

*b*) a comprehensive test, which comprises a theoretical component and a practical component, of the subjects taught in the training program contemplated by subparagraph *a*.

(2) acquisition of the equivalent of three years of full-time work experience under the supervision of an optometrist or a dispensing optician during the five years preceding his entry in the register and the successful completion of the test contemplated by subparagraph *b* of paragraph (1) no later than during the year preceding his entry in the register.

The Board of Directors of the Order approves a training program that meets the requirements contemplated by subparagraph *a* of paragraph (1).

**3.** Optometric assistants may perform the following acts:

(1) make the final selection of glass frames with a patient, following the instructions of an optometrist or a dispensing optician;

(2) take the measurements required for the purposes of ordering eyeglass frames or the lenses that will be inserted in them, provided these measurements are verified by an optometrist or a dispensing optician;

(3) fit eyeglass frames containing lenses, following the instructions of an optometrist or a dispensing optician;

(4) perform a basic verification of the visual and physical comfort of patients after a lens is inserted in eyeglass frames.

Whenever they perform these acts, optometric assistants must act under the supervision of an optometrist or a dispensing optician who is responsible for them and available on site to intervene with patients within a short period of time. Patients must also be informed of the identity of the responsible optometrist or dispensing optician and the possibility of consulting this professional at their request. They must also be informed of the identity of the optometric assistant.

**4.** Any person enrolled in a training program for optometric assistants or admitted to the test contemplated by section 2 may perform, pursuant to section 3, the acts that may be performed by optometric assistants, provided they are required for the purposes of completing the program or the test.

**5.** This Regulation comes into force on 26 February 2015.

Gouvernement du Québec

**O.C. 57-2015, 28 January 2015**

An Act respecting occupational health and safety (chapter S-2.1)

**Safety Code for the construction industry  
— Amendment**

Regulation to amend the Safety Code for the construction industry

WHEREAS, under subparagraphs 7, 8, 9, 14, 19, 41 and 42 of the first paragraph of section 223 of the Act respecting occupational health and safety (chapter S-2.1), the Commission de la santé et de la sécurité du travail may make regulations on the matters set forth therein;

WHEREAS, under the second paragraph of the section, the content of the regulations may vary according to the categories of persons, workers, employers, workplaces, establishments or construction sites to which they apply;

WHEREAS, under the third paragraph of the section, a regulation may refer to an approval, certification or homologation of the Bureau de normalisation du Québec or of another standardizing body;

WHEREAS, in accordance with sections 10 and 11 of the Regulations Act (chapter R-18.1), the draft Regulation to amend the Safety Code for the construction industry was published in Part 2 of the *Gazette officielle du Québec* of 9 April 2014 with a notice that it could be made by the Commission and submitted to the Government for approval on the expiry of 45 days following that publication;

WHEREAS the Commission made the Regulation with amendments at its sitting of 20 November 2014;

WHEREAS, under section 224 of the Act respecting occupational health and safety, every draft regulation made by the Commission under section 223 of the Act must be submitted to the Government for approval;

WHEREAS it is expedient to approve the Regulation;

IT IS ORDERED, therefore, on the recommendation of the Minister of Labour:

THAT the Regulation to amend the Safety Code for the construction industry, attached to this Order in Council, be approved.

JUAN ROBERTO IGLESIAS,  
*Clerk of the Conseil exécutif*

## Regulation to amend the Safety Code for the construction industry

An Act respecting occupational health and safety (chapter S-2.1, s. 223, 1st par., subpars. 7, 8, 9, 14, 19, 41, 42, and 2nd and 3rd pars.)

**1.** The Safety Code for the construction industry (chapter S-2.1, r. 4) is amended in section 1.1

(1) by replacing “*emmagasinés*” at the end of paragraph 13 in the French text by “*entreposés*”;

(2) by striking out paragraph 13.1;

(3) by inserting the following after paragraph 18:

“(18.1) “*explosives*” means any substance fabricated, manufactured or used to produce an explosion or a detonation, such as gunpowder, blasting powder, dynamite, an explosive in solution, aqueous gelatin, a blasting agent or a blasting accessory;”;

(4) by inserting the following after paragraph 25:

“(25.01) “*dike*” means a sandbag barricade, an earth mound or the equivalent located less than 50 cm from the depot and whose height is at least equal to the depot;”;

(5) by inserting the following paragraphs at the end:

“(37) “*loading area*” means space that includes the place where workers load the drill holes, drill holes loaded or being loaded and any space occupied by the material and equipment necessary for the loading;

(38) “*blasting area*” means a place or space that presents a projection or blast hazard to a person or where a hazard exists because of the effects of the blasting.”.

