



BERMUDA

OCCUPATIONAL SAFETY AND HEALTH REGULATIONS 2009

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356 Revocation

The Minister of Health, in exercise of the powers conferred by section 9 of the Occupational Safety and Health Act 1982, makes the following Regulations:

PART 1 GENERAL

Citation

1 These Regulations may be cited as the Occupational Safety and Health Regulations 2009.

Definitions

2 In these Regulations—

"building" means any permanent or temporary building and includes any other structure or erection of whatever kind or nature, whether permanent or temporary, or any part of a building, structure or erection;

"Building Code of Bermuda" means the Building Code of Bermuda referred to in paragraph 2 of the Building Code Regulations 1991;

"employee" means an employee as defined in section 2 of the Act;

"employer" means an employer as defined in section 2 of the Act, and includes, where applicable,

- (a) a self-employed person as defined in section 2 of the Act,
- (b) a person who has control of premises within the meaning of section 5A of the Act, and
- (c) a contractor within the meaning of regulation 262;

"hazardous substance" means a substance that by its chemical, biological and physical properties, application or presence creates or could create a danger to the safety or health of a person who is exposed to it;

"qualified person" in relation to a particular duty or particular work means, except in Part 7, a person who is qualified to perform that duty or work safely and properly because of their knowledge, training and experience, including their knowledge of the provisions of the Act and these Regulations as they relate to the duty or work, and their knowledge of actual or potential hazards to safety or health associated with the duty or work;

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“Safety and Health Office” means the Occupational Safety and Health Office of the Department of Health.

Units of measurement

3 (1) Where a measurement in these Regulations is expressed in units of one system of measurement followed in brackets by units of another system of measurement, compliance with the measurement in either one of those systems is sufficient for the purposes of these Regulations.

Incorporation of standards

4 (1) Any standard incorporated by reference in these Regulations means the standard as amended from time to time.

(2) In the event of an inconsistency between any standard incorporated by reference and any provision of these Regulations, that provision shall prevail to the extent of the inconsistency.

(3) A copy of any standard that is incorporated by reference shall be—

(a) kept in the Safety and Health Office, or at some other convenient location, and made available for inspection by members of the public during regular office hours, without charge; or

(b) made available for inspection by members of the public, without charge, through a website maintained by the Safety and Health Office.

(4) No person may be convicted of an offence of failing to comply with a standard that is incorporated by reference if the standard has not been made available for inspection by members of the public under paragraph (3)(a) or (b).

(5) A standard incorporated by reference in these Regulations is not a statutory instrument for the purposes of the Statutory Instruments Act 1977.

Obligation to comply with the Regulations

5 (1) It shall be the duty of every employer, in relation to their place of employment or in relation to premises of which they have control, as the case may be, to comply with these Regulations, including ensuring that their place of employment, premises, machinery, equipment and operations meet the requirements of these Regulations.

(2) Every employer who fails to comply with these Regulations commits an offence and is liable to the penalties set out in section 21 of the Act.

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Records, reports and other documents

6 (1) Every employer shall keep and maintain records, reports and other documents that are required to be kept or made under these Regulations in such a manner that they are readily available for examination by a Safety and Health Officer and by the safety and health committee or the safety and health representative for the employer's place of employment.

(2) Records, reports and other documents shall be kept or made in the form that is prescribed by these Regulations or, if no form is prescribed, in such form, if any, as may be determined by the Minister.

(3) Subject to paragraph (4), records, reports and other documents shall be kept for a period of 3 years from when the record, report or other document is made, unless otherwise required by these Regulations.

(4) Records, reports and other documents that pertain to a particular employee shall be kept for the duration of the employee's employment or 3 years, whichever period is longer.

Occupational safety and health policy and organization

7 Every employer at a place of employment where 5 or more persons are employed shall, in consultation with the safety and health committee or the safety and health representative for the place of employment—

- (a) prepare a written statement of the occupational safety and health policy governing the place of employment;
- (b) post a copy of the statement at a location that is accessible to every employee at the place of employment;
- (c) establish an organization for carrying out the policy;
- (d) provide information, education and training to employees with regard to their role in the organization;
- (e) review the statement of policy annually and revise it as necessary; and
- (f) provide a copy of the statement of policy and any revision of it to the safety and health committee or the safety and health representative for the place of employment.

Record of training and instruction

8 (1) Wherever training or instruction for employees is required to be provided under these Regulations, the employer shall ensure that

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the person who provides the training or instruction prepares and signs a written record of that training or instruction.

(2) The record shall include the name of the employee who received the training or instruction and the date on which the training or instruction took place, and it shall be signed by the employee.

PART 2 SAFETY AND HEALTH COMMITTEES AND REPRESENTATIVES

Definitions

9 In this Part—

"committee" means a safety and health committee established under section 20 of the Act;

"member" means a member of a safety and health committee;

"representative" means a safety and health representative appointed under section 20A of the Act.

Members

10 (1) Employers shall, in accordance with section 20 of the Act, select the members of a committee to represent the employer from among persons who exercise managerial functions.

(2) Members of a committee to represent employees shall be elected or appointed in accordance with section 20 of the Act.

Chairpersons

11 (1) Every committee shall have two chairpersons selected from among the members of the committee, one being selected by the employee members and the other by the employer members.

(2) The chairpersons shall act alternately for such period of time as the committee determines.

Vacancy

12 If a member of a committee resigns, or ceases to be a member for any other reason, the vacancy shall be filled within 30 days after the next regular meeting of the committee.

Quorum

13 The quorum of a committee shall consist of the majority of the members of the committee, of which at least half are employee members and at least one is an employer member.

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Meetings of committee

14 (1) Committees shall meet during regular working hours at least once a month at times and places to be mutually agreed by the employer and the committee.

(2) If meetings are urgently required as a result of an emergency or other special circumstance, the committee shall meet more frequently, not necessarily during regular working hours.

Records and minutes

15 (1) Every committee shall ensure that accurate records are kept of all matters that come before it, and shall keep minutes of its meetings.

(2) The two chairpersons shall sign the minutes.

(3) The chairperson selected by employer members shall, as soon as possible after a committee meeting, provide a copy of the minutes to the employer and to each member of the committee.

(4) The employer shall post a copy of the minutes in a conspicuous place at the relevant place of employment.

Meetings between representative and employer

16 (1) Every representative for a place of employment shall meet with the employer for that place of employment during regular working hours at least once a month at times and places to be mutually agreed by the employer and the representative.

(2) If meetings are urgently required as a result of an emergency or other special circumstance, the representative and the employer shall meet more frequently, not necessarily during regular working hours.

Information

17 (1) A committee or a representative may request from an employer any information that they consider necessary to identify hazards or potential hazards to safety or health in the employer's place of employment.

(2) An employer shall make available to a committee any information, within the employer's knowledge, necessary to enable it to perform its duties under the Act or these Regulations except —

(a) any information the disclosure of which would be against the interests of national security; or

(b) any information which the employer could not disclose without contravening a prohibition imposed by or under an Act; or

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- (c) any personal information relating specifically to an individual, unless the individual has consented to its being disclosed; or
- (d) any information the disclosure of which would, for reasons other than its effect on health or safety at work, cause substantial injury to the employer's undertaking or, where the information was supplied to the employer by some other person, to the undertaking of that other person; or
- (e) any information obtained by the employer for the purpose of bringing, prosecuting or defending any legal proceedings.

(3) Paragraph (2) does not require an employer to give any information that is not related to safety or health at work.

Time off for committee members and representatives

18 Members of a committee and representatives are entitled to take the time required during their regular working hours without penalty to perform their duties as members or representatives and to undergo training with regard to the performance of those duties.

Additional duties of committees and representatives

19 In addition to the duties set out in section 20(4) of the Act, the duties of committees and representatives include the following—

- (a) participating in the conduct of investigations and inspections under these Regulations;
- (b) assessing the effectiveness of measures to control safety and health hazards;
- (c) making recommendations with respect to remedial action required to reduce or eliminate safety and health hazards;
- (d) making recommendations with respect to the safety and health training requirements for committee members, representatives and other employees;
- (e) providing advice and assistance to the employer in the implementation of education and training programs relating to safety and health;
- (f) providing advice and assistance to employees and the employer on matters of safety and health generally;
- (g) considering matters arising from reports and notices from Safety and Health Officers and from accident reports; and

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- (h) dealing with complaints and inquiries regarding safety and health made by employees and the employer.

Inspections

20 (1) A member or members appointed by a committee, or the representative, as the case may be, shall carry out routine inspections of the place of employment in a manner that ensures that every part of the place of employment is inspected at least once each year.

(2) On completion of an inspection, the persons who carried out the inspection shall make a written report to the employer of any hazard or potential hazard to safety or health at the place of employment that has come to their attention during the inspection.

Investigation of accidents and dangerous occurrences

21 (1) The committee or representative, as the case may be, for a place of employment shall participate in the investigation under Part 3 of any accident or dangerous occurrence at the place of employment or in the course of employment.

(2) On completion of an investigation, the committee or representative shall review the report on the accident or dangerous occurrence and may make recommendations to the employer for action to be taken to prevent the recurrence of such accidents or dangerous occurrences.

PART 3 INVESTIGATION AND REPORTING

Definitions

22 In this Part—

“accident” means an occurrence at an employer’s place of employment, or in the course of employment by an employer, that causes death or serious injury to any person;

“dangerous occurrence” means an occurrence or situation at an employer’s place of employment, or in the course of employment by an employer, that has the potential to cause death or serious injury to any person;

“minor injury” means any injury, disease or illness incurred by any person at an employer’s place of employment, or in the course of employment by an employer, that requires medical treatment (other than first aid) but is not a serious injury;

“serious injury” means an occupational disease, illness or injury that is incurred by any person at an employer’s place of

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employment, or in the course of employment by an employer, that—

- (a) prevents the person from reporting for work or from effectively performing all the duties connected with their regular work on any day subsequent to the day on which the injury, disease or illness was incurred;
- (b) results in the loss by the person of a body member or part of it or in the complete loss of the usefulness of a body member or part of it; or
- (c) results in the permanent impairment of a body function of the person.

Notification of accident or dangerous occurrence within 24 hours

23 (1) Every employer shall notify a Safety and Health Officer, by telephone, fax or e-mail, of any accident or dangerous occurrence at their place of employment, or in the course of employment of their employees, as soon as possible but not later than 24 hours after the employer becomes aware of the accident.

(2) The notification shall include—

- (a) the date, time and location of the accident or dangerous occurrence;
- (b) a description of the nature of the accident or dangerous occurrence;
- (c) in the case of an accident, the names of any persons who have died or incurred serious injury as a result of the accident; and
- (d) as far as can be ascertained at the time, the cause of the accident or dangerous occurrence.

(3) The employer shall provide a copy of a notification under this regulation to the relevant safety and health committee or safety and health representative.

Investigation of accident or dangerous occurrence

24 (1) Subject to paragraph (6), every employer shall appoint a qualified person to carry out an investigation under section 3A of the Act of an accident or dangerous occurrence.

(2) The employer shall notify a Safety and Health Officer and the relevant safety and health committee or safety and health representative of the name and coordinates of the investigator.

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(3) The employer shall assist the investigator in carrying out the investigation.

(4) The investigator shall carry out the investigation and make a report of the investigation as soon as possible.

(5) The investigator shall provide copies of the report to the employer, to a Safety and Health Officer and to the relevant safety and health committee or safety and health representative.

(6) If an accident or dangerous occurrence involving a motor vehicle on a public road is investigated by a police authority, the investigation required by section 3A of the Act shall be considered to have been sufficiently carried out by the employer obtaining from the police authority a copy of its report concerning the accident or dangerous occurrence.

(7) The employer shall provide copies of a report obtained under paragraph (6) to a Safety and Health Officer and to the relevant safety and health committee or safety and health representative.

(8) A report under paragraph (4) or (6) shall include recommendations for remedial action to prevent the recurrence of accidents or dangerous occurrences.

Report by employer

25 (1) The report to be furnished by an employer to the Minister under section 3A of the Act shall be in a form to be determined by the Minister, and shall include, in addition to the matters referred to in section 3A, the results of the investigation under regulation 24.

(2) The employer shall provide a copy of the report to a Safety and Health Officer and to the relevant safety and health committee or safety and health representative.

Report by medical practitioner

26 A medical practitioner who determines that an employee is suffering from an occupational disease, illness or injury shall report that disease, illness or injury, orally or in writing, to a Government Medical Officer, as defined in section 2 of the Public Health Act 1949, in addition to any report that is required to be furnished under section 3D of the Act.

Record of minor injuries

27 (1) Every employer shall keep a record of any minor injury, of which the employer becomes aware, incurred at their place of employment or in the course of employment by their employees.

(2) The record shall include—

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- (a) the date, time and location of the occurrence that resulted in the minor injury;
- (b) the name, age, sex and occupation of the person affected;
- (c) a brief description of the minor injury;
- (d) a brief description of any measures taken to treat the injury, including any first aid rendered;
- (e) the cause of the minor injury; and
- (f) any remedial action to be taken to prevent such injuries in the future.

Notification of hazards by employee

28 An employee who becomes aware of a hazard or potential hazard to safety or health at a place of employment or in the course of their employment shall, without delay, notify their employer of the hazard or potential hazard, orally or in writing.

Records and reports to be kept for 10 years

29 (1) Subject to paragraph (2), every employer shall keep a copy of all records and reports that are provided to them, or are required to be made by them, under this Part for a period of 10 years from the date when the report or record is made.

(2) Records and reports that pertain to a particular employee shall be kept for the duration of the employee's employment or 10 years, whichever period is longer.

Annual report

30 Every employer shall, not later than March 1 in each year, submit to a Safety and Health Officer a written report, in a form to be determined by the Minister, setting out the number of accidents, dangerous occurrences and minor injuries that are reported or recorded by an employer under this Part during the 12 month period ending on December 31 of the preceding year.

PART 4 BUILDING SAFETY

Standards

31 The design, construction, maintenance, inspection and renovation of a building, or any part of a building, that is a place of employment shall meet the requirements of the Building Code of Bermuda.

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Housekeeping

32 (1) Passageways, stairways, walkways, entrances and ramps at a place of employment shall be kept free of accumulations of materials and other obstructions that may endanger the safety or health of employees.

(2) Dust, dirt, waste and scrap material in a place of employment shall be removed as often as is necessary to protect the safety and health of employees and shall be disposed of in such a manner that their safety and health is not endangered.

(3) Travelled surfaces in a place of employment shall be slip resistant and kept free of splinters, holes, loose boards, loose tiles and similar defects.

Doors

33 (1) Double action swinging doors that are located in an exit, entrance or passageway used for two-way pedestrian traffic shall be designed and fitted in a manner that will allow persons who are approaching from one side of the door to be aware of persons who are on the other side of it.

(2) Where a door or gate, other than the door of a closet or other small unoccupied storage room, opens onto a passageway, the area of the passageway onto which the door or gate opens shall be marked in a manner that clearly indicates the area of hazard created by the opening of the door or gate.

Ladders and stairways

34 (1) If an employee is required to move from one level to another level that is more than 45 cm (18 inches) higher or lower than the first level, the employer shall install a fixed ladder, stairway or ramp between the two levels.

(2) The open sides of stairways shall be provided with a handrail.

(3) If one end of a stairway is so close to a traffic route used by vehicles or to a machine or any other hazard as to be hazardous to the safety of an employee using the stairway, the employer shall—

- (a) post a sign to warn employees of the hazard; and
- (b) if practicable, install a barricade that will protect employees using the stairway from the hazard.

Wall and floor openings

35 (1) If an employee has access to a wall opening or to a floor opening from which there is a drop of more than 1.2 m (4 feet), guard-

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rails shall be fitted around the wall opening or floor opening or it shall be covered with a cover capable of supporting the maximum load that may be brought to bear on it.

(2) Paragraph (1) does not apply to vehicle maintenance pits or to the loading and unloading areas of road transport facilities and marine docks, the edges of which are marked in a visible manner.

(3) In this regulation—

"floor opening" means an opening in a floor, platform, pavement or yard that measures 30 cm (12 inches) or more in its smallest dimension; and

"wall opening" means an opening in a wall or partition that measures at least 0.75 m (30 inches) in height and 30 cm (12 inches) in width.

Docks, ramps and dock plates

36 (1) Every loading and unloading dock and ramp shall be—

(a) of sufficient strength to support the maximum load that may be brought to bear on it;

(b) free of surface irregularities that may interfere with the safe operation of mobile equipment; and

(c) fitted, around its sides that are not used for loading or unloading, with side rails, curbs or rolled edges of sufficient height and strength to prevent mobile equipment from running over the edge.

(2) Every portable ramp and every dock plate shall be—

(a) clearly marked or tagged to indicate the maximum safe load that it is capable of supporting; and

(b) installed so that it cannot slide, move or otherwise be displaced under the load that may be brought to bear on it.

Open top enclosures

37 (1) If an employee has access to an open-top bin, hopper, vat, pit or other open-top enclosure from a place directly above the enclosure, the enclosure shall be—

(a) covered with a grating, screen or other covering that will prevent the employee from falling into the enclosure; or

(b) provided with a walkway that is not less than 0.5 m (20 inches) wide and is fitted with guard-rails.

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(2) The grating, screen, covering or walkway shall be designed, constructed and maintained so that it will support a load that is not less than the greater of—

(a) the maximum load that may be brought to bear on it; and

(b) a live load of 6 kilopascals (125 pounds per square foot).

(3) If an employee is working above an open top enclosure that is not covered with a grating, screen or other covering, the inside wall of the enclosure shall be fitted with a fixed ladder, except where the operations carried on in the enclosure render such a fitting impracticable.

(4) Every open-top enclosure whose walls extend less than 1 m (3 feet) above an adjacent floor or platform used by an employee shall be—

(a) covered with a grating, screen or other covering;

(b) fitted with a guard-rail; or

(c) guarded by a person to prevent employees from falling into the enclosure.

Toe boards or panels

38 (1) If there is a risk of tools or other objects falling from a platform or other raised area, or through a hole in the floor, a toe board that extends to a height of not less than 15 cm (6 inches) from the floor of the platform or raised area, or from the floor, shall be installed.

(2) If tools or other objects are piled to such a height that a toe board would not prevent the tools or other objects from falling, a solid or mesh panel shall be installed from the floor to a height of not less than 45 cm (18 inches).

PART 5 ELEVATING DEVICES

Definitions

39 In this Part, “elevating device” means an elevator, escalator, moving walkway or other device for moving persons or things up or down in a place of employment.

Standards

40 Every elevating device and every safety device attached to it shall, in so far as reasonably practicable, meet the standards set out in

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Code A17.1 - Safety Code for Elevators and Escalators published by the American Society of Mechanical Engineers (ASME).

Use and operation

41 (1) No elevating device shall be used or operated with a load in excess of the load or number of persons that it was designed and installed to move safely.

(2) Except when an elevating device or a safety device is being inspected, tested, repaired or maintained by a qualified person—

(a) no elevating device shall be used or placed in service while any safety device attached to it is inoperative; and

(b) no safety device attached to an elevating device shall be altered, interfered with or rendered inoperative.

Inspection and testing

42 (1) Every elevating device and every safety device attached to it shall be inspected and tested by a qualified person to determine that the standards that apply to it are met—

(a) before the elevating device and the safety device are placed in service;

(b) after an alteration to the elevating device or the safety device attached thereto; and

(c) once every 12 months.

(2) A record of each inspection and test shall—

(a) be signed by the person who made the inspection and test;

(b) include the date of the inspection and test and the identification and location of the elevating device and safety devices that were inspected and tested; and

(c) set out the observations of the person who made the inspection and test.

Repair and maintenance

43 Repair and maintenance of an elevating device at a place of employment or a safety device attached to it shall be performed by a qualified person appointed by the employer.

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**PART 6
CONFINED SPACES**

Definitions

44 In this Part—

“confined space” means a space at a place of employment which has restricted means of entry or exit and which, because of its construction, location or contents or the work performed in the space, contains or is likely to contain—

- (a) a hazardous substance,
- (b) an unsafe oxygen level, namely an atmosphere in which there is less than 18 per cent by volume of oxygen at a pressure of one atmosphere or in which the partial pressure of oxygen is less than 135 mm Hg,
- (c) an unsafe toxic level, namely a level in excess of the value referred to in regulation 151,
- (d) an unsafe explosive limit, namely a limit referred to in regulation 152,
- (e) a quantity of liquid in which a person could drown, or
- (f) a quantity of free-flowing solids in which a person could suffocate;

“safety watcher” means a person trained in rescue and resuscitation procedures.

Entry prohibited

45 No person shall enter a confined space to perform work if it is reasonably practicable to perform the work without entering the confined space.

Hazard assessment

46 If it is likely that a person will be required to enter a confined space at a place of employment, the employer shall appoint a qualified person to carry out a hazard identification survey and provide the employer with an assessment report that —

- (a) identifies all confined spaces at the place of employment;
- (b) identifies the hazards to which a person is likely to be exposed in the confined spaces;
- (c) specifies the tests that are necessary to determine whether a person is likely to be exposed to any of the hazards identified;

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- (d) specifies the protective equipment and clothing that are to be used by a person entering a confined space;
- (e) specifies the emergency equipment to be made available for use in an emergency situation or rescue attempt in a confined space;
- (f) specifies procedures to be followed by a person entering, exiting or occupying a confined space; and
- (g) identifies all confined spaces for which an entry permit system under regulation 49 should be established to control the entry of persons to those spaces.

Inspection and tests before entry

47 (1) If a person is to enter a confined space in a place of employment, the employer shall appoint a qualified person to verify, by means of inspection and tests, that—

- (a) the concentration of any hazardous substances in the atmosphere of the confined space does not present a hazard to the safety or health of the person and will not present a hazard during the period of time that the person is in the confined space;
- (b) the percentage of oxygen in the atmosphere of the confined space air is not less than 18% by volume and not more than 23% by volume, at normal atmospheric pressure, and will remain within those limits during the period of time that the person is in the confined space;
- (c) the space has been purged and ventilated to provide an atmosphere that does not endanger the safety or health of the person;
- (d) there is an adequate means of egress from any part of the confined space;
- (e) all electrical and mechanical equipment that may present a hazard to the person has been disconnected from its power source;
- (f) all liquids and free-flowing solids that are likely to create a hazard to the person have been removed and all pipes and supply systems containing such liquids and free-flowing solids have been disconnected or shut off;
- (g) suitable arrangements have been made for the removal of the person in the event of an emergency; and
- (h) a safety watcher is stationed outside the confined space.

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(2) The qualified person shall provide a written report to the employer setting out the results of the verification carried out under paragraph (1), including the test methods, the test results and a list of the test equipment used.

