1970

c 79 The Mining Amendment Act, 1970 (No. 1)

Ontario
CHAPTER 79

An Act to amend The Mining Act

Assented to November 13th, 1970
Session Prorogued November 13th, 1970

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1.-(1) Paragraph 1 of section 1 of The Mining Act is amended by inserting after "mine" in the third line "or plant", so that the paragraph shall read as follows:

1. "agent", where it occurs in Parts IX and XI, means a person having, on behalf of the owner, the care or direction of a mine or plant or a part thereof.

(2) Paragraph 10 of the said section 1 is amended by inserting after "boilers" in the second line "compressors" and by adding at the end thereof "or plant", so that the paragraph shall read as follows:

10. "machinery" includes steam and other engines, boilers, compressors, furnaces, milling and crushing apparatus, hoisting and pumping equipment, chains, trucks, tramways, tackle, blocks, ropes and tools, and all appliances used in or about or in connection with a mine or plant.

(3) Paragraphs 12 and 13 of the said section 1 are repealed and the following substituted therefor:

12. the noun "mine", except as defined in Part IX, includes any opening or excavation in, or working of the ground for the purpose of winning, opening up or proving any mineral or mineral-bearing substance, and any ore body, mineral deposit, stratum, rock, earth, clay, sand or gravel, or place where mining is or may be carried on, and all ways, works, machinery, plant, buildings and premises below or above ground belonging to or used in connection with the mine, and also any quarry, excavation or opening of the ground made for the purpose of searching for or removal
removal of mineral, rock, stratum, earth, clay, sand or gravel and any roasting or smelting furnace, concentrator, mill, work or place used for or in connection with washing, crushing, sifting, reducing, leaching, roasting, smelting, refining, treating or research on any of such substances.

13. the verb “mine” and the word “mining”, except as defined in Part IX, include any mode or method of working whereby the earth or any rock, stratum, stone or mineral-bearing substance may be disturbed, removed, washed, sifted, leached, roasted, smelted, refined, crushed or dealt with for the purpose of obtaining any mineral therefrom, whether it has been previously disturbed or not.

(4) Paragraph 18 of the said section 1 is amended by inserting after “mine” in the fourth line “or plant” and by inserting after “mine” in the seventh line and in the ninth line “plant”, so that the paragraph shall read as follows:

18. “owner”, when used in Parts IX and XI, includes every person, mining partnership and company being the immediate proprietor or lessee or occupier of a mine or plant or a part thereof, or of any land located, patented or leased as mining land, but does not include a person or a mining partnership or company receiving merely a royalty, rent or fine from a mine, plant or mining lands, or being merely the proprietor of a mine, plant or mining lands subject to a lease, grant or other authority for the working thereof, or the owner of the surface rights and not of the ore or minerals.

2. Part IX of The Mining Act, as re-enacted by section 1 of The Mining Amendment Act, 1961-62, is repealed and the following substituted therefor:

PART IX

OPERATION OF MINES

161.—(1) In this Part,

(a) "authorized" means properly authorized to perform any specified duty or to do any specified act;
(b) "engineer" means a member of the Association of Professional Engineers of the Province of Ontario who is designated by the Department as "chief engineer" or as "district mining engineer", or as "district electrical-mechanical engineer";

(c) "manager" means the owner of a mine or plant or a part thereof or his agent, or a person designated by the owner or his agent as responsible for the control, management and direction of a mine, plant or a part thereof;

(d) the noun "mine" includes any opening or excavation in, or working of the ground for the purpose of winning, opening up or proving any mineral-bearing substance, and any ore body, mineral deposit, stratum, rock, earth, clay, sand or gravel, or place where mining is or may be carried on and also any quarry, excavation or opening in the ground made for the purpose of searching for or removal of mineral, rock, stratum, earth, clay, sand or gravel, and any premises below or above ground belonging to or used in connection with the mine not included in the definition of the noun "plant";

(e) the verb "mine" and the word "mining" mean the performance of any work in or about a mine;

(f) "mine rescue training officer" means a person in charge of a mine rescue station and responsible for mine rescue training;

(g) the noun "plant" includes any roasting or smelting furnace, concentrator, mill or place and work used for or in connection with washing, crushing, grinding, sifting, reducing, leaching, roasting, smelting, refining, treating or research on any substance included under the noun "mine" and all ways, works, machinery, buildings and premises above ground used in connection therewith;

(h) "professional engineer" means a person who is a member of or is licensed by the Association of Professional Engineers of Ontario;
Where Part does not apply

(i) "qualified" means properly qualified to perform any specified duty or to do any specified act;

(j) "safety" means freedom from injury to the body or freedom from damage to the health of a person.

(2) The provisions of this Part do not apply to cookhouses, bunkhouses, recreational centres, dwellings, and the grounds used in connection therewith. 1961-62, c. 81, s. 1, par. 12, part, amended.

EMPLOYMENT IN AND ABOUT MINES

162.—(1) No person under the age of sixteen years shall be employed in or about a mine or plant, and no person under the age of eighteen years shall be employed underground in a mine or at the working face of an open-cut workings, pit or quarry.

(2) No female person shall be employed on underground work in any mine or at the working face of an open-cut workings, pit or quarry, except,

(a) those who have to enter the underground parts of a mine for the purpose of a non-manual occupation; or

(b) those employed in health and welfare services; or

(c) those who, in the course of their studies spend a period of training in the underground parts of a mine. 1961-62, c. 81, s. 162, amended.

MINE RESCUE STATIONS

163.—(1) Mine rescue stations shall be established, equipped, operated and maintained at such places and in such manner as the Minister directs. 1961-62, c. 81, s. 163 (1).

(2) The Lieutenant Governor in Council may appoint such mine rescue training officers as he deems advisable.

(3) The equipment and operation of mine rescue stations shall be in the charge of mine rescue training officers, and it is the duty of such officers to teach and train mine rescue crews and supervisors in the use and maintenance of the apparatus in such manner
as the chief engineer directs, to maintain the apparatus in efficient and workable condition so as to be available for immediate use, and to perform such other duties as the chief engineer deems necessary.

(4) The owner, agent or manager of a mine shall cause such workmen and supervisors to be trained in the use and maintenance of mine rescue equipment as the district mining engineer deems necessary. 1961-62, c. 81, s. 162 (2-4), amended.

(5) The mine manager is responsible for the supervision and direction of mine rescue crews in all mine rescue and recovery operations conducted at the mine.

(6) The cost of establishing, maintaining and operating mine rescue stations shall be paid out of the Consolidated Revenue Fund.

(7) The Workmen's Compensation Board shall at the end of each quarter year reimburse the Consolidated Revenue Fund from moneys assessed and levied by the Board against employers in the mining industry for the total amount certified by the Deputy Minister to have been paid out under subsection 6.

(8) All moneys received from the sale or disposal of any equipment, buildings or machinery forming part of or appertaining to mine rescue stations shall be paid to the Workmen's Compensation Board and shall be placed to the credit of the class funds of the employers in the mining industry. 1961-62, c. 81, s. 162 (5-8).

(9) Fresh air bases shall be strategically located in deep mines and their design, locations, equipment and use are to be approved by the chief engineer. New.

HOURS OF LABOUR UNDERGROUND

164.—(1) In this section,

(a) "shift" means a body of workmen whose hours for beginning and terminating work in the mine are the same or approximately the same;

(b) "workman" means a person employed underground in a mine who is not the owner or agent or an official of the mine.
and, where any question or dispute arises as to the meaning or application of clause b of subsection 2 or as to the meaning of "shift", "workman", or "underground", the certificate of the engineer is conclusive.

(2) No workman shall remain or be allowed to remain underground in a mine for more than eight hours in any consecutive twenty-four hours, which eight hours shall be reckoned from the time he arrives at his place of work in the mine until the time he leaves such place, except that,

(a) a shift or any part of a shift may remain or be allowed to remain underground in a mine for more than eight hours in any consecutive twenty-four hours on one day of a week for the purpose of avoiding work on Sunday or on a holiday or changing shift;

(b) such limit does not apply to a foreman, pumpman, catetender, or any person engaged solely in surveying or measuring, nor does it apply in cases of emergency where life or property is in imminent danger, nor does it apply to repair work which is necessary for normal production.

(3) No person shall operate or be permitted to operate, either on the surface or underground, a hoist, by means of which persons or material are hoisted, lowered or handled in a shaft or winze, for more than eight hours in any consecutive twenty-four hours, except,

(a) that, in the event of one of the regular hoistmen being absent from duty through sickness or otherwise and where no competent substitute is available, the remaining hoistman or hoistmen may work extra time not exceeding four hours each in any consecutive twenty-four hours for a period not exceeding fourteen days;

(b) that, in the case where the work at a mine or in a shaft or winze at a mine is not carried out continuously on three shifts per day, the hoistman may work such extra time as is necessary for lowering or hoisting the workmen employed on the shift at the beginning and end of each shift;

(c) in the cases provided for in clauses a and b of subsection 2. 1961-62, c. 81, s. 164 (1-3).
QUALIFICATIONS OF HOISTMEN

165.—(1) No person under the age of twenty-one years and no person who has not had adequate experience on a reversing hoist shall be authorized to operate a hoist by which persons are handled in a shaft or winze at a mine.

(2) No person under the age of eighteen years shall be authorized to operate a hoist at a mine.

(3) No person shall operate or be permitted to operate a hoist at a shaft or winze in which persons are handled at a mine, or for any other purpose designated by an engineer, unless he has been examined by a legally qualified medical practitioner acceptable to the employer and the medical practitioner has issued to him on the form prescribed a hoistman's medical certificate to the effect that to the best of the practitioner's knowledge the person is not subject to any infirmity, mental or physical (particularly with regard to sight, hearing and heart), to such a degree as to interfere with the efficient discharge of his duties. 1961-62, c. 81, s. 165 (1-3), amended.

(4) Every hoistman's medical certificate lapses and shall be deemed to have expired at the end of one year from its date.

(5) Every hoistman’s medical certificate shall be kept on file by the employer and made available to an engineer at his request.

(6) A record of all hoistmen's medical certificates pertaining to hoistmen operating in any one hoistroom shall be kept posted therein, showing the names of the hoistmen and the date of the last certificate issued to each.

(7) This section does not apply to the operation of an automatic hoist when on automatic or semi-automatic control, 1961-62, c. 81, s. 165 (4-7).

166. Where a contravention of section 162, 164 or 165 takes place, the owner, agent or manager of the mine or any of them, may be proceeded against, jointly or separately, and may be convicted of such offence, but neither the owner nor the agent nor the manager shall be so convicted if he proves that the offence was committed without his knowledge or consent, and that he had caused notices of the said sections to be posted up, and to be kept posted up, at some conspicuous place at or near the entrance to the mining work. 1961-62, c. 81, s. 166, amended.
167.—(1) In this section,

(a) “applicant” means a person who is not the holder of a certificate in good standing who is seeking employment in a dust exposure occupation;

(b) “certificate” means an initial certificate, an extended certificate, an endorsed certificate, a miner’s certificate or a renewed certificate;

(c) “dust exposure occupation” means,

(i) employment underground in a mine,

(ii) employment at the surface of a mine, other than at a pit or quarry, in ore or rock crushing operations where the ore or rock is not crushed in water or a chemical solution,

(iii) employment at other locations, as designated by the chief engineer, at the surface of a mine or in a pit or quarry;

(d) “endorsed certificate” means an initial certificate or extended certificate that has been endorsed under clause 6 of subsection 7;

(e) “extended certificate” means an initial certificate that has been extended under clause a of subsection 7;

(f) “initial certificate” means a certificate issued to an applicant under subsection 6;

(g) “medical officer” means a medical officer appointed under The Workmen’s Compensation Act to carry out the provisions of this Act with regard to the examination of employees or applicants for employment;

(h) “miner’s certificate” means a certificate issued under subsection 8;

(i) “renewed certificate” means a miner’s certificate that has been renewed under subsection 9.
(2) No person shall be employed in a dust exposure occupation unless he is the holder of a certificate in good standing.

(3) Subject to subsection 4, every certificate remains in force for not more than twelve months, except that a medical officer may at any time recall the holder of a certificate for examination within the scope of the existing certificate and may extend, endorse, renew or cancel the certificate in accordance with his finding upon the examination.

(4) In those parts of Ontario where the examinations under subsections 6 to 9 are conducted by a travelling medical officer, no certificate shall be deemed to have expired because of the failure of the medical officer to conduct an examination prior to the date of expiration of a certificate, and the holder of a certificate that would otherwise have expired shall present himself before a medical officer for re-examination at the first opportunity available after the date upon which his certificate would have so expired.

(5) Where a certificate of a person employed in the mining industry has expired because of the failure of its holder to present himself to a medical officer for examination, a medical officer may extend, endorse or renew the certificate or issue a miner’s certificate, as the circumstances of the case require, if he is satisfied that the failure was caused by the inability of the holder to so present himself because of illness or other circumstances beyond his control.

(6) Every applicant shall be examined by a medical officer before commencing employment, and, if the medical officer finds upon examination that the applicant is free from disease of the respiratory organs and otherwise fit for employment in a dust exposure occupation, he shall issue to the applicant an initial certificate.

(7) The holder of an initial certificate shall, prior to its expiration, present himself to a medical officer for re-examination, and, if the medical officer finds upon examination that the holder is free from disease of the respiratory organs and otherwise fit for employment in a dust exposure occupation, he shall,

(a) in the case of a holder who since the issuance of his initial certificate has completed less than eleven months employment in a dust exposure occupation.
exposure occupation, extend the certificate for such period as he deems necessary to permit the holder to complete twelve months employment in a dust exposure occupation, and he may from time to time extend the certificate for the same purpose; and

(b) in the case of a holder of an initial certificate who since the issuance of his initial certificate has completed eleven months or more employment in a dust exposure occupation, endorse the certificate.

(8) The holder of an endorsed certificate who since the endorsement of his initial certificate has completed eleven months or more employment in a dust exposure occupation shall, prior to its expiration, present himself to a medical officer for examination, and, if the medical officer finds upon examination that the holder is free from tuberculosis of the respiratory organs, he shall issue him a miner's certificate.

(9) The holder of a miner's certificate shall, prior to its expiration, present himself to a medical officer for re-examination, and, if the medical officer finds upon examination that the holder is free from tuberculosis of the respiratory organs, he shall renew the certificate, which may be further renewed from year to year upon the passing of a similar examination.

(10) The holder of a certificate who for any reason is out of employment in a dust exposure occupation may apply to a medical officer for the extension, endorsement or renewal of his certificate or for the issuance of a miner's certificate, as the case may be, and, upon presentation of the holder’s certificate, the medical officer shall conduct the required examination and effect such extension, endorsement, renewal or issuance as is warranted by his findings upon the examination.

(11) Where the holder of an initial or extended certificate has been out of employment in the mining industry for a period exceeding one year and during such period has failed, through neglect on his part, to have his certificate extended or endorsed, such certificate is void and its holder is eligible for re-employment in a dust exposure occupation in the capacity of an applicant only.
(12) Where the holder of an endorsed certificate or miner's certificate has been out of employment in the mining industry for a period exceeding two years and during such period has failed, through neglect on his part, to obtain a miner's certificate or to have a miner's certificate renewed, his certificate is void and the holder thereof is eligible for re-employment in a dust exposure occupation in the capacity of an applicant only.