**2.** Section 4.1.1 is amended by replacing paragraph *d* by the following:

“(d) the instructions in French for the safe storage, handling, use and destruction of the explosive.”.

**3.** Section 4.1.2 is amended by striking out “and accessories”.

**4.** Section 4.1.3 is amended by striking out “, detonators, electric blasting caps and detonating relays”.

**5.** Section 4.1.4 is amended

(1) by striking out “or blasting accessories”;

(2) by replacing “recommendations” by “instructions”.

**6.** Section 4.1.5 is replaced by the following:

“**4.1.5.** It is prohibited to use an explosive that has reached its freezing point, unless the manufacturer’s instructions allow such use.”.

**7.** Section 4.1.6 is amended by striking out “, detonator, electric blasting cap or other blasting accessory”.

**8.** Section 4.1.7 is replaced by the following:

“**4.1.7.** An employer must ensure that no one smokes, brings a flame, a substance or material likely to increase the risk of explosion or fire within 8 m from any place where explosives are present”.

**9.** Section 4.1.8 is replaced by the following:

“**4.1.8.** An employer must ensure that

(a) explosives are handled and used in accordance with the manufacturer’s instructions;

(b) explosives that are brought on the site correspond to the quantities required to carry out the blasting for one workday;

(c) explosives not used to carry out blasting are stored in a depot designed for that purpose;

(d) explosives are not transported by hand at the same time as detonators or other blasting accessories.”.

**10.** Section 4.1.9 is replaced by the following:

“**4.1.9.** When there is a risk of accidental blasting by electric induction, caused notably by a radio frequency transmitter or a power line, the employer must favour a non-electrical priming method.

If the employer nonetheless carries out blasting using an electrical priming method, the employer must take all the safety measures required, including the following:

(a) inform the Commission, before the work begins, of the safety measures agreed upon with public utilities where the blasting is near a power line of 125,000 V or more;

(b) place, 300 m around the loading area, signs requiring drivers to turn off the radio transmitter of their vehicle;

(c) isolate electrical circuits and make sure that the detonator leg wires are twisted together when the detonator is inserted in the firing point;

(d) make sure that all equipment emitting radio, electric or magnetic waves

i. are turned off within 15 m around the loading area before the electric detonator is assembled with the lead wires

ii. comply with the distances recommended in the Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators, published by the Institute of Makers of Explosives (Safety Library).”

**11.** The following is inserted after section 4.1.9:

“**4.1.10.** Fireworks, igniter cords, military devices and safety fuses may not be used on a construction site.

Despite section 295 of the Regulation respecting occupational health and safety, this section does not apply to an establishment as defined in section 1 of the Act respecting occupational health and safety.

**4.1.11.** Nothing in this Regulation exempts a person from the obligation to comply with the requirements of any applicable act or regulation, particularly with regard to the acquisition, possession, storage, transportation or delivery, handling, use and sale of explosives.

In the event of inconsistency between a provision of this Regulation and a provision of another act or regulation, the stricter standard is to apply.”

**12.** Section 4.2.1 is replaced by the following:

“**4.2.1. Shot-firer:** A person who carries out blasting must hold a shot-firer’s certificate issued by the Commission or a body recognized by it.

The certificate is issued until the date of expiry of the general permit held under the Act respecting explosives (chapter E-22) by the shot-firer. The certificate is renewed upon request by its holder as long as renewal of the general permit is granted.

**4.2.1.1.** A shot-firer must be in possession of the original of his or her certificate during blasting operations.”

**13.** Section 4.2.2 is replaced by the following:

“**4.2.2.** A shot-firer may not receive assistance from more than 2 workers who are not certificate holders.”

**14.** Section 4.2.3 is replaced by the following:

“**4.2.3.** In addition to holding a general permit, a candidate for a shot-firer’s certificate must

(a) be 18 years of age and older;

(b) provide a document certifying that the candidate’s character, knowledge and experience make the candidate competent to handle explosives; and

(c) pass the written examination prepared by the Commission with a mark of at least 80%.

Unless the Commission has suspended or revoked the certificate it issued to the shot-firer, a shot-firer holding a certificate issued by a competent authority in another province or a territory of Canada and recognized by the Commission as equivalent to the certificate issued under this Division is not required to undergo the examination provided for in subparagraph *c* of the first paragraph.”