Entry without verification report

48 Where conditions in a confined space, or the nature of the work to be performed, is such that regulation 47 cannot be complied with, a person may enter the space if—

- (a) the person is fitted with a suitable respiratory protective device;
- (b) the person is wearing a full body harness securely attached to a rope, the free end of which is fastened to a fixed support outside the confined space and watched over by a person stationed outside the confined space;
- (c) the person is provided with a means of communication with the person stationed outside the confined space; and
- (d) a safety watcher is stationed outside the confined space and equipped with—
 - (i) a monitoring device that will indicate any change in the atmosphere of the confined space that may affect the safety or health of the person in the confined space, and
 - (ii) an alarm or communications device suitable for summoning assistance in the event of an emergency.

Entry permit system

49 Every employer shall, if reasonably practicable, establish an entry permit system for a confined space that provides for the following to be specified—

- (a) the length of time for which the entry permit is valid;
- (b) the name of the person entering the confined space;
- (c) the date and time of entry and the anticipated time of exit; and
- (d) the protection equipment that is to be used by a person entering the confined space.

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Explosive and flammable atmospheres

50 (1) Except as provided in this regulation, no person shall be present in a confined space that contains or is likely to contain an explosive or flammable substance.

(2) A person may engage in work that does not create a source of ignition in a confined space in which the concentration of an explosive or flammable substance is not likely to exceed 50% of the lower explosive limit of the substance.

(3) A person may only engage in work that creates a source of ignition in a confined space if a qualified person has determined that the work can be performed safely and that the concentration of any explosive or flammable substance in the confined space is not likely to exceed 10 % of the lower explosive limit of the substance.

Ventilation equipment

51 If ventilation equipment is used to ensure that the requirements in regulation 47(1)(a) and (b) are met with regard to the atmosphere in a confined space, the ventilation equipment shall be —

- (a) fitted with an automatic alarm system that will, if the equipment fails, activate an alarm signal that is audible or visual to every person in the confined space;
- (b) calibrated and tested in accordance with the manufacturer's recommendations; and
- (c) monitored constantly by a person who is in communication with the persons in the confined space.

Information and training

52 If a person is likely to enter a confined space at a place of employment, the employer shall provide adequate information and training with regard to—

- (a) the potential hazards to safety and health associated with the confined space;
- (b) the correct use of any protective clothing and equipment to be used when entering the confined space;
- (c) measures to be used to protect persons entering the confined space against any hazard to safety or health; and
- (d) the procedures to be followed in the event of an emergency while a person is using a confined space.

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**PART 7
ELECTRICAL SAFETY**

Definitions

53 In this Part—

“control device” means a device that will safely disconnect electrical equipment from its source of energy;

"electrical equipment" means equipment for the generation, distribution or use of electricity;

“electrical service room” means a room or space in a building provided to accommodate electrical service equipment for that building;

"energized" means electrically connected to or having a source of voltage;

"grounded" means intentionally connected to earth through a ground connection or connections of sufficiently low impedance and having a sufficient carrying capacity to prevent the build up of voltages that may result in undue hazards to connected equipment or persons;

“high voltage” means a potential difference in voltage of more than 600 volts between conductors or between a conductor and ground;

“high voltage equipment” means electrical equipment that is rated to operate at voltages above 600 volts;

“isolated” means that the sources of electrical energy have been disconnected by opening and securing the associated switches, and that the associated mechanical equipment has been rendered inoperative;

“low voltage” means a potential difference in voltage from 50 to 600 volts inclusive between conductors or between a conductor and ground;

“low voltage equipment” means electrical equipment that is rated to operate at voltages of 600 volts or less;

“qualified person” means a person who has skills and knowledge related to, and has received safety training on the hazards involved in, the construction and operation of electrical equipment and installations;

“safety ground” means a solid mechanical connection from an isolated electrical source to a known earth that is designed to protect persons from electrical shock by shunting away any

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dangerous currents that might occur due to malfunction or accidental energization of the electrical source.

General

54 In so far as is reasonably practicable, electrical equipment shall be designed, constructed, installed, maintained and operated so as not to present a danger to any person at a place of employment and so as to meet the standards required by the Building Code of Bermuda.

Disconnection and locking out of power supply

55 (1) In so far as is reasonably practicable, the power supply to electrical equipment shall be disconnected and locked out of service before any work is done on the electrical equipment and while it is being done.

(2) Locking out is not required if—

- (a) the conductors of the equipment are effectively grounded with a visible grounding mechanism; or
- (b) there is no locking device for the circuit breakers or fuses but adequate procedures are in place to ensure that the circuit is not inadvertently energized.

Work to be performed by qualified person

56 All testing or work performed on electrical equipment shall be performed by a qualified person.

Warning signs - energized equipment

57 The entrance to any place that contains exposed electrical equipment that is energized shall be marked by a conspicuous warning sign stating that entry by unauthorized persons is prohibited.

Electrical switches and control devices

58 (1) Every electrical switch and control device shall be designed and located so as to permit quick and safe operation at all times.

(2) The access to every electrical switch and control device shall be kept free from obstruction.

(3) Every electrical switch and control device must be clearly marked to indicate the electrical equipment it serves.

Clearance around electrical equipment

59 Passageways and working space around electrical equipment shall—

- (a) be kept free of obstructions;

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- (b) be so arranged as to give authorized persons ready access to all parts of the equipment that may require attention; and
- (c) not be used for storage.

Portable electrical equipment

60 (1) Portable electrical equipment, except where battery operated, shall be double insulated or grounded by the use of suitable cords and polarised plugs inserted in grounded polarised receptacles.

(2) Portable electrical equipment, including temporary lighting, that is used outdoors or in a wet or damp location, shall be protected by a ground fault circuit interrupter that is installed at the receptacle or on the circuit at the panel or by an equivalent means of protection.

Locking devices

61 If a switch or control device for any electrical equipment is to be operated only by a person authorized by the employer, it shall be fitted with a locking device which can only be activated by such person or by means of a procedure that otherwise restricts activation of the locking device.

Instruction and training

62 Employees who are required to use insulated protective equipment and tools to protect themselves from injury during the performance of electrical work must be instructed and trained in the use of such equipment and tools.

Safety watcher

63 (1) Every employer shall appoint a qualified person as a safety watcher where an employee is working near live exposed electrical equipment.

- (2) Safety watchers shall be—
 - (a) informed of their duties as safety watcher;
 - (b) trained and instructed in the procedures to be followed in the event of an emergency and trained and equipped for carrying out a rescue;
 - (c) free of any other duties that might interfere with their duties as a safety watcher; and
 - (d) authorized to stop immediately any part of the work that they consider dangerous.
- (3) A safety watcher shall—

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- (a) remain in the immediate vicinity of the work;
- (b) warn all persons in the place of employment of hazards;
- (c) ensure that all safety precautions are taken and safe work procedures are complied with;
- (d) observe the work activity when persons, equipment, vegetation or material are moved relative to energized electrical equipment or conductors; and
- (e) signal in a clear and predetermined manner to stop the movement whenever contact with electrical equipment, conductors or guarding appears probable, or whenever conditions prevent the watcher from having a clear view of the movement relative to the electrical equipment.

Poles and elevated structures

64 (1) Before an employee climbs or works on any pole or elevated structure that is used to support electrical equipment, the employer shall give instructions and training to the employee respecting—

- (a) inspections and tests of the pole or structure to be carried out before the pole or structure is climbed; and
- (b) the rescue of employees who may be injured in the course of the work.

(2) Before an employee climbs a pole or elevated structure that is used to support electrical equipment, the pole or structure shall be tested for soundness and stability, and a determination shall be made as to whether any repairs or additional lateral supports are required in order for the work to be performed safely.

Safety grounding

65 (1) No employee shall attach a safety ground to electrical equipment unless the electrical equipment has been tested and it has been established that it is isolated.

(2) Paragraph (1) does not apply in respect of electrical equipment that is grounded by means of a grounding switch that is an integral part of the equipment.

Common grounding network

66 (1) Subject to paragraph (2), no work shall be performed on any electrical equipment in an area in which is located—

- (a) a grounding bus;
- (b) a station grounding network;

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- (c) a neutral conductor;
- (d) temporary phase grounding; or
- (e) a metal structure;

unless the equipment referred to in subparagraphs (a) to (e) is connected to a common grounding network.

(2) Where, after the connections referred to in paragraph (1) are made, a safety ground is required to ensure the safety of an employee working on the electrical equipment referred to in that paragraph, the safety ground shall be connected to the common grounding network.

Safety ground to have sufficient current

67 Every conducting part of a safety ground on isolated electrical equipment shall have sufficient current carrying capacity to conduct the maximum current that is likely to be carried on any part of the equipment for such time as is necessary to permit operation of any device that is installed on the electrical equipment so that, in the event of a short circuit or other electrical current overload, the electrical equipment is automatically disconnected from its source of electrical energy.

Requirements for attachment or disconnection of safety ground

68 No safety ground shall be attached to or disconnected from isolated electrical equipment except in accordance with the following requirements—

- (a) the safety ground shall, to the extent that is practicable, be attached to the pole, structure, apparatus or other thing to which the electrical equipment is attached;
- (b) all isolated conductors, neutral conductors and all non-insulated surfaces of the electrical equipment shall be short-circuited, electrically bonded together and attached by a safety ground to a point of safety grounding in a manner that establishes equal voltage on all surfaces that can be touched by persons who work on the electrical equipment;
- (c) the safety ground shall be attached by means of mechanical clamps that are tightened securely and are in direct contact with bare metal;
- (d) the safety ground shall be so secured that none of its parts can make contact accidentally with any live electrical equipment;

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- (e) the safety ground shall be attached and disconnected using insulated protection equipment and tools;
- (f) the safety ground shall, before it is attached to isolated electrical equipment, be attached to a point of safety grounding; and
- (g) the safety ground shall, before being disconnected from the point of safety grounding, be removed from the isolated electrical equipment in such a manner that the employee avoids contact with all live conductors.

LOW VOLTAGE EQUIPMENT

Low voltage equipment

69 Low voltage equipment that is uninsulated and energized shall be contained in a locked or guarded place so as to be accessible only to a qualified person who has been authorized by the employer.

Unguarded low voltage equipment

70 If low voltage equipment that is uninsulated and energized is not contained in a guarded place and employees are likely to be working within 1 m (3 feet) of the equipment, the employer shall ensure that—

- (a) suitable barriers or insulating covers are provided, to prevent accidental contact with the equipment; and
- (b) employees are informed of the potential hazards associated with the equipment and are instructed on the safety procedures to follow while working in the vicinity of the equipment.

Precautions for performing work on low voltage equipment

71 (1) If reasonably practicable, when work is being performed on low voltage equipment, the electrical power supply for that equipment must be disconnected and locked out.

(2) If it is not reasonably practicable to disconnect and lock out the power supply, the work may only be performed by a qualified person in accordance with safety procedures that—

- (a) require the use of appropriate electrical protective clothing and equipment, including live line tools, insulating gloves, sleeves, blankets, and matting;
- (b) unless it is impracticable, prohibit any person from performing work if there is a source of uncontrolled liquid in proximity to the equipment; and

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(c) do not permit the use of metal ladders, wooden ladders with wire reinforced side rails, metal scaffolds and metal work platforms.

(3) Work must not be done on energized parts of electrical equipment associated with lighting circuits operating at more than 250 volts-to-ground without the prior written permission of the employer.

HIGH VOLTAGE EQUIPMENT

Precautions for performing work on high voltage equipment

72 (1) If reasonably practicable, when work is being performed on high voltage equipment, the electrical power supply for the equipment must be isolated, grounded and locked out.

(2) If it is not reasonably practicable to isolate, ground and lock out the power supply, the work may only be performed by a qualified person in accordance with safety procedures that—

(a) require two or more qualified persons to perform the work, unless the safety procedures specifically permit the work to be performed by one person;

(b) require every person who performs the work to use appropriate electrical protective clothing and equipment, including live line tools, insulating gloves, sleeves, blankets, and matting;

(c) unless it is impracticable, prohibit any person from performing work when there is a source of uncontrolled liquid in proximity to the equipment; and

(d) do not permit the use of metal ladders, wooden ladders with wire reinforced side rails, metal scaffolds and metal work platforms.

Warning signs

73 A legible sign with the words "Danger-High Voltage" in letters that are not less than 5 cm (2 inches) in height on a contrasting background shall be posted in a conspicuous place at every approach to live high voltage equipment.

HIGH VOLTAGE POWER SYSTEMS

Isolation and lockout of high voltage power systems

74 (1) If practicable, when work is being performed on a high voltage power system, the part of the system on which the work is being performed must be isolated, grounded and locked out.

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(2) If it is impracticable to lock out a high voltage power system, the employer shall ensure that there is a guarantee by a qualified person (a “guarantee of isolation”) that the part of the system on which work is being performed is isolated and will remain isolated while the work is being performed and that—

- (a) there are written procedures regarding the guarantee of isolation and that they are followed;
- (b) the boundaries of the power system or any section of the power system on which the work is being performed are clearly defined;
- (c) all the equipment used to effect the guarantee of isolation is clearly identified with conspicuous notices on or near the equipment; and
- (d) distinctive identification notices or barriers are used to distinguish de-energized high voltage equipment from similar energized equipment at the work location.

Guarantee of isolation

75 (1) A person shall not issue a guarantee of isolation for a power system, or any section of it, unless they are authorized in writing by their employer to do so.

(2) Not more than one person shall issue a guarantee of isolation for a power system, or any part of it, for the same period of time.

(3) Except in an emergency, a guarantee of isolation shall be in writing.

Isolation of power system

76 Before any person isolates a power system or changes or terminates the isolation of a power system, the employer shall issue written instructions with respect to the safe work procedures to be followed with regard to the isolation and the instructions shall specify —

- (a) the date and hour when the instructions are issued;
- (b) the date and hour of the commencement and of the termination of the period during which the instructions are to be followed;
- (c) the name of the person to whom the instructions are issued;
- (d) any control device to which the instructions apply; and

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- (e) any sequence in which the procedures that are to be followed.

Confirmation of isolation

77 No person shall perform work on an isolated power system unless the isolation of the system has been confirmed by test, and the person in charge of the work has determined that every control device and locking device necessary to establish and maintain the isolation of the equipment—

- (a) is set in the safe position and locked out; and
- (b) bears a distinctive tag or sign with the words "Do Not Operate" or with a symbol conveying the same meaning.

Working near high voltage equipment

78 The person in charge of any person who is working near exposed energized high voltage equipment shall ensure that there is maintained between the energized high voltage equipment and that person and any machine, tool or equipment the following minimum safe working distances—

Phase to phase voltage of energized equipment	Minimum safe working distance
50 volts to 600 volts	1m (3ft)
601 to 72,500 volts	3m (10ft)
More than 72,500 volts	8m (26ft)

**PART 8
FIRE SAFETY AND EMERGENCY**

Where more than one place of employment in a building

- 79 If there is more than one place of employment in a building—
- (a) the employers in each place of employment and the person in control of the building shall co-operate in the development of a plan for the evacuation of employees and other persons in the event of fire or emergency; and
 - (b) the person in control of the building shall comply with this Part with regard to those parts of the building that are in common use.

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Fire protection equipment

80 (1) Every place of employment shall be provided with fire protection equipment and the equipment shall be located so as to be readily available for use.

(2) All fire protection equipment shall be installed, inspected and maintained by a qualified person.

Means of escape in event of fire or emergency

81 (1) All places of employment shall be provided with adequate means of escape in case of fire or emergency, having regard to the number of employees and other persons likely to be in the place of employment at any one time.

(2) Doors that afford a means of escape shall not be locked or fastened in a manner that prevents them from being opened easily from the inside.

(3) The contents in all areas of a place of employment shall be so arranged that there is a free passage way for persons to a means of escape.

Additional requirements in certain places of employment

82 (1) The requirements in paragraph (2) apply in the case of every place of employment in which—

- (a) more than 20 persons are employed at any one time;
- (b) more than 10 persons are employed at any one time elsewhere than on the ground floor of a building;
- (c) persons are employed in premises in which, or underneath which, explosive or flammable materials are stored, handled or used; or
- (d) persons are employed in premises regarded by the Chief Fire Officer as a fire risk.

(2) The following are the requirements referred to in paragraph (1)—

- (a) the place of employment shall be provided with an effective means of warning that can be safely operated to warn persons of a fire or emergency;
- (b) all exits forming part of a means of escape shall be marked conspicuously by a notice printed in letters of no less than 15 cm (6 inches) in height or by an illuminated sign of the same size; and

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- (c) the employer shall ensure that their employees are familiar with the means of escape and the procedures to be followed in the case of fire or emergency.

Emergency evacuation plan

83 (1) Every employer shall, after consulting the safety and health committee or representative for their place of employment, prepare an emergency evacuation plan for the evacuation of all employees in the event of a fire or other emergency.

(2) The emergency evacuation plan shall contain a diagram of the place of employment showing—

- (a) the names, room numbers and telephone numbers of fire safety and emergency officers for the building;
- (b) the maximum number of persons normally occupying the building at any one time;
- (c) the location of all fire escapes, fire exits, stairways, elevating devices, main corridors and other means of exit;
- (d) the location of all fire protection equipment;
- (e) the location of the main electric power switches for the lighting system, elevating devices, principal heating, ventilation and air-conditioning equipment and other electrical equipment;
- (f) the place where employees are to assemble after evacuation;
- (g) the date of preparation of the diagram; and
- (h) the scale of the diagram.

(3) The emergency evacuation plan shall also contain a description of the evacuation procedures to be followed, including—

- (a) activation of the fire alarm;
- (b) notification of the Bermuda Fire and Rescue Service;
- (c) the procedure for evacuating employees who need special assistance; and
- (d) the procedure for confirming that all employees have been evacuated.

(4) The emergency evacuation plan shall be reviewed annually.

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Emergency procedures

84 (1) Every employer shall, after consulting the safety and health committee or representative for their place of employment, prepare emergency procedures to be implemented in the following circumstances—

- (a) where a person commits or threatens to commit an act that is likely to be hazardous to the safety or health of the employer or any of the employer's employees;
- (b) in the event of an accumulation, spill or leak of a hazardous substance if there is likely to be a risk to the safety or health of persons exposed to the substance;
- (c) in the event of failure of the lighting system;
- (d) in the event of a hurricane or other natural disaster; and
- (e) in the event of an epidemic, a pandemic or other health emergency.

(2) The emergency procedures shall be reviewed annually.

Instruction of employees

85 Every employee shall be instructed in the procedures to be followed by them in the event of an emergency.

Notices

86 Notices that set out the details of the emergency evacuation plan and emergency procedures shall be posted at locations accessible to every employee at the place of employment.

Record of evacuations

87 Every employer shall keep a record of every emergency evacuation from their place of employment for a period of 3 years from the date of the evacuation.

Appointment of emergency officers and monitors

88 (1) Every employer shall appoint at least one emergency officer for every 20 employees, and there shall be at least one emergency officer on each floor of a place of employment that occupies more than one floor.

(2) Every employer shall appoint a monitor for every employee who requires special assistance to evacuate the place of employment. A monitor shall be an employee who is usually employed on the same floor as the employee requiring special assistance.

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Training of emergency officers and monitors

89 (1) Every emergency officer and monitor shall be instructed and trained in—

- (a) their responsibilities under the emergency evacuation plan and the emergency procedures; and
- (b) the location and use of fire protection equipment and emergency equipment provided by the employer.

(2) A record of all instruction and training shall be kept by the employer in the place of employment to which it applies for a period of 3 years from the date on which the instruction or training is provided.

Fire safety inspection

90 (1) A fire safety inspection of all fire escapes, exits, stairways, corridors and fire protection equipment shall be carried out by a qualified person at least once every 6 months to ensure that they are in serviceable condition and ready for use at all times.

(2) A record of each fire safety inspection shall be dated and signed by the person who made the inspection and kept by the employer in the place of employment to which it applies for a period of 3 years from the date on which it is signed.

Drills and meetings of emergency officers and monitors

91 (1) At least once every year and after any change is made in the emergency evacuation plan or the emergency procedures for a place of employment, the employer at that place of employment shall ensure that—

- (a) emergency officers and monitors and employees requiring special assistance meet for the purpose of ensuring that they are familiar with the emergency evacuation plan and the emergency procedures and their responsibilities under the plan and procedures; and
- (b) an evacuation or emergency drill is conducted for the employees in that place of employment.

(2) The employer shall keep a record of each meeting and drill for a period of 3 years from the date of the meeting or drill.

(3) The employer shall notify the Bermuda Fire and Rescue Service at least 24 hours in advance of the date and time of the drill.

Fire hazard areas - signs

92 Signs shall be posted in conspicuous places at all entrances to a fire hazard area at a place of employment—

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- (a) identifying the area as a fire hazard area; and
- (b) prohibiting the use of an open flame or other source of ignition in the area.

**PART 9
FIRST AID**

First aid attendant

93 (1) At every place of employment with 5 or more employees, the employer shall ensure that there is at least one first aid attendant who holds a valid St. John Ambulance Standard First Aid Certificate or its equivalent.

(2) If a first-aid attendant is absent from the place of employment, the employer shall make alternative arrangements for the provision of first aid to employees at the place of employment.

First aid station

94 At every place of employment, the employer shall ensure that there is at least one first aid station which shall be—

- (a) located at or near the workstation of a first-aid attendant, if there is one;
- (b) provided with a first aid kit in accordance with regulation 95;
- (c) accessible to employees during all working hours; and
- (d) clearly identified by a conspicuous sign.

First aid kit

95 A first aid kit shall contain the following items, according to the maximum number of employees employed at the place of employment at any particular time—

ITEM #	First-aid Supplies	No. of Employees	
		1-25	Over 25
1	Packages of sterile 2" gauze bandages (small)	6	24
2	Packages of sterile 3" gauze bandages (medium)	3	12

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3	Packages of sterile 4" gauze bandages (large)	3	12
4	Adhesive wound dressing in assorted sizes	12	36
5	Triangular bandages (standard)	2	4
6	Roll of adhesive tape – 1" size	1	1
7	Safety pins	6	12
8	Adhesive bandages	20	40
9	Eye pads	2	8
10	Bandage scissors	1	1
11	Mouth-Piece (standard)	1	2
12	Alcohol FREE Wipes	6	12
13	Disposable Gloves – (large) pairs	4	8

Emergency showers or eyewashes

96 Where a person's skin or eyes may be injured by exposure to a caustic, acidic or other hazardous substance at a place of employment, the employer shall provide at the place of employment—

- (a) an emergency shower or other equipment sufficient for removal of the substance from the person's skin; and
- (b) an eye wash fountain, an eye station with single use eye wash bottles or other equipment sufficient for removal of the substance from the person's eyes.

