

2019/01/23-01**THE WORKERS' COMPENSATION BOARD OF BRITISH COLUMBIA****RESOLUTION OF THE BOARD OF DIRECTORS**

RE: Amendments to requirements of the *Occupational Health and Safety Regulation*, B.C. Reg. 296/97 ("*OHSR*") and to *Prevention Manual* policies regarding Part 20 of the *OHSR*

WHEREAS:

Pursuant to section 225(1) of the *Workers Compensation Act*, R.S.B.C. 1996, c. 492 ("*Act*"), the Workers' Compensation Board ("*WorkSafeBC*") may make regulations it considers necessary or advisable in relation to occupational health and safety and occupational environment;

AND WHEREAS:

Pursuant to section 82 of the *Act*, the Board of Directors must set and revise as necessary the policies of the Board of Directors, including policies respecting compensation, assessment, rehabilitation, and occupational health and safety;

AND WHEREAS:

The WorkSafeBC, pursuant to its mandate under the *Act*, has proposed amendments to the following Parts of the *OHSR*, and has given notice of the proposed amendments, conducted consultations and held public hearings on the following proposed amendments in accordance with section 226(1) of the *Act*:

- Parts 8 and 34, Safety Headgear, sections 8.11(2) and 34.14(d)
- Part 8, Personal Protective Clothing and Equipment, sections 8.14 – 8.18
- Part 20, Construction, Excavation and Demolition, sections 20.1, 20.16.1 – 20.16.2, and 20.17 – 20.26
- Part 21, Blasting Operations, sections 21.1, 21.3, 21.24, 21.55, 21.58-21.63, 21.63.1, 21.67, 21.69, 21.71-21.73, and 21.84
- Parts 8 and 24, Buoyancy Equipment for Fishing Operations, sections 8.29, 24.1, 24.69, 24.96.1 - 24.96.3, and 24.128

- Parts 20, 23, 24, 26, and 34, Various topics, sections 20.47(2), 23.22(a), 24.21(1), 34.4(1)(a)(i), and Table 26-8, housekeeping amendments
- Parts 5, 23, and 29, Chemical Agents and Biological Agents, Oil and Gas, Aircraft Operations, sections 5.27(3), 23.63(6) and 29.16(2), prime contractor

AND WHEREAS:

Pursuant to section 228 of the *Act*, a review of the above Parts was undertaken by WorkSafeBC as part of the process of ongoing review of and consultation on its regulations to ensure they are consistent with current workplace practices, technological advances and other changes affecting occupational health and safety and occupational environment;

AND WHEREAS:

WorkSafeBC has proposed consequential changes to Item R20.17-1 in the *Prevention Manual* as a result of the proposed amendments to Part 20 of the *OHSR* relating to concrete formwork and falsework;

AND WHEREAS:

WorkSafeBC, after due consideration of all presentations, considers it necessary and advisable in relation to occupational health and safety and occupational environment to amend Parts 4, 5, 8, 20, 21, 23, 24, 26, 29 and 34 of the *OHSR*, and Item R20.17-1 in the *Prevention Manual*;

AND WHEREAS:

Pursuant to section 227 of the *Act*, WorkSafeBC must specify the date on which regulations come into force, which date must be at least 90 days after their deposit under the *Regulations Act*;

AND WHEREAS:

Pursuant to the Provincial Government's *Regulatory Reform Policy*, WorkSafeBC has evaluated the proposed regulatory amendments according to the established regulatory criteria.

THE BOARD OF DIRECTORS RESOLVES THAT:

1. Effective June 3, 2019, the *OHSR* is amended as set out in the attached Appendices A to G.
2. Item R20.17-1, Construction, Excavation and Demolition - Concrete Formwork and Falsework - Specifications and Plans, of the *Prevention*

Manual, is amended as set out in attached Appendix H, and applies to all inspections that occur on or after June 3, 2019.

3. This resolution constitutes a policy decision of the Board of Directors.

I, Ralph McGinn, hereby certify for and on behalf of the Board of Directors of the Workers' Compensation Board that the above resolutions were duly passed at a meeting of the Board of Directors held in Richmond, British Columbia, January 23, 2019.

RALPH MCGINN, P.ENG
CHAIR, Board of Directors
Workers' Compensation Board

PROVINCE OF BRITISH COLUMBIA
REGULATION OF THE WORKERS' COMPENSATION BOARD

Workers Compensation Act

The Workers' Compensation Board orders that, effective June 3, 2019, the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended as set out in the attached Appendices A to G.