**15.** Sections 4.2.4, 4.2.5 and 4.2.6 are revoked.

**16.** Section 4.2.9 is replaced by the following:

“**4.2.9.** The Commission may suspend or revoke a certificate if the shot-firer

(a) has been the subject, in his or her work, of a remedial order under section 182 of the Act respecting occupational health and safety or of an order under section 186 of that Act, by reason of his or her refusal to comply with the Act or this Regulation;

(b) is found guilty of an offence under section 236 of the Act respecting occupational health and safety in relation to this Division;

(c) no longer holds a general permit issued under the Act respecting explosives (chapter E-22).

The Commission must notify the shot-firer in writing of the suspension or revocation of the certificate.

**4.2.10.** The Commission must revoke a certificate if the shot-firer is found guilty of an offence under section 237 of the Act respecting occupational health and safety in relation to this Division.

The Commission must notify the shot-firer in writing of the revocation of the certificate.

**4.2.11.** An employer must ensure that a worker who acts as shot-firer holds a certificate.”

**17.** Section 4.3.1 is replaced by the following:

“**4.3.1.** An employer must make sure that a vehicle transporting explosives is in good working order and allows for the safe transportation of explosives, in particular in compliance with the following standards:

(a) the display of safety marks in accordance with the Transportation of Dangerous Goods Regulations (SOR/2001-286);

(b) the part of the vehicle containing explosives must be isolated, fireproof, in compliance with section 45 of the Regulation under the Act respecting explosives (chapter E-22, r. 1) and locked at all times except during the loading or unloading of explosives;

(c) the metal parts likely to come into contact with explosives or their wrapping during transportation must be covered with a material to prevent such contact;

(d) the installation of a tracking and communication system, for a vehicle carrying 2,000 kg or more of explosives, that makes it possible at all times to locate the vehicle and to communicate with its driver. The employer must make sure that a person is in charge of locating and communicating with the driver at all times during the transportation of explosives, as well as alerting police services in case of emergency.

The tracking and communication system provided for in subparagraph *d* must be installed not later than 26 February, 2018.

**4.3.1.1.** An employer must subject the vehicle referred to in section 4.3.1 to a mechanical inspection once a year and remedy without delay the failures observed during such inspection.

Inspection of a vehicle carried out by a holder of a certificate of competency issued under the Highway Safety Code, in the context provided for in the Code or its regulations or under another Act or regulation, stands in lieu of the annual inspection referred to in the first paragraph. Otherwise, the inspection must be carried out by a mechanic whose competency is equivalent to that of the holder of a certificate of competency issued under the Highway Safety Code.

The employer must keep proof that the vehicle has been inspected.

**4.3.1.2.** An employer must ensure that objects other than explosives are not transported with the explosives, unless they are stored, or separated from the explosives, in a way that reduces the risk of ignition to a minimum.

Despite the first paragraph, it is prohibited to transport diesel fuel, gasoline or other flammable products with explosives.”.

**18.** Section 4.3.2 is replaced by the following:

“**4.3.2.** During loading and unloading, the employer must ensure that the driver is accompanied by a person who is responsible for watching over the explosives.”.

**19.** Section 4.3.3 is replaced by the following:

“**4.3.3.** Where detonators are transported with explosives, the employer must make sure that they are stored separately in a compartment of the vehicle that is completely closed and does not communicate with the part of the vehicle that contains the explosives.

The compartment wall that separates the detonators from the explosives must be as high as the roof and be made of solid wood 150 mm thick or of a material that prevents the explosion of the detonators for at least 1 hour in case of fire.”.

**20.** Section 4.3.4 is revoked.

**21.** Section 4.3.5 is replaced by the following:

“**4.3.5.** Every vehicle transporting explosives must be equipped with 2 portable fire extinguishers graded and classified: 4-A:40-B:C and complying with the standards in section 3.4.4.

The employer must ensure that the driver is capable of using the fire extinguishers.”.

**22.** Section 4.3.6 is revoked.

**23.** Section 4.3.7 is replaced by the following:

“**4.3.7. Loading and unloading:** During the loading or unloading of explosives in a vehicle, the employer must ensure that all the safety measures required to eliminate the risk of accidental blasting are taken. The employer must make sure, in particular, that

(a) the vehicle’s engine is not running;

(b) the loading or unloading takes place without interruption and with care, except in the case of bulk explosives.

Once the explosives are unloaded, the employer must make sure that every explosive is stored in a depot, as soon as possible, unless the vehicle constitutes a depot covered by a magazine permit within the meaning of section 38 of the Regulation under the Act respecting explosives (chapter E-22, r. 1).”.