(13) Where the holder of a certificate has been out of employment in the mining industry for a period exceeding three years, he is eligible for re-employment in a dust exposure occupation in the capacity of an applicant only.

(14) The manager or superintendent of the mine at which the holder of a certificate is employed may require the certificate to be delivered to and left in the custody of the manager or superintendent during the period of the holder's employment at the mine, but the certificate shall be returned to the holder upon the termination of his employment at the mine.

(15) The chief engineer may exempt from subsections 2 to 14 any mine or any person employed thereat where, in his opinion, the mine does not contain silica in quantity likely to produce silicosis or where for any other reason he is of the opinion that such subsections should not apply.

(16) Subsections 2 to 14 do not apply to a person usually employed in a dust exposure occupation for less than fifty hours in each calendar month.

(17) The Lieutenant Governor in Council may make regulations,

(a) prescribing the nature of the examination to be made by a medical officer under subsections 6 to 11;

(b) prescribing the forms of certificates and extensions, endorsements and renewals thereof;

(c) generally for the better carrying out of this section. 1961-62, c. 81, s. 167.
(a) The mine manager shall plant and maintain vegetation, or otherwise stabilize the tailings areas which will not be required for future impoundment of tailings to the satisfaction of the district engineer of mines.

(b) At least one year prior to cessation of operation, the mine manager shall submit to the district engineer of mines, two copies of a plan showing,

(i) the extent of the tailings area on which planting of vegetation or stabilization must still be completed,

(ii) the rehabilitation that is to be done in the mine or plant area, together with descriptive information.

(c) The rehabilitation work mentioned in clause (b) shall be completed to the satisfaction of the chief engineer of mines.

(d) A bond or security deposit in an amount deemed necessary by the chief engineer of mines to complete the rehabilitation mentioned in clause (b) shall be deposited with the Department of Mines.

(2) (a) Where a mine has been abandoned or where the work in it has been discontinued, the owner or lessee or any other person interested in the mineral of the mine shall cause the top of any shaft or raise opening to the surface to be solidly bulkheaded with reinforced concrete at bedrock or on top of the concrete collar of such opening, except that where in the opinion of the district mining engineer this is impracticable, the requirements of clause (b) apply.

(b) All other openings and pits, dangerous by reason of their depth or other conditions, shall be and shall be kept securely fenced or otherwise protected against inadvertent access to the satisfaction of the district mining engineer, but where in his opinion the mine or workings present no greater hazard than the
natural topographic features of the area, this provision need not be complied with. 1961-62, c. 81, s. 168 (1), amended.

(c) Every such person who, after notice in writing from the district mining engineer, fails to comply with his directions as to such fencing or protection within the time specified in the notice is guilty of an offence against this Act.

(d) Where the district mining engineer finds that any such fencing or protection is required in order to avoid danger to health or property, he may cause the work to be done and may pay the costs incurred out of any moneys provided for the purposes of this Act, and the amount of such costs with interest thereon is a lien upon the mine or mining work of which notice in such form as the Minister prescribes may be registered in the proper registry or land titles office, and no further transfer or other dealings with the mine or mining work shall take place until such amount is paid.

(e) The amount of such costs with interest thereon is due from the owner or lessee to the Crown and is recoverable at the suit of the district mining engineer in any court of competent jurisdiction.

(f) Notwithstanding clauses (d) and (e), the Minister, either without payment or on such terms and conditions as he deems proper, may cause a cessation of charge to be registered in the proper registry or land titles office, and thereupon the lien registered under clause (d) is void and of no effect. 1961-62, c. 81, s. 168 (2-5), amended.

RESPONSIBILITY AS TO PROVISIONS

169.—(1) The owner or agent of an operating mine or plant shall appoint a manager who is responsible for the control, management and direction of the mine or plant. 1961-62, c. 81, s. 170 (5), amended.

(2) The owner or agent shall provide the manager of a mine or plant with the necessary means and shall afford him every facility for complying with this Part. 1961-62, c. 81, s. 170 (8), amended.

(3) Subject to the requirements of this Act and except as otherwise provided in this Act, responsibility for
the authorization and decisions as to the qualifications of employees rests with the employer or his agent. 1961-62, c. 81, s. 161.

(4) The manager of an operating mine or plant shall appoint one or more suitable persons who are responsible, during the manager's absence, for taking all necessary and reasonable measures to enforce the requirements of subsection 7. 1961-62, c. 81, s. 170 (6, 7), amended.

(5) It is the duty of every manager, supervisor or other person in charge of workmen and every hoistman, deckman, conveyance attendant or person who handles explosives or blasting agents or who operates, installs or maintains any equipment, machinery or electrical apparatus in or about a mine or plant, to know the requirements of this Part that apply to the work under his charge and direction or in which he is engaged. 1961-62, c. 81, s. 173 amended.

(6) Except as to any provisions that the chief engineer has directed are not applicable thereto,

the manager of the mine or plant shall take all necessary and reasonable measures to enforce the provisions of this Part and to ensure that they are observed by every employee of the mine or plant, and every supervisor shall take all necessary and reasonable measures to enforce the requirements of all such provisions as are applicable to the work over which he has supervision and to ensure that they are observed by the persons under his charge and direction. 1961-62, c. 81, s. 170 (6).

(7) The manager of a mine or plant may make rules not inconsistent with any provision of this Part or any special direction made by an engineer as herein provided for the maintenance of order and discipline and the prevention of accidents in or about the mine or plant, and may submit any rule so made to the chief engineer who shall lay the rules before the Minister for his approval, and, upon such approval being given, the rules take effect after they have been posted up in a conspicuous place at the mine for at least fourteen days, but the Minister may disallow any of such rules or direct such changes to be made.
made in them as he deems proper. 1961-62, c. 81, s. 170 (3), amended.

(8) Every such rule, after approval and when and so long as it is posted up and is legible, has the same force and effect as the provisions of this Act, and any person who contravenes any such rule is liable to the penalty provided for a breach of the provisions of this Act. 1961-62, c. 81, s. 170 (4).

(9) (a) Where the owner, agent or manager of a mine or plant, by an application in writing stating the reasons therefor, requests the engineer to suspend any of the requirements of sections 173 to 596 as to such mine or plant, the chief engineer may in writing direct that the requirements of any such provision do not apply to such mine or plant, or may in writing direct that any such provision does not apply so long as such limitations and conditions as he sees fit to impose are observed or complied with. 1961-62, c. 81, s. 170 (1), amended.

(b) The owner, agent, or manager shall forthwith post in a prominent place a copy of the chief engineer's suspension and the terms and requirements thereof, so that any such suspension may be drawn to the attention of the employees affected. New.

(10) The chief engineer may at any time cancel any order made under clause a of subsection 9 or make such alterations therein as he deems proper in view of any change in the conditions under which the order was made or upon it appearing to him that such change is advisable for any other reason. 1961-62, c. 81, s. 170 (2).

(11) Every person who is engaged exclusively in supervising the work of other persons at a mine or plant shall be able to give and to receive and understand orders in the English language.

(12) Every person in charge as a deckman, conveyance attendant or hoistman at a mine or plant shall have a knowledge of the English language adequate to enable him to carry out his duties in a thoroughly safe manner. 1961-62, c. 81, s. 173, amended.
(13) No owner, agent or manager shall require a person to lift, carry or move anything so heavy or in such manner as to be likely to endanger his safety or the safety of any other person in a mine or plant. New.

(14) Every manager shall ensure that no person works without supervision at any machine unless the person,

(a) has received adequate training and instruction in the operation of the machine and any dangers connected therewith;

(b) has received adequate supervision by a person having thorough knowledge and experience with the machine; and

(c) is capable of safely operating the machine without supervision.

(15) No manager, supervisor or his agent who has reasonable cause to believe that any machine or device in or about a mine or plant is unsafe or in contravention of this Act shall cause or permit it to be used or operated.

(16) No person who has reasonable cause to believe that any machine or device, which has been assigned to him for use in or about a mine or plant, is unsafe or in contravention of this Act shall use the machine or device until he has,

(a) reported the defect to his supervisor; and

(b) obtained specific instructions in writing from his supervisor to use or operate the machine or device.

(17) No person shall use or operate any machine or device in or about a mine or plant in an unsafe manner or in a manner that does not comply with this Act.

(18) No person in a mine or plant shall engage in any contest, feat of strength, unnecessary running or rough or boisterous conduct that is likely to endanger the safety of any person. New.

(19) Where work in or about a mine or plant is let by the owner, agent or manager to a contractor,
(a) the owner, agent or manager shall, except for work involving surface prospecting, give written notice to the chief engineer and to the district mining engineer, resident in that part of Ontario in which the mine or plant is situated that a contract has been made;

(b) the contractor shall give written notice to the chief engineer and to the district mining engineer resident in that part of Ontario in which the mine is situated of any subcontract that has been made;

(c) the contractor or a subcontractor, as the case may be, shall appoint a person to be in charge and responsible for the work being done by the contractor or the subcontractor;

(d) the person so appointed by the contractor or the subcontractor shall comply and enforce compliance with all the provisions of this Part pertaining to the work over which he has control and is, in any case of non-compliance therewith, guilty of an offence and punishable in like manner as if he were the owner, agent or manager. 1961-62, c. 81, s. 170 (9), amended.

(e) where the prime contractor has two or more subcontractors working on a project on surface, the prime contractor shall,

1. Appoint a person to have authority to enforce compliance with all the provisions of this Part on all the work of the project.

2. Provide and maintain first-aid requirements in accordance with regulations under The Workmen's Compensation Act, R.S.O. 1960, c. 437.

170.—(1) Every person employed at a mine or plant shall take all necessary and reasonable measures to carry out his duties in accordance with such provisions as are applicable to the work in which he is engaged.

(2) Every person through whose neglect or wrongful act a contravention occurs at a mine or plant shall be deemed to have incurred the penalties provided for a breach of the provisions of this Part. New.
REQUIREMENTS

171. Subject to sections 169 and 170, sections 173 to 596 shall be observed and carried out at every mine and plant. 1961-62, c. 81, s. 171, amended.

172. In sections 173 to 596,

(a) "blasting agent" means a type of explosive of low sensitivity that cannot, as mixed and packaged for use, be detonated by a single No. 8 detonator, and, unless specified, the requirements for explosives do not apply to a blasting agent;

(b) "boatswain's chair" means a suspended scaffold in the form of a seat used by one person in a sitting position and supported by slings attached to a suspended rope, and includes the wearing of a safety belt by the person;

(c) "charge" means,
   
   (i) explosives and a detonator,
   
   (ii) a blasting agent and a detonator, or
   
   (iii) a blasting agent and a detonator and primer that is exploded as a single unit;

(d) "drum hoist" means the type of hoist that spools the rope on the hoist drum;

(e) "explosives" includes detonators and those powders that are cap sensitive with a single detonator as packaged for use, and includes black blasting powder;

(f) "fire-resistive" when applied to buildings, structures or parts thereof, means constructed in an approved manner of steel, masonry, reinforced concrete, or other equivalent materials, or any combination of such materials;

(g) "friction hoist" means the type of hoist where the rope is driven by the friction between it and
and the drum tread and where the rope is not spooled on the hoist drum but passes over or around it;

(h) "safety belt" means a belt worn round the waist of a person and includes the rope and necessary fittings attached to the belt, which shall be suitable for their purpose, and the safety belt shall be of sufficient strength to absorb twice the load of energy which, under the circumstances of its use, could be transmitted to it;

(i) "safety harness" means a combination of a belt worn round the waist of a person and straps attached to the belt and passing over the person's shoulders, with the necessary rope fittings and assembly that meets the strength requirements of a safety belt and is suitable for raising the person by the rope without permitting the body of the person to bend at the waist;

(j) "shot" means the sound of a charge or charges being exploded;

(k) "therm-hour" means 100,000 British thermal units per hour or 39.3082 brake horse-power;

(l) "utility hoist", including "tugger hoist" other than a hoist designated as a "construction hoist", means a powered hoist used for handling materials only in or about a mine or plant, and the safety requirements may be designated by the district electrical-mechanical engineer according to the conditions of use,

and the decision of an engineer as to whether or not a situation complies with a requirement therein in which "suitable", "adequate", "approved", or any expression of like import, is used and as to the meaning and application of any such expression is final and conclusive, and a certificate of any such decision signed by the engineer may be used as evidence in any court. 1961-62, c. 81, s. 172, amended.
173.—(1) An approved safety hat and approved safety footwear shall be worn by every person employed,

(a) underground in a mine;

(b) in a location in a pit or quarry designated by the district mining engineer.

(2) The manager shall designate such other areas or occupations and circumstances where any or all of the following items shall be worn by every person employed therein:

1. Approved safety hat.

2. Approved safety footwear.

3. Approved eye protective equipment.

4. Approved hearing protective equipment.

5. Approved breathing apparatus.

6. Any other approved personal protective equipment which the job in question may require.

(3) The manager shall ensure that all steps practicable are taken to prevent injury to the hearing of a person from excessive noise.

(4) Where applicable, masks or respirators of an approved type and design for the hazard involved shall be worn by persons who are exposed to dust, gases, or irritating and dangerous fumes.

(5) Every person shall properly maintain his mask or respirator.

(6) Emergency breathing apparatus, where required, shall be maintained in condition for immediate use, and,

(a) the manager shall designate a responsible person to regularly inspect, sterilize and perform any necessary maintenance on such apparatus; and

(b) such apparatus, when not in use, shall be stored in a dust-tight container.
(7) There shall be provided and maintained in safe condition safety belts or safety harnesses for the use of persons where necessary.

(8) Every person shall properly maintain his safety belt or safety harness.

(9) Every person employed at a mine or plant shall,

(a) use or wear the personal protective clothing and equipment required by this Part; and

(b) properly maintain his personal protective clothing and equipment. New.

FIRE PROTECTION — MINES

174. Sections 175 to 195 and sections 559 to 563 apply at mine operations underground and in the vicinity of shaft collars. New.

175.—(1) General procedure to be followed both on surface and underground in case of fire underground or in a mine plant building that may endanger the mine entrance shall be drawn up, and all persons concerned shall be informed and kept informed of their duties.

(2) Copies of the procedure or suitable excerpts shall be kept posted in the shafthouse and other prominent places. 1961-62, c. 81, s. 174 (1, 2).

(3) A test of the effectiveness of such procedure shall be made at least once a year and a report of the effectiveness of the test shall be made available to the district mining engineer. 1961-62, c. 81, s. 174 (4), amended.

176.—(1) Every mine worked from shafts or adits producing over 100 tons of ore per day and such other mines as are designated by the district mining engineer shall be equipped with an approved apparatus for the introduction into the mine workings of ethyl mercaptan or other warning gas or material approved by the chief engineer, and such apparatus shall be available at all times in a suitable location and kept ready for instant use for the purpose of warning persons underground of any emergency necessitating a speedy evacuation of the workings.
(2) A test of the effectiveness of the warning and procedure described in subsection 1 shall be made at least once a year and a report of the effectiveness of the test shall be made available to the district mining engineer. 1961-62, c. 81, s. 175 (1, 2), amended.

(3) Every person employed underground shall have the meaning of the warning explained to him, and he shall be acquainted with the smell of the warning gas. New.

177.—(1) No flammable refuse shall be allowed to accumulate underground but shall be removed from the workings at least once a week and brought to the surface and there disposed of in a suitable manner. 1961-62, c. 81, s. 176 (1).