**PART 10
WORK ENVIRONMENT**

Definitions

97 In this Part—

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"A-weighted sound pressure level" means a sound pressure level as determined by a measurement system which includes an A-weighting filter that meets the requirements set out in the International Electrotechnical Commission Standard 651 (1979), Sound Level Meters;

"dBA" means decibels of noise, measured with an A-weighting filter;

"dBA Lex" means the level of an employee's total exposure to noise in dBA, averaged over the entire workday and adjusted to an equivalent 8 hour exposure;

"musculoskeletal injury" means any injury to the musculoskeletal system of a person that is caused by a work process or a work condition, and includes carpal tunnel syndrome and Raynaud's phenomenon;

"peak sound pressure level" means the maximum instantaneous sound pressure level, in dBA;

"unsafe levels of sound" means levels that are greater than—

- (a) 85 dBA Lex daily exposure; or
- (b) 135 dBA peak sound pressure level;

"VDT" means a visual display terminal;

Assessment of levels of sound

98 If there is a risk that an employee may be exposed to unsafe levels of sound at a place of employment, the employer shall appoint a qualified person to carry out a survey of levels of sound at the place of employment and provide the employer with an assessment report that identifies—

- (a) all areas where hearing conservation measures are required to protect the hearing of employees who are likely to be exposed to unsafe levels of sound;
- (b) all noise hazard areas in the place of employment where warning signs are to be posted;
- (c) any noise control measures and hearing protection equipment required to protect employees against exposure to unsafe levels of sound;
- (d) any need for periodic noise surveys to measure sound levels and assess the effectiveness of noise control measures;

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- (e) the education and training to be provided to employees who are likely to be exposed to unsafe levels of sound; and
- (f) any need for audiometric testing for employees who are likely to be exposed to unsafe levels of sound.

Sound exposure limits

99 (1) No employee shall be exposed to unsafe levels of sound at a place of employment.

(2) Insofar as is reasonably practicable, every employer shall, by engineering controls or other physical means, reduce the exposure of employees to unsafe levels of sound.

(3) If it is not reasonably practicable for an employer to reduce sound levels by engineering controls or other physical means, the employer shall provide every employee who is likely to be exposed to unsafe levels of sound with hearing protectors that prevent them from being exposed to unsafe levels of sound.

Audiometric tests

100 If an assessment report under regulation 98 identifies a need for audiometric tests for employees who have been or are likely to be exposed to unsafe levels of sound, the employer shall arrange for audiometric tests to be conducted.

Noise warning signs

101 At every place of employment where there is a risk of an employee being exposed to unsafe levels of sound, the employer shall post conspicuous signs in locations where the signs will provide adequate warning that unsafe levels of sound may be encountered.

Information and instruction - hearing conservation

102 At a place of employment where there are unsafe levels of sound, the employer shall ensure that all employees who are likely to be exposed to unsafe levels of sound are informed and instructed on—

- (a) the results of any sound level measurements made at their place of employment;
- (b) the effects of excessive noise levels on hearing;
- (c) the proper use and maintenance of hearing protectors; and
- (d) the purpose of audiometric testing.

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Lighting

103 (1) Every place of employment shall be provided with suitable and sufficient lighting.

(2) Lighting may be natural or artificial but, where natural lighting is inadequate to ensure the safety and health of employees at a place of employment, artificial lighting shall be provided and shadows and glare shall be reduced to a minimum.

(3) If the lighting in a place of employment represents a risk to the safety or health of employees, the employer shall appoint a qualified person to carry out a survey of the lighting at the place of employment and provide the employer with a report that identifies the risk and the measures required to eliminate or mitigate the risk.

Measurement of average levels of lighting

104 The average level of lighting in a place of employment shall be determined by—

- (a) making measurements at four different places that are representative of the level of lighting at any area where work is performed; and
- (b) dividing the aggregate of the results of those measurements by four.

Levels of lighting

105 (1) For the purposes of paragraph (2)—

- (a) one lux is the illuminance at a point on a surface which is one metre from, and perpendicular to, a uniform point source of one candela; and
- (b) one footcandle is the illuminance at a point on a surface which is one foot from, and perpendicular to, a uniform point source of one candela

(2) The average levels of lighting in areas where work is performed shall not be less than the following levels—

<u>Task position or area</u>	<u>Level in lux</u>	<u>Level in footcandles</u>
A - DESK WORK		
(a) Task positions at which cartography, designing, drafting, plan-reading or other very difficult		

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visual tasks are performed	1,000	100
(b) Task positions at which business machines are operated or stenography, accounting, typing, filing, clerking, billing, continuous reading or writing or other difficult visual tasks are performed	500	50
B - OTHER OFFICE WORK		
Conference and interview rooms, file storage areas, switchboard or reception areas or other areas where ordinary visual tasks are performed	300	30
C - SERVICE AREAS		
(a) Stairways and corridors that are—		
(i) used frequently	100	10
(ii) used infrequently	50	5
(b) Stairways that are used only in emergencies	30	3

LEVELS OF LIGHTING IN INDUSTRIAL AREAS

D - GARAGES

(a) Main repair and maintenance areas, other than those referred to in paragraph (b)	300	30
(b) Main repair and maintenance areas used for repairing and maintaining cranes, bulldozers and other major equipment	150	15
(c) General work areas adjacent to a main repair and maintenance area referred to in paragraph (b)	50	5
(d) Fuelling areas	150	15
(e) Battery rooms	100	10
(f) Other areas in which there is—		
(i) a high or moderate level of activity	100	10

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(ii) a low level of activity	50	5
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E - LABORATORIES

(a) Areas in which instruments are read and where errors in such reading may be hazardous to the health or safety of an employee	750	75
(b) Areas in which a hazardous substance is handled	500	50
(c) Areas in which laboratory work requiring close and prolonged attention is performed	500	50
(d) Areas in which other laboratory work is performed	300	30

F - LOADING PLATFORMS, STORAGE ROOMS AND WAREHOUSES

(a) Areas in which packages are frequently checked or sorted	250	25
(b) Areas in which packages are infrequently checked or sorted	75	7.5
(c) Docks (indoor and outdoor), piers and other locations where packages or containers are loaded or unloaded	100	10
(d) Areas in which grain or granular material is loaded or unloaded in bulk	30	3
(e) Areas in which goods are stored in bulk or where goods in storage are all of one kind	30	3
(f) Areas where goods in storage are of different kinds	75	7.5
(g) Any other area	10	1

G - MACHINE AND WOODWORKING SHOPS

(a) Areas in which medium or fine bench or machine work is performed	500	50
(b) Areas in which rough bench or		

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machine work is performed	300	30
(c) Any other area	200	20

H - MANUFACTURING AND PROCESSING AREAS

(a) Major control rooms or rooms with dial displays	500	50
(b) Areas in which a hazardous substance is processed, manufactured or used—		
(i) in main work areas	500	50
(ii) in surrounding areas	200	20
(c) Areas in which substances that are not hazardous substances are processed, manufactured or used or where automatically controlled equipment operates—		
(i) in main work areas	100	10
(ii) in surrounding areas	50	5

I - SERVICE AREAS

(a) Stairways and elevating devices that are—		
(i) used frequently	100	10
(ii) used infrequently	50	5
(b) Stairways that are used only in emergencies	30	3
(c) Corridors and aisles that are used by persons and mobile equipment—		
(i) at main intersections	100	10
(ii) at other locations	50	5
(d) Corridors and aisles that are used by mobile equipment only	50	5
(e) Corridors and aisles that are used by persons only and are—		
(i) used frequently by employees	50	5

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(ii) used infrequently by employees	30	3
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LEVELS OF LIGHTING — GENERAL AREAS

J - BUILDING EXTERIORS

(a) Entrances and exits that are—		
(i) used frequently	100	10
(ii) used infrequently	50	5
(b) Passageways used by persons—		
(i) at vehicular intersections	30	3
(ii) at other locations	10	1
(c) Areas used by persons and mobile equipment in which there is—		
(i) a high or moderate level of activity	20	2
(ii) a low level of activity	10	1
(d) Storage areas in which there is—		
(i) a high or moderate level of activity	30	3
(ii) a low level of activity	10	1

K - FIRST AID ROOMS

(a) in treatment and examination area	1,000	100
(b) in other areas	500	50

L - FOOD PREPARATION AREAS	500	50
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M - PERSONAL SERVICE ROOMS	200	20
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N - BOILER ROOMS	200	20
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O - ROOMS IN WHICH PRINCIPAL HEATING, VENTILATION OR AIR CONDITIONING EQUIPMENT IS INSTALLED	50	5
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P - EMERGENCY SHOWER FACILITIES AND EMERGENCY EQUIPMENT	50	5
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LOCATIONS

Q - PARKING AREAS

(a) Covered	10	1
(b) Open	100	10

R - LOBBIES AND ATRIA	100	10
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LEVELS OF LIGHTING — VDT WORK

S - VDT WORK

(a) Task positions at which data entry and retrieval work are performed intermittently	500	50
(b) Task positions at which data entry work is performed exclusively	750	75
(c) Air traffic controller areas	100	10
(d) Telephone operator areas	300	30

Ventilation

106 So far as is reasonably practicable, a place of employment shall be adequately ventilated either by natural or mechanical means that are sufficient to ensure the safety and health of employees at the place of employment.

Ventilation control of hazardous substances

107 If a work process that is carried on at a place of employment produces a hazardous substance in a concentration that may endanger the safety or health of employees in the place of employment, the employer shall provide mechanical ventilation equipment that is capable of maintaining the concentration of the hazardous substance below the level that may endanger the safety or health of employees.

Exhaust and ventilation systems

108 Every place of employment shall be provided with air exhaust and ventilation systems that meet the standards set out in Chapters 4 and 5 of the International Mechanical Code 1996, as incorporated in the Building Code of Bermuda.

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Indoor air quality

109 The ventilation system in a place of employment shall be designed, constructed, maintained, used and inspected so as to meet the standards set out by the American Society of Heating, Refrigeration and Air-conditioning Engineers in ASHRAE Standard 62-1989 – “Ventilation for Acceptable Indoor Air Quality”.

Overcrowding

110 (1) No room in a place of employment shall be so overcrowded as to create a risk of injury to the safety or health of employees.

(2) A minimum floor area of 4 square metres (43 square feet) of floor space shall be allowed for each employee.

Workstations

111 (1) Seats that are ergonomically suitable shall be provided for employees who normally perform their work while sitting.

(2) If there is a likelihood that an employee will develop a musculoskeletal injury as a result of having to stand for prolonged periods while performing their work, the employer shall take measures to prevent the employee from developing a musculoskeletal injury, such as providing ergonomically suitable workstations, work breaks or a variety of work activities.

Vibration hazards

112 (1) If there is a risk of a work process at a place of employment causing an employee to be exposed to unsafe levels of vibration, the employer shall appoint a qualified person to carry out a hazard identification survey of the place of employment and provide the employer with an assessment report that—

- (a) identifies all work processes at the place of employment where protective measures are required to protect employees who are likely to be exposed to unsafe levels of vibration;
- (b) specifies the vibration control measures and the protection equipment required to protect employees against exposure to unsafe levels of vibration;
- (c) specifies the education and training to be provided to employees who may be exposed to unsafe levels of vibration, and
- (d) identifies any need for medical examinations, surveillance or other health protection measures for employees who are likely to be exposed to unsafe levels of vibration.

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(2) If an assessment report contains a recommendation for medical examinations, surveillance or other health protection measures, the employer shall consult with a medical practitioner regarding the recommendation.

(3) In this regulation, “unsafe levels of vibration” are the limits specified in the American Conference of Governmental Industrial Hygienists Publications - #7DOC-647, Hand-Arm Vibration and #7DOC-648, Whole-Body Vibration.

Protection against unsafe levels of vibration

113 If equipment used at a place of employment produces unsafe levels of vibration, the employer shall, where practicable, reduce the vibration by implementing appropriate vibration reduction measures including—

- (a) controlling the source of vibration by engineered means such as balancing or vibration damping;
- (b) providing seated employees with vibration-isolated seating;
- (c) providing standing employees with mechanically isolated flooring;
- (d) limiting the duration of exposure;
- (e) isolating the source of vibration by other measures; and
- (f) providing anti-vibration or low vibration tools, grips and gloves.

Instruction and training - exposure to vibration

114 Where an employee is likely to be exposed to unsafe levels of vibration, the employer shall provide instruction and training in work practices to reduce the risks associated with exposure to unsafe levels of vibration, including—

- (a) maintenance of machinery to prevent the development of excess vibration;
- (b) use of gloves and clothing to maintain body temperature;
- (c) proper use of any anti-vibration or low vibration tools, grips or gloves; and
- (d) any other means to reduce the transmission of vibration to the hands or body.

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Information and warning regarding vibration hazards

115 (1) The employer shall ensure that an employee exposed to potentially excessive levels of vibration is informed of the nature of the hazards, and possible adverse effects, of that exposure.

(2) Any equipment that produces levels of vibration that are likely to expose the user to a risk of musculoskeletal injury shall be provided with a label that identifies that risk.

Video display terminals

116 (1) Where employees regularly use video display terminals or other similar ocular devices (“VDTs”) at a place of employment and there is a risk of employees who operate the VDTs developing eye strain or musculoskeletal injury, the employer shall appoint a qualified person to carry out an ergonomic survey of the place of employment and provide the employer with an assessment report that—

- (a) determines whether the equipment and furniture used by VDT operators is positioned, adjusted and used as required to reduce the risk of eye strain and musculoskeletal injury to the operators;
- (b) determines whether the work schedules of VDT operators provide sufficient alternative work activity or relaxation breaks to effectively reduce the risk of eye strain and musculoskeletal injury;
- (c) determines whether VDT operators are adequately informed of health protection measures related to their work; and
- (d) identifies any need for medical examinations, surveillance or other health protection measures for employees who are likely to develop eye strain or a musculoskeletal injury.

(2) If an assessment report contains a recommendation for medical examinations, surveillance or other health protection measures, the employer shall consult with a medical practitioner or an optometrist, as the case may be, with regard to the recommendation.

Musculoskeletal injury generally

117 (1) If there is a risk of a work process at a place of employment causing an employee to develop a musculoskeletal injury, the employer shall appoint a qualified person to carry out a hazard identification survey of the place of employment and to provide the employer with an assessment report that—

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- (a) identifies work processes at the place of employment that may put employees at risk of developing a musculoskeletal injury;
 - (b) identifies the type of risk involved;
 - (c) identifies any need for medical examinations, surveillance or other health protection measures; and
 - (d) identifies safety and health training to be provided to employees exposed to the risk.
- (2) Where an assessment report identifies a work process that may put an employee at risk of developing a musculoskeletal injury, the employer shall provide that employee with—
- (a) information on the risk involved;
 - (b) information on preventative measures being taken by the employer to reduce the risk of injury; and
 - (c) wherever practicable, safety and health training in appropriate preventative measures and risk reduction techniques.
- (3) If an assessment report contains a recommendation for medical examinations, surveillance or other health protection measures, the employer shall consult with a medical practitioner with regard to the recommendation.

PART 11 SANITATION

Definition

118 In this Part, “personal service room” means a room or area at a place of employment that is used by employees for activities not directly related to the performance of the work of the employer, including a toilet room, a washroom, a bath or shower enclosure, a changing room, a lunch room, a kitchen or food preparation area or an employees’ lounge or sleeping quarters.

Personal service rooms

119 The employer shall ensure that adequate personal service rooms are provided for employees at a place of employment.

Cleanliness

120 All personal service rooms shall be kept in a clean and sanitary condition, so far as is reasonably practicable, and each personal service room shall be cleaned at least once every day that it is used.

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Contamination control

121 Any work carried out in personal service rooms that may cause dusty or unsanitary conditions shall be done in a manner that will prevent the contamination of the air by dust or other substances injurious to health.

Storage of equipment

122 No person shall use a personal service room for the purpose of storing equipment unless a closet fitted with a door is provided in that room for that purpose.

Walls and partitions

123 In personal service rooms, the floors, partitions and walls shall be so constructed that they can be easily washed and maintained in a sanitary condition, and in any food preparation area or toilet room the floor and lower 15 cm (6 inches) of any walls and partitions shall be water-tight and impervious to moisture.

Vermin control

124 (1) Personal service rooms shall be constructed, equipped and maintained in a manner that will prevent the entrance of vermin.

(2) Where vermin have entered a personal service room, the employer shall immediately take all steps necessary to eliminate the vermin and prevent the re-entry of the vermin.

Temperature control

125 So far as reasonably practicable, in each personal service room the temperature, measured 1 m (3 feet) above the floor in the centre of the room, shall be maintained at a level of not less than 18°C (64°F) and not more than 29°C (84°F).

Ventilation

126 Personal service rooms shall be properly ventilated in accordance with the Building Code of Bermuda.

Toilet rooms

127 (1) So far as reasonably practicable, toilet rooms shall be provided for employees in accordance with paragraph (2) and, where persons of both sexes are employed at the same place of employment, separate toilet rooms shall be provided for employees of each sex.

(2) In the toilet rooms at a place of employment there shall be provided a number of toilets according to the maximum number of employees of each sex who are normally employed at the place of employment, as follows—

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Number of employees of each sex	Number of Toilets
1-10	1
11-25	2
26-50	3
51-75	4
76-100	5
Over 100	5, plus 1 for each additional 30 employees over 100

(3) An employer may substitute urinals for up to two-thirds of the number of toilets required by paragraph (2) to be provided for male employees.

(4) Notwithstanding paragraph (1), an employer may provide only one toilet room for both male and female employees if the total number of employees normally employed at the place of employment does not exceed 10 and the door of the toilet room is fitted on the inside with a locking device.

(5) Toilet rooms shall be located not more than 60 m (200 feet) from, and not more than one storey above or below, the work area of employees.

Doors and door markings

128 Where separate toilet rooms are provided for employees of each sex, each room shall be equipped with a door that is self-closing and is clearly marked to indicate the sex of the employees for whom the room is provided.

Design requirements for toilet rooms

129 A toilet room shall be so designed that —

- (a) it is completely enclosed with solid material that is non-transparent from the outside;
- (b) no toilet or urinal is visible when the door of the toilet room is open;
- (c) it has a ceiling height of not less than 2.3 m (7 feet 6 inches);
- (d) where the toilet room contains more than one toilet, each toilet is enclosed in a separate compartment fitted with a door and an inside locking device; and

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- (e) the walls of each separate toilet compartment are designed and constructed to provide a reasonable amount of privacy for its occupant.

Toilet paper

130 Toilet paper on a holder or in a dispenser shall be provided in each toilet compartment or, where there is only one toilet in a toilet room, in the toilet room.

Sanitary napkins

131 A covered container for the disposal of sanitary napkins, with a disposable liner, shall be provided in each toilet room provided for the use of female employees.

Wash basins

132 (1) Where a toilet room contains one or two toilets or urinals, it shall be provided with one wash basin; and where the toilet room contains more than two toilets or urinals, it shall be provided with one additional wash basin for each additional two toilets or urinals.

(2) Wash basins shall be supplied with cold water, and with hot water that is maintained at a temperature of not less than 35°C (95°F) and not more than 43°C (109°F), wherever reasonably practicable.

Soap and cleansing agents

133 Personal service rooms that contain wash basins shall be provided with—

- (a) powdered or liquid soap or other cleaning agent in a dispenser at each wash basin or between adjoining wash basins;
- (b) sanitary hand drying facilities sufficient for the number of persons using the personal service room; and
- (c) where the hand drying facilities are paper towels, a non-combustible container for the disposal of used towels.

Waste disposal

134 The employer shall provide a waste disposal system that is adequate to ensure the safe removal of all solid and liquid waste produced in the place of employment.

Portable containers for solid or liquid waste

135 Any portable container that is used to hold solid or liquid waste in a place of employment shall be—

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- (a) equipped with a tight-fitting cover;
- (b) so constructed that it can easily be cleaned and maintained in a sanitary condition;
- (c) leak-proof;
- (d) where there may be internal pressure in the container, so designed that the pressure is relieved by controlled ventilation; and
- (e) emptied at least once every day that it is used.

Potable water

136 (1) Every employer shall provide an adequate supply of potable water for drinking and food preparation that meets Department of Health guidelines.

(2) Except where drinking water is supplied by a drinking fountain, sanitary single-use drinking cups shall be provided.

(3) where drinking water is supplied by a drinking fountain, the fountain shall meet the standards set out in Standard 1010-82, Standard for Drinking-Fountains and Self-Contained, Mechanically-Refrigerated Drinking-Water Coolers, dated 1982, of the Air-Conditioning and Refrigeration Institute of the United States.

Water containers

137 Where it is necessary to store or transport water for drinking or food preparation in a portable water container, the container shall be—

- (a) securely covered and closed;
- (b) used only for the purpose of storing or transporting potable water; and
- (c) fitted with a tap or other means of drawing water from the container that precludes the contamination of the water.

Showers and shower rooms

138 At a place of employment where employees regularly perform strenuous physical work in a high temperature or high humidity, or where they may become contaminated by a hazardous substance, the employer shall provide a shower room fitted with one shower head for every 10 employees or portion of that number.

Changing room

139 The employer shall provide a suitable changing room where—

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- (a) the nature of the work engaged in by an employee makes it necessary for the employee to change from street clothes to work clothes for safety or health reasons; or
- (b) an employee is regularly engaged in work in which their work clothing becomes wet or contaminated by a hazardous substance.

Clothing storage

140 The employer shall provide a suitable storage facility for the storage of clothing not worn by employees while they are working and for work clothes kept at the place of employment

Lunch rooms

141 (1) Every lunch room provided by an employer shall be provided with—

- (a) a sufficient number of tables and seats to accommodate adequately the number of employees who normally use it; and
- (b) a covered receptacle for the disposal of waste food or other waste material.

(2) Food waste and garbage shall be—

- (a) disposed of by mechanical grinders or choppers connected to sewage disposal lines; or
- (b) held in leak-proof, non-absorptive, easily cleaned containers with tight-fitting covers in a separate enclosed area or container until removal for disposal, and removed as frequently as is necessary to prevent unsanitary conditions.

(3) A lunch room shall not be used for any purpose that is incompatible with its use as a lunch room.

PART 12 HAZARDOUS SUBSTANCES

Definitions

142 In this Part —

"material safety data sheet", in relation to a hazardous substance, means a document that contains words, figures or symbols disclosing the chemical identity of the hazardous substance;

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"product identifier", in respect of a hazardous substance, means the brand name, code name or code number specified by the supplier or the chemical name, common name, generic name or trade name of the hazardous product.

Record of hazardous substances

143 (1) Every employer shall establish and maintain a record of all hazardous substances that are used, produced, handled or stored in a place of employment.

(2) The employer shall keep the record of hazardous substances readily available in the place of employment for examination by employees who may be exposed to hazardous substances, and by medical or emergency services personnel attending to employees who have been exposed to hazardous substances.

Hazard identification and assessment

144 (1) If there is a risk of the safety or health of an employee at a place of employment being endangered by exposure to a hazardous substance, the employer shall appoint a qualified person to carry out a hazard identification survey of the place of employment and to make an assessment report to the employer that—

- (a) lists all hazardous substances that are used, produced, handled or stored in the place of employment, and their quantities;
- (b) provides an assessment of the effectiveness of work procedures for dealing with hazardous substances and the control methods used to eliminate or reduce the risk of exposure;
- (c) identifies the level of hazardous substances to which a person is likely to be exposed;
- (d) identifies any conditions or circumstances that the person making the report considers to be contrary to the provisions of this Part; and
- (e) identifies any need for medical examinations, surveillance or other health protection measures for employees who are at risk of exposure to hazardous substances.