**24.** Section 4.3.10 is replaced by the following:

**“4.3.10. Vehicle equipped with a radio transmitter:** When detonators are not in their original packing, the employer must make sure that the radio frequency transmitter is not in use unless the detonators are not electrical or are contained in a closed metal case lined with a material not likely to produce sparks.”

**25.** Sections 4.3.11 and 4.3.12 are revoked.

**26.** The following is inserted after section 4.3.12:

**“4.3.13.** Where explosives are transported outside motor roads using a means other than a vehicle referred to in this subdivision, the employer must ensure that

(a) the quantity of explosives transported does not exceed the quantity required for the blasting;

(b) the explosives are contained in a chest that has no material inside that could produce sparks;

(c) detonators are transported separately from the explosives, either in another chest, or in the same chest if it is equipped with a safe partition;

(d) if applicable, the additional quantity of fuel necessary for the transportation is properly separated from the chests containing the detonators and explosives.”

**27.** Section 4.4.1 is replaced by the following:

**“4.4.1.** On a construction site, the employer must make sure that an explosive depot meets the following safety standards:

(a) conform to the standards of the Regulation under the Act respecting explosives (chapter E-22, r. 1);

(b) be laid out so as to comply with the distances established in the standard *Explosives – Quantity Distances*, BNQ 2910-510, or in the table in Schedule 2.3;

(c) be used exclusively for the storage of explosives or blasting accessories;

(d) be locked;

(e) be under the employer’s supervision and responsibility;

(f) be kept clean inside, be coated or covered in such a way that no iron or steel is left uncovered and no particle of rough iron, steel or any similar substance may become loose or come into contact with the explosives contained in the depot;

(g) be of the colour white, aluminum or red with the word EXPLOSIVES written on all visible sides, in contrasting colours at least 150 mm high.

**4.4.1.1.** A construction site chest used as an explosive depot may not contain more than 227 kg of explosives.

The chest may be kept without dike. However, it must be kept at least 15 m from any building, meeting place or road.

If there is more than one chest, each chest must be protected from the others by dikes and comply with the standards prescribed in column 3 of Schedule 2.3.

**4.4.1.2.** Where a truck is used to temporarily store the explosives required for a workday, the employer must ensure that the following standards are met:

(a) the quantity of explosives stored may not exceed 800 kg;

(b) the vehicle is covered by a magazine permit within the meaning of section 38 of the Regulation under the Act respecting explosives (chapter E-22, r. 1);

(c) the vehicle is equipped with an automatic fire suppression system, with dry chemicals, complying with AS 5062-2006 standard Fire Protection for Mobile and Transportable Equipment, published by Standards Australia;

(d) during blasting, the truck must be kept in a safe place, outside the blasting area, under the constant supervision of a person holding a general permit issued under the Act respecting explosives (chapter E-22).

**4.4.1.3.** During working hours, if it is impossible to conform to the distances provided for in paragraph *b* of section 4.4.1, the employer may store the explosives required for a workday in a construction site chest or an explosive transportation truck in compliance with the quantity and distance standards provided for in section 4.4.1.1 or 4.4.1.2, as the case may be.”

**28.** Section 4.4.3 is replaced by the following:

**“4.4.3. Dangerous substances:** Any flammable substance and any product likely to cause a fire or explosion must be handled and stored in compliance with the measures prescribed in section 3.16.10, away from any explosive depot.”

**29.** Section 4.4.4 is replaced by the following:

**“4.4.4.** Every detonator must be stored in a depot separate from the explosive depot. No dike is required around that depot, which must be at least 8 m from any other explosive depot.”

**30.** Section 4.4.6 is revoked.

**31.** Section 4.4.7 is replaced by the following:

“**4.4.7.** In a depot, explosives and their packages must be stored safely, in particular by

(a) limiting the height of piles so as to prevent explosives from tipping over;

(b) keeping sufficient space between the explosive piles, walls, roof and ventilation openings, so as to maintain proper air circulation;

(c) not opening packages or wooden containers closed with metal ties or strips. The other types of packaging or containers may be opened, one at a time, for inspection purposes or to remove the explosives;

(d) storing only explosive packages or containers that are clean, dry and free of small abrasive materials or any contamination.”

**32.** Section 4.4.9 is replaced by the following:

“**4.4.9.** At the end of a workday, empty containers that were used to pack explosives must be destroyed according to the manufacturer’s instructions or be returned to the supplier so that they may not be used for other purposes.

**4.4.10.** An explosive depot must be farther from a 44 kV or more overhead electric power line than the distance between the supports of the line located near the depot. Where the distance between the supports of the line is greater than 15 m, the depot must be placed from that line at the greater of the following distances:

(a) 15 m;

(b) the result of the following formula:  $P / 2 - H$  (in meters), where “P” is the distance between the supports of the transmission line and “H” is the height of the supports of the transmission line; or

(c) the distance provided for in column 2 of the table in Schedule 2.3.”