(2) No flammable refuse shall be allowed to accumulate in or about a headframe, shaft house or any plant building in which a fire may endanger the mine entrance.

(3) Suitable fire-resistive containers for the temporary disposal of flammable refuse such as scrap paper, oily waste, rags and other similar materials shall be provided at all shaft stations, underground shops, lunch rooms and enclosures necessary for the housing of machinery or equipment or stores and buildings mentioned in subsection 2, and such containers shall be regularly emptied. 1961-62, c. 81, s. 176 (2, 3), amended.

(4) All timber not in use in a mine shall, as soon as is practicable, be taken from the mine and shall not be piled up and permitted to decay therein.

(5) Every shift boss or mine captain shall certify in writing to the mine manager at least once a week that there is no accumulation of flammable refuse underground in the area under his supervision except as reported by him.

(6) Oil, grease or other flammable material shall not be stored in a shaft house or portal house, but it is permissible, if adequate precautions are taken, to have in the shaft house or portal house, for distribution only, an amount not exceeding the requirements for one day’s operation.
(7) Volatile, flammable liquids shall not be stored in a shafthouse or portalhouse and such material shall be transported underground only in approved types of containers.

(8) Oil, grease or volatile flammable liquid while underground shall be contained in suitable metal receptacles, and the amount of oil or grease so kept underground shall not exceed the requirements for seven days and the amount of volatile flammable liquid kept underground shall not exceed the requirements for the current day's work. 1961-62, c. 81, s. 176 (4-8).

(9) The transfer of liquid fuels from one container to another by the direct application of air under pressure shall not be permitted, except where properly designed and tested equipment is used for this purpose. 1961-62, c. 81, s. 194 (3).

178. No person shall build, set or maintain a fire underground for any purpose unless he has proper authority and suitable instructions for so doing, and only after the necessary fire-fighting equipment has been provided. 1961-62, c. 81, s. 177.

179. Where open-flame lights are used at a mine not equipped with a headframe and shafthouse or portalhouse constructed of fire-resistive materials, the interior of the shafthouse or portalhouse shall be tightly sheeted with metal or a suitable fire-resistive material to a height of eight feet. 1961-62, c. 81, s. 178.

180. All underground shops, lunch rooms and buildings or enclosures necessary for the housing of machinery, equipment and stores shall be constructed of fire-resistive material and so located and maintained as to reduce the fire hazard to a minimum. 1961-62, c. 81, s. 179.

181.—(1) If the engineer is of the opinion that a fire hazard may be created at a mine by smoking, or by the use of open-flame lamps, matches, or other means of producing heat or fire, he may designate the mine or part or parts of the mine as a fire hazard area.

(2) No person shall smoke or be allowed to smoke, use open-flame lamps, matches or other means of producing heat or fire in such areas except with the permission in writing of the engineer and under such conditions as he deems proper.
(3) Such fire hazard areas shall be properly identified by suitable warning signs. 1961-62, c. 81, s. 180 (1-3).

(4) The manager shall cause such signs to be installed and maintained as long as the area is so designated. 1961-62, c. 81, s. 180 (4), amended.

182. When a flammable gas in dangerous concentrations has been found to exist in a mine working, such working or the parts of such working concerned shall immediately be considered a fire hazard area, and every precaution shall be taken while clearing the area or doing any work therein to prevent ignition of the gas and these precautions shall be continued as long as the hazard exists. 1961-62, c. 81, s. 181.

(1) Suitable fire-fighting equipment shall be provided and maintained in or about every headframe, shafthouse, portalhouse and every plant building in which a fire may endanger the mine entrance and at every shaft or winze station underground. 1961-62, c. 81, s. 182 (1), amended.

(2) Suitable fire-fighting equipment shall be provided and maintained at all underground crushers, pump stations, tipples and underground electrical installations except where, in the opinion of the engineer, no fire hazard exists. 1961-62, c. 81, s. 182 (2).

(3) A properly authorized person or persons shall make a monthly inspection of all fire-fighting equipment referred to in subsections 1 and 2, and shall make a report in writing to the manager stating that such examination has been made and certifying as to the conditions found. 1961-62, c. 81, s. 182 (3), amended.

184.—(1) Calcium carbide shall be stored on the surface only, in a suitable, dry place, other than the shafthouse or portalhouse or changehouse, and in its original unopened container.

(2) For the purpose of distributing calcium carbide, adequate provisions for the handling of quantities not in excess of one day’s supply or 100 pounds, whichever is the greater, shall be made at every mine.

(3) Such distribution shall not take place in a shafthouse, portalhouse or changehouse unless such structure is fire-resistive but shall be provided for by the installation
installation of a suitable distribution centre not closer than fifty feet to the nearest point of any part of the headframe, shafthouse or portalhouse.

(4) Adequate precautions shall always be taken to ensure that calcium carbide is handled in a safe manner and no calcium carbide shall be taken underground except in suitable containers. 1961-62, c. 81, s. 183.

185. Where operations involving the use of acetylene, kerosene, gasoline or other torches are conducted in a headframe, shafthouse, portalhouse or other building in which a fire may endanger the mine entrance or the underground workings of a mine, suitable measures for protection against fire shall be adopted and rigidly adhered to. 1961-62, c. 81, s. 184.

186.—(1) Where cylinders of compressed gas, such as acetylene and oxygen, are transported underground for any cutting or welding operation, all fittings, such as regulators and manifolds, shall be disconnected from the cylinders and the valves shall be protected in a suitable manner. 1961-62, c. 81, s. 185.

(2) Any such removable protective device shall be replaced at any time a cylinder is left unattended or before a cylinder is moved to a new location. 1961-62, c. 81, s. 185 (1, 2).

(3) In all cases where cylinders of compressed gas are operated from within any cage, skip or other shaft conveyance, or where the cylinders are set up in a location not readily accessible to the person operating the nozzle equipment, a second competent person shall be employed at all times to attend to the operation of the cylinder-control devices. 1961-62, c. 81, s. 185 (3), amended.

(4) In all cases where cylinders of compressed gas are used underground for the purpose of supplying cutting or welding equipment, special precautions shall be observed to avert the possibility of damage to or failure of the regulators, manifolds and hoses used in conjunction with the equipment. 1961-62, c. 81, s. 185 (4).

187. No device for the generation of gas, such as acetylene, for supplying cutting or welding equipment, shall be used in the underground workings of a mine. 1961-62, c. 81, s. 186.
### Escape-ment exit

188.—(1) In every mine where a vertical or inclined shaft has been sunk or an adit driven and stoping has commenced, there shall be provided and maintained, in addition to the hoisting shaft or the opening through which persons are let into or out of the mine and the ore extracted, a separate escapement exit. 1961-62, c. 81, s. 187.

(2) Such exit shall be outside any structure covering the main entrance to the mine and shall be isolated by a distance of not less than one hundred feet from the main entrance.

(3) Any structure covering such exit shall be of fire-resistant material and so constructed to reduce the fire hazard to a minimum. 1961-62, c. 81, s. 187 (1, 2), amended.

(4) If such an escapement exit is not in existence at the time that stoping is commenced, work upon it shall be begun as soon as stoping is commenced and shall be diligently prosecuted until it is completed, and means of escapement, other than the main outlet of the mine, shall be provided to and connected with the lowest level on which stoping operations are being carried on.

(5) The escapement exit shall be of sufficient size to afford an easy passageway and, where necessary, shall be provided with good and substantial ladders from the deepest workings to the surface.

(6) The manager shall depute some competent person or persons to make an inspection of such escapement exit at least once a month.

(7) A record of such inspection and the conditions found shall be made in writing by the person making it. 1961-62, c. 81, s. 187 (3-6).

(8) Legible signs showing the way to escapement exits shall be posted in prominent places underground and all persons employed underground shall be instructed as to the location of the escapement exits. 1961-62, c. 81, s. 187 (7), amended.

### Location and cover of exit

189.—(1) Unless there is first provided a second means of exit from the mine workings, no building of other than fire-resistive construction shall be erected within fifty feet of any closed-in part of a headframe.
or portalhouse, except that the fire-resistive building housing the hoist and power plant equipment may be erected within this distance so long as such distance is not less than thirty-five feet. 1961-62, c. 81, s. 188.

(2) Where a hoist is located above the mine shaft, the supporting and enclosing structures shall be of fire-resistant material. New.

190. No steam boiler or diesel engine shall be installed in such a manner that any part thereof is within seventy-five feet of the centre line of the collar of a shaft or other entrance to a mine. 1961-62, c. 81, s. 190.

191. No gasoline or other internal combustion engine using highly volatile liquids or flammable gases shall be installed, serviced, garaged or stored in or within fifty feet of the building housing the hoist nor within 100 feet of the centre line of the collar of a shaft or other entrance to a mine. 1961-62, c. 81, s. 191, amended.

192.—(1) Except for the actual fuel tanks of operating equipment, no storage of gasoline or liquid fuel shall be permitted within 100 feet of the collar of a shaft or other entrance of a mine.

(2) The natural drainage from such a location shall be such that the flow is in a direction opposite to the location of any such shaft or mine entrance. 1961-62, c. 81, s. 192.

193.—(1) Where practicable, there shall be a sufficient number of suitable fire doors installed underground to cut off the shaft and the mine openings directly associated with it from the other workings of the mine. 1961-62, c. 81, s. 195 (1), amended.

(2) Fire doors shall be maintained in proper order and kept clear of all obstructions so as to be readily usable at all times. 1961-62, c. 81, s. 195 (2).

194. Where the chief engineer deems it necessary or advisable for the protection of persons employed underground, he may order refuge stations to be provided and maintained at such places in the mine as he directs, and every such refuge station shall have water, air and telephone connections to the surface and be separated from the adjoining workings by closeable openings so arranged and equipped that gases can be prevented from entering the refuge station. 1961-62, c. 81, s. 196, amended.
195.—(1) Where the chief engineer deems it necessary or advisable for the protection of persons employed underground, he may recommend in writing to the Minister that a connection between mines be established at such places as he deems advisable and he may further recommend that such connection be so made and equipped as to constitute a refuge station or refuge stations. 1961-62, c. 81, s. 197 (1), amended.

(2) Upon the approval by the Minister of any such recommendation, a copy thereof, accompanied by a copy of this section, shall be served personally upon or sent by registered mail to the owner or the agent and the manager of each of the mines affected. 1961-62, c. 81, s. 197 (2).

(3) Upon the approval of such a recommendation of the chief engineer, the Minister may in writing signed by him direct each of the mining companies concerned to appoint a representative to act in its behalf on a committee under the chairmanship of a third party, who shall be a mining engineer recommended by the chief engineer and appointed to the chairmanship of the committee by the Minister, and the committee shall determine,

(a) the design, specifications and location of the connecting passages, bulkheads or other structures to be constructed in order to safeguard the present and future operations of the mines affected;

(b) the work to be done by each of the mines affected and the proportion in which the cost of the work and of establishing and maintaining the connection shall be borne by the owners or agents of the mines affected;

(c) the time at which the work in compliance herewith shall be commenced and completed;

(d) the proportion in which the costs and expenses of the committee shall be borne by the owners or agents of the mines affected; and

(e) such other provisions or requirements as in the premises they deem necessary or advisable. 1961-62, c. 81, s. 197 (3), amended.
(4) The committee shall submit a report in writing to the Minister, and a report of the majority of the committee shall be deemed to be the finding of the committee.

(5) Upon the approval by the Minister of the report of the committee, the chief engineer may issue his order for the establishment and maintenance of such connection and refuge station or stations (if any are recommended) in accordance with the terms of the report.

(6) A copy of the report shall be attached to the order and forms a part thereof.

(7) No such order is subject to appeal upon any ground whatsoever and is enforceable in the same manner as any order of the chief engineer. 1961-62, c. 81, s. 197 (3-7).

FIRE PROTECTION — PLANTS

196.—(1) Suitable fire-fighting equipment shall be provided and maintained in or about every plant building. 1961-62, c. 81, s. 182 (1), amended.

(2) Procedures for fighting fire in plant buildings shall be drawn up and suitable signs pertaining to and excerpts from the procedures shall be kept posted in prominent places. 1961-62, c. 81, s. 174 (3), amended.

(3) A properly authorized person or persons shall make a monthly inspection of all fire-fighting equipment and shall make a report in writing to the manager stating that such examination has been made and certifying as to the conditions found. 1961-62, c. 81, s. 182 (3).

197.—(1) Where an internal combustion engine is installed at a plant, provision shall be made for safely conducting the exhaust of such engine to a point well outside the building. 1961-62, c. 81, s. 192 (1), amended.

(2) The exhaust shall be so arranged as to avert the possibility of fumes re-entering the building or entering the intake of an air compressor or contaminating the atmosphere of any adjacent buildings or mine workings. 1961-62, c. 81, s. 192 (2).
198.—(1) The fuel tanks of an internal combustion engine installed in a building shall be so arranged that the actual transfer of fuel to the fuel tank takes place at a point outside the building and the fuel is conducted to the tank in a tightly-jointed pipe or conduit.

(2) Similar provisions for the escape of displaced air from the fuel tank shall be made whereby the displaced air will be conducted to a safe point outside the building before being discharged into the atmosphere. 1961-62, c. 81, s. 194 (1, 2).

199. Any dangerous, flammable or explosive material or substance in a solid, liquid or gaseous state or any combination of them, other than manufactured explosives and blasting agents, that is kept, stored or handled, in a plant,

(a) shall be kept in a container that is suitable having regard to the nature and state of the material or substance; and

(b) shall be kept apart or insulated from any reasonably foreseeable source of ignition or from temperatures likely to cause combustion,

and where the material or substance is kept, stored or handled for a purpose other than immediate use, it shall be kept, stored or handled,

(c) outside any building;

(d) in a building not used for any other purpose; or

(e) in a fire-resistive compartment satisfactory to the district mining engineer as to location and construction. New.

200.—(1) All plant buildings, except those used for the storage of explosives and blasting agents, shall be provided with adequate and properly maintained means of egress, convenient to and having easy communication with all rooms, regularly occupied by a person, including,

(a) tower stairs of fire-resistive construction equipped with fire-resistive doors and hardware, satisfactory to an engineer, at each storey including the basement; and
(b) where permitted by an engineer, metal or other non-combustible fire escapes consisting of exterior stairways with railings and with landings at each storey connecting directly with the interior of the building through metal or other fire-resistive doors.

(2) No means of egress from a plant building shall be obstructed and no door to a fire escape, tower stair or other smoke-proof enclosure shall be prevented from closing or remaining closed.

(3) Notwithstanding that a door is locked to prevent ingress to a building or room, the door shall be deemed to be not locked, bolted or barred if it is provided with a mechanism for unlocking it quickly from the inside that requires no special skill, effort or previous knowledge for its operation. New.

201. Where,

(a) any grinding, polishing, screening or other process is likely to produce dust or other particles of such size or character and to such an extent as to be capable of producing a flammable mixture; or

(b) any mixing, handling, dispensing or storage of any material is likely to produce a gas, vapour or mist of such character and to such extent as to be capable of producing a flammable mixture,

all practicable steps shall be taken to,

(c) enclose the equipment used in the process;

(d) prevent or remove any accumulation of dust, vapour, gas or mist that may escape from the enclosure;

(e) exclude or effectively enclose all potential sources of ignition of the flammable mixture;

(f) restrict the spread and effects of any burning or explosion by the provision of vents, baffles and chokes or other devices satisfactory to an engineer; and
(g) when so directed by an engineer create and maintain an inert atmosphere in contact with dust or other particles mentioned in clause a or mixed with the gas, vapour or mist mentioned in clause b. New.