(2) If an assessment report contains a recommendation for medical examinations, surveillance or other health protection measures, the employer shall consult with a medical practitioner regarding the recommendation.

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Labelling of containers

145 (1) An employer who has a product containing a hazardous substance for use at a place of employment shall ensure that the container in which the product is contained has a label that discloses—

- (a) the product identifier and the intended uses of the product;
- (b) the chemical identity or generic name or names of every ingredient of the hazardous substance;
- (c) appropriate warning of the risk associated with the hazardous substance;
- (d) precautionary measures to be taken when using, handling or storing the product;
- (e) first aid measures to be taken in case of exposure to the product, and
- (f) the availability of a material safety data sheet in respect of the hazardous substance.

(2) A phrase indicating that other ingredients are determined not to be hazardous may be used instead of the chemical name or generic name of an ingredient if the ingredient—

- (a) is not itself a hazardous substance; and
- (b) does not have known synergistic effects with other ingredients.

(3) If a product that contains a hazardous substance is transferred from the container in which it is received to another container, the employer shall ensure that the other container has a label that discloses—

- (a) the product identifier and the intended uses of the product;
- (b) information for the safe use, handling and storage of the product; and
- (c) the availability of a material safety data sheet in respect of the hazardous substance.

Material safety data sheets

146 (1) Every employer who receives a product containing a hazardous substance for use at a place of employment shall obtain from the supplier of the product an up-to-date material safety data sheet in respect of the product that discloses—

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- (a) the date of preparation of the material data sheet and the name, address and telephone number of the person or agency who prepared it;
 - (b) the chemical names or generic names of all ingredients of the hazardous substance;
 - (c) the product identifier and the intended uses of the product;
 - (d) the physical state and properties of the product;
 - (e) information on any fire or explosion hazard presented by the product;
 - (f) information on the reactivity, incompatibility, instability of the product;
 - (g) the toxicological properties of the product;
 - (h) the preventative measures to be used to protect persons against hazardous exposure to the product; and
 - (i) specific instructions on the first aid measures to be followed in the treatment of persons suffering from the effects of hazardous exposure to the product.
- (2) A phrase indicating that other ingredients are determined not to be hazardous may be used instead of the chemical name or generic name of an ingredient if the ingredient—
- (a) is not itself a hazardous substance; and
 - (b) does not have known synergistic effects with other ingredients.
- (3) The employer shall keep the material safety data sheet readily available in the place of employment for examination by employees who may be exposed to hazardous substances, and by medical or emergency services personnel attending to employees who have been exposed to hazardous substances.

Information and training

147 Every employer shall ensure that employees who are likely to be exposed to a hazardous substance at the place of employment receive information and training on—

- (a) the potential health risk and any toxic effects associated with the hazardous substance;
- (b) the control measures used to minimize the risk to safety and health;

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- (c) the measures used to counter the effects of exposure to the hazardous substance;
- (d) the correct care and use of personal protective clothing and equipment;
- (e) any health protection and surveillance requirements;
- (f) the availability and location of the material data sheet and the purpose and significance of the information disclosed in the material data sheet and on product labels;
- (g) the safe procedures for the use, handling and storage of the hazardous substance; and
- (h) the procedures to be followed in the event of an accidental discharge, spill, or other emergency involving a hazardous substance.

Transfer of hazardous substance by assembly of pipes

148 (1) Every assembly of pipes, pipe fittings, valves, safety devices, pumps, compressors and other fixed equipment that is used for transferring a hazardous substance from one location to another in a place of employment shall be—

- (a) labelled to identify the hazardous substance and, where appropriate, the direction of the flow; and
- (b) fitted with valves and other controls and safety devices to ensure its safe operation, maintenance and repair.

(2) Every employer shall ensure that, in addition to the information and training provided for in regulation 147, employees who operate, maintain or repair the assembly of pipes are instructed and trained in—

- (a) the functioning and purpose of all control and safety devices fitted on the assembly of pipes; and
- (b) the safe operating procedures and the emergency shut down procedure for the assembly of pipes.

Use, handling, storage and transport

149 (1) Every hazardous substance in a place of employment shall be used, handled, stored and transported by a qualified person in a manner such that the hazard related to the substance is reduced to a minimum.

(2) Where a hazardous substance is in a place of employment, any hazard resulting from the use, handling, storage or transport of the substance shall be confined to as small an area as practicable.

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(3) Every container for a hazardous substance that is used in a place of employment shall be so designed and constructed that it protects the employees from any safety or health hazard caused by the hazardous substance.

(4) The quantity of a hazardous substance for use or processing in a place of employment shall, to the extent that is practicable, be limited to the quantity required for one work day.

(5) Where in a place of employment a hazardous substance is capable of combining with another substance to form an ignitable combination and there exists a hazard of ignition of the combination by static electricity, the employer shall implement the standards set out in the United States National Fire Prevention Association Inc. publication NFPA 77-1983, *Recommended Practice on Static Electricity*.

Warning signs and detection systems

150 (1) Where a hazardous substance is used, handled or stored in a place of employment, signs shall be posted in conspicuous places warning every person granted access to the place of employment of the presence of the hazardous substance and of any precautions to be taken to prevent or reduce any safety or health risk. The information on the signs shall be of such a size that it is clearly legible by employees at the place of employment.

(2) Where reasonably practicable, automated warning and detection systems shall be provided by the employer if the danger of exposure to a hazardous substance so warrants.

Airborne chemical agents – exposure levels

151 (1) No employee at a place of employment shall be exposed to a concentration of an airborne chemical agent in excess of the value for that chemical agent adopted by the American Conference of Governmental Industrial Hygienists in its publication entitled *Threshold Limit Values and Biological Exposure Indices*.

(2) Where there is a likelihood that the concentration of an airborne chemical agent may exceed the value referred to in paragraph (1), air samples shall be taken and the concentration of the chemical agent shall be tested in accordance with the standards set out by —

- (a) the American Conference of Governmental Industrial Hygienists in its publication entitled *Manual of Analytical Methods Recommended for Sampling and Analysis of Atmospheric Contaminants*; or
- (b) the United States National Institute for Occupational Safety and Health in its publication entitled *NIOSH Manual of Analytical Methods*.

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(3) A record of each test conducted under paragraph (2) shall be kept by the employer for a period of 3 years after the date of the test.

(4) The record shall include—

- (a) the date, time and location of the test;
- (b) the hazardous substance in respect of which the test was conducted;
- (c) the sampling and testing methods used;
- (d) the results obtained; and
- (e) the name and occupation of the person who conducted the test.

Airborne chemical agents - ignition hazards

152 (1) Subject to paragraph (2), the maximum concentration of an airborne chemical agent or combination of airborne chemical agents in a place of employment shall be less than 50 per cent of the lower explosive limit of the chemical agent or combination of chemical agents.

(2) Where a source of ignition may ignite an airborne chemical agent or combination of airborne chemical agents in a place of employment, the maximum concentration of the chemical agent or combination of chemical agents shall be 10 per cent of the lower explosive limit of the chemical agent or combination of chemical agents.

(3) The lower explosive limit of a chemical agent or combination of chemical agents is the limit adopted by the American Conference of Governmental Industrial Hygienists in its publication entitled *Threshold Limit Values and Biological Exposure Indices*.

(4) Explosive substances shall not be used, handled or stored in a place of employment except by a person authorized under the Explosive Substances Act 1974.

Airborne chemical agents - ventilation

153 (1) Every ventilation system used to control the concentration of an airborne hazardous substance shall be so designed, constructed, installed, operated and maintained that —

- (a) the concentration of the airborne hazardous substance does not exceed the values and levels prescribed in regulations 151 and 152; and
- (b) the ventilation system meets the standards set out in the publication of the American Conference of Governmental Industrial Hygienists entitled *Air Contaminant Exposures and Industrial Hygiene Ventilation*.

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(2) A hazardous substance shall not be used in a place of employment where it is reasonably practicable to substitute for it a substance that is not a hazardous substance.

(3) Where a hazardous substance is to be used for any purpose in a place of employment and an equivalent substance that is less hazardous is available to be used for that purpose, the equivalent substance shall be substituted for the hazardous substance where reasonably practicable.

Hazardous waste

154 (1) Where a hazardous substance in a place of employment is hazardous waste, the employer shall disclose the generic name and hazard information in respect of the hazardous waste by—

- (a) applying a label to the hazardous waste or its container;
or
- (b) posting a sign in a conspicuous place near the hazardous waste or its container.

(2) For the purposes of this regulation, “hazardous waste” is a hazardous product that is intended solely for disposal or for recycling or recovery.

Laboratory labels

155 The label of the container of a hazardous substance in a laboratory shall disclose —

- (a) where the hazardous substance is used exclusively in the laboratory, the product identifier;
- (b) where the hazardous substance is a mixture or substance used solely for analysis, testing or evaluation for research and development, the product identifier; and
- (c) where the hazardous substance originates from a laboratory supply house and is received in a container in a quantity of less than 10 kg (22 pounds), the following information—
 - (i) the product identifier,
 - (ii) risk warnings appropriate to the hazardous substance,
 - (iii) a statement with regard to the availability of a material safety data sheet,

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- (iv) precautionary measures to be taken by a person working with, or in close proximity to, the hazardous substance, and
- (v) first aid measures to be applied in the event of exposure to the hazardous substance.

PART 13 ELECTROMAGNETIC RADIATION

Radiation emitting devices

156 Where a device that is capable of producing and emitting energy in the form of ionizing or non-ionizing radiation is used at a place of employment, the employer shall—

- (a) so far as is reasonably practicable, ensure that the device is installed, inspected, tested, maintained and operated so as to be safe and without risks to the safety or health of employees;
- (b) implement the safety code that is applicable to a device under regulation 157; and
- (c) if the device is one that is listed in regulation 158, make a report to the Safety and Health Office describing the device and its location in the place of employment.

Applicable safety codes

157 For the purpose of regulation 156(b), the following are the safety codes and the devices to which they are applicable —

- (a) Health Canada Safety Code 6 – radio frequency and microwave devices in the frequency range from 3 kHz to 300 GHz;
- (b) Health Canada Safety Code 20A - X-ray equipment in medical diagnosis;
- (c) Health Canada Safety Codes 23 and 24 - ultrasound equipment;
- (d) Health Canada Safety Code 25 - short-wave diathermy equipment;
- (e) Health Canada Safety Code 28 – veterinary X-ray equipment;
- (f) Health Canada Safety Code 29 - baggage inspection X-ray equipment;
- (g) Health Canada Safety Code 30 - dental x-ray equipment;

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- (h) Health Canada Safety Code 31 - computed tomography equipment;
- (i) Health Canada Safety Code 32 - analytical X-ray equipment; and
- (j) Health Canada Safety Code 33 - mammography equipment.

Devices to be reported

158 The following is the list of devices for the purpose of regulation 156(c)—

<u>Item</u>	<u>Device</u>
1.	Dental X-Ray Equipment
2.	Baggage Inspection X-Ray Devices
3.	Demonstration-Type Gas Discharge Devices
4.	Photofluorographic X-Ray Equipment
5.	Electron Microscopes
6.	Diagnostic X-Ray Equipment
7.	X-Ray Diffraction Equipment
8.	Cabinet X-Ray Equipment
9.	Therapeutic X-Ray Equipment
10.	Industrial X-Ray Radiography and Fluoroscopy Equipment
11.	Analytical X-Ray Equipment
12.	X-Ray Spectrometers
13.	X-Ray Equipment Used for Irradiation of Materials
14.	Electron Welding Equipment
15.	Electron Processors
16.	High-Tension Vacuum Tubes
17.	Accelerators
18.	X-Ray Gauges
19.	Laser Scanners
20.	Demonstration Lasers
21.	Sunlamps

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22. Ultrasound Therapy Equipment
23. Industrial Radio-frequency Heaters
24. Lasers
25. Ultraviolet Polymerizers
26. Short-wave Diathermy Devices
27. Microwave Diathermy Devices
28. Magnetic Resonance Imaging Devices
29. Induction Heaters
30. Radars
31. Telecommunication Transmitters above 5 W
32. Diagnostic Ultrasound Equipment
33. Surgical Ultrasound Equipment
34. Dental Ultrasound Equipment
35. Hyperthermia Ultrasound Equipment
36. Nebulizer Ultrasound Equipment
37. Non-Portable Ultrasonic Cleaners
38. Ultrasonic Machining Tools
39. Ultrasonic Welding Equipment
40. Airborne Ultrasound Motion Detectors
41. Airborne Ultrasound Pest Repellers

PART 14 MACHINERY AND TOOLS

General

159 Every employer shall, so far as is reasonably practicable, ensure that all machinery and tools used at their place of employment is inspected, tested, maintained and operated so as to be safe and without risks to the safety or health of employees.

Instruction and training

160 Employees shall be instructed and trained by a qualified person in the safe and proper inspection, maintenance and operation of all machinery and tools that they are required to use.

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Hazard information and precautions

161 No employee shall be required to use machinery or tools at a place of employment unless they have been informed of any hazard to which they may be exposed while using them.

Inspection and maintenance records

162 Every employer shall ensure that a record is kept of all inspections, tests, maintenance and modifications carried out on machinery and tools used at their place of employment.

Defective machines and tools

163 (1) An employee who finds a defect in a machine or tool that may render it unsafe for use shall report the defect to the employer as soon as possible.

(2) The employer shall mark or tag as unsafe and remove from service any machine or tool that has a defect that may render it unsafe for use.

Operating manuals and instructions

164 The employer shall ensure, so far as is reasonably practicable, that the operating manual and instructions for each type of machine and tool used by their employees is readily available to any person who is required to use the machine or tool to which the manual and instructions apply.

Machine guards

165 (1) Every machine that has exposed moving, rotating, electrically charged or hot parts, or that is used to process, transport or handle material that constitutes a hazard to an employee, shall be equipped with a machine guard that—

- (a) prevents the employee from coming into contact with the parts or material;
- (b) prevents access by the employee to the area of the hazard during the operation of the machine; or
- (c) makes the machine inoperative if the employee or any part of the employee's clothing comes into contact with, or is near, a part of the machine that is likely to cause injury.

(2) A machine guard shall be constructed, installed and maintained by a qualified person such that it meets the requirements of paragraph (1).

(3) Where a machine is used to process, transport or handle materials that may expose an employee to a risk of injury, it shall be

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equipped with a guard that prevents the ejection of objects or materials that may cause injury to persons in the vicinity of the machine.

Chain saws

166 A chain saw shall be fitted with a chain brake that activates automatically upon kickback regardless of the position of the power head or operator's hands.

Grinding machines

- 167 (1) A grinding machine shall be—
- (a) marked with the maximum allowable speed at which it may be operated;
 - (b) checked for defects before mounting;
 - (c) mounted in accordance with the manufacturer's specifications;
 - (d) provided with protective hoods that enclose the abrasive wheel as closely as the work will permit;
 - (e) operated only by employees using eye protection;
 - (f) operated at a speed which does not exceed the manufacturer's recommended speed; and
 - (g) stored where it will not be subjected to heat, cold or damage from impact.
- (2) When the object that is being ground by a grinding machine is held by hand, the grinding machine must have an adjustable work rest with its upper edge at or above the centre line of the abrasive wheel and positioned so that the work rest will—
- (a) prevent the object from jamming between the abrasive wheel and the wheel guard; and
 - (b) not make contact with the abrasive wheel at any time.
- (3) The side of an abrasive wheel must not be used for grinding and non-ferrous materials must not be ground unless the wheel is designed for such use.

Pneumatic nailing and stapling tools

- 168 (1) A pneumatic nailing and stapling tool (a “pneumatic tool”) shall—
- (a) be stored in a locked container when not in use;
 - (b) not be left unattended when out of its container;

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- (c) not be loaded unless it is being used or being prepared for immediate use; and
 - (d) not be pointed in the direction of any person, whether it is loaded or unloaded.
- (2) A pneumatic tool shall—
- (a) be marked or labelled so that a person can easily identify its strength;
 - (b) be stored in a locked container when not in use;
 - (c) not be stored in a container where an explosive load of a different strength is stored; and
 - (d) not be left unattended when out of its container.
- (3) A misfired explosive load shall be removed from a pneumatic tool and placed in a water-filled container until it can be removed safely from the place of employment and properly disposed of.

Hand-held circular saws

169 A hand-held circular saw must have a guard which automatically adjusts to the thickness of the material being cut, and which, when the saw is withdrawn from the material, completely covers the cutting area of the blade.

Kickback prevention - hand-fed circular saw

170 Except when grooving, dadoing or rabbeting, a hand-fed circular saw with rip-type teeth must have kickback fingers and a splitter or spreader designed to prevent kickback.

Hand-fed woodworking machines

171 Where a woodworking machine is fed by hand, a template, jig, or push stick must be used if there is a risk of injury to an employee's hands.

Use of machine guard impracticable

172 If the work on woodworking machinery makes it impracticable to use the guard on the machinery, the guard may be removed, but an appropriate push stick, jig, feather board or similar device must be used to prevent the operator encroaching into the cutting area, and upon completion of the operation the guard must be replaced.

Radial arm saw travel limits

173 The cutting table and the saw travel stop on a radial arm saw must be designed and maintained so that no part of the saw blade can travel past the forward edge of the cutting table.

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Jointers

174 A hand-fed wood jointer must have a self-adjusting guard over the cutting head on the working side and a guard over the portion of the cutting head behind the fence.

Sanding machines

175 The revolving drums, pulleys, nip points, and unused runs of a sanding belt of a sanding machine must be provided with guards that are arranged so that only the portion of the belt necessary for the operation is exposed.

Tenoning machines

176 A hand-fed tenoning machine must have a device which holds the material being cut.

Woodworking cutting heads

177 A cutting head on a woodworking tool or piece of equipment such as a router, a shaper or a sticker must be properly adjusted and secured.

Band saws

178 A band saw wheel must be fully encased, and the band saw blade must be enclosed or guarded, except for the working side of the blade between the guide rolls and the table.

Automotive lifts

179 (1) Operation, inspection, repair, maintenance and modification of a vehicle support or lift must be carried out according to the manufacturer's instructions or the written instructions of a professional engineer.

(2) An automotive lift or hoist must be inspected and tested monthly, unless more frequent inspection and testing is recommended by the manufacturer or a professional engineer.

(3) The rated load capacity must be marked on each automotive lift or hoist, shop crane, jack, axle stand, ramp or other vehicle support equipment and must not be exceeded.

PART 15 MATERIALS HANDLING EQUIPMENT

Definitions

180 In this Part—

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"lifting equipment" includes cranes, derricks, lifting beams, lifting frames, shovels, backhoes and hoists;

"lifting tackle" means devices used to attach lifting equipment to a load and includes slings, chains, cables, strops, hooks, and cargo nets, but does not include pallets, one-trip slings and freight containers;

"materials handling equipment" means any stationary or mobile equipment used to transport, lift, move or position materials, goods or things, and includes lifting equipment, lifting tackle, conveyor belts, forklifts and other mobile equipment;

"safe working load" means, with respect to materials handling equipment, the maximum load that the materials handling equipment is designed and constructed to handle or support safely;

"signaller" means a person instructed by an employer to direct, by means of visual or auditory signals, the safe movement and operation of materials handling equipment.

General

181 (1) Materials handling equipment shall, to the extent that is reasonably practicable, be designed, constructed, maintained, used, tested and inspected so as to be safe and without risks to the safety or health of any person.

(2) All glass in doors, windows and other parts of materials handling equipment shall be of a type that does not shatter into sharp or dangerous pieces on impact.

Assembling and dismantling of equipment

182 If the nature and design of any materials handling equipment requires the equipment to be assembled or dismantled at a place of employment, it shall be assembled or dismantled under the supervision of a qualified person.

Inspection, testing and maintenance

183 (1) Before any materials handling equipment is operated at a place of employment for the first time after manufacture, or after it has undergone any alteration or repair that may affect the strength or stability of the equipment, the employer shall set out in writing instructions for the inspection, testing and maintenance of that materials handling equipment.

(2) The instructions shall specify the nature and frequency of inspections, tests and maintenance.

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- (3) A qualified person shall—
 - (a) carry out the inspection, test or maintenance work required by the instructions; and
 - (b) make and sign a report of each inspection, test or maintenance work carried out by that person.
- (4) The report shall—
 - (a) include the date of the inspection, test or maintenance work carried out;
 - (b) identify the materials handling equipment that was inspected, tested or maintained; and
 - (c) set out the safety observations of the qualified person who carried out the inspection, test or maintenance work.
- (5) The employer shall keep at the place of employment at which the materials handling equipment is located a copy of—
 - (a) the instructions referred to in paragraph (1) for as long as the materials handling equipment is in use; and
 - (b) the report referred to in paragraph (3)(b) for a period of 3 years after the report is signed.

Removal of equipment from use

184 (1) If a qualified person is of the opinion that use of any materials handling equipment is likely to endanger the safety or health of any person, they shall provide to the employer—

- (a) an immediate verbal notice of the danger;
- (b) a written report that provides details of the danger; and
- (c) a description of the remedial action required to restore the materials handling equipment to a safe operating condition.

(2) On receipt of a verbal notice under paragraph (1)(a), the employer shall cause the materials handling equipment to be taken out of use until it has been restored to a safe operating condition.

Protection from falling objects

185 (1) Where materials handling equipment is used under circumstances in which the operator of the equipment may be struck by a falling object or a shifting load, the employer shall equip the materials handling equipment with a protective structure of such a design, construction and strength that it will, under all foreseeable conditions,

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prevent the penetration of the object or load into the compartment or position occupied by the operator.

- (2) A protective structure shall be—
 - (a) constructed from non-combustible or fire resistant material; and
 - (b) designed to permit quick exit from the materials handling equipment in an emergency.

Rollover protection

186 Where mobile materials handling equipment is used in circumstances where it may turn over, it shall be fitted with a rollover protection device that will prevent the operator of the mobile equipment from being trapped or crushed under the equipment if it does turn over.

Fuel containers mounted on materials handling equipment

187 If a fuel tank, compressed gas cylinder or similar container mounted on materials handling equipment contains a hazardous substance, it shall be—

- (a) so located or guarded that under all conditions it is not hazardous to the safety or health of an employee who is required to operate or ride on the materials handling equipment; and
- (b) connected to fuel overflow and vent pipes that are so located that fuel spills and vapours cannot—
 - (i) be ignited by hot exhaust pipes or other hot or sparking parts, or
 - (ii) otherwise be hazardous to the safety or health of an employee who is required to operate or ride on the materials handling equipment.

Protection from elements

188 (1) Materials handling equipment that is regularly used outdoors shall be fitted with a roof or other structure that will protect the operator from exposure to any weather condition that is likely to be hazardous to their safety or health.

(2) Where heat produced by materials handling equipment results in a temperature above 26°C (80°F) in the compartment or position occupied by the operator, the compartment or position shall be protected from the heat by an insulated barrier.