**33.** Section 4.5.1 is replaced by the following:

“**4.5.1.** No drilling may be done closer than

(a) 1.5 m from a misfire or blowout. If necessary, holes may be drilled closer but not less than 600 mm on condition that drilling is performed by remote control under supervision and that all precautions are taken to ensure the safety of workers should an explosion occur at the blasting face;

(b) 8 m from any loaded blasthole or explosive loading site.

Despite the foregoing, a blasthole may be drilled closer than 8 m if adaptation to specific job-sites conditions is required, particularly for trench work or work in permafrost zones in unstable conditions. The employer must then ensure that

i. loading and drilling are performed alternately;

ii. the shot-firer supervises and controls the drilling operations;

iii. only cartridge explosives are used. However, if soil degradation does not allow for the insertion of cartridge explosives in the boring hole, the shot-firer may use a blasting agent to load the hole. That method may not be used for more than 3 holes per blasting;

iv. a carpenter’s level is used to make sure that blast-holes are vertical;

v. the minimum distance from any loaded hole is 1.5 m or 20% of the hole depth to a maximum depth of 12 m, using the greater distance between the two;

vi. if the holes have a depth of 6 m or more, the first drilling rod must be replaced by a guide tube or another means providing equivalent precision to avoid the blasting of another loaded hole in the vicinity;

vii. loaded holes must be marked by stakes of a distinct color or carrying a distinct ribbon.”

**34.** Section 4.5.3 is replaced by the following:

“**4.5.3.** Before being loaded, all holes must be examined and corrected where necessary.”

**35.** The following is inserted after section 4.5.3:

“**4.5.4.** Drilling and loading of explosives may not be carried out simultaneously less than 8 m from one another, or one on top of the other.

**4.5.5.** Before drilling any surface of a digging where blasting was performed, all bottoms of blastholes must be marked in either of the following manners:

(a) by a circle in paint or crayon of a colour contrasting with the soil;

(b) by inserting a stick into the hole.

**4.5.6.** It is prohibited to deepen holes remaining intact after blasting.”

**36.** The heading of subdivision 4.6 is replaced by “§4.6. Loading of blastholes”.

**37.** Section 4.6.1 is revoked.

**38.** The following is inserted after section 4.6.1:

“**4.6.1.1.** A loading area must be delimited by means of ribbons, trestles or a warning line provided for in section 2.9.4.1. Only persons holding a valid general permit, issued under the Act respecting explosives (chapter E-22), may access the area.”.

**39.** Sections 4.6.3, 4.6.4 and 4.6.5 are revoked.

**40.** Section 4.6.9.1 is replaced by the following:

“**4.6.9.1. Conditions for untamping and repriming a blasthole or misfire:** Prior to the untamping or repriming of a blasthole or misfire, the employer must prepare a written procedure that takes into account the types of explosives and the manufacturer’s instructions in that regard, as well as environmental conditions.

The employer must also make sure that

- (a) the procedure is available on the construction site;
- (b) the untamping of the collar is done by the shot-firer who loaded and fired the blasthole, unless it is impossible for him to do so;
- (c) during all untamping, repriming and firing operations, all persons except the shot-firer are outside the blasting area;
- (d) the constituents of the material used for untamping the blasthole and inserted in it is made of non-ferrous materials.”.

**41.** Section 4.6.11 is replaced by the following:

“**4.6.11.** At the first signs of a thunderstorm, the employer must stop all loading and detonator connecting operations. The employer must evacuate the blasting area, prohibit access thereto and supervise the situation from a distance.”.

**42.** Section 4.6.13 is replaced by the following:

“**4.6.13.** During the final connection of lead wires and the various electric blasting caps, the entire firing circuit must be checked using a blasting ohmmeter.”.

**43.** Section 4.6.15 is replaced by the following:

“**4.6.15. Detonating fuse:** When the lead wires are composed of detonating fuses, the employer must ensure that the following safety measures are complied with:

- (a) spliced pieces are not used in a single blasthole;
- (b) after priming, the down line is cut from the reel and a sufficient length, approximately 200 mm, protrudes from the blasthole to prevent a possible settlement of the load prior to make final connections;
- (c) main fuses are connected to detonating fuses at right angles;
- (d) when priming a detonating fuse with a detonator, the end with the explosive charge is set in the same direction as the expected shock wave;
- (e) no detonating relay is placed in a blasthole;
- (f) the shot-firer has visually checked all the connections;
- (g) the firing point of the detonating fuse must be located outside the surface covered by the blasting mats;
- (h) the detonator used for starting the detonating fuse must be set in place only once the covering operations have been completed.”.

