suspended work platforms or a supplier of suspended work platforms to track any repairs, modifications, NDT and other maintenance performed on the specified structural components.

### *Consultation Questions*

31. Do you currently have in place inspection and maintenance programs that may include: some form of marking or identifying structural components of work platforms; and, annual or periodic NDT of certain structural components?
32. Do you support the proposed requirement to have certain structural components of work platforms (as specified in item "i") marked with unique identifiers to ensure owners, suppliers and/or employers are able to implement an effective inspection and maintenance program that would track inspections (including non-destructive testing) and any repairs and modifications of the structural components? Please indicate why or why not. Would the proposed requirements impose a significant burden and/or cost on owners and/or suppliers of suspended work platforms?

33. Do you support the proposed inspection requirements for annual non-destructive testing of representative samples of the specified structural components of work platforms in items “vi” to “x”? Please indicate why or why not? Would the proposed requirements impose a significant burden and/or cost on owners and/or suppliers of suspended work platforms?
34. Are there any challenges for suppliers or employers to implementing the ministry’s [Recommendation 14](#)?
35. How much time would suppliers and employers reasonably need to implement the ministry’s [Recommendation 14](#)?
36. Are there other ways to implement an effective inspection and maintenance program to ensure work platforms are maintained in good condition?
37. Do you agree with the ministry’ approach to referencing the inspection, testing and maintenance requirements of the CSA standard Z271-10, Safety Code for Suspended Platforms? What are the advantages or disadvantages to this approach? Would this approach ensure and promote a level playing field in the industry?
38. How much time would the industry reasonably need to comply with the proposed requirements in [Recommendation 14](#)?

***Recommendation 15: New Requirements for Marking or Labelling Suspended Work Platform Systems***

The ministry proposes that all components of a suspended work platform system including the work platform(s), suspension lines, hoisting devices and fixed supports must be marked or labelled in accordance with Clause 10.2 (Markings) of CSA Standard Z271-10, Safety Code for Suspended Platforms.

***Commentary***

The ministry proposes a new requirement to ensure that important information is displayed or provided on all key components of a suspended work platform system e.g. operating and indicating devices, nominal diameter and breaking strength of suspension lines, rated capacity and gear ratio of hoisting devices.

***Consultation Questions***

39. Do the suspended work platform systems currently in use by industry generally comply with the marking or labelling provisions of the CSA Standard Z271-10, Safety Code for Suspended Platforms? Would the proposed requirements impose a significant burden and/or cost on owners and/or suppliers of suspended work platforms?

### ***Recommendation 16: Boatswain's Chairs***

#### *Current Regulatory Requirement – Section 140*

140. (1) A boatswain's chair shall be at least 600 millimetres long and 250 millimetres wide.

- (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.

Sections 137 and 141 of the Regulation also currently apply to boatswain's chairs. Proposed changes to these sections are addressed under [Recommendation 9](#) and [Recommendation 10](#) respectively.

#### *Proposed Regulatory Requirements –Boatswain's Chairs*

In addition to the changes proposed in [Recommendation 9](#) and [Recommendation 10](#), the ministry proposes to replace Section 140 of the Regulation with a new requirement to address boatswain's chairs. The proposed provisions below are a combination of existing requirements in the [Construction Projects Regulation](#) and in the [Window Cleaning Regulation](#). The latter currently contains comprehensive requirements for the use of boatswain's chairs.

- i. The ministry proposes that only a competent worker be permitted to supervise the installation, alteration and dismantling of a boatswain's chair.
- ii. The ministry proposes that a boatswain's chair must:
  - (a) have a suspension line or lines made of wire rope except where the boatswain's chair is equipped with a descent control device in which case the suspension line or lines may be other than wire rope;
  - (b) have a seat or seating area at least 600 millimetres long and 250 millimetres wide; and,
  - (c) have the seat or sitting area supported by a sling constructed of wire rope of at least nine millimetres in diameter which crosses under the seat or sitting area.
- iii. If a boatswain's chair has a descent control device, the ministry proposes that,
  - (a) the distance between the boatswain's chair and the fixed support must not exceed 90 metres;
  - (b) a suspension line or lines other than wire rope may be used; and
  - (c) a worker on the boatswain's chair must not use a corrosive substance, or mechanical grinding or flame-cutting equipment if the suspension line or lines are other than wire rope.
- iv. The ministry proposes that every suspension line for a boatswain's chair must:

- (a) be permanently marked with the
    - name of the manufacturer,
    - date of manufacture of the line,
    - length of the line, and
    - the breaking strength of the line as rated by the manufacturer;
  - (b) be protected from abrasion;
  - (c) be tested by a recognized testing laboratory two years after the date of manufacture of the line and then once every 12 months thereafter to ensure it does not show evidence of abrasion or other damage and that the line has a breaking strength of at least 10 times the static load that the line is intended to support; and
  - (d) be discarded
    - if it is found to not have a breaking strength of at least 10 times the static load that the line is intended to support;
    - if it shows evidence of abrasion or other damage;
    - in accordance with the manufacturer's recommendations; or
    - when it is no longer safe for use,whichever occurs first.
- v. The ministry proposes that in addition to item "iv" above, suspension lines that are made of organic or polymer fibres must,
- be doubled from the fixed support of the line to the ground or egress level; and,
  - be used only with a descent control device and not with a hoisting device.

### *Commentary*

The ministry proposes that a descent control device not be considered a hoisting device.

### *Consultation Questions*

40. Do you agree that all suspension lines used with powered boatswain's chairs must be made of wire rope except where a descent control device is used in which case they may be made of material other than wire rope such as organic or polymer fibres? Would this proposed requirement impose a significant burden and/or cost on owners and/or suppliers of boatswain's chairs?



41. Do you support having all suspension lines used with boatswain's chairs tested two years after being manufactured and afterwards annually? Would this proposed requirement impose a significant burden and/or cost on owners and/or suppliers of boatswain's chairs?

## **How to Participate**

The consultation period ends on **June 22, 2015**.

### ***Send us your comments:***

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## **Notice to Consultation Participants**

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