AID TO INJURED

202.—(1) At every mine or plant, there shall be maintained a sufficient number of properly-constructed stretchers for the proper handling and transporting of persons who are injured.

(2) There shall be provided and maintained at every mine or plant, for the treatment of any person injured, such personnel, equipment and vehicles and such first-aid supplies as are required by the regulations under The Workmen's Compensation Act. 1961-62, c. 81, s. 198, amended.

ENVIRONMENTAL CONDITIONS

SANITATION — MINES

203. There shall be provided in the workings of a mine suitable sanitary conveniences in accordance with the following requirements:

1. Where persons are employed underground, one sanitary convenience for every twenty-five persons or portion thereof on any shift.

2. The sanitary conveniences mentioned in item 1 shall be conveniently placed, having regard to the number of persons employed on the different levels, in a well-ventilated part of the mine.

3. Where persons are employed at an open pit or a clay, sand or gravel pit or quarry, one sanitary convenience and one urinal for every twenty-five persons or portion thereof on any shift.

4. The sanitary conveniences mentioned in items 1 and 3 shall be kept clean and sanitary and the content disposed of regularly. 1961-62, c. 81, ss. 206, 207, amended.

204. Any person depositing faeces in any place underground, other than in a sanitary convenience provided, is guilty of an offence against this Act. 1961-62, c. 81, s. 208.

205.—(1) A supply of potable water shall be provided in mine workings on surface and at points underground reasonably.
reasonably accessible to the working places. 1961-62, c. 81, s. 209, amended.

(2) All locations where a supply of potable water is provided shall be kept in a clean and sanitary condition.

(3) (a) The manager shall provide underground, where more than fifteen persons congregate to eat, an area or places sufficiently large to accommodate all such persons.

(b) Every such area or place shall be adequately heated and ventilated and shall be provided with an adequate supply of warm water, soap and paper towels.

(4) All supplied potable water in a mine shall be governed by the standard of drinking water objectives set by the Ontario Water Resources Commission.

(5) Wherever, at a pit or quarry, the facilities referred to in subsection 1 of section 206 are located at a distance from the place of work, adequate transportation shall be provided. New.

206.—(1) If persons are employed underground or in hot or dusty occupations on surface at a mine, suitable and sufficient accommodation, including supplies of clean, cold and warm water for washing themselves, shall be provided above-ground near the principal entrance of the mine to enable such persons to conveniently dry and change their clothes.

(2) Such accommodation, unless of fire-resistive construction, shall not be nearer than fifty feet to a shafthouse or portalhouse and it shall not be located in a hoistroom or boilerhouse unless a separate, properly-constructed room is provided. 1961-62, c. 81, s. 210, amended.

SANITATION — PLANTS

207.—(1) There shall be provided in every plant suitable, separate wash and toilet rooms for male and female persons that are conveniently accessible and in accordance with the following requirements:

1. Where fewer than six persons are employed, a room containing a wash basin and a flush toilet and having a door that has a locking device on the inside.

2. Where six or more persons are employed, there shall be provided for the number of employees
employees of each sex in a group itemized in column 1 of the Table not less than the number of separate flush toilets and separate wash basins for each sex opposite thereto in column 2.

TABLE

<table>
<thead>
<tr>
<th>Item</th>
<th>No. of male Employees</th>
<th>No. of female Employees</th>
<th>Number of Toilets</th>
<th>Number of Wash-Basins</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 to 9</td>
<td>1 to 9</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>10 to 24</td>
<td>10 to 24</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>25 to 49</td>
<td>25 to 49</td>
<td>3</td>
<td>3</td>
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<td>4</td>
<td>50 to 74</td>
<td>50 to 74</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>75 to 100</td>
<td>75 to 100</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Over 100</td>
<td>Over 100</td>
<td>Add one toilet and one wash basin for each additional thirty employees or fraction thereof.</td>
<td></td>
</tr>
</tbody>
</table>

3. Notwithstanding item 2,

i. in toilet rooms for more than nine male employees, urinals shall be substituted for not less than one-quarter and not more than one-half of the number of flush toilets required by item 2, or

ii. in toilet rooms for more than nine female employees, urinals may be substituted for not more than one-half of the number of flush toilets required by item 2.

4. Subject to item 3, urinals or wash fountains in straight trough form and wash fountains in circular form may be provided in lieu of toilets or wash basins, as the case may be, and,

i. where a circular wash fountain is provided, each twenty inches of its circumference is deemed to be the equivalent of one wash basin, and

ii. where a urinal or wash basin in straight trough form is provided, each twenty-
four inches of its length is deemed to be the equivalent of one toilet or one wash basin, as the case may be.

(2) Where wash fountains or wash basins are provided, they shall be supplied with hot and cold water from taps or outlets that are satisfactory to an engineer.

(3) Water for washing purposes,

(a) shall not exceed 140° Fahrenheit at any outlet; and

(b) shall not be mixed directly with steam.

(4) Where the municipality in which the plant is located is not serviced by a water or sewage system and flush toilets cannot be provided, privies or other toilets satisfactory to an engineer shall be provided.

(5) Every toilet for employees and every urinal for female employees shall occupy an individual compartment with a suitable door and lock and the compartment shall have a length of not less than four feet six inches and a width of not less than two feet eight inches.

(6) The height of any compartment door, wall or partition between toilets for employees and between urinals for female employees may be less than the height of the room but the top of the door or partition shall be not less than five feet six inches from the floor and the bottom not more than one foot from the floor.

(7) Every compartment shall be supplied with a clothes hook.

(8) Every toilet room and washroom shall be adequately lighted and kept in good repair and in a sanitary condition.

(9) Toilets, urinals and other sanitary conveniences shall be kept in good repair and in a sanitary condition.

(10) Toilet rooms and washrooms shall,

(a) have legible signs indicating for which sex the room is provided and be constructed so as to prevent a view of the facilities from outside...
the room and so as to prevent, as far as is practicable, accidental entry into the room by a person of the opposite sex;

(b) have provided and maintained for the use of persons a convenient and sufficient supply of clean towels or suitable air dryers, soap or other suitable cleansing agent, toilet paper and in each toilet room used by females a suitable covered receptacle;

(c) be, where separated, adjacent and connected with a door or doorway;

(d) have a ceiling height of not less than eight feet with the enclosing walls extended to the ceiling and constructed of material impervious to liquid to a height of not less than four feet;

(e) have mechanical exhaust to the outdoors at a volume of not less than two cubic feet per minute for each square foot of the floor area of the room, or that have windows or skylights so constructed that, for each toilet and for each urinal in the room, not less than two square feet of the window or skylight can be opened;

(f) have an opaque window or skylight where necessary to ensure privacy;

(g) have smooth floors of terrazzo, vitrified tile, mastic tile, asphalt or other equally non-absorbent, easily cleaned material. New.

208. There shall be provided:

1. A supply of potable water in a place where the tap or outlet is distant from any sanitary convenience and, where the supply is not taken directly from a water pipe, the supply shall be contained in a covered vessel having a drain faucet and shall be renewed at least daily.

2. Where the potable water is not delivered in an upward jet from which the employees can conveniently
conveniently drink, a sufficient supply of individual drinking cups located near the tap or outlet.

3. Except where otherwise permitted by an engineer, at least one tap or outlet for drinking water on every floor where work is regularly performed and within 300 feet of every employee’s normal work station.

4. All supplied potable water in a plant shall be governed by the standards of drinking water objectives set by the Ontario Water Resources Commission. *New.*

209. There shall be provided:

1. Such dressing rooms as an engineer may direct.

2. Suitable accommodation for clothing not worn by employees during working hours and for work clothes that must be kept separate from street clothes because of the presence of poisonous, irritating or infectious materials.


210.—(1) The manager shall provide on surface, where more than fifteen persons congregate to eat, an area or places sufficiently large to accommodate all such persons together with equipment satisfactory to an engineer.

(2) The employer shall ensure that no person takes food into or eats in a room, area or place where any poisonous substances are exposed or where deleterious vapours, mists, fumes, dust or gases are known to be present or any room, area or place designated by an engineer, and shall ensure that potable water in any such room, area or place is taken directly from a water pipe or fully enclosed container.

(3) No person shall take food into or eat in a room, area or place referred to in subsection 2. *New.*

211. An engineer may, with respect to a plant in operation before the requirements of sections 207 to 210 came into force, permit the continued use of such sanitary facilities satisfactory to him that are in use therein notwithstanding that such facilities do not comply with the requirements of the said sections. *New.*
212. Wherever persons are required to work in a plant, suitable natural or artificial lighting without unnecessary glare or shadows, shall be provided and maintained and where necessary be sufficient to enable a person with normal vision to read dials on control panels or typewritten orders and instructions without eye strain. *New.*

**VENTILATION AND DUST CONTROL — MINES**

213.—(1) The ventilation in every mine shall be such that the air in all of its workings, which are in use shall be free from dangerous amounts of noxious impurities and shall contain sufficient oxygen to obviate danger to the health of anyone employed in the mine.

(2) In mine workings where air as described in subsection 1 cannot be obtained by natural ventilation, approved means for mechanical ventilation shall be provided and kept in operation until the workings have been abandoned or until satisfactory natural ventilation has been brought about therein. 1961–62, c. 81, s. 203 (1, 2), *amended.*

(3) All structures containing fans used in connection with the underground ventilation of a mine shall be constructed of fire-resistant materials. 1961–62, c. 81, s. 203 (3), *amended.*

(4) Any proposed method of heating the underground mine ventilating air shall be submitted for approval to the district electrical-mechanical engineer.

(5) Any proposed method of heating air at a mine, using a direct-fired heater, shall have the design approved by the Department of Energy and Resources Management prior to final acceptance by the chief engineer. *New.*

(6) Underground workings that are not in a positive ventilation circuit shall be examined before being used in order to ascertain whether dangerous gases have accumulated there or whether an oxygen deficiency exists, and only such persons as are necessary to make the examination shall be allowed to proceed to such places until the workings are safe to work or travel in.

(7) Such workings shall be barricaded off and posted with signs which warn persons of the hazard.

(8) Only authorized persons shall enter such posted workings. 1961–62, c. 81, s. 204, *amended.*
(9) No internal combustion engine shall be installed or operated in a shaft or adit or in any working in connection with a shaft or adit unless permission in writing from the chief engineer is first obtained. 1961-62, c. 81, s. 205 (1).

(10) Every place in a mine, where drilling, blasting or other operations produce dust in dangerous quantities, shall be adequately supplied at all times with clean water under pressure or other approved appliance for laying, removing or controlling dust.

(11) A development heading, such as a drift, cross-cut, raise or sub-drift, shall be furnished with an approved blast water blast which shall discharge within an effective distance of the face being advanced and shall be applied so as to wet the area for at least fifteen minutes after blasting, and, if such area is not thoroughly wetted prior to the entry of any person it shall be wetted down as soon as possible. 1961-62, c. 81, s. 280 (1, 2).

(12) A fresh air supply independent of the air supplied to any machine or drill used therein shall be provided,

(a) in every raise;

(b) in every sub-drift over twenty-five feet in length; and

(c) in every stope with one entry and no through ventilation,

and such fresh air supply shall be controlled outside or at the beginning of the heading, and the air shall be turned on by the blaster after he has detonated any blast in the heading. 1961-62, c. 81, s. 280 (3), amended.

(13) Before returning to the scene of a blasting operation every person shall assure himself that sufficient air has been introduced into the working place to drive out or dilute to a safe degree the gases produced in the blasting operation. 1961-62, c. 81, s. 249, amended.

(14) The times for blasting shall be so fixed that persons shall be exposed as little as practicable to dust and smoke. 1961-62, c. 81, s. 281, amended.
VENTILATION AND DUST CONTROL — PLANTS

214.—(1) There shall be provided a positive supply of fresh air into, and provision for the removal of vitiated air from, a plant building that is sufficient to keep the air reasonably pure and to render harmless, so far as is reasonably practicable, all gases, vapours, dusts or other impurities that are likely to endanger the safety of any person therein.

(2) The temperature of all plant buildings in which persons are normally required to work shall be regulated so as to be suitable for the work to be performed therein, and so as to be not likely to endanger the safety of any person. New.

(3) Any proposed method of heating air at a plant, using a direct-fired heater, shall have the design approved by the Department of Energy and Resources Management prior to final acceptance by the chief engineer.

(4) There shall be provided and used, where a process is carried on that produces a gas, vapour, dust or other impurity that is likely to be inhaled to an injurious extent by persons in the plant building, such mechanical means satisfactory to an engineer, as are capable of,

(a) preventing, as far as is reasonably practicable, such inhalation;

(b) effectively carrying off and disposing of such gases, vapours or dusts; and

(c) preventing, as far as is reasonably practicable, the recirculation and re-entry of air containing such impurities.

(5) Where required, suitable personal protective equipment shall be worn by any person exposed to any hazard mentioned in subsection 4.

(6) Any place in a plant where dust may accumulate shall be regularly cleaned by vacuum, wet sweeping, wet shovelling or other method that reduces the dissemination of dust into the atmosphere.

(7) Abrasive blasting or other like operations inside a plant shall be conducted inside an enclosure so constructed and ventilated as to effectively prevent dust from entering the atmosphere of a plant building,

(a) if this is impracticable; or
(b) where the operation is likely to produce silica or other harmful dusts in the atmosphere of the plant,

the person conducting the operation and other persons in the affected area shall wear suitable breathing apparatus.

(8) Suitable precautions shall be taken to ensure that any tank, vat, chamber, pit, pipe, flue or confined space in a plant that may be entered by any person,

(a) has a suitable man-hole or other means of easy egress from all accessible parts of the confined space; and

(b) is safe for entry.

(9) Any container referred to in this section shall be tested by a qualified person, who shall record the result of each test conducted by him, and these records shall be available to an engineer.

(10) Where any container referred to in this section has been tested and found,

(a) unsafe for entry; or

(b) safe for entry, but may thereafter become unsafe to remain in or enter,

no person shall enter or be allowed to enter or remain in such container unless,

(c) the person is using a suitable breathing apparatus and wearing a safety belt or safety harness, the free end of the rope of which is held by a person, equipped with a suitable alarm, who is keeping watch outside the container and who is capable of pulling the person from the confined space; and

(d) the person entering the container is using such other equipment necessary to ensure his safety; and

(e) there is conveniently available a person adequately trained in artificial respiration. New.

PROTECTION IN MINES AND PLANTS

215. Where any gas, liquid, vapour or dust is at a pressure other than atmospheric pressure, no person shall open or be allowed to open its container unless,
(a) before any fastening of the container and of any container connected therewith is loosened, any flow into or out of such container is effectively stopped; and

(b) before any fastening of the container is removed, all practicable steps are taken to adjust the pressure of gas, vapour, liquid or dust in the container so that the pressure equals atmospheric pressure,

and if any such fastening has been loosened or removed, it shall be securely replaced before any gas, vapour, liquid or dust is permitted to enter the container. *New.*

216. The installation of plastic pipe used with a pressure in excess of 50 pounds per square inch shall be approved by the district engineer. *New.*

217. The transfer of liquids or solids, including fuels, from one location or container to another location or container by the application of air under pressure shall not be permitted, except where properly-designed and tested equipment is used for this purpose. 1961-62, c. 81, s. 431, amended.