**44.** Section 4.6.17 is replaced by the following:

“**4.6.17.** When explosives in bulk are loaded, a semi-conductor loading hose must be used and the loading equipment must be grounded according to the manufacturer’s instructions.”.

**45.** Section 4.6.18 is amended

(1) by striking out “If necessary, blastholes and misfires must be untamped and refired as prescribed in section 4.6.9.1.” in the first paragraph;

(2) by replacing the second paragraph by the following:

“If the starting operation or refiring is impracticable, the explosives must be pulled out in accordance with a procedure prepared in writing by an engineer, taking into account the types of explosives and the manufacturer’s instructions in that regard, as well as environmental conditions.

The procedure must be available on the work site.”.

**46.** Section 4.6.19 is revoked.

**47.** Section 4.7.1 is amended by replacing

- (1) “and when firing” by “. When firing”;
- (2) “blasting zone” by “blasting area”;
- (3) “évacué” in the French text by “évacuée”.

**48.** Section 4.7.2 is revoked.

**49.** Section 4.7.4 is amended by replacing “voltage” in paragraph a of the French text by “tension”.

**50.** Section 4.7.5 is replaced by the following:

“**4.7.5.** When blasting is done in the vicinity of a structure such as a building, railway or road, the employer must limit the quantity of explosives so that the vibrations caused by the blasting do not damage those structures.

To that end, the employer must comply with the most stringent standards between those provided for in specifications designed for that purpose by a public authority and those provided for in blasting specifications signed and sealed by an engineer. Failing such specifications, the employer must comply with one of the standards provided for in Schedule 2.6.

**4.7.5.1.** During blasting, projections must stay within the blasting area. To that end, the employer must take appropriate measures to reduce and control projections, in particular by using blasting mats.

When blasting mats are used, they must be deposited, not slid, onto blastholes loaded with explosives.”.

**51.** Section 4.7.6 is replaced by the following:

“**4.7.6.** The firing procedures are as follows:

(a) before proceeding with the firing, the shot-firer must ensure with the employer that all persons have taken shelter;

(b) sound signals must be emitted with a siren of at least 120 dB:

i. immediately before blasting, 12 short horn signals at one-second intervals;

ii. 30 seconds must elapse between the last warning signal and the time of firing;

iii. after blasting, once the blasting area is safe, one continuous 15-second horn signal must announce that work may be resumed in the area;

(c) the employer must make sure that workers take shelter outside the blasting area before the first signal and that they remain there until the 15-second signal is sounded;

(d) a code of sound signals reserved for blasting operations must be written in coloured letters 150 mm high, against a contrasting background, on a board 1.2 m high by 2.4 m wide, placed at all points of access to the work site.”.

**52.** Section 4.7.9 is revoked.

**53.** Section 4.7.10 is replaced by the following:

“**4.7.10. Blasting logbook:** The blasting logbook must at least contain the information provided for in Schedule 2.2 and it must be maintained and signed by the shot-firer. The employer must keep it for 3 years and make it available at all times on the work site.”.

**54.** The heading of subdivision 4.8 is replaced by “§4.8. Work after blasting”.

**55.** Section 4.8.1. is replaced by the following:

“**4.8.1.** After blasting, the shot-firer must be the first to enter the blasting area to make sure it is safe. For that purpose, the shot-firer must

(a) wait for the smoke to dissipate;

(b) make sure, using a device to measure the concentration of carbon monoxide, that the carbon monoxide concentration is below the exposure limit values indicated in Schedule I to the Regulation respecting occupational health and safety;

(c) examine the work site;

(d) look for possible misfires, blowouts and bootlegs;

(e) mark those found.”.

**56.** Section 4.8.2 is replaced by the following:

“**4.8.2.** When the shot-firer considers that the blasting area is safe, the shot-firer informs the employer that the employer may

(a) sound the 15-second signal;

(b) remove the blasting mats as soon as possible after the end of blasting;

(c) excavate blasting debris.”.