Date

Chair, Board of Directors

(This part is for administrative purposes only and is not part of the Order.)

Authority under which Order is made:

Act and section: *Workers Compensation Act*, R.S.B.C. 1996, c. 492, s. 225

Other: *WCB Resolution 2019/01/23-01*

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APPENDIX A

- 1 **Section 8.11 (2) of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is repealed and the following substituted:**
 - (2) Safety headgear must meet the requirements of one of the following standards:
 - (a) *CSA Standard CAN/CSA-Z94.1-05 or CAN/CSA-Z94.1-15, Industrial protective headwear — Performance, selection, care, and use;*
 - (b) *ANSI Standard ANSI/ISEA Z89.1-2009 or ANSI/ISEA Z89.1-2014, American National Standard for Industrial Head Protection.*

- 2 **Section 34.14 (d) (i) to (v) is repealed and the following substituted:**
 - (i) *CSA Standard CAN/CSA-Z94.1-05 or CAN/CSA-Z94.1-15, Industrial protective headwear — Performance, selection, care, and use;*
 - (ii) *ANSI Standard ANSI/ISEA Z89.1-2009 or ANSI/ISEA Z89.1-2014, American National Standard for Industrial Head Protection;*
 - (iii) *British Safety Institution Standard BS EN 12492:2012 Mountaineering equipment — Helmets for mountaineers — Safety requirements and test methods;*
 - (iv) *British Safety Institution Standard BS EN 397:2012+A1:2012 Industrial safety helmets;*
 - (v) *UIAA Standard UIAA 106 Mountaineering and Climbing Equipment — Helmets.*

APPENDIX B

1 Sections 8.14 to 8.18 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, are repealed and the following substituted:

Eye protection

- 8.14** (1) In this section and sections 8.15 to 8.17, “**eye protection**” means personal protective equipment for the eyes.
- (2) A worker must wear eye protection if the worker is in an area of the workplace where one or more hazards involving the eyes exist, or are created, due to conditions or activities conducted in the area.
- (3) Eye protection that is required to be worn under subsection (2), or under any other provision of this Regulation, must meet all of the following requirements:
- (a) the eye protection must fit the worker properly;
 - (b) the eye protection must provide the worker with appropriate protection from the eye hazards referred to in subsection (2);
 - (c) the eye protection must meet the requirements set out in one of the following standards:
 - (i) *CSA Standard CAN/CSA-Z94.3-07 or Z94.3-15, Eye and Face Protectors;*
 - (ii) *ANSI Standard ANSI/ISEA Z87.1-2015, Occupational and Educational Personal Eye and Face Protection Devices.*
- (4) To determine whether eye protection provides a worker with appropriate protection from the eye hazards referred to in subsection (2), all factors relevant to the nature and extent of each of those eye hazards must be considered, including, without limitation, the following:
- (a) the form of the hazard;
 - (b) the manner in which the hazard may be transmitted;
 - (c) the injury or occupational disease that could occur as a result of the hazard.

Glass lenses

- 8.15** (1) Except as permitted by subsection (2), eyeglasses or eye protection with glass lenses must not be worn by a worker in an area of the workplace where there is a risk, due to conditions in the area or the activities conducted in it, that something could damage the glass lenses and cause an injury to the eye.
- (2) Eyeglasses or eye protection with glass lenses may be worn by a worker in an area of the workplace described in subsection (1) if, covering the glass lenses, the worker wears eye protection that meets one of the following:
- (a) the impact resistance requirements set out in clause 6.1 of a standard referred to in section 8.14 (3) (c) (i);
 - (b) the impact rated requirements set out in section 6 of the standard referred to in section 8.14 (3) (c) (ii).

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Side protection

- 8.16** (1) Eye protection must have side protection if an eye hazard referred to in section 8.14 (2) could reach a worker's eye through an unprotected area beside the eye.
- (2) Despite section 8.14 (3) (c) (i), removable side shields may be used for eye protection under subsection (1).