**PROTECTION IN PLANTS**

218.—(1) Every tank, vat or other container for holding a liquid, the top edge of which is less than three feet six inches above the highest floor, ground or platform from which a person might fall into it, shall be securely covered or securely fenced to at least three feet six inches above such floor, ground or platform.

(2) Every silo, bin, hopper or other container or structure that is constructed to discharge from the bottom dry bulk material contained or stored in it, shall have the top of the silo, bin, hopper, structure or container,

(a) provided with a solid cover; or

(b) guarded with a metal grating or bars; or

(c) traversed by a gangway; or

(d) encircled or encompassed at its perimeter by a floor or platform.
(3) Where, in the opinion of an engineer, the provisions of subsection 1 or 2 are not practicable, other practicable means satisfactory to the engineer shall be taken to prevent any person from falling into the container.

(4) Any stair, gangway or platform above, across, inside, or outside a container referred to in subsection 1 or 2 shall be,

(a) at least twenty-two inches wide;

(b) provided with an upper rail and either an intermediate rail and toe board or equivalent protection on both sides to a height of not less than three feet six inches; and

(c) securely fixed.

(5) Any covering, fencing, stair, gangway or platform mentioned in this section shall be maintained in a safe condition.

(6) No person shall enter or be allowed to enter or remain in any silo, bin, hopper, or other container or structure for containing or storing bulk material unless,

(a) all further supply of material thereto is stopped and proper precautions are taken to prevent any further supply; and

(b) the person is wearing a safety belt or safety harness, and at least one other person, equipped with a suitable alarm, is in constant attendance, outside the container, who is capable of rendering any necessary assistance. New.

219.—(1) Before any person is allowed to work on a stockpile of ore, limestone, coke or other material, the stockpile shall be inspected by some authorized person whose duty it is to see that it is in a safe working condition. 1961-62, c. 81, s. 436, amended.

(2) No person shall work or be allowed to work on or near any bulk material that is packaged or other material that is so piled and disposed as to be likely to endanger his safety.

(3) There shall be provided two exits from a tunnel under a stockpile. New.
220. No person shall be employed in a location where another person is working overhead unless such measures for protection are taken as the nature of the work requires. 1961-62, c. 81, s. 258, amended.

221.—(1) All passageways and other walking surfaces in a plant shall be maintained in a safe condition and free from obstructions and shall be of sufficient size to ensure that crowding, that is likely to endanger the safety of persons therein, does not occur.

(2) Every opening in a floor or other surface in a plant building that may be used by a person shall be,

(a) protected by a guardrail; or

(b) covered with securely fastened planks or other material capable of supporting any load likely to be imposed thereon.

(3) The maximum safe load that a floor or roof of a plant is capable of bearing shall be conspicuously marked or posted to the satisfaction of an engineer when so directed by him.

(4) Except for approved access ladders to equipment, no ladder shall be installed in a plant at an inclination of more than 70 degrees to the horizontal. New.

222.—(1) At every plant where poisonous or dangerous compounds, solutions or gases are used or produced, there shall be kept in a conspicuous place, as near the compounds, solutions or gases as is practicable, a sufficient supply of satisfactory antidotes and washes, and there shall be installed eye wash fountains and, where necessary, safety showers, for treating injuries received from such compounds, solutions or gases.

(2) Such antidotes and washes shall be properly labelled and explicit directions for their use affixed to the boxes containing them. 1961-62, c. 81, s. 427, amended.

223.—(1) Where an acid or poisonous compound or any other material that is likely to endanger the health of an employee is produced, transferred, used or stored in a plant, due provision shall be made to reduce to a minimum the hazard of handling or storing such material.

(2) Where the provisions taken under subsection 1 do not remove the hazard, personal protective equipment shall be worn by the person exposed to the hazard.
(3) Where such material is present, there shall be posted Notice in a conspicuous place, when so required by the chief engineer, notices stating the dangers involved and the precautions to be taken.

(4) Where required, the employer shall provide the chief engineer with accurate information regarding the percentage of any harmful ingredient in such material.

(5) Any person who, for use in a plant, manufactures, distributes or purchases any material that contains benzol, carbon tetrachloride, lead or other ingredient that is deemed dangerous to health by the chief engineer, shall indicate the presence of such ingredient by a label lettered in legible type, distinctly visible and affixed to each package or container thereof.

(6) The chief engineer, on the advice of the director of the Environmental Health Branch of the Department of Health, may require at specified intervals by qualified physicians and at the expense of the employer a physical examination of any person employed in a plant having a process that the chief engineer considers is likely to endanger such person’s safety, and the physician shall forthwith send or cause to be sent to such director a report of the examination in a form suitable to the chief engineer.

(7) The examination required under subsection 6 shall be prescribed by such director and may include an x-ray examination and blood or other tests. New.

HANDLING MOLten MATERIALS

224.—(1) Persons employed in a plant in the handling of molten materials shall be supplied with suitable shields and appliances to protect them as far as possible against being burned.

(2) It is the duty of all such persons to use the shields and appliances. New.

225.—(1) There shall be maintained in readily accessible places at all plants, where the atmosphere may contain dangerous concentrations of poisonous gases or vapours, detection equipment, breathing apparatus and portable resuscitating apparatus of approved type, with an adequate supply of material for the proper operation of the apparatus.
There shall also be on duty in each working shift one or more persons appointed by the manager and trained in the use of breathing and resuscitating apparatus. 1961-62, c. 81, s. 451, amended.

Each scale car shall be provided with an audible warning alarm that shall be sounded by the operator each time a car is started, or each car shall be equipped with an automatic mechanical warning alarm that will sound when the car is moved. 1961-62, c. 81, s. 451, amended.

(2) There shall also be on duty in each working shift one or more persons appointed by the manager and trained in the use of breathing and resuscitating apparatus. 1961-62, c. 81, s. 451, amended.

Every scale car shall be provided with an audible warning alarm that shall be sounded by the operator each time a car is started, or each car shall be equipped with an automatic mechanical warning alarm that will sound when the car is moved. 1961-62, c. 81, s. 451, amended.

Pouring of hot materials

Examination of moulds, etc.

Filling of moulds, etc.

Idem

When molten material is transported by mechanical means in ladles or slag pots and the safety of persons may be endangered from splashing, every effort shall be made to ensure that the ladles or slag pots are not filled above a point four inches below the top of the ladle or slag pot.

If such limit is exceeded, the ladle or slag pot shall not be moved until the supervisor or other responsible person has warned the persons required to handle the ladle or slag pot of this condition and has warned all other persons in the vicinity. 1961-62, c. 81, s. 439, amended.

The shovel operator shall obtain authorization from the supervisor or other person in charge of a blast furnace before commencing to dig the slag pit. New.

Whenever it becomes necessary for a person to go above the casting floor of an operating furnace, excepting the access to the crane cab or runway and not adjacent to the furnace and having direct egress to the outside, such person shall notify the foreman, or other responsible person, who shall see that there is always a second person in attendance whose duty it is to remain outside the gaseous area and act as a watcher and give the alarm to the foundry and render every possible assistance in case of gassing or other danger. 1961-62, c. 81, s. 444, amended.
(2) Safety belts shall be provided and maintained in a readily accessible place for immediate use in case it becomes necessary to rescue a person from the top structure of a furnace or the ancillary equipment in a plant. New.

(3) All bustle pipes shall be provided with safe working platforms equipped with hand-rails at least three feet six inches in height and, wherever practicable, the platform shall not rest directly on the bustle pipe, but shall be supported on angle bars, so that the floor plate will not become sufficiently hot to cause burns to a person falling on it. 1961-62, c. 81, s. 445 (1), amended.

(4) Access to the platform shall be by a stairway provided with hand-rails. 1961-62, c. 81, s. 445 (2).

(5) A suitable line of communication by telephone, gong, or other mechanical means, shall be maintained between the furnace top, and all other dangerous places, to the cast-house, skip operator's room or other place where persons are continuously on duty. 1961-62, c. 81, s. 446, amended.

(6) A suitable ladderway or stairway shall be provided from the foundation to the top of the furnace. 1961-62, c. 81, s. 447.

(7) Unless an approved type of elevator is provided as a means of travel to the furnace top, stairways shall be installed at an angle not greater than 50 degrees from the horizontal and shall be provided with landings or turnouts at intervals of not more than twenty-five feet, measured on the slope, so that it will not be possible for a person to fall from the top to the foundation below. 1961-62, c. 81, s. 448, amended.

(8) When ore becomes frozen or jammed in the furnace hopper or bell and a person is required to bar the ore into the furnace, a suitable guard-rail shall be provided to prevent the person from slipping on to the bell. 1961-62, c. 81, s. 450, amended.

229. Every supervisor shall personally attend, or appoint a competent person to supervise, any work around a blast furnace in a plant that involves unusual accident hazard, such as,

(a) work in gas mains or cleaners, tearing out linings, relining, work in the casthouse, work about the stoves, when blowing in or blowing out, and any work about the bells or stock line;

(b)
(b) when the furnace is known to be hanging and liable to slip, he shall see that no person is allowed on top for any purpose; or

(c) when work beyond that of normal inspection and minor maintenance is to be conducted at the furnace top structure,

(i) the blast furnace shall be shut down and the area cleared of operating personnel,

(ii) the proper work order shall be obtained from the supervisor,

(iii) before the repair work is begun, the area shall be tested for toxic gas and such tests shall be continued as necessary for the protection of the personnel,

(iv) breathing apparatus, safety ropes and any additional rescue equipment as necessary shall be available. 1961-62, c. 81, s. 449, amended.

HAULAGE — ON SURFACE AND UNDERGROUND

230.—(1) In this Part,

(a) “locomotive” means a motor vehicle which only operates on rails;

(b) “motor vehicle” means a truck, automobile or any other vehicle propelled or driven otherwise than by muscular power, and includes trackless haulage equipment;

(c) “vehicle” includes a motor vehicle and every vehicle drawn or propelled by muscular power. New.

(2) Every locomotive or motor vehicle used on surface at a mine or plant or underground at a mine shall be equipped with a suitable audible signal that shall be maintained in proper working condition. 1961-62, c. 81, s. 297 (1), amended.

(3) The audible signal on a locomotive or motor vehicle shall be sounded were practicable when the vehicle starts to move in an enclosed building at a mine or plant or underground at a mine and at such other times as a warning of danger is required. 1961-62, c. 81, s. 299 (1), amended.

(4) Every motor vehicle used on surface at a mine or plant or underground at a mine shall be equipped, where
where practicable, with a suitable warning device which will operate automatically when the motor vehicle starts to move in reverse. New.

(5) (a) Except when used in adequately lighted buildings or areas, every locomotive or motor vehicle used on surface at a mine or plant or underground at a mine shall be equipped with a headlight or headlights that shall be maintained in proper working condition, and motor vehicles used for trackless haulage shall be equipped with a suitable tail-light or tail-lights that shall be maintained in proper working condition. 1961-62, c. 81, s. 297 (2).

(b) When a motor vehicle is disabled, when lighted lamps are required, and is located on the travel portion of the roadway, suitable flares, reflectors or lamps shall be placed to give adequate warning. New.

(6) Every locomotive or motor vehicle used on surface at a mine or plant or underground at a mine shall be equipped with suitable brakes.

(7) No locomotive or motor vehicle used on surface at a mine or plant or underground at a mine shall be operated unless the brakes, steering, audible signals, lights and rear-vision mirrors, where applicable, are in satisfactory condition.

(8) Whenever the face of a main ramp or inclined tunnel in a mine exceeds a vertical depth of 300 feet without intermediate access to the ramp or tunnel from an operating shaft or winze a suitable approved vehicle shall be provided to transport persons down and up the ramp or tunnel. New.

231.—(1) The control levers of storage battery and trolley locomotives used on surface at a mine or plant or underground in a mine shall be so arranged that the lever cannot accidentally be removed when the power is on. 1961-62, c. 81, s. 298.

(2) No locomotive or motor vehicle used on surface at a mine or plant or underground in a mine shall be moved under its own power unless, where it is manually operated, the operator is in proper position at the controls or, where it is operated by a remote control or automated system, the system is approved by the chief engineer. New.

(3) No locomotive or motor vehicle used on surface at a mine or plant or underground in a mine shall be left unattended.
unattended unless the controls have been placed in the safe position for parking and the brakes have been set. 1961-62, c. 81, s. 302.

(4) The operating platform of a locomotive used on surface at a mine or plant or underground in a mine shall be provided with a suitable seat and an adequate guard for the protection of the motorman. 1961-62, c. 81, s. 299 (3), amended.

Wheel checks

232.—(1) Motor vehicle haulage equipment used on surface at a mine or plant or underground in a mine shall carry, where practicable, wheel chocks to be used to block movement on slopes when the equipment is left unattended or is undergoing maintenance.

(2) Every motor driven dump truck used on surface at a mine or plant or underground in a mine shall be equipped with a suitable safety support device, which shall be used when repairs or maintenance are conducted under a raised box. New.

Safety support for truck boxes

233.—(1) No operator shall leave the controls of his vehicle or machine unattended on surface at a mine or plant or underground in a mine while,

(a) the bucket of a front end loader, backhoe or other excavating machine;

(b) the blade of a bulldozer; or

(c) the load of a fork-lift truck, crane or other hoisting machine,

is in a raised position, except when it is suitably and safely supported.

(2) No person on surface at a mine or plant or underground in a mine shall be under any part of a motor vehicle or other equipment in which the lowering of that part may endanger the person unless that part is safely blocked in such a way as to prevent its lowering.

(3) No person on surface at a mine or plant or underground in a mine shall operate a crane or other hoisting machine in such a way that any part of its load may pass over a person other than the person receiving the load.

(4) A person on surface at a mine or plant or underground in a mine receiving a load shall so far as is practicable position himself so that the load does not pass over him.
(5) No person on surface at a mine or plant or underground in a mine shall operate a shovel, backhoe or similar excavating machine in such a way that it or any part of its load may pass over a person.

(6) No person on surface at a mine or plant or underground in a mine shall remain on or in a motor vehicle where he might be endangered during the loading or unloading of the vehicle.

(7) Where a motor vehicle on surface at a mine or plant or underground in a mine is being backed up in a location where a person may be endangered by the vehicle backing up or where the driver may be endangered, another person shall be stationed to direct the driver in backing up the vehicle. New.

234.—(1) (a) Except for standard gauge track on surface, every switch in a track on surface at a mine or plant or underground in a mine shall have the frog and guard rail entrances provided with a guard block if its construction is not such that the hazard of a person’s foot being caught in it is reduced to a minimum.

(b) Standard gauge track on surface at a mine or plant shall be installed and maintained as called for in the Uniform Code of Operating Rules prescribed by the Transport Commissioners for Canada. New.

(2) All tracks in use on surface at a mine or plant or underground in a mine shall be maintained in good working condition. 1961-62, c. 81, s. 409, amended.

HAULAGE — UNDERGROUND

235.—(1) In motorized haulage underground in a mine, a suitable tail-light shall be used in conjunction with made-up trains. 1961-62, c. 81, s. 299 (2), amended.

(2) Every self-propelled unit of trackless haulage equipment used underground in a mine shall be equipped with suitable lights or reflectors that show in the direction of travel the width of the vehicle. 1961-62, c. 81, s. 297 (3).