**57.** Section 4.8.3 is revoked.

**58.** Subdivision 4.9 is revoked.

**59.** Schedule 2.1 is revoked.

**60.** Schedule 2.2 is replaced by the following:



**"SCHEDULE 2.2 Blasting logbook (s. 4.7.10.)**

Name of enterprise: \_\_\_\_\_

Address

(optional): \_\_\_\_\_

Location of site: \_\_\_\_\_

Client:

\_\_\_\_\_

**Information on blasting**

**Weather conditions**

- Location: \_\_\_\_\_
- Date: \_\_\_\_\_
- Hour: \_\_\_\_\_
- Chaining (option): \_\_\_\_\_

- Temperature: \_\_\_\_\_ °C
- Sunny: \_\_\_\_\_
- Cloudy: \_\_\_\_\_
- Rain/snow: \_\_\_\_\_

**Data on drilling**

- Number of holes and drilling diameter: \_\_\_\_\_
- Burden and spacing: \_\_\_\_\_
- Height of drilling in metres: \_\_\_\_\_
- Height of collar: \_\_\_\_\_
- Height of overburden: \_\_\_\_\_

Nature of tamping (clean, crushed stone): \_\_\_\_\_

Blasting mats (type): \_\_\_\_\_

Distance from closest structures  
(building/bridge/road):

\_\_\_\_\_

**Explosives**

- Type: \_\_\_\_\_
- Number of detonator: \_\_\_\_\_
- Quantity of explosives used (primers, explosives) in units, bags, cases or  
kg: \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of shot-firer:

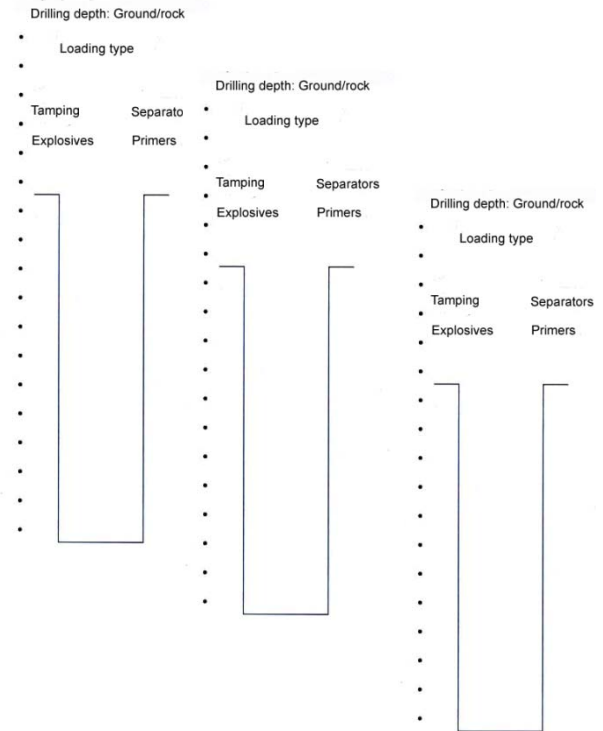
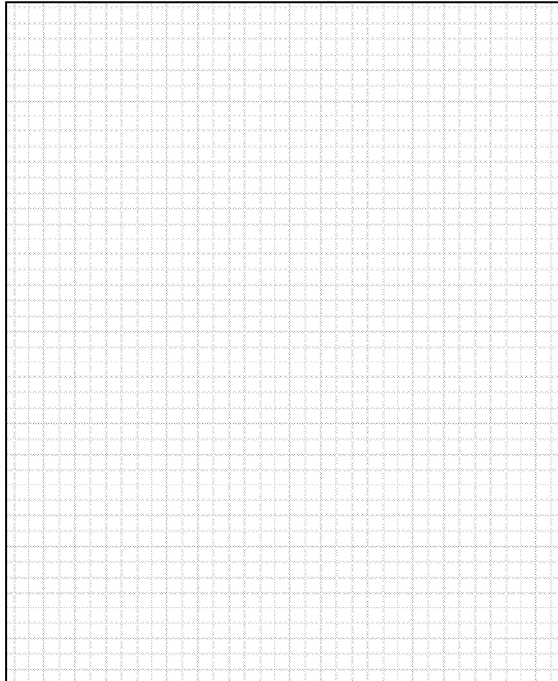
Signature:

\_\_\_\_\_

\_\_\_\_\_

### Blasting pattern *(Required information)*

- Number and orientation of free faces
- Blasting direction
- Identification of the firing sequence (including delays)
- Description of explosives per hole (dimensions, number and weight)
- Disposition of blastholes
- Description of blasting agents (weight/hole in kg)
- Identification of connections/delay millisecond (hole bottom and surface)
- Positioning of closest structures (distance in meters)
- Blasting area (outline and distances in metres)



#### 61. Schedule 2.3 is amended

(1) by replacing “sandbag barricades or earth mounds or the equivalent located less than 50 cm from the depot and having at least the same height” by “dikes” in reference 3;

(2) by replacing the remark at the end by the following:

“Remark: For computing the distance,

(a) 1,300 detonators or 150 detonating relays are equal to 1 kilogram of explosives;

(b) except for the depot for detonators and detonating relays, 2 depots placed side by side may be considered as a single depot having a capacity equal to the total capacity of both depots.”.