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Vibration

189 All materials handling equipment shall be so designed and constructed that any employee required to operate or ride on it will not be injured, or its control impaired, by any vibration, jolting or uneven movement of the materials handling equipment.

Controls

190 The design and arrangement of displays and controls and the general design and layout of the operator's compartment or position on any materials handling equipment shall not hinder or prevent the operator from operating the materials handling equipment.

Fire extinguishers

191 (1) Mobile materials handling equipment that is used for transporting or handling flammable substances shall be equipped with a dry chemical fire extinguisher.

(2) The fire extinguisher shall be so located that it is readily accessible to the operator of the materials handling equipment while they are in the operator's compartment or position.

Means of entering and exiting

192 All materials handling equipment shall be fitted with a step, handhold or other safe means of entering into and exiting from the operator's compartment or position and any other place on the equipment to which an employee may require regular access.

Warning lights

193 (1) If mobile materials handling equipment is used or operated by an employee in a place of employment at night or at any time when the level of lighting within the place of employment is less than 10 lux (1 footcandle), as defined in regulation 105(1), the equipment shall be fitted with—

- (a) warning lights on the front and rear that are visible from a distance of not less than 92 m (300 feet); and
- (b) lighting that ensures the safe operation of the equipment.

(2) No mobile materials handling equipment shall be operated at night on a route that is used by other vehicles unless it is fitted with such lights as are required by law.

Braking, steering and control systems

194 Mobile materials handling equipment shall be fitted with braking, steering and other control systems that—

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- (a) are capable of controlling and stopping the movement of the equipment and that of any hoist, bucket or other part of the equipment; and
- (b) respond reliably and quickly to moderate effort on the part of the operator.

Audible warning devices

195 Mobile materials handling equipment that is used in an area occupied by employees and that travels forward at speeds in excess of 8 kilometres per hour (5 miles per hour), or in reverse, shall be fitted with a horn or other similar audible warning device having a distinctive sound that can be clearly heard above the noise of the equipment and any surrounding noise. In the case of equipment that travels in reverse, the horn or device must operate automatically when the equipment travels in reverse.

Seat belts

196 Where mobile materials handling equipment is used under conditions where a seat belt or shoulder-type strap restraining device is likely to contribute to the safety of the operator or passengers, the equipment shall be fitted with such a belt or device.

Rear view mirror

197 Where mobile materials handling equipment cannot be operated safely in reverse unless it is fitted with an outside rear view mirror, it shall be fitted with one.

Electrically-powered equipment

198 Materials handling equipment that is electrically powered shall be so designed and constructed that the operator and other employees are protected from electrical shock or injury by means of protective guards, screens or panels secured by bolts, screws or other equally reliable fasteners.

Automatic and remote control of equipment

199 Where materials handling equipment that is controlled or operated by a remote or automatic system may make physical contact with an employee, it shall be prevented from doing so by the provision of an emergency stop system or barricades.

Conveyers

200 The design, construction, installation, operation and maintenance of each conveyor, cableway or other similar materials handling equipment shall meet the standards set out in the American

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Society of Mechanical Engineers' Safety Standard for Conveyors and Related Equipment.

Operator training

201 (1) The employer shall ensure that every operator of materials handling equipment has been instructed and trained by a qualified person in the procedures to be followed for its inspection, fuelling (if applicable) and safe and proper use.

(2) The employer shall keep a record of any instruction or training given to an operator of materials handling equipment for as long as the operator remains in the employ of the employer.

Operator qualifications

202 (1) Materials handling equipment shall be operated only by persons who are—

- (a) qualified to operate the materials handling equipment; or
- (b) being trained to operate the materials handling equipment under the direct supervision of a person who is qualified to instruct and train operators of the equipment.

(2) Where required by law, an operator of materials handling equipment shall possess a valid licence to operate the equipment.

Requirement for signaller

203 (1) Where a person operating materials handling equipment does not have a clear and unrestricted view of the area in which the equipment is to be operated, the operator of the equipment shall be directed by a signaller.

(2) A signal given by a signaller for the movement or stopping of materials handling equipment shall be distinctive and shall be clearly audible or visible to the operator.

(3) Signals shall only be given by a signaller, except that a signal to stop in an emergency may be given by any person granted access to the place of employment.

(4) The operator shall obey all signals given by a signaller and all signals for an emergency stop given by any person granted access to the place of employment.

(5) No signaller shall perform duties other than signalling while any materials handling equipment under their direction is in operation.

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Code of signals

204 The employer shall establish a code of signals to be used by signallers in all of the employer's places of employment for the purposes of regulation 203 and the employer shall—

- (a) instruct all signallers and operators of materials handling equipment in the use of the code; and
- (b) keep a copy of the code in a place where it is readily available for examination by signallers and operators.

Signalling devices

205 (1) Subject to paragraph (2), where it is not practicable for a signaller to use visual signals, a telephone, radio or other audible signalling device shall be provided by the employer for the use of the signaller and the operator.

(2) No radio transmitting equipment shall be used in any place of employment for the transmission of signals if the use of it may activate electric blasting equipment in the place of employment.

Repairs

206 (1) Subject to paragraph (2), any repair, modification or replacement of a part of any materials handling equipment shall not decrease the safety factor of the materials handling equipment or part.

(2) If a part of lesser strength or quality than the original part is used in the repair, modification or replacement of a part of any materials handling equipment, the employer shall restrict the use of the materials handling equipment to such loading and use as will ensure the retention of the original safety factor of the equipment or part.

Transporting and positioning of employees

207 (1) Materials handling equipment shall not be used for transporting an employee unless the equipment is specifically designed for that purpose.

(2) Materials handling equipment shall not be used for hoisting or positioning an employee unless the equipment is equipped with a platform, bucket or basket designed for those purposes.

Loading and unloading

208 No materials, goods or things shall be picked up from or placed on any mobile materials handling equipment while the equipment is in motion unless the equipment is specifically designed for that purpose.

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Maintenance and repair

209 (1) Subject to paragraph (2) and in so far as is reasonably practicable, no repair, maintenance or cleaning work shall be performed on any materials handling equipment while the materials handling equipment is in use.

(2) Fixed parts of materials handling equipment may be repaired, maintained or cleaned while the materials handling equipment is being used if the parts are so isolated or guarded that the operation of the materials handling equipment does not present a risk to the safety of the person performing the repair, maintenance or cleaning work.

Positioning the load

210 Where mobile materials handling equipment is travelling with a raised or suspended load, the operator of the equipment shall ensure that the load is carried as close to the ground or floor as the situation permits and shall not in any case transport the load at or beyond the point at which the loaded mobile materials handling equipment becomes unstable.

Tools

211 Tools, tool boxes or spare parts that are carried on materials handling equipment shall be securely stored.

Housekeeping

212 The floor, cab and other occupied parts of materials handling equipment shall be kept free of any grease, oil, materials, tools, equipment or other hazards that may cause an employee to slip or trip or may create a fire hazard or otherwise interfere with the safe operation of the equipment.

Parking

213 No mobile materials handling equipment shall be parked in a corridor, aisle, doorway or other place where it may interfere with the safe movement of persons, materials, goods or things.

Materials handling area

214 (1) In this regulation, "materials handling area" means an area within which materials handling equipment may create a hazard to any person.

(2) An employer shall cause warning signs to be posted, or a signaller to be in control, at approaches to any materials handling area while materials handling operations are in progress.

(3) No person shall enter a materials handling area while materials handling operations are in progress, except—

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- (a) a Safety and Health Officer;
 - (b) an employee whose presence in the area is essential to the conduct, supervision or safety of the operations; or
 - (c) a person who has been authorized by the employer to be in the area while the operations are in progress.
- (4) If any person, other than a person referred to in paragraph (3), enters a materials handling area while materials handling operations are in progress, the employer shall cause the operations to be immediately discontinued and not to be resumed until that person has left the materials handling area.

Hazard areas

215 (1) Subject to paragraph (2), no materials handling equipment shall be operated in an area in which it may contact an electrical cable, a pipeline containing a hazardous substance or any other hazard known to the employer, unless the employer has informed the operator of—

- (a) the presence and location of the hazard; and
- (b) the safety clearance that the operator must maintain with respect to the hazard.

(2) Where an employer is unable to determine with reasonable certainty the location of an electrical cable or a pipeline containing a hazardous substance, the electrical cables shall be de-energized or the pipeline shut down and drained before any activity involving the use of materials handling equipment commences within the area of possible contact with the electrical cable or the pipeline.

Rear dumping

216 If mobile materials handling equipment that has capability for rear-dumping is used to discharge a load at the edge of a sudden drop in grade level that may cause the equipment to tip, then, in order to prevent the equipment from being backed over the edge—

- (a) a bumping block shall be used; or
- (b) a signaller shall give directions to the operator of the equipment.

Fuelling

217 Where mobile materials handling equipment is fuelled in a place of employment, the fuelling shall be done in accordance with the instructions and training referred to in regulation 201 in a place that is well ventilated so that the vapours from the fuel will be dissipated quickly.

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Safe working loads

218 (1) Except for the purpose of carrying out tests on materials handling equipment, no materials handling equipment shall be loaded beyond its designated safe working load.

(2) The safe working load of materials handling equipment shall be clearly marked on the equipment or on a label securely attached to the equipment in a position where the mark or label can be easily read by the operator of the equipment.

Marking of safe working loads for lifting equipment

219 (1) Lifting equipment, other than fork-lift trucks, shall be marked with its safe working load and a distinguishing number or mark. Fork-lift trucks shall be marked with their rated capacity and a distinguishing number or mark.

(2) Any lifting equipment which has a safe working load which varies according to the operating radius or inclination of the boom shall be fitted with an accurate indicator which shows the operating radius or inclination of the boom for the time being, so that the safe working load corresponding to the operating radius or inclination of the boom shown on the indicator can be calculated by reference to tables provided in the operator's compartment or position of the equipment which have been prepared by the maker of the equipment or by a qualified person.

(3) The indicators and tables referred to in paragraph (2) shall be properly maintained and shall at all times be clearly legible to the operator from the operator's compartment or position.

(4) The tables referred to in paragraph (2) shall have appropriate and adequate entries to enable an operator to determine the safe working load of the equipment at any operating radius or any position of the boom within the range of operating radii or angles of inclination of the boom.

(5) In the case of lifting equipment with a varying safe working load, a Safety and Health Officer may require the fitting of accurate indicators clearly visible to the driver showing the radius of the boom at any time and the safe working load corresponding to that radius.

Marking of lifting beams and frames

220 Each lifting beam and lifting frame shall have its own weight clearly marked on it.

Travelling or slewing of lifting equipment

221 (1) So far as is reasonably practicable, at a place of employment where lifting equipment having a travelling or slewing motion is in use, an unobstructed passageway, of not less than 60 cm

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(24 inches) wide, shall be maintained between any part of the equipment liable so to move and any nearby guard-rail, fence, or other fixture.

(2) Whenever it is impracticable to maintain any such passageway at any particular place, all reasonable steps shall be taken to prevent persons from having access to that place when the equipment is in use.

Control of suspended load

222 No load shall be kept suspended from lifting equipment, unless there is a qualified person at the controls of the lifting equipment while the load is suspended.

Carrying of persons by means of lifting equipment

223 (1) A person may be raised, lowered or carried by power driven materials handling equipment—

- (a) on the driver's platform in the case of a crane;
- (b) on a suspended scaffold of such design and construction as ensures the safety of any person carried on it;
- (c) without the use of a hoist or suspended scaffold where its use is not practicable, if—
 - (i) the equipment can be operated from one position only,
 - (ii) any winch used in connection with the equipment is fitted with a normally applied brake released only when the control device is moved to the operating position,
 - (iii) the person is carried in a suitable chair, cage, skip or other receptacle which is 1 m (3 feet) deep, of good construction, sound material and adequate strength and which is provided with suitable means to prevent the person falling out and does not contain material or tools liable to interfere with their handhold or otherwise endanger them,
 - (iv) suitable measures are taken to prevent such chair, cage, skip or other receptacle from spinning or tipping in a manner dangerous to the person being carried, and
 - (v) any hook that is fitted to the equipment shall be so designed and maintained as to prevent the

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accidental displacement of such chair, cage, skip or other receptacle from the hook; or

(d) suspended from an aerial ropeway or cableway or an overhead runway, provided that the provisions of paragraphs (1)(c)(ii), (iii) and (iv) are complied with.

(2) Power driven materials handling equipment (other than a hoist) shall not be used for raising, lowering or carrying persons other than in accordance with paragraph (1).

Coupled lifting equipment

224 (1) Where two lifting equipment devices are used to raise or lower a single load—

(a) the lifting operation shall be planned in advance;

(b) a qualified person shall be appointed to supervise the operation and shall be present throughout the operation;

(c) so far as is practicable, devices of equal capacity and similar design shall be used; and

(d) the lifting operation shall be so arranged that the load on each device does not exceed three-quarters of the safe working load of that device.

(2) No more than two items of lifting equipment shall be used to raise or lower a single load.

Aisles and corridors

225 (1) Where in a place of employment an aisle, corridor or other course of travel is a principal traffic route for mobile materials handling equipment, pedestrians and wheelchairs that exceeds 15 m (50 feet) in length, the employer shall provide a clearly marked walkway for the exclusive use of pedestrians and wheelchairs that is not less than 75 cm (30 inches) wide along one side of the aisle, corridor or other course of travel.

(2) Paragraph (1) does not apply where a signaller or traffic lights are provided for the purpose of controlling traffic and protecting persons.

(3) Where an aisle, corridor or other course of travel that is a principal traffic route intersects with another route, warning signs marked with the words "DANGEROUS INTERSECTION" in letters not less than 5 cm (2 inches) in height on a contrasting background, shall be posted along the approaches to the intersection.

(4) At blind corners, mirrors shall be installed such that an operator of mobile materials handling equipment can see other mobile

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materials handling equipment, pedestrians and wheelchairs approaching the blind corner.

Overhead and side clearances

226 (1) In any passageway that is regularly travelled by mobile materials handling equipment, the employer shall ensure that—

(a) the overhead clearance is at least 15 cm (6 inches) above—

(i) that part of the equipment or its load that is the highest when the equipment is in its highest normal operating position at the point of clearance, and

(ii) the top of the head of the operator of, or any employee required to ride on, the equipment when occupying their highest normal position at the point of clearance; and

(b) side clearances are sufficiently wide to permit the equipment and its load to be manoeuvred safely by an operator, but in no case less than 15 cm (6 inches) on each side measured from the furthest projecting part of the equipment or its load, when the equipment is being operated in a normal manner.

(2) Where an overhead clearance measured in accordance with paragraph (1)(a) is less than 30 cm (12 inches), the employer shall cause—

(a) the top of the doorway or object that restricts the clearance to be marked with a distinguishing colour or mark; and

(b) the height of the passageway to be shown near the top of the passageway in letters that are not less than 5 cm (2 inches) in height and are on a contrasting background.

(3) Paragraphs (1)(a)(i) and (2) do not apply to mobile materials handling equipment whose course of travel is controlled by fixed rails or guides.

Vehicles

227 (1) All vehicles shall, so far as is reasonably practicable, be designed, constructed, maintained, inspected and used so as to be safe and without risks to the safety or health of any person working at the site.

(2) A vehicle shall not be loaded —

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(a) in excess of the safe working load or rated capacity specified by the vehicle manufacturer; or

(b) in such a manner as to interfere with the safe driving or operation of the vehicle.

(3) No person shall ride or be required or permitted to ride in an insecure position on any vehicle and shall ride only at a place provided for that purpose.

(4) No person shall remain or be required or permitted to remain on any vehicle during the loading of the vehicle with loose materials by means of a grab, excavator or similar appliance, if the person is likely to be endangered by so remaining.

(5) Where any vehicle is used for tipping material into any excavation or pit or over the edge of a sudden drop in grade level, adequate measures shall be taken, where necessary, so as to prevent the vehicle from over-running the edge of the excavation, pit or sudden drop.

(6) In this regulation, "vehicle" means a vehicle that is propelled by mechanical power and includes a truck, a trailer, a traction engine and a road-building machine.

Manual handling of materials hazardous to safety and health

228 (1) Where, because of the weight, size, shape, toxicity or other characteristic of materials, goods or things, the manual handling of the materials, goods or things may be hazardous to the safety or health of an employee, the employer shall issue instructions that the materials, goods or things shall, where reasonably practicable, not be handled manually.

Limits for manual handling

229 (1) No employee shall be required in the course of their work to manually lift, carry or move a load of such weight that it may endanger their safety or health.

(2) The maximum weight that may be manually lifted, carried or moved by an adult male shall not exceed 55 kg (121 pounds).

(3) The maximum weight that may be manually lifted, carried or moved by an adult female shall not exceed 40 kg (88 pounds).

Instruction on manual handling

230 (1) Where an employee is required to lift or carry loads in excess of 10 kg (22 pounds) manually, the employer shall instruct and train the employee —

(a) in a safe method for lifting and carrying the loads that will minimize the stress on the body; and

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(b) in a work procedure appropriate to the employee's physical condition and the conditions of the place of employment.

(2) Where an employee is required to lift or carry loads in excess of 45 kg (100 lbs) manually, the employer shall give written instructions to the employee in accordance with paragraph (1). The instructions shall be readily available to the employee.

Storage of materials

231 (1) All materials, goods and things in a place of employment shall be stored in such a manner that the maximum safe load-carrying capacity of the floor or other supporting structure is not exceeded.

(2) No materials, goods or things shall be stored or placed in a manner that may create a risk to the safety or health of any person in any way, for example by—

- (a) reducing lighting levels below the levels required under Part 10;
- (b) obstructing or encroaching upon passageways, traffic lanes or exits;
- (c) impeding the safe operation of materials handling equipment;
- (d) obstructing the ready access to or the operation of fire fighting equipment; or
- (e) interfering with the operation of fixed fire protection equipment.

PART 16 PROTECTIVE CLOTHING AND EQUIPMENT

Definition

232 In this Part, “approved standards” means a standard approved by the American National Standards Institute (ANSI), the Canadian Standards Association (CSA), the National Fire Protection Association (NFPA), the American Society of Mechanical Engineers (ASME), the National Institute for Occupational Safety and Health (NIOSH), or the American Conference of Governmental Industrial Hygienists (ACGIH);

General

233 All protective clothing, equipment and materials used in a place of employment shall, to the extent that is reasonably practicable, be designed, manufactured, maintained, used, tested and inspected in

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accordance with approved standards and so as to be safe and without risks to the safety or health of employees.

Use of protective clothing and equipment

234 Every employee who may be exposed to a hazard to their safety or health shall use the protective clothing and equipment as prescribed in this Part if —

- (a) it is not reasonably practicable to eliminate or control the hazard; and
- (b) the use of protective clothing and equipment may prevent or reduce injury to the employee from the hazard.

Maintenance of protective clothing and equipment

235 Every employer shall ensure that all protective clothing and equipment provided by the employer is maintained, inspected and tested by a qualified person and, where necessary to prevent a safety or health hazard, kept in a clean and sanitary condition.

Head protection

236 Where there is a risk to an employee of head injury, the employer shall provide head protection that meets an approved standard.

Foot protection

237 (1) Where there is a risk to an employee of a foot injury or an electric shock through footwear, the employer shall provide foot protection that meets an approved standard. This requirement is in addition to any requirement that is applicable under paragraphs (2) to (5).

(2) Safety shoes or boots with impact protection shall be worn where—

- (a) employees carry or handle heavy objects that could be dropped; or
- (b) other work activities that could cause objects to fall onto the feet of employees are carried out.

(3) Safety shoes or boots with compression protection shall be worn by employees where a work activity—

- (a) involves the use of skid trucks or other materials handling equipment; or
- (b) could cause materials or equipment to roll over the feet of employees.

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(4) Safety shoes or boots with puncture protection shall be worn by employees where there is a risk of them stepping on sharp objects such as nails, wires, tacks, screws, staples or scrap metal.

(5) Non-slip footwear shall be worn by employees where there is a risk of them slipping.

Eye and face protectors

238 (1) Subject to paragraph (2), where there is a risk to an employee of injury to the eyes, face, ears or front of the neck, the employer shall provide eye or face protectors that meet an approved standard.

(2) Employees who wear prescription eye glasses may wear prescription glasses that meet an approved standard, instead of wearing protectors over their prescription eye glasses.

X-ray protection

239 An employee who supports, positions or restrains a patient during X-ray radiation shall be provided with and shall wear a protective apron and protective gloves and, where appropriate, a protective collar. Equipment provided shall have a lead equivalence of at least 0.5 mm (0.04 inches).

Respiratory protection devices

240 (1) Where there is a safety or health hazard to employees resulting from an airborne hazardous substance or an oxygen-deficient atmosphere in a place of employment, the employer shall provide a suitable respiratory protection device that is listed in the NIOSH Certified Equipment List published by the National Institute for Occupational Safety and Health.

(2) Where compressed air is provided for the purpose of a respiratory protection device, the air shall meet an approved standard for compressed breathing air.

(3) Where a steel or aluminium cylinder of a self-contained breathing apparatus has a dent deeper than 1.5 mm (0.06 inches) and less than 5 cm (2 inches) in major diameter or shows evidence of deep isolated pitting, cracks or splits, the cylinder shall be removed from service until it has been shown to be safe for use by means of a hydrostatic test at a pressure equal to one and one-half times the maximum allowable working pressure.

Skin protection

241 (1) Where there is a risk to an employee of injury or disease to or through the skin, the employer shall provide —

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- (a) a shield or screen;
- (b) a cream to protect the skin; or
- (c) an appropriate body covering.

Hand protection

242 Where there is a risk to an employee of injury to the hands, the employer shall provide suitable gloves to protect the hands of the employee.

Fall protection system

243 (1) Fall protection systems shall, so far as is reasonably practicable, be selected, installed, used, maintained, inspected and tested so as to be safe and without risks to the safety or health of any employee.

(2) The following definition applies in regulations 243 to 251—

“fall protection system” means a travel restraint system, or a fall arrest system, designed to prevent a person from falling, or to protect a person from injury due to falling, from a roof, work platform or other elevated area in a place of employment and includes guard-rails, barriers, safety nets, and systems using a safety belt or a body harness.

"travel restraint system" means a system or device that restricts the movement of a person;

“fall arrest system” means a system or device that restricts the free fall distance of a person and limits the forces exerted on the body of the person.

Obligation to use fall protection system

244 (1) Every employer shall provide a fall protection system for employees at a place of employment where—

- (a) a fall of 2 m (6 feet 6 inches) or more may occur; or
- (b) a fall from a lesser height is likely to result in serious injury to an employee.

(2) Where practicable, guard-rails, barriers or other similar means of travel restraint shall be used as a fall protection system.

(3) Where the use of guard-rails, barriers or other similar means of travel restraint is not practicable, an alternate means of travel restraint, such as a safety belt and lifeline system, shall be used as a fall protection system.

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(4) Where the use of any travel restraint system is not practicable, a fall arrest system shall be used.