236.—(1) In motorized haulage in any level, drift or tunnel in or about a mine, no unauthorized person shall ride on any vehicle. 1961-62, c. 81, s. 300 (1), amended.

(2) Special trips for persons only shall be made on approved vehicles. 1961-62, c. 81, s. 300 (2).
(3) Every vehicle in which any person may ride shall be equipped with an emergency exit. *New.*

237.—(1) On every level of a mine on which motorized track haulage is employed, a clearance of at least eighteen inches shall be maintained between the sides of the haulageway and the cars or locomotive, or there shall be a clearance of twenty-four inches on one side, or safety stations shall be cut every 100 feet. 1961-62, c. 81, s. 301 (1), amended.

(2) Such safety stations shall be plainly marked. 1961-62, c. 87, s. 301 (2).

(3) On every level of a mine on which motorized trackless haulage equipment is employed, a minimum total clearance of five feet shall be maintained between the sides of the haulageway or workings and the motorized equipment.

(4) On every level of a mine regularly used both for pedestrian traffic and motorized trackless haulage where there is a total minimum clearance of less than seven feet between the sides of the haulageway and the vehicle, safety stations shall be cut at intervals not exceeding 100 feet and they shall be plainly marked. 1961-62, c. 81, s. 301 (3, 4), amended.

(5) All regular travelways in or about a mine shall be maintained clear of debris or obstructions that are likely to interfere with safe travel. 1961-62, c. 87, s. 301 (5).

HAULAGE — ON SURFACE

238.—(1) Guard-rails shall be placed at the approach to tracks on surface at a mine or plant where motorized haulage is used and where the view of the tracks is obstructed in one or both directions.

(2) Where restricted clearances make the use of guard-rails impractical in the opinion of the district mining engineer, he may permit such guard-rails to be omitted but shall require that there be installed at the track approaches a suitable type of warning signal that will automatically give adequate, audible and visible warning at all times of the approach of the conveyance, or that a switchman shall walk ahead of the leading conveyance on the track when the conveyance is in dangerous proximity to the area requiring guarding and stand guard at such approaches. 1961-62, c. 81, s. 434, amended.
239.—(1) Where motorized haulage is used on surface at a mine or plant and the clearance between the sides of conveyances on parallel tracks or between the sides of conveyances and the side of a building or other structure is less than eighteen inches, the location shall be plainly marked showing the danger. 1961-62, c. 81, s. 440, amended.

(2) At the approach to an overhead bridge, pipe line or a similar structure on a standard-gauge railway track at a mine or plant where the clearance is less than six feet between the top of a railway car and the underside of the structure, a "low bridge" warning device shall be installed. 1961-62, c. 81, s. 441, amended.

(3) Where the operator may be exposed to overhead hazards at a mine or plant, a cab, screen or other adequate overhead protection shall be provided on,

(a) a power-driven crane, shovel or similar machine;

(b) a fork-lift truck; and

(c) a front-end loader or other excavating machine. New.

240. Motor vehicles operating on surface at a mine shall be equipped, where practicable, with rear-vision mirrors. New.

PROTECTION FROM MACHINERY — MINES AND PLANTS

241. In this Part,

(a) "lifting device" means a device that is used to raise or lower any material or object and includes its rails and other supports but does not include a device to which the provisions of this Part governing elevators or construction hoists apply;

(b) "prime mover" means an initial source of motive power;

(c) "transmission machinery" means any object by which the motion of a prime mover is transmitted to a machine that is capable of utilizing such motion, and includes a shaft, pulley, belt, chain, gear, clutch or other device. New.
Clearances

242.—(1) Clearances adequate for the safety of persons shall be maintained in a mine or plant between the moving part of any machine or any material carried by the moving part and any other machine or structure.

Lighting

(2) Adequate lighting shall be provided for all persons who are required to work near or about machinery in a mine or plant.

Fences, guards

(3) Every prime mover, machine, transmission machinery or device that is dangerous to the safety of any person in a mine or plant shall be safely fenced or guarded,

(a) unless its position, construction or attachment assures the same protection as if it were safely fenced or guarded; or

(b) unless it is provided with a safety device that automatically prevents a person operating it from coming into contact with any dangerous part.

Idem

(4) Every set screw, bolt or key on any revolving shaft, spindle, wheel or pinion connected to or forming part of or appurtenant to any machine, transmission machinery or device in a mine or plant shall be so recessed, encased, located or otherwise effectively guarded as to prevent injury to any person.

Repairs

(5) No person shall, or shall be permitted to clean, oil, adjust, repair or perform maintenance work on any machine, transmission machinery or device in a mine or plant while it or any part of it that is likely to endanger the safety of any person is in motion, except when such work is not practicable while the machine, transmission machinery or device is stopped.

Starting

(6) No person shall work or be allowed to work where the starting of a machine, transmission machinery or device in a mine or plant is likely to endanger the safety of any person, due to electrical hazard or exposure to moving parts,

(a) unless prior to doing repair or maintenance on electrically driven machinery, the person has made arrangements to ensure that the disconnect switch or switches supplying power to the machinery are opened and tagged or locked in accordance with section 435; or
(b) unless, for other than electrically driven machinery, precautions have been taken to prevent such starting. New.

243.—(1) Every stationary power-driven grinding wheel in a mine or plant shall be provided with a suitable hooded guard. 1961-62, c. 81, s. 404 (1), amended.

(2) Such guard shall be adjusted close to the wheel and extended forward, over the top of the wheel, to a point at least 30 degrees beyond a vertical line drawn through the centre of the wheel. 1961-62, c. 81, s. 404 (2).

244. Every runway or staging in a mine or plant that is more than five feet from the floor and used for oiling or any similar purpose shall be provided with a hand-railing. 1961-62, c. 81, s. 406, amended.

245. Every counterweight in a mine or plant shall be situated or guarded so as to reduce to a minimum the hazard of injury to a person along its travel or should it become detached from its fastenings.

246. Persons engaged in dangerous proximity to moving machinery in a mine or plant shall not wear or be allowed to wear loose outer clothing. 1961-62, c. 81, s. 405, amended.

247.—(1) The rated working load of every lifting device in a mine or plant shall be plainly marked on the device.

(2) No lifting device in a mine or plant shall be loaded beyond its rated working load, except for the purpose of a test.

(3) No cable, chain, rope, sling, ring, hook, shackle, swivel or other part of a lifting device in a mine or plant shall be used unless it is of good construction, sound material and adequate strength to safely support the maximum load to which it is likely to be subjected, and is properly maintained.

(4) Every lifting device in a mine or plant shall be thoroughly examined at least annually by an authorized person.

(5) All rails in a mine or plant on which a lifting device moves shall be of proper size and properly laid and maintained and have an even running surface.

(6) No newly-installed lifting device in a mine or plant shall be used until it has been thoroughly tested and examined by an authorized person. New.
WELDING AND BURNING — MINES AND PLANTS

248.—(1) All persons exposed to the hazard of radiation from welding or burning operations in a mine or plant shall use protective helmets, goggles, or other devices.

(2) When welding or burning operations in a mine or plant emit harmful fumes, adequate ventilation shall be provided, or respirators shall be worn by persons exposed to the fumes.

(3) Persons shall do no welding or burning in a mine or plant where other persons may be exposed to radiation from the operation, unless such other persons wear suitable eye protection or are protected by screens.

(4) Gauntlet gloves and arm protection shall be worn by persons when electric welding in a mine or plant.

(5) Suitable fire extinguishers shall be kept at hand during welding or burning operations in a mine or plant, or other fire fighting equipment shall be readily available.

(6) Cylinders, piping and fittings of compressed and liquefied gas systems pertaining to welding and burning in a mine or plant shall be so located as to avoid physical damage to the cylinders, piping and fittings.

(7) Persons shall guard against sparks or flames from coming in contact with cylinders, regulators or hoses of compressed-gas systems pertaining to welding and burning in a mine or plant and all charged cylinders shall be protected from excessive heat.

(8) Before using any gas-welding or burning equipment, persons shall ensure that all parts of the equipment are free from defects, leaks, oil or grease.

(9) Cylinder valves shall be closed when work is finished or cylinders are empty, and valve-protection covers shall be kept in position when the cylinder is not connected for use.

(10) No welding, brazing, soldering or burning operation shall be conducted on any container that has been used to contain any explosive or flammable substance, unless all practicable steps have been taken to,

(a) remove the substance and any fume, gas, vapour or dust arising from it; or
(b) render the substance and any fume, gas, vapour or dust arising from it non-explosive or non-flammable,

and if such container has been subjected to any such alteration or repair, it shall be ensured that no explosive or flammable substance enters the container until the container has cooled sufficiently to prevent any risk of igniting the substance. New.

TRAVELLING CRANES — MINES AND PLANTS

249. — (1) In this section and in section 499, "crane" means a crane that travels on fixed tracks and is operated from a cab mounted on the crane and which may be radio controlled. 1961-62, c. 81, s. 401 (1), amended.

(2) No person under the age of eighteen years and no person who has not had adequate experience on a crane shall be authorized to operate a crane in a mine or plant. 1961-62, c. 81, s. 401 (7), amended.

(3) (a) No person shall operate or be permitted to operate a crane at a mine or plant unless he has been examined by a legally qualified medical practitioner acceptable to the employer and the medical practitioner has issued to him, on the form prescribed, a crane operator’s medical certificate to the effect that to the best of the practitioner’s knowledge the person is not subject to any infirmity, mental or physical (particularly with regard to sight, hearing and heart) to such a degree as to interfere with the efficient discharge of his duties.

(b) Every crane operator’s medical certificate lapses and shall be deemed to have expired at the end of one year from its date.

(c) Every crane operator’s medical certificate shall be kept on file by the employer and made available to an engineer at his request.

(4) No person, other than the operator, shall be permitted to ride on a crane or any part thereof in a mine or plant or on any material carried by the crane, except for inspection, supervision, maintenance or repair, or the instruction of a new operator. 1961-62, c. 81, s. 401 (3-6), amended.
(5) Every crane in a mine or plant shall be equipped with a whistle, bell, gong or horn that shall be sounded at such times as are necessary to give warning of the approach of the crane to places where persons are working or are liable to pass. 1961-62, c. 81, s. 401 (2), amended.

(6) Every crane in a mine or plant shall be equipped with an emergency exit.

(7) Where any person is on or near the wheel track of a crane in any place in a mine or plant where the safety of such person is likely to be endangered by the crane, the operator of the crane shall be warned of the presence of such person and the crane or any part thereof shall not be allowed to approach within ten feet of the place.

(8) Every crane in a mine or plant shall be equipped with suitable devices to prevent overwinding.

(9) The manager of a mine or plant shall depute one or more qualified persons to examine daily such parts of any crane or apparatus pertaining thereto upon the proper working of which the safety of persons depends.

(10) All shafts, hooks and other structural parts affecting the safe operation of every crane shall be non-destructively tested before being put into service, and thereafter at such intervals as to ensure that they are in safe condition.

(11) (a) Crane ropes shall be examined visually at least once in each day to detect the presence of kinks, broken wires or other visible damage. 

(b) Crane ropes shall be thoroughly examined at least once in each week to ensure that they are in safe operating condition.

(c) If during such examinations there is discovered any weakness or defect whereby the safety of persons may be endangered, the crane shall not be used until the defect has been remedied or the rope removed from service.

(d) Every crane rope, when newly installed, shall have a factor of safety of not less than 10 when carrying
carrying its maximum load and using the breaking strength of the rope as certified by the rope manufacturer.

(e) No crane rope shall be used when the number of broken wires in any section of the rope equalling the length of one lay of the rope exceeds four.

(12) A record of all the examinations and tests and of other regular maintenance examinations and of all structural modifications of any crane in a mine or plant shall be kept signed by the person making the examinations, tests and modifications and such record shall be available to the district electrical-mechanical engineer at all times. New.

CONVEYOR BELTS—MINES AND PLANTS

250.—(1) No person shall ride on a conveyance or belt in a mine or plant unless approved by the chief engineer.

(2) The following apply to installations of conveyor belts in mines and plants:

(a) Where conveyorways are used as regular travelways, such travelways shall be adequately illuminated and suitable means shall be provided to protect persons from material that may fall from the belt.

(b) All conveyorways shall be provided with a walkway, crossover or some approved method of access for maintenance purposes.

(c) Walkways shall not be less than 20 inches in width and shall be equipped with guardrails on the open sides where necessary.

(d) Any accessible section of an electrically driven belt conveyor shall be provided with pull-cords to stop the conveyor in an emergency and such pull-cords shall reach from the head pulley to the tail pulley and all controls operated by these cords shall be of the manual-reset type.

(e) Where required, an approved warning device shall be provided which will warn persons that the belt is about to start.
(f) All head, tail, drive and tension pulleys shall be guarded at the pinch points and the length of such guards shall be extended to at least three feet from the pinch point. 1961-62, c. 81, s. 410, amended.

PROTECTION IN WORKING PLACES OF MINES

Overhead operations

251. No person shall work in a location in a mine where another person is working overhead unless such measures for protection are taken as the nature of the work requires. 1961-62, c. 81, s. 258, amended.

Fencing of shafts and other openings

252. The top of every working shaft in a mine shall be securely fenced or protected by a gate or guard-rail, and every pit or opening in a mine dangerous by reason of its depth shall be securely fenced or otherwise protected. 1961-62, c. 81, s. 260, amended.

Gate at shaft entrances

253.—(1) At all shaft and winze openings on the surface and on every level in a mine, unless securely closed off, the hoisting compartments shall be protected by a substantial gate, which shall be kept closed except when the hoisting conveyance is being loaded or unloaded at such level.

(2) The clearance beneath any such gate shall be kept to a minimum.

Hoisting compartment gates

(3) Where haulage tracks lead up to a hoisting compartment on surface or underground, the gate on such compartment shall be reinforced in such a manner that it is sufficiently strong to withstand any impact imparted thereto by collision therewith of any locomotive, train or car operated on such tracks.

(4) Hoisting compartment gates shall be sufficiently reinforced where there is a hazard of impact due to the approach of a motor vehicle. 1961-62, c. 81, s. 261, amended.

Shaft and winze timbering

254.—(1) Every shaft and winze in a mine shall be securely cased, lined or timbered, and during sinking operations the casing, lining or timbering shall be maintained within a safe distance of the bottom. 1961-62, c. 81, s. 262 (1), amended.

(2) In no instance shall such distance exceed fifty feet. 1961-62, c. 81, s. 262 (2).
255. There shall be provided a safe passageway and standing room for a person outside the shaft at all workings opening into a shaft of a mine, and the manway shall in all cases be directly connected with such openings. 1961-62, c. 81, s. 263, amended.

256.—(1) Except during sinking operations, if material is handled in a shaft or winze compartment of a mine, there shall be maintained around that compartment, except on the side on which material is to be loaded or unloaded, a substantial partition at the collar and at all levels. 1961-62, c. 81, s. 266 (1), amended.

(2) Such partition shall extend above the collar and all levels a distance not less than the height of the hoisting conveyance plus six feet and it shall extend below the collar and all levels at least six feet and it shall conform to the size of the conveyance allowing for necessary clearances. 1961-62, c. 81, s. 266 (2).

257. The footway or ladderway in a shaft or winze of a mine shall be separated from the compartment or division of the shaft or winze in which material, conveyance or counterweight is hoisted by a suitable and tightly-closed partition in the location required by section 256, and similarly in the remaining shaft sections, or by metal of suitable weight and mesh. 1961-62, c. 81, s. 290, amended.