Face protection

- 8.17** (1) In this section, "**face protection**" means personal protective equipment for the face.
- (2) A worker must wear face protection covering the worker's eye protection if the worker is in an area of the workplace where one or more hazards involving the face exist, or are created, due to conditions in the area or the activities conducted in it.
- (3) Face protection that is required to be worn under subsection (2), or under any other provision of this Regulation, must meet all of the following requirements:
- (a) the face protection must fit the worker properly;
 - (b) the face protection must provide the worker with appropriate protection from the face hazards referred to in subsection (2);
 - (c) the face protection must meet the requirements set out in one of the standards referred to in section 8.14 (3) (c).
- (4) To determine whether face protection provides a worker with appropriate protection from the face hazards referred to in subsection (2), all factors relevant to the nature and extent of each of those face hazards must be considered, including, without limitation, the factors described in section 8.14 (4) (a), (b) and (c).

APPENDIX C

1 *Section 20.1 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended*

(a) by adding the following definitions:

“application drawings”, also known as erection drawings, means drawings that contain the information necessary for the erection, use and dismantling of formwork, falsework, reshoring and associated components and equipment of the formwork, falsework and reshoring;

“falsework” means a temporary support structure used to support loads during a construction project; ,

(b) by repealing the definition of “formwork” and substituting the following:

“formwork” means a temporary support system used to contain cast-in-place concrete during a construction project, but does not include falsework; ,

(c) by repealing the definition of “formwork designer”, and

(d) by adding the following definition:

“reshoring” means a temporary support system used to support a slab or other structure and withstand loads during a construction project after formwork and falsework have been removed; .

2 *The heading “Concrete Formwork And Falsework” is repealed and the following heading and sections are added after section 20.16:*

Concrete Falsework and Formwork

Definitions

20.16.1 In sections 20.17 to 20.26:

“specified formwork” means formwork of a type listed in section 20.17 (1) (a) to (n);

“worksite-specific plans” means worksite-specific application drawings and any associated specifications and supplementary instructions.

Application

20.16.2 Sections 20.17 to 20.26 apply only to cast-in-place concrete.

3 *Sections 20.17 to 20.26 are repealed and the following substituted:*

Worksite-specific plans required for specified formwork

20.17 (1) The employer must ensure that worksite-specific plans are prepared for the following types of formwork and any associated falsework or reshoring:

(a) flyforms;

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- (b) ganged forms;
 - (c) jump forms;
 - (d) vertical slip forms;
 - (e) formwork over 4 m (13 ft) in height;
 - (f) suspended forms for beams, slabs, stairs and landings;
 - (g) single-sided, battered or inclined forms over 2 m (6.5 ft) in height;
 - (h) cantilever forms;
 - (i) bridge deck forms;
 - (j) shaft lining forms;
 - (k) tunnel lining forms;
 - (l) formwork into which concrete will be pumped through an injection port below the upper concrete surface;
 - (m) formwork over 3 m (10 ft) in height into which self-consolidating concrete will be placed;
 - (n) formwork designated by the designer of the structure.
- (2) The employer must ensure that a professional engineer certifies the following in accordance with section 20.18:
- (a) worksite-specific plans;
 - (b) any changes to worksite-specific plans.
- (3) The employer must ensure that certified worksite-specific plans are available at the worksite during the erection, use and dismantling of formwork, falsework and reshoring.
- (4) The employer must ensure that any changes to certified worksite-specific plans are available at the worksite
- (a) as soon as practicable, and
 - (b) before the inspection required for placement of concrete or other intended loading of formwork, falsework and reshoring.
- (5) The employer must ensure that formwork, falsework and reshoring are erected, used and, if applicable, dismantled in accordance with up-to-date certified worksite-specific plans.

Certification of worksite-specific plans by professional engineer

20.18 For the purposes of section 20.17 (2), a professional engineer must certify that worksite-specific plans, and any changes to worksite-specific plans, meet the requirements of

- (a) *CSA Standard S269.1-16, Falsework and formwork*,
- (b) section 20.20 of this Regulation, and
- (c) if worksite-specific plans are prepared for flyforms and any associated falsework or reshoring, sections 20.21 (1) and (2) and 20.22 (1) and (2) of this Regulation.

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Continuity of engineering

20.19 In the event of a change of professional engineers or if the separate work of 2 or more professional engineers is involved, the continuity of design, construction and inspection of formwork and any associated falsework or reshoring must be ensured by

- (a) the employer, or
- (b) the owner or prime contractor, if the formwork, falsework or reshoring affects workers of more than one employer.