Instruction in use of fall protection system

245 Before an employee is allowed into an area where a risk of falling exists, the employer must ensure that the employee is instructed in the use of the fall protection system required in that area and the procedures to be followed.

Full body harness for fall arrest

246 An employee who uses a personal fall protection system for fall arrest shall wear a full body harness or other harness that meets an approved standard.

Fall arrest system

247 A fall arrest system shall—

- (a) be adequately secured to a fixed structural support or to a lifeline that is securely fastened to a structural anchor point that is capable of resisting the arrest force in the event of a wearer falling;
- (b) be so assembled that, in the event of the wearer falling, the wearer will be suspended not more than 1.5 m (5 feet) below the level from which the fall began; and
- (c) exert a peak fall arrest force not greater than 8 kilonewtons on the wearer.

Safety belts for travel restraint

248 An employee who uses a travel restraint system that requires the use of a safety belt shall be provided with a safety belt and accessories that meet an approved standard.

Installation or removal of fall protection system

249 Where an employee is to install or remove a fall protection system, the employer shall provide the employee with written instructions for the safe installation or removal of the fall-protection system.

Temporary removal of guard-rails

250 (1) Where a work activity requires a guard-rail to be removed temporarily—

- (a) only that portion of the guard-rail necessary to accommodate the work activity shall be removed; and

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(b) any employee exposed to a risk of falling during the time that the guard-rail is not in place shall be protected by some other means of fall protection.

(2) Any guard-rail removed in accordance with paragraph (1) shall be replaced—

(a) whenever the unguarded area is to be left unattended; and

(b) immediately on completion of the work activity that necessitated its removal.

Safety nets

251 If a safety net is used as a fall protection system, the safety net shall be installed as closely underneath the work area as is practicable, and shall be hung with sufficient clearance to prevent an employee who falls from making contact with any surfaces or structures.

Protection against drowning

252 (1) At any place of employment where there is a risk of an employee drowning, the employer shall provide the employee with a life jacket or other personal flotation device that meets an approved standard.

(2) An employee who is provided with a life jacket or other personal flotation device shall wear it.

Water rescue equipment and procedures

253 (1) At any place of employment where there is a risk of an employee drowning, the employer shall ensure that—

(a) water rescue equipment is provided and held in readiness;

(b) a person who is qualified to operate the water rescue equipment is readily available;

(c) a person who is trained in resuscitation procedures is readily available; and

(c) all employees at the place of employment are informed of rescue procedures to be followed and the location of water rescue equipment.

(2) For the purposes of paragraph (1), “water rescue equipment” includes—

(a) a lifejacket for every person who may be required to perform a rescue operation;

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- (b) a ring buoy attached to 15 m (50 feet) of buoyant rope that is 1.2 cm (0.4 inches) in diameter;
 - (c) an alarm device capable of alerting persons at the place of employment that water rescue procedures are to be initiated; and
 - (d) where appropriate, a powered rescue boat.
- (3) Where a place of employment is a wharf, dock, pier, or other similar structure, a ladder that extends at least two rungs below the water level at low tide shall be affixed to the structure every 60 metres (200 feet) along its length.

Transport by water

254 Any watercraft that is used to transport employees to and from their place of employment shall be—

- (a) in the charge of a qualified person;
- (b) equipped with a lifejacket for each crew member and for every employee being transported;
- (c) loaded only to an extent that does not exceed the safe carrying capacity of the watercraft; and
- (d) so far as is reasonably practicable, designed, constructed, maintained, used and inspected so as to be safe and without risks to the safety and health of any person.

Protection against moving vehicles

255 Where an employee is at risk of being struck by moving vehicles while carrying out any work, the employer shall—

- (a) provide the employee with a high-visibility vest or other similar clothing;
- (b) post suitable signs warning drivers of vehicles of the work; and
- (c) where appropriate, erect suitable barricades that are readily visible under all conditions of use.

Protection against hazardous substances

256 Where there is a risk to the safety or health of an employee from exposure to a hazardous substance at a place of employment, the employer shall provide suitable protective clothing and equipment to the employee.

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Working in the rain

257 An employee who is required to work in the rain shall be provided with suitable waterproof protective clothing.

Defective protective clothing and equipment

258 (1) An employee who finds any defect in protective clothing or equipment that may render it unsafe for use shall report the defect to their employer as soon as possible.

(2) The employer shall mark or tag as unsafe, and remove from service, any protective clothing and equipment that has a defect that may render it unsafe for use.

Training

259 Every employer shall ensure that employees at a place of employment where the use of protective clothing and equipment is required shall be adequately trained and instructed in the use of that clothing and equipment, orally and in writing, by a qualified person.

Loose clothing and other items

260 Loose clothing, long hair, dangling accessories, jewellery or other similar items that are likely to be hazardous to the safety or health of an employee in a place of employment shall not be worn unless they are protected from exposure by being tied, covered or secured in a manner that eliminates the hazard they would otherwise present.

Records

261 (1) The employer shall keep a record of all protective clothing and equipment that is provided by the employer at the place of employment.

(2) The record shall contain—

- (a) a description of the clothing and equipment and the date of its acquisition by the employer;
- (b) the date and results of each inspection and test of the clothing and equipment;
- (c) the date and nature of any maintenance work performed on the clothing and equipment since its acquisition by the employer; and
- (d) the name and signature of the person who performed the inspection, test or maintenance of the clothing and equipment.

(3) The record shall be kept for a period of not less than 3 years after the clothing or equipment ceases to be used.

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PART 17 CONSTRUCTION

Definitions

262 In this Part—

"construction site" means a place where construction work is undertaken and also any area in the immediate vicinity of any such place and any yard which is used for the storage of materials or plant used or intended to be used for the purpose of construction work;

"construction work" means—

- (a) the construction, erection, installation, reconstruction, repair, maintenance (including redecoration, painting and external cleaning), renewal, removal, alteration, improvement, dismantling or demolition of any of the following structures or works—
 - (i) any building, edifice, wall, fence or chimney,
 - (ii) any road, railway, aerial ropeway or rock cut,
 - (iii) any harbour works, wharf, dock, pier, sea defence work, or lighthouse,
 - (iv) any aqueduct, viaduct, bridge, or tunnel,
 - (v) any sewer, sewage disposal works, or filter bed,
 - (vi) any airport works connected with air navigation,
 - (vii) any dam, reservoir, well, pipeline, culvert, shaft, or reclamation,
 - (viii) any drainage, irrigation, or canal,
 - (ix) any water, electrical, gas, telephonic, telegraphic, radio, or television installation or works, or any works designed for the manufacturing or transmission of power or the transmission or reception of radio or sound waves, or
 - (x) any structure designed for the support of machinery, plant, or power transmission lines;
- (b) work involved in preparing for any operation referred to in paragraph (a), including the laying of foundations and the excavation of earth and rock prior to the laying of foundations;
- (c) demolition of any building; or

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- (d) the use of machinery, plant, tools, gear, and materials in connection with any operation referred to in paragraphs (a), (b) or (c);

"contractor", in relation to construction work, means any person who is in the business of carrying out construction work, either on their own account or pursuant to a contract or arrangement entered into with another person, including the Crown;

"lifting equipment" means any stationary or mobile materials handling equipment used to lift, move or position materials, goods or things and includes cranes, derricks, lifting beams, lifting frames, shovels, backhoes and hoists;

"lifting tackle" means devices used to attach lifting equipment to a load to be lifted, and includes slings, chains, cables, strops, hooks and cargo nets, but does not include pallets, one trip slings and freight containers;

"prime contractor" means the contractor or the person having the primary responsibility for carrying out construction work at a construction site.

General duties

263 Every contractor shall, so far as is reasonably practicable, ensure—

- (a) that their construction site is maintained, inspected and used so as to be safe and without risks to the safety or health of any person having access to the site; and

- (b) that all equipment used on their construction site is of good design, properly made, of sound material of adequate strength and free from patent defect, and that it is properly maintained.

NOTICE OF CONSTRUCTION WORK

Notice of commencement of construction work

264 (1) Every contractor shall provide written notice of construction work (by letter, fax or e-mail) to a Safety and Health Officer in a form to be determined by the Minister before commencing construction work on a project in respect of which the total cost of labour and materials is expected to exceed \$100,000.

(2) Notwithstanding paragraph (1), if circumstances require a contractor to undertake emergency construction work without delay, in order to prevent injury to persons or damage to property, the contractor may provide the notice required by paragraph (1) by telephone before the

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work has commenced or as soon as practicable after the work has commenced.

Notice at construction site

265 At a construction site where there are 10 or more employees engaged in working at the site, the prime contractor shall post in a conspicuous place at the site, and keep posted while work is being done at the site, a notice setting out—

- (a) the contractor's name and, if the contractor carries on business in a different name, the contractor's business name;
- (b) the address and telephone number of the contractor's head office or principal place of business in Bermuda;
- (c) the address and telephone number of the Safety and Health Office;
- (d) a site drawing, showing project layout, first aid location, emergency transportation provisions, and the evacuation marshalling station;
- (e) construction procedures designed to protect the safety and health of persons at the workplace;
- (f) the name of a qualified person designated by the contractor to be responsible for the co-ordination of safety and health activities at the site; and
- (g) in the case of a construction site where there is more than one contractor, the name of the safety and health coordinator appointed by the prime contractor under regulation 266 and the persons appointed by the other contractors under that paragraph to cooperate with the safety and health coordinator.

Co-ordination where more than one contractor

266 (1) At a construction site where there is more than one contractor and there are 10 or more employees engaged in working at the site,—

- (a) the prime contractor shall appoint a qualified person to act as the safety and health co-ordinator at the site; and
- (b) all other contractors having employees employed at the site shall appoint a person to co-operate with the safety and health co-ordinator with regard to safety and health activities, including accident prevention.

(2) The duties of a safety and health co-ordinator include—

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- (a) the co-ordination of safety and health activities at the site in cooperation with persons appointed by other contractors under paragraph (1)(b);
- (b) receiving reports from persons who have observed hazardous conditions at the site;
- (c) notifying contractors where work presents, or is likely to present, a danger to the safety or health of any person; and
- (d) monitoring action taken by contractors to eliminate, reduce or control a hazardous condition.

(3) Every contractor shall notify the prime contractor, in advance, of the nature of any work to be carried out by them that is likely to create a hazard to the safety or health of any person, and of the proposed schedule for the completion of the work.

EXCAVATIONS

Definitions

267 The following definitions apply in regulations 267 to 273—

"engineered support system" means an excavation or trench shoring system, designed for a specific construction project or location, that is assembled in place and cannot be moved as a unit;

"excavation" means any cut, cavity, trench, shaft, pit, opening or depression in the earth's surface resulting from rock or soil removal;

"hydraulic support system" means a system that is capable of being moved as a unit and is designed to resist the earth pressure from the walls of an excavation by applying a hydraulic counterpressure through struts;

"prefabricated support system" means a trench box, trench shield or similar structure, composed of members connected to each other, that is capable of being moved as a unit and is designed to resist the pressure from the walls of an excavation, but it does not include a hydraulic support system.

General

268 (1) No person shall enter or be permitted to enter an excavation that does not comply with this Part.

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(2) Work shall not be performed in a trench unless another person is working above ground in close proximity to the trench or to the means of access to it.

(3) Every excavation that a person is required to enter shall be kept free of water above a level of 20 cm (8 inches).

(4) An excavation in which a person is required to work shall have a clear work space of 45 cm (18 inches) between the walls of the excavation and any framework or masonry or similar wall.

(5) The walls of an excavation shall be stripped of loose rock or other material that may slide, roll or fall on an employee.

(6) The walls of an excavation cut in rock shall be supported by rock anchors or wire mesh if support is necessary to prevent the falling of loose rock.

(7) A level area extending to at least 1 m (3 feet) from the upper edge of each wall of an excavation shall be kept clear of equipment, excavated soil, rock and construction material.

(8) The stability of a wall shall be maintained where it may be affected by stockpiling excavated soil, rock or construction material.

(9) No person shall operate a vehicle or other machine, and no vehicle or other machine shall be located, in such a way as to affect the stability of a wall of an excavation.

(10) Material shall not be placed or stacked close to the edge of any excavation so as to endanger any person who is working in it.

(11) No load, plant or material shall be placed or moved near the edge of any excavation if it is likely to cause the side of the excavation to collapse and thereby endanger any person.

Emergency escape

269 If there is a risk of the safety or health of a person working in an excavation being endangered by rising water or from an irruption of water or any other substance, the contractor shall ensure that those persons are provided with an adequate means of escape in the event of an emergency.

Excavation support system

270 (1) No excavation operations shall be carried on at any construction site where there is a risk of the safety or health of a person being endangered by a fall or displacement of earth, rock or other material (including waste material and debris) adjacent to or forming the side of the excavation unless the contractor who is to carry out the

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operations provides an excavation support system suitable to the type of operations.

(2) An excavation support system shall be an engineered support system, a hydraulic support system or a prefabricated support system and shall be of good construction and sound material.

(3) The contractor shall ensure that the excavation support system is inspected by a qualified person before and after use and that it is properly maintained when in use.

(4) The contractor shall ensure that every part of an excavation is inspected by a qualified person at least once in every period of 7 days after the commencement of excavation operations until they are completed or abandoned.

(5) The person who carries out an inspection shall, immediately upon completion of the inspection, make a written report to the contractor of the results of the inspection, including a statement as to the safety of the excavation operations, the suitability of the excavation support systems, any dangers that may exist and any remedial measures that are recommended.

(6) This regulation does not apply—

(a) to an excavation where, having regard to the nature and slope of the sides of the excavation and other circumstances, no fall or dislodgement of earth, rock, or other materials is liable to occur so as to—

(i) bury or trap any person employed in or near the excavation or earthwork, or

(ii) strike any such person from a height of more than 1.3 m (4 feet); or

(b) in relation to persons actually engaged in the erection or placement of any excavation support system or in rendering any excavation safe, or to a person engaged in inspecting any excavation support system, if precautions have been taken to ensure their safety, so far as reasonably practicable.

Precautions regarding utility services

271 (1) Before an excavation is begun, the contractor shall—

(a) contact the owner of all gas, electrical and other services in and near the area to be excavated to locate and mark the services; and

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(b) ensure that any service that may impose a hazard is shut off or disconnected.

(2) If a service that may impose a hazard cannot be shut off or disconnected, the contractor shall request the owner of the service to supervise the uncovering of the service during excavation.

(3) Pipes, conduits and cables for services in an excavation shall be supported to prevent their failure or breakage.

Sampling of soil

272 Before an excavation is begun, the contractor who is to carry out the excavation shall ensure that the soil at the proposed location of the excavation walls, and in the areas extending outwards from the lines of the excavation walls to a distance equal to that of the depth of the excavation, is sampled and examined in order to assess the suitability of the soil for excavation, and to determine the requirement for excavation supports systems.

Fencing of excavations

273 (1) If a person employed at, or having lawful access to, a construction site where an excavation is carried out is liable to fall a distance of more than 2 m (6 feet 6 inches), the contractor who carries out the excavation shall ensure that every accessible part of the excavation is provided with a suitable barrier erected as close as is reasonably practicable to the edge of the excavation or that it is securely covered.

(2) Paragraph (1) does not apply while, and to the extent that, the absence of such barrier or covering is necessary for the access of persons or for the movement of plant or equipment or materials.

(3) For the purposes of paragraph (1), "securely covered" means covered with a cover that is capable of supporting without failure at least twice the weight of persons, equipment and material that may be imposed on the cover at any one time.

(4) All covers shall be secured when installed so as to prevent accidental displacement by wind or by any person or equipment.

COFFERDAMS AND CAISSONS

Definitions

274 The following definitions apply in regulations 275 to 278—

"caisson" means—

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- (a) a casing below ground or water level whether or not it is designed to contain air at a pressure greater than atmospheric pressure; or
- (b) an excavation, including a waterwell, drilled by an auger into which a person may enter;

"cofferdam" means a structure constructed entirely or partially below water level or below the level of the groundwater table and intended to provide a work place that is free of water.

Construction and maintenance

275 A cofferdam or caisson shall, so far as is reasonably practicable, be designed, constructed, maintained, inspected and used so as to be safe and without risks to the safety or health of any person working in it.

Means of escape in case of flooding

276 A contractor shall, so far as reasonably practicable, ensure that all persons working in a cofferdam or caisson are provided with a means to reach places of safety in the event of an inrush of water into the cofferdam or caisson.

Supervision of work and inspection of material

277 (1) All installation, maintenance, alteration, assembly, dismantling and repair work performed on or in regard to a cofferdam or caisson shall be carried out under the supervision of a qualified person.

(2) All material used in the installation, maintenance, alteration, assembly, dismantling and repair work performed on a cofferdam or caisson shall be inspected by a qualified person before being used, and material which is unsuitable or defective shall not be used.

Inspection

278 (1) Where persons are employed in work at a cofferdam or caisson, the contractor who carries out the work shall ensure that a qualified person inspects the cofferdam or caisson—

- (a) prior to the commencement of the work;
- (b) after explosives have been used in or near the cofferdam or caisson in a manner likely to have affected the strength or stability of the cofferdam or caisson or of any part of it;
- (c) after any substantial damage to the cofferdam or caisson; and

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(d) once every 7 days after the commencement of the work, until the work is completed or abandoned.

(2) The person who carries out an inspection shall, immediately upon completion of the inspection, make a written report to the contractor of the results of the inspection, including a statement as to the safety of the cofferdam or caisson, any dangers that may exist and any remedial measures that are recommended.

(3) This regulation does not apply in relation to persons actually engaged in the construction, placing, repair, alteration or inspection of a cofferdam or caisson, if precautions have been taken to ensure their safety, so far as reasonably practicable.

HOISTS

Definition

279 In regulations 280 to 287, "hoist" means a lifting machine, whether worked by mechanical power or not, with a carriage, platform or cage, the movement of which is restricted by a guide or guides; and also the supports, well and enclosures, and the carriage, platform or cage, and the whole of the mechanical and electrical apparatus (if any) required in connection with the operation and safety of a hoist.

General

280 Every hoist shall, to the extent that is reasonably practicable, be designed, constructed, maintained, erected, supported, anchored, used and inspected so as to be safe and without risks to the safety or health of any person.

Inspection and testing

281 (1) Every contractor shall ensure that any hoist used by them is inspected and tested by a qualified person—

- (a) before the hoist is first used after its manufacture or after it has undergone any alterations or repairs;
- (b) in the case of a hoist used to carry passengers, before it is first so used or after the height of travel of the cage has been altered; and
- (c) in any event, at least once every 6 months.

(2) A qualified person who carries out an inspection and test under this regulation shall, immediately upon completion of the inspection and test, make a written report to the contractor of the results of the inspection and test, including a statement as to the safety of the hoist, any dangers that may exist and any remedial measures that are

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recommended. In the case of an inspection and test under paragraph (1)(a), the report shall also specify the safe working load of the hoist.

Safety of hoistways and platforms

282 (1) The hoistway of every hoist shall, at all points at which access to the hoistway is provided or at which persons are liable to be struck by any moving part of the hoist, be efficiently protected by a substantial enclosure, and the enclosure shall, where access to the hoist is needed, be fitted with gates.

(2) In each place where they are provided, the enclosure and gates shall, where practicable, extend to a height of at least 2 m (6 ft 6 ins), except where a lesser height is sufficient to prevent a person from falling down the hoistway and there is no risk of any person coming into contact with any moving part of the hoist, but in such a case the height of the enclosure and gate shall not be less than 1 m (3 feet).

(3) All gates fitted on a hoistway shall be kept closed except where the platform is at rest at a loading place or for the purpose of loading or unloading passengers, goods, plant or material.

(4) Where practicable, there shall be provided and maintained for every hoist—

- (a) safety devices to support the platform of the hoist and its safe working load in the event of the failure of the hoist rope or ropes or any part of the hoisting gear;
- (b) one or more efficient automatic devices to ensure that the platform of the hoist does not over-run the highest point to which it is for the time being constructed to travel; and
- (c) a grounding system to protect the headframe against lightning strikes.

Operation

283 (1) As far as reasonably practicable, a hoist shall not be used unless it is constructed and installed in such a way that it can be operated only from one position at any one time.

(2) Where a person operating a hoist does not have a clear and unrestricted view of the platform of the hoist throughout its travel, other than at points where such a view is not necessary for the safe working of the hoist, effective arrangements shall be made for signals to be given to the person operating the hoist from each landing place at which the hoist is used so as to enable that person to stop the platform at the appropriate level.

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Winches, drums and pulleys

284 Where a hoist is operated by means of a winch, the winch shall be so constructed that the brake is applied when the control lever handle or switch is not held in the operating position, and the winch shall not be a winch fitted with a pawl and ratchet gear on which the pawl has to be disengaged, before the platform can be lowered.

Loads to be safely secured

285 Every part of any load which is to be raised or lowered on the platform of a hoist shall be adequately secured so as to prevent danger arising to persons or property as a result of the slipping or displacement of any part of the load.

Passenger hoists

286 No hoist shall be used for carrying persons unless—

- (a) the hoist is provided with a cage which is—
 - (i) so constructed as to prevent, when the cage gate is shut, any person from falling out of the cage or from being trapped between any part of the cage and any fixed structure or other moving part of the hoist or from being struck by articles or materials falling down the hoistway, and
 - (ii) fitted, on each side at which access is provided to a landing place, with a gate which, so far as is reasonably practicable, has efficient interlocking or similar devices to prevent the gate from being opened unless the cage is at a landing place and to prevent the cage from being moved away from any such place until the gate is closed;
- (b) each gate at a landing place in the hoistway enclosure is fitted with efficient interlocking or similar devices to prevent the gate from being opened except when the cage is at the landing place and to prevent the cage from being moved away from the landing place until the gate at that place is closed; and
- (c) efficient automatic devices are provided which will cause the cage to come to rest at a point above the lowest point to which it is able to travel.

Safe working load and marking of hoists

287 (1) Every hoist shall—

- (a) have its safe working load clearly and legibly marked on its platform; and

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- (b) not carry any load that exceeds the safe working load, except that, for the purpose of carrying out a test, the safe working load may be exceeded by such amount as a qualified person appointed to carry out the test may authorize.
- (2) In addition to paragraph (1)—
 - (a) in the case of a hoist for carrying passengers—
 - (i) the maximum number of persons to be carried at any one time shall be clearly and legibly marked on its platform; and
 - (ii) a greater number of persons shall not be so carried; and
 - (b) in the case of any other hoist, there shall be marked or affixed to its platform a clear and legible notice stating that the carriage of persons is prohibited.

TOWER CRANES

Definition

288 In regulations 289 to 296, “tower crane” means a travelling, fixed or climbing mechanical device or structure that has—

- (a) a boom or a jib or both;
- (b) a power-driven drum and wire rope to raise, lower or move material; and
- (c) a vertical mast.

Foundation, shoring and bracing for tower crane

289 (1) No tower crane shall be erected at any construction site except in accordance with this regulation.

(2) The foundation supporting a tower crane, and the shoring and bracing that support a tower crane or tie it in place, shall be designed by a professional engineer in accordance with the crane manufacturer’s specifications and they shall be constructed in accordance with the design.