258. Wherever a counterweight is used in a shaft or winze of a mine, it shall be safely enclosed, unless it travels on guides. 1961-62, c. 81, s. 267, amended.

259. During shaft-sinking operations in a mine, no work shall be done in any place in a shaft or winze while persons are working in another part of the shaft or winze below such place, unless the persons working in the lower position are protected from the danger of falling material by a securely-constructed covering extending over a sufficient portion of the shaft to afford complete protection. 1961-62, c. 81, s. 264, amended.

260.—(1) Open hooks shall not be used in conjunction with the suspension of any shaft staging of a mine. 1961-62, c. 81, s. 264, amended.
Protection on shaft inspection

Idem

(2) Open hooks shall not be used in connection with the suspension of any equipment or material in a shaft, winze, raise, or over a person in any location underground in a mine. New.

Idem

Protection on shaft inspection

261.—(1) No person shall do or be permitted to do any work or conduct any examination in a compartment of a shaft or winze of a mine or in that part of the headframe used in conjunction therewith while hoisting operations, other than those necessary for doing such work or conducting such examination, are in progress in such compartment.

(2) No person shall do or be permitted to do any work or conduct any examination in a shaft or winze of a mine or in that part of a headframe used in conjunction therewith unless he is adequately protected from accidental contact with any moving hoisting conveyance or counterweight or the danger of falling objects accidentally dislodged. 1961-62, c. 81, s. 268, amended.

Timbering mine workings

262. Where in a mine the enclosing rocks are not safe, every adit, tunnel, stope or other working in which work is being carried on or through which persons pass shall be securely cased, lined or timbered, or otherwise made secure. 1961-62, c. 81, s. 269, amended.

Steeply-inclined raises

263.—(1) Except where approved raising equipment is used, all raises in a mine that are to be inclined at over 50 degrees and that are to be driven more than sixty feet slope distance shall be divided into at least two compartments, one of which shall be maintained as a ladderway and shall be equipped with suitable ladders. 1961-62, c. 81, s. 271 (1), amended.

Idem

(2) The timbering shall be maintained within a safe distance of the face and in no event shall the distance between the face and the top of the timbering exceed twenty-five feet. 1961-62, c. 81, s. 271 (2).

Precautions as to broken material

264.—(1) Whenever a chute in a mine is to be pulled and the safety of a person may be endangered by the settling of the broken material,

(a) the area affected by the pulling shall be guard-railed or marked by a sign or signs so that no person can inadvertently enter the area; or

(b)
(b) any person who is working in the affected area shall be notified.

(2) (a) Proper precautions shall be taken during the pulling operation to ascertain whether or not the broken material is settling freely from the top.

(b) When there is any indication of a hang-up, the location shall be adequately protected by suitable signs or barricades.

(3) There shall be provided two exits from each raised platform from which broken material is pulled.

265. Unless the entrance to a stope in a mine is capable of being used as such at all times, a second means of entrance shall be provided and maintained. 1961-62, c. 81, s. 273, amended.

266. The top of every mill hole, manway or other opening in a mine shall be kept covered or otherwise adequately protected. 1961-62, c. 81, s. 274, amended.

267. Wherever persons are working in a mine below a level in a place whose top is open to the level in close proximity to a haulageway or travelway, some person shall be posted to effectively guard the opening unless it is securely covered over or otherwise closed off from the haulageway or travelway. 1961-62, c. 81, s. 275, amended.

268. The tops of all raises or other openings to a level in a mine shall be kept securely covered, fenced off or protected by suitable barricades to prevent inadvertent access thereto. 1961-62, c. 81, s. 276, amended.

269. There shall be provided and maintained in every mine an adequate supply of properly-dressed scaling bars and gads and other equipment necessary for scaling. 1961-62, c. 81, s. 278, amended.

270.—(1) Where there is non-continuous shift operation in areas of a mine, the on-coming shift shall be warned of any abnormal condition affecting the safety of operations.

(2) Such warning shall consist of a written record over the signature of a responsible person on the off-going shift.
shift and shall be read and countersigned by the corresponding responsible person on the on-coming shift before persons are permitted to resume operations in the areas indicated in such record. 1961-62, c. 81, s. 282, amended.

271. At every mine where persons are employed underground, a suitable system shall be established and maintained to check in all persons who have gone underground and to check out all persons who have returned to surface, and it is the duty of such persons to check in and to check out in accordance with such system. 1961-62, c. 81, s. 283, amended.

272. Where repair work is in progress in a manway in a mine or conditions arise that may endanger travel through the manway, it shall be closed as a travelway and adequate signs designating its unfitness for travel purposes shall be posted at all entrances to it. 1961-62, c. 81, s. 284, amended.

273.—(1) Diamond-drill holes shall be plotted on all working plans of levels of a mine.

(2) When an active mine heading is advancing toward a diamond-drill hole in a mine, the collar or the nearest points of intersection of the hole or both shall be securely closed off or guarded at all times that blasting is being done within fifteen feet of any possible intersection of the hole.

(3) The collar and any points of intersection of every diamond-drill hole in a mine shall be plainly marked at the time that drilling is discontinued or an intersection made.

(4) Such markings shall consist of a single capital letter "H" in yellow paint measuring twelve inches by twelve inches, which shall be placed within four feet of the collar or intersection. 1961-62, c. 81, s. 285, amended.

274. Where tailings are used for filling worked-out areas underground in a mine, the moisture contained in the tailings and the liquid draining off therefrom shall not have a higher cyanide content than .005 per cent expressed as cyanide of potassium. 1961-62, c. 81, s. 286, amended.
HANDLING WATER — MINES

275. Every working mine shall be provided with suitable and efficient machinery and appliances for keeping the mine free from water, the accumulation or flowing of which might endanger the lives of persons in the mine or in any adjoining mine. 1961-62, c. 81, s. 199, amended.

276. Where there is or may be an accumulation of water on surface or in a mine, any working approaching the same shall have bore holes kept in advance and such additional precautionary measures shall be taken as are deemed necessary to obviate the danger of a sudden breaking-through of the water. 1961-62, c. 81, s. 200, amended.

277. A suitable stopping shall be placed in every working shaft in a mine to prevent that part of the hoisting conveyance carrying persons from being inadvertently lowered into water in the sump of the shaft. 1961-62, c. 81, s. 201, amended.

278.—(1) In this section,

(a) “bulkhead” means any structure built for the purpose of impounding water or confining air under pressure in a drift, crosscut or any other mine opening and constructed in such a manner as to completely close off such drift, crosscut or other mine opening;

(b) “dam” means a structure built for the purpose of impounding water in a drift, crosscut or other mine opening and built in such a manner as to permit an unobstructed overflow of the water.

(2) The location of every underground bulkhead and dam within the meaning of this section shall be clearly shown on the mine plans. 1961-62, c. 81, s. 202 (1, 2).

(3) No dam behind which more than twenty-five tons of water may be impounded shall be constructed underground in a mine until application in writing is made to the district mining engineer and written permission is granted by the chief engineer and then only when constructed in accordance with plans and specifications that have been approved by the chief engineer.

(4) No bulkhead shall be constructed underground in a mine without the written permission of the chief engineer.
Completion of bulkhead

(5) On the completion of the installation of a bulkhead in a mine, the manager shall immediately notify the chief engineer that it has been completed. 1961-62, c. 81, s. 202 (3-5), amended.

CARE AND USE OF EXPLOSIVES AND BLASTING AGENTS

279. Every possible precaution shall be taken in the handling and transportation of explosives and blasting agents at a mine or plant. 1961-62, c. 81, s. 211, amended.

280.-(1) No explosive shall be used at a mine or plant unless there is plainly printed or marked on every original package containing the explosive, the name and place of business of the manufacturer, the strength of the explosive and the date of its manufacture. 1961-62, c. 81, s. 212.

(2) Only explosives in Fume Class I as established by the Explosives Division of the Department of Energy, Mines and Resources of Canada or explosives and blasting agents as permitted by the chief engineer shall be used underground in a mine.

(3) The preparation of a blasting agent at a mine or plant, except when prepared by a properly-authorized manufacturer of explosives or blasting agents, shall be done only with the permission in writing of the chief engineer. 1961-62, c. 81, s. 213, amended.

(4) Every case of supposedly defective fuse, detonator or blasting cap or explosive shall be reported to the district mining engineer with the name and address of the manufacturer and accompanied, if available, by the packing slip from the original container of the fuses, detonators or blasting caps, or explosives, along with all other pertinent information available. 1961-62, c. 81, s. 214, amended.

281.-(1) Except as otherwise provided, all explosives, blasting agents, detonators and blasting caps shall be stored on surface at a mine or plant in special suitable buildings, such as magazines, thaw houses, detonator or blasting cap storage buildings, or cap and fuse houses.

(2) Detonators, blasting caps or igniter cord shall not be stored in the same receptacle or storage building as other explosives or blasting agents.
(3) No such storage building shall be erected or maintained at a mine or plant without the written permission of the district mining engineer, nor until the site of the building and the style of structure have been approved by him.

(4) Such written permission shall state the maximum quantity and kind of detonators, explosives or blasting agents that may be stored in the building.

(5) The permission shall be posted up in the building.

(6) Every such storage building shall be under the direction of the manager or a person authorized by him. 1961-62, c. 81, s. 215 (1-6), amended.

(7) Explosives or blasting agents shall not be stored within 300 feet of a mine or plant main substation. 1961-62, c. 81, s. 221, amended.

(8) The minimum distance measured at ground level between an overhead supply line and explosives or blasting agents storages shall not be less than $\frac{1}{2}$ times the length of one span between the supports of such line. New.

(9) Where possible, every such storage building shall be located in accordance with the British Table of Distances in respect of its distance from the mine or plant or any other building or any public road or railway.

(10) Where conditions are such that it is impossible to locate any storage building in accordance with the British Table of Distances, the mine or plant manager and the district mining engineer shall jointly choose the most suitable location.

(11) Storages for blasting agents may contain three times the quantity of blasting agents as compared to explosives set by the British Table of Distances.

(12) Where explosives and blasting agents are stored together, the lesser limit of storage applies.

(13) Every such storage building shall be constructed of such materials as to ensure as far as possible against accident from any cause.

(14) The requirements in reference to the care and use of explosives and blasting agents shall be kept posted up inside every such storage building.

(15) Every such storage building shall be kept securely locked at all times that the attendant is not present.
and it shall be clearly indicated by one or more easily visible signs that explosives or blasting agents are stored therein.

(16) Such sign or signs shall be posted beside the road approaches to the building at least eight feet above the ground and twenty-five feet distant from the entrance. 1961-62, c. 81, s. 215 (13), amended.

282.-(1) All explosive, blasting agent, detonator or fuse storages at or in a mine or plant shall be kept clean, dry and free from grit at all times. 1961-62, c. 81, s. 216 (1), amended.

(2) Floors and shelves of magazines and thaw houses shall be treated with a suitable neutralizing agent, whenever necessary, to remove any traces of explosive substances. 1961-62, c. 81, s. 217.

283.—(1) When supplies of explosives or blasting agents are removed from a magazine, those that have been longest in the magazine, if they are not defective, shall be used first.

(2) Where explosives or blasting agents become defective, they shall be suitably and safely disposed of.

(3) An engineer may, if he deems it necessary to protect life or property, arrange for the disposal of defective or abandoned explosives or blasting agents, and the amount of costs so incurred shall be a debt due to the Crown from the owner or agent, recoverable in any court of competent jurisdiction. 1961-62, c. 81, s. 218, amended.

284. Only implements of wood or fibre shall be used in opening cases that contain explosives. 1961-62, c. 81, s. 219.

285.—(1) Explosives or blasting agents, including caps, fuses and igniter cord, shall not be stored underground in a mine in excess of the necessary underground supply for forty-eight hours. 1961-62, c. 81, s. 220 (1).

(2) In no case shall an amount exceeding 300 pounds of explosives or 900 pounds of blasting agents be stored in any one place underground in a mine without the written permission of the district mining engineer. 1961-62, c. 81, s. 220.

(3) With the written permission of the district mining engineer and subject to such conditions as he prescribes, other underground explosive storages in a mine may be established, but in no case shall more than
than 1,000 pounds of explosives or 3,000 pounds of blasting agents be stored in any one storage place.

(4) Where explosives and blasting agents are stored together underground in a mine, the lesser limit of storage applies.

(5) Explosives and blasting agents stored underground in a mine shall be kept in suitable containers or storage places in suitable locations.

(6) Explosives or blasting agents shall not be stored underground in a mine in places where there is a possibility of a train or car colliding with the containers of the explosives or blasting agents.

(7) Where explosives or blasting agents in excess of the quantity that may be stored in approved underground storages in a mine are required for such operations as longhole blasts, etc., only such quantities as can be loaded in a twenty-four hour period shall be kept in a storage place underground at any time for such blast.

(8) Any explosives or blasting agents not loaded at the end of a shift shall be stored in accordance with the requirements of this section or be adequately guarded. 1961-62, c. 81, s. 220, amended.

286.—(1) Explosives or blasting agents shall not be stored underground in a mine within,

(a) 200 feet of a shaft station; or

(b) the distance prescribed by subsection 4 of section 560.

(2) Detonators, blasting caps, capped fuses or igniter cord, while stored underground in a mine, shall be kept in separate, suitable, closed containers or storage places.

(3) Such containers and storage places shall not be located within twenty-five feet of any other explosives or blasting agents. 1961-62, c. 81, s. 222, amended.

287.—(1) No flame-type light shall be taken within twenty-five feet of any building or place on the surface of a mine or plant in which explosives or blasting agents are stored.

(2) No flame-type light shall be taken within ten feet of any place underground in a mine where explosives or blasting agents are stored unless a suitable, safe arrangement for the placing of such light is provided.
(3) No person shall smoke in any place or building in a mine or plant where explosives or blasting agents are stored or while handling explosives or blasting agents. 1961-62, c. 81, s. 223, amended.

288.—(1) A properly authorized person or persons shall make a thorough weekly inspection of all explosives or blasting agents, explosives or blasting agents magazines, thaw houses, detonator or blasting cap storage buildings, cap and fuse houses, and all storage boxes or places in or about the mine or plant used for the purpose of storing explosives, blasting agents, detonators or blasting caps and shall make a report in writing to the manager stating that such inspection has been made and certifying as to the conditions found.

(2) The manager shall take immediate steps to correct any unsuitable conditions found and to properly dispose of any deteriorated explosives or blasting agents.

(3) The manager shall make a prompt investigation when an act of careless placing or handling of explosives or blasting agents is discovered by or reported to him.

(4) Any employee who commits a careless act with an explosive or blasting agent or where explosives or blasting agents are stored, or who, having discovered such an act to have been committed, omits or neglects to report immediately such act to an officer in charge of the mine or plant, is guilty of an offence against this Act, and the officer in charge of the mine or plant shall immediately report such offence to the district mining engineer or to the Crown attorney of the county or district in which the mine or plant is situate. 1961-62, c. 81, s. 224, amended.

289.—(1) When a mine or plant is closed down, all explosives, blasting agents, fuses, detonators and blasting caps shall be disposed of and no explosive or blasting agent shall be stored at any such closed-down mine or plant without the written permission of the chief engineer. 1961-62, c. 81, s. 225, amended.