Information for worksite-specific plans

20.20 (1) For the purposes of section 20.18 (b), worksite-specific plans must, subject to subsection (2),

- (a) clearly show all the information necessary to accurately and safely erect, use and, if applicable, dismantle formwork, falsework and reshoring, and
- (b) include the following information:
 - (i) sufficient plan view, section views and connection details, enlarged where necessary, to clearly describe the formwork, falsework and reshoring and permit accurate erection;
 - (ii) the quality and grade of materials to be used for the components and their connection;
 - (iii) an accurate description of proprietary items, including fittings, to permit field identification;
 - (iv) the load bearing capacity required of the material upon which sills are to be placed and, if necessary, details of procedures to be used to develop and maintain the required capacity;
 - (v) the minimum dimensions of sills and other foundation members;
 - (vi) erection, use and dismantling procedures that require special attention including, where applicable, handling multi-use formwork panels;
 - (vii) details of supports necessary to maintain lateral stability and resist sideways and racking, specifying the materials, dimensions and locations of external braces, ties and other support devices;
 - (viii) if structural components connect together, the connection details necessary to prevent accidental displacement or rotation of the components;
 - (ix) details of the form or mould into which concrete will be placed;
 - (x) the maximum concrete slump that the form or mould is able to withstand;
 - (xi) sufficient load and deflection information to permit a professional engineer to understand the design of the formwork and falsework;
 - (xii) the sequence, method and rate of load placement necessary to prevent overloading of any part of the formwork or falsework.

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- (2) If any information cannot be provided to meet the requirements of subsection (1), worksite-specific plans must include special notation of the information that is incomplete and that will require further design.

Application drawings and supplementary instructions for flyforms

- 20.21** (1) Application drawings for flyforms must be detailed to show
- (a) a plan view, a longitudinal section and a cross-section for each type of flyform panel, and
 - (b) the weight, calculated position of the centre of gravity and the position of the pickup points for each type of flyform panel.
- (2) The design on the application drawings and any supplementary instructions for a flyform panel must provide that, as soon as the panel is landed on a supporting surface, before anyone climbs or walks on the panel and before placement of concrete or reinforcing steel on the panel, the panel must
- (a) be able to resist a minimum horizontal load of 3.6 kN (800 lbs) applied in any direction on the top edge,
 - (b) have a minimum safety factor against overturning about any possible axis of
 - (i) 1.6 when dead load plus most severe live load configuration plus horizontal loads are considered, and
 - (ii) 2.0 when dead load plus most severe live load configuration or dead load plus horizontal loads are considered,
 - (c) have a minimum safety factor of 1.5 against the panel sliding against the supporting surface, and
 - (d) have flyform legs placed as necessary to attain the required safety factor against overturning.
- (3) If any of the requirements of subsection (2) cannot be met for a panel, the employer must ensure that the panel, before being unhooked from the crane or hoist, is secured to the permanent structure or an adjacent panel in a manner specified by the designer of the formwork.

Flyform handling

- 20.22** (1) Application drawings and any supplementary instructions for flyforms must show a step-by-step procedure for all phases of each cycle of assembly, flying, use, dismantling and reuse of each flyform panel, including special procedures for non-typical floors.
- (2) If any flyform panel is not inherently stable for all possible conditions of load, special notation on the flyform application drawings and any supplementary instructions must draw attention to the procedure for obtaining stability.
- (3) The employer must ensure that the application drawings and any supplementary instructions required by subsections (1) and (2), including special procedures required for non-typical floors, are made available to workers involved in any part of the assembly, flying, use, dismantling or reuse of each flyform panel.

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Supervision

20.23 The employer must ensure that

- (a) a qualified supervisor supervises the erection, use and dismantling of formwork, falsework and reshoring, and
- (b) workers are instructed in
 - (i) the hazards that the workers may be exposed to, and
 - (ii) the precautions to be taken while around or on formwork, falsework or reshoring.

Equipment requirements

20.24 The employer must ensure that equipment, materials and hardware used in the erection, use or dismantling of formwork and any associated falsework and reshoring meet the requirements specified in up-to-date worksite-specific plans.

Concrete placing hazards

- 20.25**
- (1) The employer must ensure that protruding objects that create a risk of injury are removed or effectively guarded.
 - (2) During placement of concrete or other significant loads on the formwork, a person must be restricted from the areas underneath where the loads are placed.
 - (3) After placement of concrete or other significant loads on the formwork, a person must be restricted from the areas underneath where the loads were placed until it can be confirmed by a qualified person that the formwork is withstanding the loads.
 - (4) Placement of concrete or other loads
 - (a) must stop if any of the following occurs:
 - (i) weakness;
 - (ii) undue settlement;
 - (iii) excess distortion of specified formwork or any associated falsework or reshoring;
 - (iv) an unanticipated or dangerous condition not set out in subparagraph (i), (ii) or (iii), and
 - (b) may restart only after the formwork, falsework or reshoring has been repaired or strengthened as specified by a professional engineer.
 - (5) Loads must not be applied to uncured concrete structures except as permitted by the worksite-specific plans.