(3) The structural engineer responsible for the structural integrity of a building shall review the design drawings for the foundation, shoring and bracing for a tower crane before the crane is erected at a construction site to ensure the structural integrity of the building.

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(4) The structural engineer who reviews the design drawings shall sign the drawings upon approving them.

(5) Every contractor shall keep at the construction site while a tower crane is erected a copy of the signed design drawings for its foundation, shoring and bracing and any written opinion about the drawings by a structural engineer.

Inspection before crane erected

290 (1) Before a tower crane is erected at a construction site, a professional engineer or a qualified person designated by a professional engineer shall inspect its structural elements and components using generally recognized methods of non-destructive testing to determine their structural integrity.

(2) The professional engineer conducting an inspection or under whose direction an inspection is done shall prepare a written report of the test results.

(3) The contractor shall keep the report at the construction site while the crane remains erected at the site.

Other inspections

291 (1) A professional engineer or a qualified person designated by a professional engineer shall visually inspect for defects the structural elements and components of a tower crane—

(a) after the crane is erected at the construction site and before it is used; and

(b) after the inspection under clause (a), at intervals not greater than 12 months.

(2) No tower crane shall be used until any defects found during an inspection are repaired in accordance with the instructions of the crane's manufacturer or a professional engineer.

(3) A professional engineer or a qualified person designated by a professional engineer shall inspect a tower crane that has been repaired to ensure that the defects are corrected.

(4) The professional engineer who conducts an inspection or designates a qualified person to conduct inspection shall prepare a written report of the results of the inspection.

(5) Every contractor shall keep a report made under this regulation at the construction site while the crane remains erected at the site.

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Switches and devices

292 (1) A tower crane shall have automatic limit switches and automatic overload limit devices that prevent—

- (a) overloading at relative radii;
- (b) a load on the crane from reaching beyond the highest permissible position specified by the manufacturer; and
- (c) the trolley from reaching beyond the permissible travel limit specified by the manufacturer.

(2) In addition to automatic limit switches and overload limit devices, a tower crane shall have such other switches and devices as the manufacturer specifies.

(3) A qualified person shall perform operational tests on a tower crane to ensure that its automatic limit switches and overload limit devices are installed and functioning in accordance with the manufacturer's specifications, if any.

(4) Operational tests shall be done—

- (a) after the tower crane is erected at the construction site and before it is used; and
- (b) at one-week intervals after the test under paragraph (a) while the crane remains erected at the site.

(5) Overload limit devices for a tower crane shall be tested using test blocks designed for the purpose that have their weight clearly marked on them.

(6) The test blocks shall be kept on the construction site while the crane remains erected at the site.

Movement of boom

293 (1) A tower crane boom shall be able to slew freely when the crane is unattended unless—

- (a) the boom may collide with another crane, a structure or another object; or
- (b) to slew freely would be contrary to the written procedures of the crane's manufacturer.

(2) When a tower crane boom is not permitted to slew freely it shall be secured in accordance with the written procedures of the crane's manufacturer.

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Operator's cabin

294 (1) Subject to paragraph (2), the operator's cabin of a tower crane shall be located on and attached to or positioned on the crane in accordance with the instructions of the crane's manufacturer for the specific model and configuration of the crane and in such a manner that, in the event of a failure of the boom, the cabin will not be crushed against the mast.

(2) The operator's cabin shall not be located on or attached to the boom unless—

- (a) the cabin and its attachments have been specifically designed and fabricated for that purpose by the original manufacturer of the crane in accordance with good engineering practice;
- (b) the boom of the crane cannot affect or be affected by the operation of another crane or make contact with a structure or equipment;
- (c) the crane is not overlapped by any part of another crane;
- (d) because of specific site conditions, the location of the cabin on the boom provides greater visibility for the operator than does the manufacturer's standard cabin location;
- (e) the means of access to the cabin or other locations on the boom is by a catwalk constructed of skid resistant expanded metal or similar material and fitted with solidly constructed guard-rails and devices which provide fall protection for the operator;
- (f) the structural, environmental and ergonomic design of the cabin is equal to or greater than that of the crane's manufacturer's standard cabin design; and
- (g) the proposed location and attachment method provide a structural and mechanical safety factor equal to or greater than that of a cabin located on the crane mast or attached to the slewing ring.

(3) If the crane manufacturer specifies the location of the operator's cabin to be on the boom of a tower crane, the crane manufacturer shall provide to the owner of the crane a report for the specific model and specific configuration of crane on a construction site.

(4) The crane manufacturer's report shall include—

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- (a) the crane load restrictions, reductions or modifications resulting from the effect of the cabin weight and its offset from the boom centreline;
- (b) the crane configuration and operating restrictions resulting from the effect of the cabin location and attachment method; and
- (c) engineering design drawings that include—
 - (i) the structural and ergonomic design of the cabin,
 - (ii) the location of the cabin on the boom,
 - (iii) the attachment method including all fittings and hardware, and
 - (iv) all means of access.

Load block of unattended crane

295 A load block of an unattended tower crane shall be left empty, at the top position and located at minimum radius.

Track bed of rail-mounted crane

296 (1) The track bed of a rail-mounted tower crane shall have a sound and rigid base capable of carrying all loads to which it is likely to be subjected without deformation or settlement which affects the stability of the crane.

(2) The undercarriage of a rail-mounted tower crane shall be fitted with rail clamps that can be firmly attached to the rails to lock the crane in position.

(3) A rail-mounted tower crane shall be locked in position on the rails when not in use.

(4) A rail-mounted tower crane shall have rail stops or bumpers that extend at least as high as the centre of the undercarriage wheels and that are securely attached to the rail at both ends.

ELECTRICAL

Electrical safety

297 (1) Before any work is started on a construction site, and during the progress of the work, all practicable steps shall be taken to disconnect, isolate or lock out any energized electrical apparatus, buried cables, and overhead conductors that are likely to be a source of danger to the safety or health of any person.

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(2) All temporary electrical installations on a construction site shall, so far as is reasonably practicable be designed, constructed, maintained, inspected and used so as to be safe and without risks to the safety or health of any person working at the site.

(3) No portable electrical tool shall be used on a construction site unless it is either grounded or constructed with double insulation in accordance with Part 7 of these Regulations.

(4) All portable electrical tools and their cords shall be adequately maintained and inspected by a qualified person each day before use.

PROTECTION AGAINST FALLING MATERIAL AND COLLAPSE

Protection from falling material

298 (1) Where at any area of a construction site falling material is likely to endanger the safety or health of any person, that area shall—

- (a) be barricaded or adequately guarded to prevent entry by any person, and conspicuous warning signs shall be displayed on all sides of, and approaches to, the area;
- (b) be provided with adequate protective canopies installed over the area, or
- (c) be provided with adequate catch platforms or netting to stop materials from falling into the area.

(2) So far as is reasonably practicable, no materials, equipment or other objects shall be thrown, tipped or shot down from a height in a manner that is likely to endanger the safety or health of any person.

Precautions against collapse

299 Where construction work is being undertaken in order—

- (a) to restore the integrity or stability of an existing building that may be in danger of collapsing; or
- (b) to construct a new building,

the contractor shall so far as is reasonably practicable ensure that adequate shoring, or some other support method, is provided wherever necessary to prevent a collapse of the building.

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WORK PLATFORMS

General

300 All work platforms shall, to the extent that is reasonably practicable, be designed, constructed, maintained, used and inspected so as to be safe and without risks to the safety or health of any person.

When they are to be used

301 Where construction work cannot be done on or from the ground or from a part of a building without endangering the safety or health of any person, the work shall be undertaken from a suitable work platform.

Erection or alteration

302 No work platform shall be erected or substantially altered or dismantled except under the immediate supervision of a qualified person.

Inspection

- 303 (1) A work platform shall be inspected by a qualified person—
- (a) before the platform is first used;
 - (b) at least once in every period of 7 days during the time that the platform is in use; and
 - (c) whenever the platform has been exposed to weather conditions that may have affected the strength or stability of the platform.
- (2) Whenever a qualified person making an inspection of a work platform is of the opinion that the use of the work platform is likely to endanger the safety or health of any person, they shall provide the contractor who uses the work platform with—
- (a) an immediate verbal notice of the findings of the inspection;
 - (b) a written report that provides details of any danger revealed by the inspection; and
 - (c) a description of any remedial action required to restore the work platform to a safe condition.
- (3) On receipt of the verbal notice from the qualified person, the contractor who uses the work platform shall cause the work platform to be taken out of use and to remain out of use until it has been restored to a safe condition.
- (4) This regulation does not apply to a work platform where a person is not liable to fall a distance of more than 2 m (6 ft 6ins).

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Load on work platform

304 When any material is transferred on or to a work platform it shall be moved or deposited without imposing any violent shock, and material shall not be kept on the work platform unless it is needed for work within a reasonable time and it shall be stacked in such a manner so that it is not likely to cause falls or injuries.

Width of work platform

305 (1) Any work platform from which a person is liable to fall a distance of more than 2 m (6 feet 6 inches), except those mentioned in paragraph (2), shall be at least 60 cm (24 inches) in width.

(2) A gangway or a suspended scaffold, ladder-scaffold, trestle scaffold used for painting and cleaning may not be less than 0.45 m (18 inches) wide.

Guard-rails and toe-boards

306 (1) Every side of a work platform being a side from which a person is liable to fall a distance of more than 2 m (6 feet 6 inches) shall be provided with a toe board of at least 15 cm (6 ins) above the floor of the platform and with the following guard-rails of adequate strength—

- (a) a top rail that is installed at a height of at least 38 inches but not more than 1.3 m (4 feet) above the platform and is capable of withstanding 90 kg (200 lbs) of applied force; and
- (b) a mid rail that is installed at a height mid-way between the top edge of the top rail and the floor of the platform and is capable of withstanding 67.5 kg (150 lbs) of applied force.

(2) If there is a risk of tools or other objects falling from a platform or other raised area, or through a hole in the floor, a toe board that extends to a height of not less than 15 cm (6 inches) from the floor of the platform or raised area, or from the floor, shall be installed.

(3) If tools or other objects are piled to such a height that a toe board would not prevent the tools or other objects from falling, a solid or mesh panel shall be installed from the floor to a height of not less than 45 cm (18 inches).

(4) Guard-rails and toe-boards required by this regulation may be removed or remain unerected for the time and to the extent necessary for the access of persons or the movement of materials or other purposes of the work, but they shall be replaced or erected as soon as practicable.

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SCAFFOLDS

General

307 (1) Every scaffold shall be securely supported or suspended and shall, where necessary, be sufficiently and properly strutted or braced to prevent collapse, and shall be firmly connected to the building, unless the scaffold is so designed and constructed as to ensure stability without such connection.

(2) Every scaffold shall—

- (a) have uprights braced diagonally in the horizontal and vertical planes to prevent lateral movement;
- (b) have horizontal members that are adequately secured to prevent lateral movement and that do not have splices between the points of support;
- (c) have footings, sills or supports that are sound, rigid and capable of supporting at least two times the maximum load to which the scaffold may be subjected without settlement or deformation that may affect the stability of the scaffold;
- (d) have all fittings and gear, including base plates or wheels, installed in accordance with the manufacturer's instructions;
- (e) have connecting devices between frames that provide positive engagement in tension and compression;
- (f) have safety catches on all hooks; and
- (g) be adequately secured at vertical intervals not exceeding three times the least lateral dimension of the scaffold, measured at the base, to prevent lateral movement.

(3) A scaffold shall be constructed of suitable structural materials and, if lumber is used, it shall be construction grade or number 1 grade spruce.

(4) Every scaffold platform and other work platform shall be designed, constructed and maintained to support or resist, without exceeding the allowable unit stresses for the materials of which it is constructed, all loads and forces to which it is likely to be subjected.

(5) The erection, alteration and dismantling of a scaffold shall be supervised by a qualified person.

Scaffold mounted on castors or wheels

308 (1) A scaffold mounted on castors or wheels shall—

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- (a) be equipped with a suitable braking device on each castor or wheel; and
 - (b) have the brakes applied when an employee is on the scaffold.
- (2) A scaffold mounted on castors or wheels shall be equipped with guy wires or outriggers to prevent its overturning if the height of the scaffold platform exceeds three times the least lateral dimension of the scaffold—
- (a) measured at the base of the scaffold; or
 - (b) if outriggers are used, measured between the outriggers.
- (3) No scaffold mounted on castors or wheels that has a scaffold platform more than 2.4 m (8 feet) above the base shall be moved when an employee is on it unless—
- (a) the employee is wearing a full body harness as part of a fall arrest system attached to a fixed support; and
 - (b) the scaffold is being moved on a firm level surface.

Scaffold above a certain height

- 309 (1) A scaffold shall be designed by a professional engineer and shall be erected in accordance with the design if the scaffold exceeds—
- (a) 15 m (50 feet) in height above its base support; or
 - (b) 10 m (33 feet) in height above its base support if the scaffold is constructed of a tube and clamp system.
- (2) Design drawings for a scaffold shall—
- (a) set out erection instructions and the rated loads for the scaffold; and
 - (b) be signed by the professional engineer who designed the scaffold.
- (3) A professional engineer, or a qualified person designated by the contractor on whose construction site a scaffold is to be erected, shall inspect the scaffold before it is used to ensure that it is erected in accordance with the design drawings.
- (4) The person carrying out the inspection shall state in writing whether the scaffold is erected in accordance with the design drawings.
- (5) The contractor on whose construction site a scaffold is erected shall keep the design drawings and the inspection statement for the scaffold while it remains erected.

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Scaffold platform

- 310 (1) A scaffold platform—
- (a) shall be at least 46 cm (18 inches) wide;
 - (b) if it is 2 m (6 feet 6 inches) or more above a floor, roof or other surface, consist of planks laid tightly side by side for the full width of the scaffold;
 - (c) shall be provided with a guard-rail as required by regulation 306;
 - (d) shall be provided with an adequate means of access;
 - (e) shall not have any unguarded openings; and
 - (f) shall have each component secured against slipping from its supports.
- (2) A scaffold platform made of sawn lumber planks shall have planks of number 1 grade spruce that do not have any defect affecting their load-carrying capacity and that—
- (a) are at least 5 cm (2 inches) thick by 25 cm (10 inches) wide;
 - (b) overhang their supports by not less than 15 cm (6 inches) and not more than 30 cm (12 inches); and
 - (c) are cleated or otherwise secured against slipping.

Cubes of masonry

- 311 (1) Cubes of masonry units on a scaffold platform shall be placed directly over the scaffold frame.
- (2) If it is not practicable to comply with paragraph (1), the masonry units shall be placed on the scaffold platform in a manner that conforms with the load capability provisions of the scaffold platform.

Partly erected or dismantled scaffolds

- 312 No scaffold or part of a scaffold shall be partly erected or dismantled and remain on the site in such condition that it is capable of being used unless—
- (a) it complies with this Part;
 - (b) there is affixed near any point at which the scaffold or part is liable to be approached for the purpose of use a prominent warning notice indicating that it is not to be used; or

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- (c) access to the scaffold or part is as far as is reasonably practicable effectively blocked.

Scaffolds used by employees of different contractor

313 Where a scaffold or part of a scaffold is to be used by or on behalf of a contractor other than the contractor for whose employees it was first erected, the first-mentioned contractor shall, before such use, and without prejudice to any other obligations imposed on them by this Part, take express steps, either personally or through a qualified person, to satisfy themselves that the materials used in its construction are sound and that the safeguards required by this Part are in position.

Maximum load for scaffolds

314 (1) Every scaffold shall be designed and constructed to support or resist—

- (a) two times the maximum load or force to which it is likely to be subjected, without exceeding the allowable unit stresses for the materials of which it is made; and
- (b) four times the maximum load or force to which it is likely to be subjected without overturning.

(2) A scaffold shall not be overloaded, and so far as is reasonably practicable, the load thereon shall be evenly distributed.

Slung scaffolds

315 (1) No chain or wire rope shall be used on a site to sling a fixed suspended scaffold, unless it complies with the lifting tackle requirements of Part 15 of these Regulations and it is properly and securely fastened to safe anchoring points and to the other main supporting points to ensure stability of the scaffold.

(2) Only wire rope or a chain shall be used for slinging a fixed suspended scaffold.

Moving persons on suspended scaffolds

316 Permanent and temporary suspended scaffolding that is not raised or lowered by power-driven lifting equipment, shall not be used for raising or lowering or carrying a person unless—

- (a) outriggers are used that are—
 - (i) of adequate length and strength and adequately installed and supported,
 - (ii) firmly anchored at the inner ends,
 - (iii) securely fastened to any ballast or counterweights, which shall be at least three times the

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total working weight suspended from the outriggers, and

- (iv) installed horizontally,
- (b) the points of suspension are at adequate horizontal distances from the face of the building;
- (c) the wire ropes or chains are securely attached to the outriggers or other supports;
- (d) adequate arrangements are made to prevent undue tipping, tilting or swinging of a scaffold and to secure it to prevent undue horizontal movement while it is being used as a work platform;
- (e) the platform of the suspended scaffold, except to the extent necessary for drainage, is closely boarded, planked or plated; and
- (f) the winches or other lifting equipment or similar devices of the suspended scaffold are—
 - (i) provided with a brake or similar device which comes into operation when the operating handle or lever is released; and
 - (ii) adequately protected against the effect of weather, dust or material likely to cause damage.

Trestle scaffolds

317 (1) Trestle scaffolds shall be designed, constructed, maintained, inspected and used so as to be safe and without risks to the safety or health of any person.

(2) No trestle scaffold shall be used if the scaffold is so situated that a person is liable to fall a distance of more than 4.5 m (15 feet) from the platform of the trestle.

ELEVATING WORK PLATFORMS

General

318 (1) Subject to paragraph (2), every elevating work platform, including elevating rolling work platforms, self-propelled elevating work platforms, boom-type elevating work platforms and vehicle-mounted aerial devices shall comply with regulation 319.

(2) Paragraph (1) does not apply to—

- (a) suspended scaffolds or suspended work platforms; or

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(b) buckets or baskets suspended from or attached to the boom of a crane.

Design and manufacture

319 (1) An elevating work platform shall be designed by a professional engineer in accordance with good engineering practice—

(a) to meet the requirements of the applicable standards set out in the Table to paragraph (6); and

(b) to support a minimum of 1.3 kilonewtons rated working load as determined in accordance with the applicable standards set out in the Table to paragraph (6).

(2) An elevating work platform shall be manufactured in accordance with the design referred to in paragraph (1).

(3) An elevating work platform—

(a) shall be tested in accordance with the applicable standards set out in the Table to paragraph (6); and

(b) shall be inspected each day before use, in accordance with the manufacturer’s instructions by an employee trained in accordance with regulation 321.

(4) An elevating work platform shall only be used if a professional engineer has certified in writing that it complies with the applicable standards set out in the Table to paragraph (6).

(5) The certification required by paragraph (4) shall include the details of testing.

(6) The standards applicable to the type of elevating work platform listed in Column 1 of the Table to this paragraph are the standards set out opposite it in Column 2:

Column 1	Column 2	Column 3
<u>Type of Platform</u>	<u>National Standards of Canada</u>	<u>American National Standards Institute</u>
Manually-Propelled Elevating Platform	CAN3-B354.1-M82	ANSI-92.3
Self-Propelled Elevating Work Platform	CAN3-B354.2-M82 and CAN3-B354.3-M82	ANSI-92.6
Boom-Type Elevating Work Platform	CAN3-B354.4-M82	ANSI-92.5
Vehicle-Mounted Aerial Device	CAN-CSA-C225-M88	ANSI-92.2

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- (7) An elevating work platform shall be equipped with guard-rails.
- (8) An elevating work platform shall have signs that are clearly visible to an operator at its controls indicating—
- (a) the rated working load;
 - (b) all limiting operating conditions including the use of outriggers, stabilizers and extendable axles;
 - (c) the specific firm level surface conditions required for use in the elevated position;
 - (d) such warnings as may be specified by the manufacturer;
 - (e) other than for a boom-type elevating work platform, the direction of machine movement for each operating control;
 - (f) the name and number of the applicable standards to which it was designed; and
 - (g) the name address and telephone number of the owner of the platform.

Maintenance and inspection

- 320 (1) The owner of an elevating work platform shall maintain it such that the safety factors of the original design are maintained.
- (2) The owner of an elevating work platform shall keep a permanent record of all inspections, tests, repairs, modifications and maintenance performed on it.
- (3) The permanent record required by paragraph (2) shall be kept up to date and shall include—
- (a) complete records from the more recent of the date of purchase or the date of these Regulations; and
 - (b) the signature and name of the person who performed the inspection, test, repair, modification or maintenance.
- (4) A maintenance and inspection record tag shall be provided and attached to the elevating work platform near the operator's station and shall include—
- (a) the date of the last maintenance and inspection;
 - (b) the signature and name of the person who performed the maintenance and inspection; and
 - (c) an indication that the maintenance has been carried out in accordance with the manufacturer's recommendations.

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Instruction and training

321 (1) An employee who operates an elevating work platform shall, before using it for the first time, be given oral and written instruction on the operation and be trained to operate that class of elevating work platform by a qualified person.

(2) The instruction and training required by paragraph (1) shall include—

- (a) the manufacturer's instruction;
- (b) instruction in the load limitations;
- (c) instruction in and a hands-on demonstration of the proper use of all controls; and
- (d) instruction in the limitations on the kinds of surfaces on which it is designed to be used.

(3) An operator's manual for an elevating work platform shall be kept with it while it is at a construction site.

Use

322 An elevating work platform shall—

- (a) not be loaded in excess of its rated working load;
- (b) be used only on a firm level surface;
- (c) be used only in accordance with the written instructions of the manufacturer;
- (d) not be loaded and used in such a manner as to affect its stability or endanger any person; and
- (e) not be moved unless all employees on it are protected against falling by a safety belt attached to the platform.

BOATSWAINS CHAIRS, SKIPS etc.

Boatswain's chairs, skips, etc (not power operated)

323 (1) No boatswain's chair, skip or similar equipment (other than one that is raised or lowered by power-driven lifting equipment) shall be used unless—

- (a) it is of good construction, of suitable and sound material, of adequate strength, free from patent defect and properly maintained;
- (b) the outrigger or other supports are of adequate strength and properly installed and supported;

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- (c) the chains, ropes, lifting tackle or other means of suspension used therewith are securely attached to the outriggers or other supports and to the chair, skip or similar plant or equipment or to any lifting equipment or other device attached thereto, as the case may be;
- (d) suitable means are provided to prevent any occupant falling out;
- (e) it is free of materials or articles liable to interfere with the occupant's handhold or foothold or otherwise endanger them;
- (f) suitable measures are taken to prevent spinning or tipping in a manner dangerous to any occupant;
- (g) in the case of any skip or other receptacle it is at least 1 m (3 feet) deep; and
- (h) its installation has been, and its use is, supervised by a qualified person.