#### 62. The following is inserted after Schedule 2.5:

### SCHEDULE 2.6

#### **Evaluation of the maximum authorized particle speed, of the distance between blasting and buildings or of the acceptable frequency of vibrations (s. 4.7.5)**

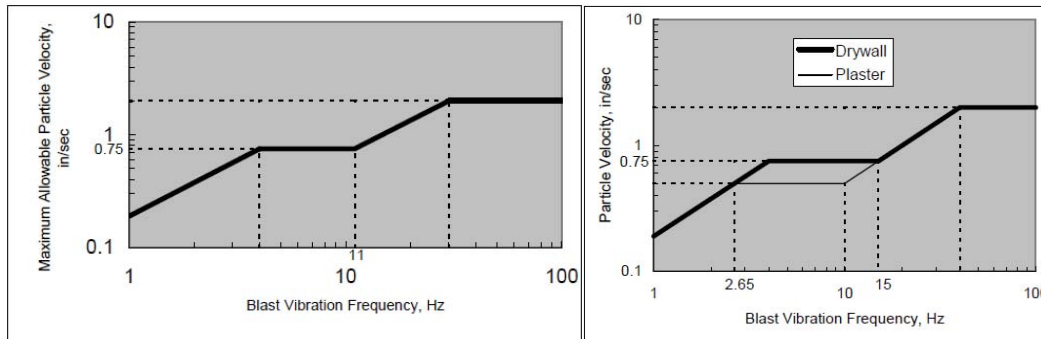
The employer must comply with the prescribed limits, according to one of the following 3 methods:

1. in the table below:

<i>TABLE 2.6.1 - MAXIMUM AUTHORIZED PARTICLE SPEED ACCORDING TO THE DISTANCE OF STRUCTURES</i>	
<i>Distance from blasting site</i>	<i>Maximum speed authorized</i>
<i>0 to 90 m (300 ft)</i>	<i>31.75 mm/s (1.25 in/s)</i>
<i>91 to 1,524 m (301 to 5,000 ft)</i>	<i>25.4 mm/s (1 in/s)</i>
<i>1.525 m and more (5,000 ft)</i>	<i>19 mm/s (0.75 in/s)</i>

2. in one of the graphs below:

**GRAPHS 2.6.2 - ESTIMATE OF THE MAXIMUM AUTHORIZED PARTICLE SPEED ACCORDING TO THE FREQUENCY OF VIBRATION (IN/S)**



The employer must use, according to the manufacturer's instructions, a seismograph to monitor the velocity of particles to ensure the compliance of the results with table 2.6.1 or graphs 2.6.2 as provided above. The method for monitoring vibrations and the calculation of frequency must be approved by an engineer.

3. in the proportionate distance equation shown in the table below:

<b>TABLE 2.6.2 - COMPUTATION OF THE MINIMUM DISTANCE TO BE KEPT BETWEEN A STRUCTURE AND A BLASTING BASED ON EXPLOSIVE LOAD</b>		
<b>Distance from blasting site</b>	<b>Maximum quantity of explosives fired in less than 8 milliseconds</b>	
	<b>Metric Units (W in kg and D in m) Impériale</b>	<b>English Units (W in lb and D in ft)</b>
<i>Less than 92 m (300 ft)</i>	$W = (D/22.6)^2$	$W = (D/50)^2$
<i>92 to 1,524 m (301 to 5000 ft)</i>	$W = (D/24.9)^2$	$W = (D/55)^2$
<i>More than 1,524 m (5000 ft)</i>	$W = (D/29.4)^2$	$W = (D/65)^2$

*W* = Maximum quantity of explosives (in kilograms or pounds) that may detonate in less than 8 milliseconds.

*D* = Distance to be kept between the blasting area and the closest structure to be protected.

**63.** Despite section 27, until the standard Explosives – Quantity Distances, BNQ 2910-510, is made and published by the Bureau de normalisation du Québec, the distances for the disposition of depots, provided for by the standard in paragraph b of section 4.4.1 of the Safety Code for the construction industry, are those provided for in the Quantity Distance Principles User's Manual published in 1995 by the Explosives Regulatory Division of Natural Resources Canada.

**64.** This Regulation comes into force on 26 February, 2015.