Inspections

- 20.26**
- (1) Subject to subsection (4), immediately before placement of concrete or other intended loading of specified formwork and any associated falsework or reshoring, the employer must ensure that

- (a) the formwork, falsework and reshoring are inspected by a professional engineer, and
- (b) the professional engineer issues a certificate that
 - (i) indicates the specific areas inspected, and
 - (ii) certifies that the formwork, falsework and reshoring have been erected in accordance with up-to-date worksite-specific plans.
- (2) The certificate required by subsection (1) (b) must be available at the worksite for inspection by an officer.
- (3) If ganged forms are being reused on the same worksite with any modification to the design or method of erection of the ganged forms, subsection (1) applies in relation to the reuse of the ganged forms.
- (4) If ganged forms are being reused on the same worksite without modification to the design or method of erection of the ganged forms certified under subsection (1), immediately before placement of concrete or other intended loading of the ganged forms, the employer must ensure that the ganged forms are inspected by a qualified person who
 - (a) confirms that the ganged forms have been erected in accordance with up-to-date worksite-specific plans, and
 - (b) documents the inspection and the confirmation, including the specific location where the ganged forms are being reused and the date of the inspection.
- (5) The documents required by subsection (4) (b) must be available at the worksite for inspection by an officer.

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APPENDIX D

1 Section 21.1 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended

(a) by adding the following definitions:

“electric detonator” means a detonator, other than an electronic detonator, designed for, and capable of, initiation by means of an electric current, including, for example, a resistorized electric detonator;

“electric igniter” means a device designed for, and capable of, initiating deflagration in another explosive by means of an electric current;

“electronic detonator” means a detonator that uses stored electrical energy as a means of powering a programmable electronic timing delay element, whether or not the detonator is wireless;

“initiating device” means a blasting machine, non-electric starter, fuse lighter and any other device used to initiate a deflagration or detonation but does not include a detonator or electric igniter; ,

(b) by repealing the definitions of “misfire (mishole)” and “primer” and substituting the following:

“misfire” means a charge, or part of a charge, that failed to completely detonate or deflagrate, as applicable;

“primer” means an explosive to which a detonator is attached or into which a detonator is inserted; ,

(c) by adding the following definition:

“radio frequency transmitter” means an AM, CB, FM and VHF radio, TV, radar, cellular telephone, wireless or remote control device, global positioning system, radio navigational beacon and any other electronic transmitting device that radiates radio frequency waves; , **and**

(d) by repealing the definition of “shunt” and substituting the following:

“shunt” means the act of closing an electrical circuit to prevent or minimize the potential for an electrical charge or current to unintentionally reach an explosive by

- (a) using an electrically conductive, non-ferrous clip or foil,
- (b) twisting together the lead wires or leg wires,
- (c) using a shorting pin, or
- (d) using other means recommended by the manufacturer; .

2 Section 21.3 (2) is amended

(a) by repealing paragraph (d) and substituting the following:

- (d) the types of explosives, including detonators, and initiating device used,

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(d.1) the instrument used to test the electric blasting circuit, ,

(b) in paragraph (e) by striking out “and”, and

(c) by repealing paragraph (f) and substituting the following:

(f) the names of all employers responsible for workers present at the worksite when the incident occurred, and

(g) the action taken by each employer referred to in paragraph (f).

3 Section 21.24 (2) is repealed and the following substituted:

(2) Detonators and electric igniters must be transported in their original containers, as shipped by the manufacturer.

4 Section 21.55 (2) is amended by striking out “electric detonator” and substituting “electric detonator or electronic detonator”.

5 Section 21.58 is amended

(a) in subsection (1) by striking out “detonation of electric detonators” and substituting “initiation of electric detonators, electronic detonators and electric igniters”, and

(b) in subsection (2) by striking out “Blasting circuits” and substituting “Electric blasting circuits”.

6 Section 21.59 is amended by striking out “Electric detonators” and substituting “Electric detonators or electric igniters”.