(2) No boatswain's chair, skip or similar equipment (other than one that is raised or lowered by power-driven lifting equipment) shall be used as a working place in circumstances in which a suspended scaffold could be used, unless—

- (a) the work is of such short duration as to make the use of a suspended scaffold unreasonable; or
- (b) the use of a suspended scaffold is not reasonably practicable.

LADDERS

General

324 A ladder shall be designed, constructed and maintained so as not to endanger an employee and shall be capable of withstanding all loads to which it may be subjected.

- (2) A ladder shall—
 - (a) be free from defective or loose rungs;
 - (b) have rungs spaced at 30 cm (12 inches) on centres;
 - (c) have side rails at least 30 cm (12 inches) apart;
 - (d) be placed on a firm footing; and
 - (e) be situated so that its base is not less than one-quarter, and not more than one-third, of the length of the ladder from a point directly below the top of the ladder and at the

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same level as the base of the ladder, if the ladder is not securely fastened.

(3) The maximum length of a ladder measured along its side rail shall not be more than—

- (a) 5 m (16 feet) for a trestle ladder or for each of the base and extension sections of an extension trestle ladder;
- (b) 3 m (10 feet) for a step-ladder;
- (c) 9 m (30 feet) for a single ladder or an individual section of a ladder;
- (d) 15 m (50 feet) for an extension ladder with two sections; and
- (e) 20 m (65 feet) for an extension ladder with more than two sections.

(4) No ladder shall be lashed to another ladder to increase its length.

(5) In this regulation—

“extension trestle ladder” means a combination of a trestle ladder and a vertically-adjustable single ladder with a suitable means of securely locking the ladders together.

(6) No ladder shall be present in an elevator shaft or a similar hoisting area when the shaft or area is being used for hoisting.

(7) A ladder used as a regular means of access between levels of a structure shall—

- (a) extend at the upper level at least 1 m (3 feet) above the landing or floor;
- (b) have a clear space of at least 15 cm (6 inches) behind every rung;
- (c) be located so that an adequate landing surface that is clear of obstructions is available at the top and bottom of the ladder; and
- (d) be secured at the top and bottom to prevent movement.

Wooden ladder

325 A wooden ladder shall be made of wood that is straight-grained and free of loose knots, sharp edges, splinters and shakes, and shall not be painted or coated with an opaque material.

(2) The side rails of a wooden ladder of the cleat type—

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(a) shall be not less than 40 cm (16 inches) and not more than 60 cm (24 inches) apart; and

(b) shall measure not less than—

(i) 4 cm (1½ inches) by 9 cm (3½ inches) if the ladder is 6 m (20 feet) or less long, or

(ii) 4 cm (1½ inches) by 14 cm (5½ inches) if the ladder is more than 6 m (20 feet) long.

(3) The rungs of a wooden ladder of the cleat type shall be braced by filler blocks at least 2 cm (¾ inches) thick located between the rungs, and shall measure not less than—

(a) 2 cm (¾ inch) by 6.5 cm (2½ inches) if the side rails are 40 cm (16 inches) apart; and

(b) 2 cm (¾ inch) by 9 cm (3½ inches) if the side rails are more than 40 cm (16 inches) and not more than 60 (24 inches) apart.

Double-width wooden ladder

326 A double-width wooden ladder shall—

(a) have three evenly-spaced rails that measure at least 4 cm (1½ inches) by 14 cm (5½ inches);

(b) have rungs extending the full width of the ladder that—

(i) are braced by filler blocks at least 2 cm (¾ inch) thick, and

(ii) measure at least 4 cm (1¾ inches) by 9 cm (3½ inches); and

(c) not be less than 1.5 m (5 feet) wide and not more than 2 m (6 feet 6 inches) wide.

Step-ladder

327 (1) When a step-ladder is being used as a self-supporting unit, its legs shall be fully-spread and its spreader shall be locked.

(2) No employee shall stand on the top of, or on the pail shelf of, a step-ladder.

Access ladder

328 (1) Subject to paragraph (2), an access ladder fixed in position shall be vertical and—

(a) shall have rest platforms at not more than 9 m (30 feet) intervals;

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- (b) shall be offset at each rest platform;
 - (c) where the ladder extends over 3 m ((10 feet) above grade, floor or landing, shall have a safety cage commencing not more than 2.2 m (7 feet) above grade, floor or landing and continuing at least 1 m (3 feet) above the top landing with openings to permit access by an employee to rest platforms or to the top landing;
 - (d) shall have side rails that extend 1 m (3 feet) above the landing; and
 - (e) shall have rungs that are at least 15 cm (6 inches) from the wall and spaced at regular intervals.
- (2) Paragraph (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure that has a safety device that will provide protection should an employee using the ladder fall.

EXPLOSIVE ACTUATED FASTENING TOOL

General

- 329 (1) No employee shall use an explosive actuated fastening tool unless they have been adequately trained in its use.
- (2) When using an explosive actuated fastening tool, an employee shall carry proof of their training in its use.
- (3) No employee shall use an explosive actuated fastening tool unless they are wearing adequate personal protective equipment, including adequate eye protection.
- (4) An employee who uses an explosive actuated fastening tool shall inspect it before using it to ensure—
- (a) that it is clean;
 - (b) that all moving parts operate freely;
 - (c) that its barrel is free from obstruction; and
 - (d) that it is not defective.
- (5) No explosive actuated fastening tool shall be loaded unless it is being prepared for immediate use.
- (6) No explosive actuated fastening tool, whether or not it is loaded, shall be pointed at a person.

Safety features

- 330 (1) No employee shall use an explosive actuated fastening tool unless it has a suitable protective guard that—

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- (a) is at least 7.5 cm (3 ins) in diameter;
 - (b) is mounted at right angles to the barrel of the tool; and
 - (c) is centred on the muzzle end of the tool, if practicable.
- (2) An explosive actuated fastening tool shall be inoperable unless—
- (a) its muzzle end is held against a surface using a force at least 22 newtons greater than the force equivalent to the weight of the tool measured in newtons; and
 - (b) when a protective guard is centred on the muzzle end of the tool, the bearing surface of the guard is not tilted more than 8 degrees from the work surface.
- (3) Paragraphs (1) and (2) (b) do not apply with respect to an explosive actuated fastening tool if the velocity of a fastener fired from it does not exceed 90 m (290 feet) per second measured at a distance of 2 m (6 feet 6 inches) from its muzzle end when propelled by the maximum commercially-available explosive load it is chambered to accept.
- (4) An explosive actuated fastening tool that is designed to require dismantling into separate parts for loading shall be inoperable unless the separate parts are locked together.
- (5) An explosive actuated fastening tool shall have a firing mechanism that prevents the tool from being fired if it is dropped or while it is being loaded and prepared for firing.
- (6) The firing movement for an explosive actuated fastening tool shall be a separate action from the operation of bringing the tool into firing position.
- (7) An explosive actuated fastening tool shall not be capable of being fired until the operator performs the two separate actions described in paragraph (6).

Storage

- 331 (1) Every explosive actuated fastening tool shall be stored in a locked container when not in use.
- (2) No explosive actuated fastening tool shall be left unattended when out of its container.
- (3) Every explosive load for an explosive actuated fastening tool shall—
- (a) be marked or labelled so that an employee can easily identify its strength; and

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- (b) be stored in a locked container unless it is required for immediate use.
- (4) No explosive load for an explosive actuated fastening tool—
 - (a) shall be stored in a container with explosive loads of other strengths; or
 - (b) shall be left unattended where it may be available to an employee who is not qualified to operate an explosive actuated fastening tool.
- (5) A misfired explosive load removed from an explosive actuated fastening tool shall be placed in a water-filled container at a construction site until the misfired explosive load is removed from the site.

WELDING AND CUTTING

Precautions

- 332 (1) Cylinders, piping and fittings used in welding and cutting shall be protected against damage.
- (2) No cylinder of compressed gas used in welding and cutting shall be dropped, hoisted by slings or magnets or transported or stored in a horizontal position.
- (3) The valve of a cylinder shall be closed when the cylinder is spent or is not being used.
- (4) Precautions to prevent a fire shall be taken when using a blow torch or welding or cutting equipment or a similar piece of equipment.
- (5) No arc welding electrode or ground lead shall be hung over a compressed gas cylinder.
- (6) An area where electric welding is carried on shall be kept free of electrode stubs and metal scrap.
- (7) Receptacles for electrode stubs shall be provided and used.
- (8) Unless cylinders are firmly secured on a special carrier intended for this purpose, regulators shall be removed and valve protection caps put in place before cylinders are moved.
- (9) A suitable cylinder truck, chain or other steadying device shall be used to keep cylinders from being knocked over while in use.
- (10) Cylinders containing oxygen or acetylene or other fuel-gas shall not be taken into confined spaces.

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(11) No person other than the supplier of the cylinder shall attempt to mix gases in a cylinder.

(12) No person, other than the owner of the cylinder or a person authorized by the owner, shall refill a cylinder.

(13) No person shall use a cylinder's contents for purposes other than those intended by the supplier.

(14) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) by a minimum distance of 6 m (20 feet), or by a non-combustible barrier at least 1.5 m (5 feet) high having a fire-resistance of at least one half-hour.

DEMOLITION

Supervision and co-ordination of demolition

333 (1) Where a building is to be demolished in whole or in part, the contractor undertaking the demolition work shall appoint a qualified person to supervise the work.

(2) Where more than one contractor is engaged in the demolition work, the prime contractor shall appoint a qualified person to act as the safety and health co-ordinator at the site of the demolition.

(3) In regulations 333 to 343, the term "building" includes a structure or work referred to in regulation 262.

Preservation of structural integrity

334 (1) Where a building is to be demolished in whole or in part, and the integrity of the building and any adjoining structure could be compromised by the demolition, the contractor undertaking the demolition shall ensure that the integrity of such building is preserved, so far as practicable, by the provision of—

(a) a support system designed by a professional engineer; and

(b) a demolition plan developed by a professional engineer.

(2) A copy of the support system and demolition plan shall be kept at the demolition site and made available for inspection.

(3) If a building is so damaged that an employee is likely to be endangered by its partial or complete collapse,

(a) the building shall be braced and shored; and

(b) safeguards appropriate in the circumstances shall be provided to prevent injury to an employee.

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(4) Safeguards shall be installed progressively from a safe area towards the hazard so that the employees installing the safeguards are not endangered.

Precautions prior to demolition

335 Every contractor shall, before demolition of a building—

- (a) take precautions to prevent injury to a person on or near the building that may result from the demolition of the building;
- (b) ensure that all gas, electrical and other services that may endanger persons who have access to a building that is being demolished is shut off and disconnected remains shut off and disconnected during, the demolition of the building; and
- (c) ensure the removal of all toxic, flammable or explosive substances from the building that is to be demolished.

Identification of hazardous substances

336 (1) Before the commencement of work on the demolition of any building or the salvaging of any equipment and materials from that building, the contractor undertaking the demolition shall ensure that—

- (a) the building has been adequately inspected by a qualified person to identify any asbestos, lead, flammables, explosives or other hazardous substances that will have to be handled, disturbed or removed; and
- (b) the qualified person who inspects the building provides the contractor with a written report of the inspection, listing the hazardous substances present in the building and identifying their location within that building.

(2) The contractor shall ensure that any hazardous substance revealed by the inspection or found in the course of demolition is safely contained or removed in a manner that does not constitute a hazard to the safety or health of any person.

(3) If a hazardous substance that was not identified during the inspection is found in the course of demolition, the contractor shall cease all demolition work on the building until such substance is contained or removed.

Precautions during demolition

337 A contractor who undertakes the demolition of a building shall, so far as is reasonably practicable, ensure that adequate precautions are

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taken to protect the safety and health of any person from dangers that may result from—

- (a) the collapse of the building during the removal of framing from the building;
- (b) the twisting, springing or collapse of steelwork or ironwork;
- (c) the lack of adequate shoring or other structural support systems;
- (d) the risk of fire or explosion through leakage or accumulation of gas or vapour; and
- (e) the risk of flooding.

Protection from falling material

338 (1) Where falling material is likely to endanger the safety or health of a person, the contractor shall ensure that the danger area is guarded to prevent the entry of persons into the area or that the area is covered by adequate protective canopies.

(2) The contractor shall ensure that any roof, floor or wall opening through which material may fall and endanger the safety or health of a person is adequately covered with material capable of supporting all loads that may be imposed on it.

Accumulation of materials

339 (1) Every contractor shall ensure that materials and debris do not accumulate on floors or on the ground outside a building that is being demolished to the extent that the safety or health of persons may be endangered.

(2) The contractor shall ensure that material and equipment shall not be allowed to fall or accumulate on floors of the building in quantities that will exceed the safe carrying capacity of the floor.

Salvage operations

340 (1) While salvage operations are taking place, before or during demolition, the salvage methods shall not compromise the integrity of any of the remaining structures.

Precautions after demolition

341 (1) A basement, cellar or excavation left after a building is demolished shall—

- (a) be backfilled to grade level; or
- (b) have fencing along its open sides.

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(2) Paragraph (1) does not apply to a basement or cellar that is enclosed by a roof, floor or other solid covering if all openings in the roof, floor or covering are covered with securely fastened planks.

Access to building being demolished

342 (1) Only a person who is directly engaged in the demolition of a building shall be in, on or near it.

(2) If the demolition of a building is discontinued, barriers shall be erected to prevent access by people to the remaining part of the building.

(3) A person shall enter only the part of a building being demolished that will safely support the person.

(4) No employee shall stand on top of a wall, pier or chimney to remove material from it unless flooring, scaffolding or staging is provided on all sides of it not more than 2.5 m (8 feet) below the place where the employee is working.

Sequence for demolition

343 (1) Demolition of a building shall proceed systematically and continuously from the highest to the lowest point unless an employee is endangered by this procedure.

(2) Despite paragraph (1), the skeleton structural frame in a skeleton structural frame building may be left in place during the demolition or dismantling of the masonry if the masonry and any loose material are removed from the frame systematically and continuously from the highest to the lowest point.

(3) The work above a tier or floor of a building shall be completed before the support of the tier or floor is affected by demolition or dismantling operations.

(4) No exterior wall of a building shall be demolished until all glass is removed from windows, doors, interior partitions and components containing glass or is protected to prevent the glass from breaking during the demolition.

(5) Masonry walls of a building being demolished shall be removed in reasonably level courses.

(6) No materials in a masonry wall of a building being demolished shall be loosened or permitted to fall in masses that are likely to endanger—

(a) a person; or

(b) the structural stability of a scaffold or of a floor or other support of the building.

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(7) No truss, girder or other structural member of a building being demolished or dismantled shall be disconnected until—

- (a) it is relieved of all loads other than its own weight; and
- (b) it has temporary support.

(8) The contractor shall, so far as is reasonably practicable, leave intact stairways, complete with handrails, until access to the level they serve is no longer required.

(9) Where a building is being demolished by any of the means described in paragraph (10)—

- (a) the controls of any mechanical device used to demolish a building shall be operated from a location that is as remote as is practicable from the building; and
- (b) If a swinging weight is used to demolish a building, the supporting cable of the weight shall be short enough or shall be so restrained that the weight does not swing against another building.

(10) Paragraph (9) applies with respect to a building that is being demolished by any of the following means—

- (a) a heavy weight suspended by cable from a crane or similar hoisting device;
- (b) a power shovel, bulldozer or other vehicle;
- (c) the use of explosives; or
- (d) a combination of methods described in paragraphs (a) to (c).

TRAFFIC CONTROL

Traffic control devices

344 (1) Where a contractor carries out construction work on or adjacent to a road and employees carrying out the work may be endangered by vehicles using the road, other than vehicles related to the work, the contractor shall make use of measures to adequately protect the employees, such as barriers, warning signs, flashing lights and other traffic control devices.

Use of signs by employee to direct traffic

345 (1) In addition to, or as an alternative to measures referred to in paragraph (1), an employee may be used to direct vehicular traffic using a sign that meets the requirements of paragraph (3).

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- (2) A sign used to direct vehicular traffic shall—
 - (a) be octagonal in shape, measure 45 cm (18 ins) between opposite sides, and be mounted on a pole that is 1.2 m (4 ft) long;
 - (b) be made of material with at least the rigidity of plywood that is 6 mm (¼ in) thick;
 - (c) on one side be high-intensity retro-reflective grade red in colour, with the word “STOP” written in legible high-intensity retro-reflective grade white letters 15 cm (6 inches) high in a central position on the sign;
 - (d) on the other side be high retro-reflective micro-prismatic fluorescent chartreuse in colour, with a black diamond-shaped border that is at least 30 cm (12 inches) by 30 cm (12 inches), and with the word “SLOW” written in legible black letters 12 cm (5 inches) high in a central position on the sign; and
 - (e) be maintained in a clean and legible condition.
- (3) An employee who is required to direct vehicular traffic—
 - (a) shall not perform any other work while directing vehicular traffic;
 - (b) shall be positioned in such a way that they are endangered as little as possible by vehicular traffic; and
 - (c) shall be given adequate instructions with respect to directing vehicular traffic, and those instructions shall include a description of the signals that are to be used.

Wearing of fluorescent garment

346 An employee who may be endangered by vehicular traffic shall wear a garment that covers at least the upper part of their body and is of a fluorescent material.

HOUSEKEEPING

Removal of material

347 (1) Waste material and debris on a construction site shall be removed to a disposal area, and reusable material shall be removed to a storage area, as often as is necessary to prevent a hazardous condition arising and, in any event, at least once daily.

(2) Rubbish, debris and other materials shall not be permitted to fall freely from one level to another but shall be lowered by a chute, in a container or by a crane or hoist.

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Storage of material

348 (1) Material or equipment at a construction site shall be stored and moved in a manner that does not endanger an employee.

(2) No material or equipment to be moved by a crane or similar hoisting device shall be stored under or in close proximity to an energized outdoor overhead electrical conductor.

(3) Blocking, support chains, metal bands, wire rope and rigging components shall be removed from material or equipment in a manner that does not endanger an employee.

(4) Material and equipment at a construction site shall be piled or stacked in a manner that prevents it from tipping, collapsing or rolling.

(5) A combustible, corrosive or toxic substance shall be stored in a suitable container.

Gas cylinders

349 (1) Storage cylinders for compressed gas shall be secured in an upright position and stored in an area that is well ventilated and away from direct sunlight.

(2) The contents of a storage cylinder shall be indicated on the cylinder.

(3) The control valve of a storage cylinder for compressed gas, other than a cylinder connected to a regulator, supply line or hose, shall be covered by a protective cap that is secured in its proper position.

(4) A spent storage cylinder shall not be stored inside a building.

(5) No storage cylinder for propane shall be placed closer than 3 m (10 ft) to a source of ignition or fire.

(6) Paragraph (4) does not apply to a storage cylinder that—

- (a) forms part of hand-held propane equipment;
- (b) forms part of a lead pot used in plumbing or electrical work;
- (c) forms part of a propane-powered or propane-heated vehicle; or
- (d) is protected from a source of ignition by a barrier, wall or other means of separation.

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Flammable liquid or gas

350 (1) A flammable liquid or gas shall be stored in a building or storage tank that is suitable for the purpose and, if practicable, not less than 100 m (325 feet) from a magazine for explosives.

(2) No more than one work day's normal supply of a flammable liquid or gas shall be stored at a building on a construction site unless it is stored—

(a) in a container that is suitable for the particular hazards of the liquid or gas; and

(b) in a controlled access area or a room—

(i) that has sufficient window area to provide explosion relief to the outside, and

(ii) that is remote from the means of egress from the building.

(3) A portable container used to store or transport flammable liquids or gases shall—

(a) be approved for use for that liquid or gas by a recognized testing laboratory; and

(b) have a label stating the use for which the container is approved and the name of the testing laboratory which gave the approval required by paragraph (a).

(4) Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) by a minimum distance of 6 m (20 feet), or by a non-combustible barrier at least 1.5 m (5 feet) high having a fire-resistance of at least one half-hour.

Signs

351 (1) Signs meeting the requirements of paragraph (2) shall be posted in prominent locations and in sufficient numbers to warn employees of a hazard at a construction site.

(2) A sign shall contain the word "DANGER" written in legible letters that are at least 15 cm (6 inches) in height and shall state that entry by any unauthorized person to the area where the hazard exists is forbidden.

(3) Without limiting the generality of paragraph (1), a sign shall be posted—

(a) adjacent to a hoisting area;

(b) under a boatswain's chair, a suspended scaffold or a suspended platform;

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- (c) at the outlet from a chute;
 - (d) at a means of access to a place where there may be a noxious gas, vapour dust or fume, noxious substance or a lack of oxygen; and
 - (e) where there is a potential hazard from an energized overhead electrical conductor at more than 750 volts.
- (4) No person shall enter an area in which a sign is posted other than a person authorized to work in the area.

Ventilation

352 (1) A construction site shall be adequately ventilated by natural or mechanical means if—

- (a) an employee may be injured by inhaling a noxious gas, vapour, dust or fume or from a lack of oxygen; or
- (b) a gas, vapour, dust or fume may be capable of forming an explosive mixture with air.

(2) If it is not practicable to provide natural or mechanical ventilation in the circumstances described in paragraph (1), a respiratory protective equipment suitable for the hazard shall be provided to and used by employees.

Operation of internal combustion engine

353 No internal combustion engine shall be operated—

- (a) in an excavation unless provision is made to ensure that exhaust gases and fumes will not accumulate in the excavation; or
- (b) in a building or other enclosed structure unless—
 - (i) the exhaust gases and fumes from the engine are discharged directly outside the building or structure to a point sufficiently remote to prevent the return of the gases and fumes, or
 - (ii) there is an adequate supply of air for combustion and adequate natural or mechanical ventilation to ensure exhaust gases and fumes will not accumulate.

Repair of pressurized containers

354 (1) When a drum, tank, pipeline or other container is to be repaired or altered—

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- (a) its internal pressures shall be adjusted to atmospheric pressure before any fastening is removed;
- (b) it shall be drained, cleaned and ventilated or otherwise rendered free from any explosive, flammable or harmful substance; and
- (c) it shall not be refilled during repair or alteration if the substance which is to be placed in it may vaporize or ignite.

(2) Clauses (1) (a) and (b) do not apply with respect to a pipeline if hot-tapping and boxing-in are carried out by a qualified person under controlled conditions that provide for the protection of all persons.

Removal of protruding objects

355 If a formwork tie, reinforcing steel, a nail or another object protruding from concrete or another surface may endanger an employee, the protrusion shall be removed, cut off at the surface or otherwise protected as soon as practicable.

PART 18 REVOCATION

Revocation

356 The following Regulations are revoked—

- (a) the Construction Sites (Safety) Regulations 1985;
- (b) the Health and Safety Committees Regulations 1984;
- (c) the Health and Safety at Work (Fire Precautions) Regulations 1986;
- (d) the Health and Safety at Work (General Requirements) Regulations 1986;
- (e) the Notification of Accidents and Dangerous Occurrences Regulations 1985.

Made this 1st day of October, 2009

Operative this 23rd day of October, 2009

Minister of Health