7 Section 21.60 (1) is repealed and the following substituted:

(1) Precautions must be taken during handling of electric detonators, electronic detonators and electric igniters to prevent premature initiation caused by static electricity.

8 Section 21.61 is amended

(a) in subsection (1) by striking out “During electrical blasting,” and substituting “If the electric blasting circuit is equipped with an electric detonator,” and by striking out “1988” and substituting “December 2011”,

(b) by adding the following subsection:

(1.1) If the blasting system is equipped with an electronic detonator or electric igniter, minimum distances from radio frequency transmitters as recommended by the manufacturer must be maintained. ,

(c) in subsection (2) by striking out “electrical blasting circuits” and substituting “electric blasting circuits”,

(d) in subsection (2) (a) by striking out “CB” and substituting “CB radio”, and

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(e) *in subsection (2) (b) by striking out “AM, FM, TV,” and substituting “AM or FM radio, TV”.*

9 *Section 21.62 (2) is amended by striking out “electrical circuits” and substituting “electric blasting circuits” and by striking out “transmitters” and substituting “radio frequency transmitters”.*

10 *Section 21.63 is repealed and the following substituted:*

Testing electric blasting circuits

- 21.63** (1) The blaster of record must ensure that each electric blasting circuit is tested before firing.
- (2) In seismic blasting, the blaster of record must ensure that each electric blasting circuit is tested after the blast hole is loaded with explosives and before a plug is placed into the hole.
- (3) If the electric blasting circuit is equipped with an electric detonator or electric igniter, the blaster of record must ensure that before firing,
- (a) the resistance of the circuit is measured using a blasting galvanometer or another instrument specifically designed for testing electric detonators and circuits containing them, and
 - (b) the resistance is recorded in the blasting log.

Confirming electronic detonator integrity

21.63.1 The blaster of record must ensure that before firing with the use of an electronic detonator, the signal integrity of the detonator is confirmed and recorded in the blasting log.

11 *Section 21.67 is amended by striking out “blasting machine or blasting circuit” and substituting “initiating device or electric blasting circuit”.*

12 *Section 21.69 (2) is amended by adding “oil and gas downhole explosives operations,” after “does not apply to”.*

13 *Section 21.71 is amended*

- (a) *by striking out “detonated, the blaster must not allow any other worker” and substituting “initiated, the blaster of record must not permit anyone”, and*
- (b) *in paragraphs (a) and (c) by striking out “blaster” and substituting “blaster of record”.*

14 *Section 21.72 is amended*

- (a) *by striking out “electrically detonated” and substituting “electrically initiated,”*

(b) in paragraph (a) by striking out “cables from the blasting machine” and substituting “lines from the initiating device” and by striking out “short circuited” and substituting “shunted”, and

(c) in paragraph (b) by striking out “detonated” and substituting “initiated”.

15 *Section 21.73 is repealed and the following substituted:*

Misfires

- 21.73** (1) If there is evidence or suspicion of a misfire after a blast is initiated, the blaster of record must not permit anyone to enter the danger area until the later of the following:
- (a) if an electric detonator or electric igniter was used to initiate the blast, 15 minutes after the blaster of record disconnects the firing lines from the initiating device and shunts the lead wires;
 - (b) if shock tube initiation was used to initiate the blast, 15 minutes after the blaster of record disconnects the lead-in-line from the initiating device;
 - (c) if an electronic detonator was used to initiate the blast, 30 minutes after the blaster of record disconnects the firing lines from the initiating device and shunts the lead wires;
 - (d) if a safety fuse was used to initiate the blast, 30 minutes after the estimated time of detonation;
 - (e) the waiting period stated in the manufacturer’s instructions.
- (2) If there is evidence or suspicion of a misfire after a blast is initiated and a charge is known or suspected to be burning, the blaster of record must not permit anyone to enter the danger area until the later of the following:
- (a) one hour after the smoke clears;
 - (b) the waiting period stated in the manufacturer’s instructions.

16 *Section 21.84 (1) (a) is amended by striking out “together”.*

APPENDIX E

- 1 *Section 8.29 of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is repealed and the following substituted:*

Record of inspection and maintenance

8.29 If workers use inflatable personal flotation devices (PFDs) or automatically inflatable lifejackets, the employer must keep a record of all inspections made and maintenance performed on those PFDs or automatically inflatable lifejackets.

- 2 *Section 24.1 is amended in the definition of “fishing vessel” by striking out “any vessel” and substituting “any commercial vessel”.*

- 3 *Section 24.1 is amended by adding the following definitions:*

“**lifejacket**” means a device that,

- (a) when worn correctly, provides a specified buoyancy that will turn the wearer face-up on entering the water, and will keep the wearer in this position, and
- (b) is of a type of lifejacket that has the approval, and bears a mark or label indicating that approval, set out in section 7 (1) and (2) of the Small Vessel Regulations (Canada);

“**personal flotation device (PFD)**” means a device that,

- (a) when worn correctly, provides a specified buoyancy to support a conscious person in an upright or backward leaning position, but is not designed to turn a person from a face-down to a face-up position in the water, and
- (b) is of a type of personal flotation device that has the approval, and bears a mark or label indicating that approval, set out in section 7 of the Small Vessel Regulations (Canada);

“**working alone**” means working in circumstances where assistance would not be readily available to a crewmember if the crewmember fell overboard.

- 4 *Section 24.69 is repealed and the following substituted:*

Application

- 24.69 (1) Sections 8.26 and 8.28 do not apply to a crewmember of a fishing vessel.
- (2) Section 8.29 does not apply to an owner or master of a fishing vessel.
- (3) Sections 8.27 and 8.30 do not apply to a personal flotation device (PFD) or lifejacket used on a fishing vessel.

- 5 *The following sections are added:*

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When crewmember must wear a personal flotation device (PFD) or lifejacket

24.96.1 A crewmember must wear a personal flotation device (PFD) or lifejacket on a fishing vessel if the crewmember is

- (a) on board the fishing vessel, in the case of a fishing vessel that has no deck or deck structure, or
- (b) on the deck or in the cockpit of the fishing vessel, in the case of a fishing vessel that has a deck or deck structure.

Crewmember working alone

24.96.2 If a crewmember is working alone on a fishing vessel, the crewmember must wear a lifejacket that

- (a) has a minimum buoyancy of 93 N (21 lbs), and
- (b) is inherently buoyant or automatically inflatable.

Record of inspection and maintenance

24.96.3 If crewmembers use inflatable personal flotation devices (PFDs) or automatically inflatable lifejackets on a fishing vessel, the owner or the master must keep a record of all inspections made and maintenance performed on those PFDs or automatically inflatable lifejackets.

6 *Section 24.128 is repealed.*

APPENDIX F

- 1 *Section 20.47 (2) of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, is amended by striking out “section 20.26” and substituting “section 20.26.3”.*
- 2 *Section 23.22 (a) is amended by striking out “Enform Canada” and substituting “Energy Safety Canada”.*
- 3 *Section 24.21 (1) is amended by striking out “Defense” and substituting “Defence”.*
- 4 *Table 26-8 in Part 26 is amended in Item 1 in the column entitled “Signaller says” by striking out “CLOSE AND GO” and substituting “TAKE IT”.*
- 5 *Section 34.4 (1) (a) (i) is amended by striking out “International Rope Access Trade Association” and substituting “Industrial Rope Access Trade Association”.*

APPENDIX G

- 1 Sections 5.27 (3), 23.63 (6) and 29.16 (2) (a) of the Occupational Health and Safety Regulation, B.C. Reg. 296/97, are amended by striking out “principal contractor” wherever it appears and substituting “prime contractor”.*

R10292437

RE: Construction, Excavation and Demolition – ITEM: R20.17-1
Concrete Formwork and Falsework **Falsework and Formwork** –
Specifications and Plans

BACKGROUND

1. Explanatory Notes

Section 20.17 sets out the requirements for specifications and plans for concrete formwork and falsework **falsework and formwork**.

2. The Regulation

Section 20.17:

- (1) ~~The employer must ensure that a set of plans and specifications meeting the requirements of CSA Standard S269.1-1975, Falsework for Construction Purposes and CSA Standard CAN/CSA-S269.3-M92, Concrete Formwork is prepared for the formwork for each job and for all items of concrete work, the failure of which could cause injury.~~
- (2) ~~Erection drawings and supplementary instructions for concrete formwork, falsework and reshoring must be certified by a professional engineer and available at the site during erection, use and removal of the concrete formwork, falsework and reshoring.~~
- (3) ~~The following types of concrete formwork require erection drawings and supplementary information certified by a professional engineer:~~
 - ~~(a) flyforms;~~
 - ~~(b) gang forms;~~
 - ~~(c) jump forms;~~
 - ~~(d) vertical slip forms;~~
 - ~~(e) formwork more than 4 m (13 ft) in height;~~
 - ~~(f) suspended forms for slabs, stairs and landings;~~
 - ~~(g) beam forms;~~
 - ~~(h) single sided forms over 2 m (6.5 ft) in height;~~

- _____ (i) cantilever forms;
- _____ (j) bridge deck forms;
- _____ (k) shaft lining forms;
- _____ (l) tunnel lining forms;
- _____ (m) forms so designated by the designer of the structure.

(1) The employer must ensure that worksite specific plans are prepared for the following types of formwork and any associated falsework or reshoring:

- (a) flyforms;**
- (b) ganged forms;**
- (c) jump forms;**
- (d) vertical slip forms;**
- (e) formwork over 4 m (13 ft.) in height;**
- (f) suspended forms for beams, slabs, stairs and landings;**
- (g) single sided, battered or inclined forms over 2 m (6.5 ft.) in height;**
- (h) cantilever forms;**
- (i) bridge deck forms;**
- (j) shaft lining forms;**
- (k) tunnel lining forms;**
- (l) formwork into which concrete will be pumped through an injection port below the upper concrete surface;**
- (m) formwork over 3 m (10 ft.) in height into which self-consolidating concrete will be placed;**
- (n) formwork designated by the designer of the structure.**

(2) The employer must ensure that a professional engineer certifies the following in accordance with section 20.18:

- (a) the worksite specific plans;
 - (b) any changes to the worksite specific plans.
- (3) The employer must ensure that certified worksite specific plans are available at the worksite during erection, use and dismantling of the formwork, falsework and reshoring.
- (4) The employer must ensure that any changes to the certified worksite specific plans are available at the worksite
- (a) as soon as practicable, and
 - (b) before the inspection required for placement of concrete or other intended loading of the formwork, falsework and reshoring.
- (5) The employer must ensure that the formwork, falsework and reshoring are erected, used and, if applicable, dismantled in accordance with up-to-date certified worksite specific plans.

POLICY

Occasionally a portion of formwork and falsework **concrete falsework and formwork** may be designed as part of a sales or rental subcontract by a scaffold and shoring supplier, or designed as part of the permanent structure by the design engineer for the structure.

Generally, the "partial designs" supplied in such cases are certified by a professional engineer, but do not contain all the information and instructions required by **section 20.20(1) of** the *Regulation*. Typically, documents are deficient in the area of section views, packing, blocking, and form details. Reshoring, where required, is either not specified or not referenced. There may also be a statement in such documents indicating or implying the documents do not satisfy the requirements of the *Regulation* without further detailing.

These documents are not acceptable unless additional detailing and documentation, certified by a professional engineer, are available at the site for the portions of the design not covered by the "partial designs" referred to above.

It is the responsibility of the employer to ensure the erection drawings and supplementary instructions are complete and comply with the *Regulation*.
Worksite specific plans must be complete and comply with the *Regulation*. Under section 20.20(2), if any information required by subsection (1) cannot be provided, the worksite specific plans must include special notation of the information that is incomplete and that will require field design.

An "inspection certificate" issued by an engineer prior to pour, based on incomplete erection drawings and supplementary instructions **worksite specific plans**, is not valid.

Officers will order concrete placing stopped if the inspection certificate is not available at the site or is not valid.

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	s. 20.17, <i>Occupational Health and Safety Regulation</i>
CROSS REFERENCES:	s. 20.16.1 – 20.26, <i>Occupational Health and Safety Regulation</i>
HISTORY:	Housekeeping changes were made on [date] to reflect the [date] changes to the <i>Occupational Health and Safety Regulation</i> (“OHSR”). Housekeeping changes effective September 15, 2010 to delete practice reference and make formatting changes. Housekeeping changes were made on March 1, 2005 to reflect the October 29, 2003 changes to the <i>Occupational Health and Safety Regulation</i> (“OHSR”). This Item originally replaced Policy No. 34.28(6) of the former Prevention Division <i>Policy and Procedure Manual</i> . Effective October 29, 2003, the reproduction of section 20.17(1) of the <i>OHSR</i> in this Item was revised to reflect its amendment. This Item results from the 2000/2001 “editorial” consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 34.28(6), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 34.28(6) was issued.
APPLICATION:	This policy applies to certified plans and specifications for formwork and falsework concrete falsework and formwork on and after April 1, 2001.