(2) No person shall take away from a mine or plant any explosive, blasting agent, fuse, detonator or blasting cap without the written permission of the manager or of such person as is authorized by the manager to give such permission. 1961-62, c. 81, s. 226, amended.
290.—(1) No building for thawing explosives shall be maintained in connection with a mine or plant without the written permission of the district mining engineer.

(2) The building shall be above ground, and the site of the building and the style of the structure and equipment shall be subject to the approval of an engineer.

(3) The quantity of explosives kept in a thaw house at any time shall not exceed the requirements of the mine or plant for a period of twenty-four hours plus the amount that may be necessary to maintain that supply, but the district mining engineer may give permission in writing to store a quantity not in excess of the permitted capacity of the building if, in his opinion, the heating equipment is such that the temperature can be controlled within approved safe limits.

(4) A reliable recording thermometer shall be kept in the room in which explosives are thawed and the record thereof kept, but, where the amount of explosives in such thawing room does not exceed 200 pounds at any one time, the district mining engineer may give permission in writing to use a maximum and minimum registering thermometer on condition that a daily record of high and low temperatures be made and kept on file for at least one year.

(5) All such records shall be made available to the district mining engineer. 1961-62, c. 81, s. 227.

291. No explosives shall be thawed near an open fire or steam boiler or by direct contact with steam or hot water in a mine or plant. 1961-62, c. 81, s. 228, amended.

292.—(1) This section applies only on mine or plant premises and only on surface. New.

(2) Every motor vehicle used for transporting explosives or blasting agents shall be maintained in sound mechanical condition. 1961-62, c. 81, s. 229 (1, 2), amended.

(3) Every such motor vehicle shall be conspicuously marked by suitable signs or red flags easily visible from front and rear. 1961-62, c. 81, s. 229 (3).

(4) The metal parts of every vehicle that may come in contact with containers of explosives or blasting agents...
agents shall be suitably covered with wood, tarpaulin or other suitable material.

(5) No other goods or materials shall be transported on any vehicle on which explosives or blasting agents are being transported.

(6) Every motor vehicle transporting more than 150 pounds of explosives or blasting agents shall be equipped with a fire extinguisher in working order, of adequate size and capable of dealing with a gasoline or oil fire. 1961–62, c. 81, s. 229 (4–6), amended.

(7) No motor vehicle shall be loaded with more than 80 per cent of its carrying capacity when transporting explosives or more than 100 per cent of its carrying capacity when transporting blasting agents. 1961–62, c. 81, s. 229 (7).

(8) Explosives or blasting agents transported on a vehicle shall be secured or fastened so as to prevent any part of the load from becoming dislodged.

(9) Detonators shall not be transported in the same vehicle as other explosives or blasting agents except in a suitable container in a separated compartment, and in such case the number shall not exceed 5,000 detonators.

(10) A vehicle transporting explosives or blasting agents shall not be left unattended.

(11) Only those persons necessary for the handling of explosives or blasting agents shall travel on a vehicle that is transporting explosives or blasting agents.

(12) There shall be no smoking by persons on a vehicle that is transporting explosives or blasting agents. 1961–62, c. 81, s. 229 (8–12), amended.

293.—(1) When the day’s supply of explosives or blasting agents is being transported in a shaft conveyance in a mine, the person in charge of the operation shall give or cause to be given notice of the operation to the deckman and hoistman.

(2) No person shall,

(a) place in;

(b) have while in; or
(c) take out of,
a shaft conveyance of a mine any explosives or
blasting agents except under the immediate super-
vision of a person authorized for the purpose by the
responsible supervisor.

(3) No other material shall be transported with ex-

plosives or blasting agents in a shaft conveyance in a
mine. 1961-62, c. 81, s. 230, amended.

294.—(1) The transfer of explosives or blasting agents
from the magazine or other surface storage place at a
mine or plant shall be so arranged that no undue
delay will occur between the time the explosives or
blasting agents leave the surface storage place and
the time they are properly stored in designated
storage places in the mine or plant or distributed to
points of use in the mine or plant.

(2) Explosives or blasting agents shall not be left at a
level station or near the shaft collar or other entrance
to a mine but shall be transferred from a designated
storage place to other designated storage places or
points of use without undue delay. 1961-62, c. 81,
s. 231, amended.

295.—(1) Primers shall be made up as near to their point
of use as is practicable in the interests of safety and
then only in sufficient numbers for the immediate
work in hand.

(2) Detonators, blasting caps, capped fuses, made-up
primers, igniter cord or other explosives or blasting
agents shall not be transported in a conveyance
either on surface or underground at a mine or plant
unless placed in separate, suitable, closed containers.

(3) A person may carry capped fuses with other ex-

plosives or blasting agents from the nearest storage
place at a mine or plant to the point of use without
placing them in a container if they are kept separate
from other explosives and blasting agents.

(4) Made-up primers shall not be transported or carried
at a mine or plant unless placed in separate, suitable,
closed containers. 1961-62, c. 81, s. 232, amended.

296.—(1) Where explosives or blasting agents are trans-

ported in mine workings by means of mechanical
haulage, including trackless equipment, the speed
of the vehicle shall not exceed 4 miles an hour and
definite arrangements for the right of way of the
vehicle shall be made before the vehicle is moved.

(2) Where mechanical track haulage is used in a mine,
   
   (a) the locomotive shall be maintained on the
   forward end of the train transporting exp-
  losives or blasting agents unless some person
   walks in advance of the train to effectively
   guard it;
   
   (b) any car carrying explosives or blasting agents
   shall be separated from the locomotive by an
   empty car or spacer of equivalent length; and
   
   (c) in no case shall explosives or blasting agents
   be carried on the locomotive.

(3) Where a trolley locomotive is used in a mine, the
   car or cars transporting explosives or blasting agents
   shall be protected from trolley-wire contact and other
   existing hazards.

(4) Where trackless equipment is used for the trans-
   portation of explosives underground in a mine, the
   requirements of section 292, except subsection 3,
   apply.

(5) Where trackless equipment is used for the trans-
   portation of blasting agents in a mine, the require-
   ments of section 292, except subsections 3 and 4,
   apply. 1961-62, c. 81, s. 233, amended.

297. Where parties working contiguous or adjacent
claims or mines disagree as to the time of setting off
blasts, either party may appeal to the district mining
engineer, who shall decide upon the time at which
blasting operations thereon may be performed, and
his decision is final and conclusive and shall be
observed by them in future blasting operations.
1961-62, c. 81, s. 234, amended.

298. No explosive shall be removed from its original
paper container or cartridge in a mine or plant.
1961-62, c. 81, s. 235.

299. No explosive shall be used to blast or break up ore,
salamander or other material in a mine or plant where
by reason of its heated condition there is any danger
or risk of premature explosion of the charge. 1961-
62, c. 81, s. 236.
300. All drill holes in a mine or plant shall be of sufficient size to admit of the free insertion to the bottom of the hole of a cartridge of explosive. 1961-62, c. 81, s. 237.

301. In charging holes for blasting in a mine or plant, no iron or steel tool or rod shall be used, and no iron or steel tool shall be used in any hole containing explosives. 1961-62, c. 81, s. 238.

302.—(1) Before drilling is commenced in a working place in a mine the exposed face shall be washed with water and carefully examined for misfires and cut-off holes, giving special attention to old bottoms.

(2) No drilling shall be done in a mine within six inches of any hole that has been charged and blasted or any remnant of such hole.

(3) No drilling shall be done in a mine within five feet of any hole containing explosives or blasting agents. 1961-62, c. 81, s. 239 (1-3).

(4) Drilling or undercutting and charging operations at a mine shall not be carried on simultaneously on the same face above or below each other or within twenty-five feet horizontal distance. 1961-62, c. 81, s. 239 (4), amended.

303.—(1) Every blaster shall, before blasting, cause all entrances or approaches to the place where the blasting is to be done or where the safety of persons may be endangered by the blasting to be effectively guarded so as to prevent inadvertent access to such place while the charges are being blasted, including diamond drill holes as required by subsection 2 of section 273.

(2) Subject to permission having been obtained, when required, from the appropriate authority, where it is necessary to stop traffic on a public road during a blasting operation,

(a) an adequate number of flagmen equipped with suitable red flags shall be posted; and

(b) signs, such as “DANGER”, “BLASTING” or “STOP FOR FLAGMAN”, shall be posted, along the road at suitable locations to warn traffic approaching the flagman guarding the area. 1961-62, c. 81, s. 241 (1, 2), amended.
(3) Posting of signs shall not be deemed to be adequate protection for blasting operations. 1961-62, c. 81, s. 241 (3).

(4) Every blaster shall, before blasting, give or cause to be given due warning in every direction by shouting "Fire" and shall satisfy himself that all persons have left the working place or the vicinity except those required to assist him in blasting and guarding. 1961-62, c. 81, s. 240 (1), amended.

(5) Where the extent of the operation or the safeguarding of persons underground in a mine renders the warning under subsection 4 ineffective, such additional precautions to those so required shall be taken to ensure that all areas of the mine, which may be affected by the blasting operation, are vacated.

(6) In open pits or quarries where,

(a) the extent of the operation or the exposure of persons renders the warning required under subsection 4 ineffective, due warning shall be given of a primary blast by siren or its equivalent in an approved manner in addition to guarding as required by subsection 1;

(b) personnel are required near the blast area, the manager shall provide blasting shelters or some other form of protection for employees satisfactory to the engineer. New.

304. Where possible, no connection between mine workings shall be made until a thorough examination of the working towards which the active heading is advancing has been made and has shown that the work can be proceeded with in a safe manner, and such point of connection shall be guarded as an entry when blasting within twice the length of the longest drill steel used or a minimum of fifteen feet of breaking through. 1961-62, c. 81, s. 242.

305.—(1) Except where fired electrically, no fuse shorter than three feet shall be used in any blasting operation in a mine or plant nor shall any fuse be lighted at a point closer than three feet from the capped end. 1961-62, c. 81, s. 243.

(2) No drill hole in a mine shall be charged with explosives or blasting agents unless a properly prepared detonating agent is placed in the charge and it shall be fired in its proper sequence in one blasting operation. 1961-62, c. 81, s. 245.
(3) All drill holes in a mine that are charged with firing explosives or blasting agents in one loading operation shall be fired in one blasting operation.

(4) Any drill hole in a mine that has been charged with idem explosives or blasting agents or any explosive charge that has been set shall not be left unfired but shall be fired at the time for blasting required by the approved practice of the mine. 1961-62, c. 81, s. 246.

(5) Where a safety fuse is used in a blasting operation safety fuses in a mine,

(a) suitably capped fuses shall be supplied to the blasters in standard, uniform and safe lengths for the operation at hand; and

(b) the uncapped ends of all fuses for use in a mine shall be suitably identified. 1961-62, c. 81, s. 247, amended.

(6) Where more than one charge is to be fired, each fuse lighting fuses connected to a charge of explosives or blasting agents shall be lighted with a suitably-timed spitting device.

(7) Where more than one charge is to be fired, no blaster number of men shall be permitted to conduct any blasting operation unless he is accompanied by one or more other persons.

(8) Every person engaged in a blasting operation shall idem, lights carry a light unless the blasting operation is conducted on surface in daylight or under artificial light. 1961-62, c. 81, s. 248, amended.

306.—(1) Where blasting is done in a raise or stope, proper precautions shall be taken to prevent the closing of the means of entrance to the working place or interference with the effective circulation of air following the blast by the broken material produced by the blast.

(2) In the case of a single-compartment raise or box-hole idem where material from the blast may block the means of entrance, proper precautions shall be taken to ensure the adequate ventilation of the working place before a person enters it. 1961-62, c. 81, s. 250, amended.

307.—(1) Where safety fuses were used in connection with a blast and two or more shots were fired, no blaster or other person shall leave or be permitted to leave his place of refuge from the blast and return...
to the scene of the blast within the number of minutes that are equal to twice the number of feet in the longest fuse used in the blasting operation.

(2) Such period of time shall be calculated from the time when the last shot was heard except where the requirements of subsection 5 apply.

(3) Where the firing was done by means of electric delay-action detonators and any shot has been heard, no blaster or other person shall leave or be permitted to leave his place of refuge and return to the scene of any blast within ten minutes of the time at which the blasting circuit is closed.

(4) Except when no shot was heard and a faulty circuit is indicated, the circuit may be repaired immediately after the blaster has assured himself that the blasting switch is locked in the open position and the lead wires are short-circuited.

(5) Where a safety fuse was used and a supposed misfire or missed hole, including a reblasted misfire, occurs in a blasting operation, no blaster or other person shall leave or be permitted to leave his place of refuge and return to the scene of the blast within thirty minutes of the time of lighting of the fuse or fuses. 1961-62, c. 81, s. 244, amended.

(6) When a blaster fires any charges, he shall, where possible, count the number of shots.

(7) If a misfire is suspected, he shall report it to his supervisor.

(8) If a missed hole has not been fired at the end of a shift, that fact, together with the location of the hole, shall be reported by the supervisor to the supervisor in charge of the next relay of persons going into that working place before work is commenced by them.

(9) Any charge of explosives that has missed fire shall not be withdrawn but shall be blasted at a proper time and without undue delay, except that where a suitable device is used by an authorized person, the charge of explosives may be washed from the hole. 1961-62, c. 81, s. 251 (1-4), amended.

(10) Any blasting agent that has missed fire may be washed out of the hole.
(11) No development heading shall be abandoned or work therein discontinued until the material broken at the firing of the last round has been cleared from the face and the whole face of the heading examined for explosives or blasting agents in missed or cut-off holes. 1961-62, c. 81, s. 251 (5, 6).

308.—(1) After the first ten feet of advance has been made in a shaft or winze and until such time as the permanent timbers and ladders have reached the level upon which blasting is being done, all blasting in the shaft, winze, station or other workings being driven therefrom shall be done by means of an electric current.

(2) In any raise, where free escape is not ensured at all times, all blasting shall be done by means of an electric current or by an approved means initiated from a safe location outside the raise. 1961-62, c. 81, s. 252, amended.

309. Where blasting is done by means of an electric current, a person shall not enter or allow other persons to enter the place where the charges have been fired until he has disconnected and short-circuited the firing cables or wires from the blasting machine or portable direct-current battery or has assured himself that the switch of the approved blasting switch is open, the firing cables or wires short-circuited and the blasting box locked. 1961-62, c. 81, s. 253, amended.

310.—(1) Where the source of current is a portable direct-current battery or a blasting machine, the firing cables or wires shall not be connected to the source of current until immediately before they are required for firing the charges and shall be disconnected immediately after the connection has been made and the machine operated for firing the charges. 1961-62, c. 81, s. 255.

(2) The firing cables leading to the face shall be short-circuited while the leads from the blasting caps are being connected to each other and to the firing cables.

(3) The short-circuit shall not be removed until the blaster and other persons have retreated from the face and it shall be so located that a premature explosion would be harmless to the persons opening the short-circuit.
(4) The short-circuit shall be replaced immediately after the cables have been disconnected from the blasting machine or the circuit from the blasting switch has been opened. 1961-62, c. 81, s. 256, amended.

(5) The firing cables or wires used for firing charges at one working place shall not be used for firing charges in another working place until all proper precautions have been taken to ensure that such firing cables or wires have no connection with the leads from the first working place.

(6) When firing cables or wires are used in the vicinity of power and lighting cables, the blaster shall take proper precautions to prevent the firing cables or wires from coming in contact with the lighting or power cables. 1961-62, c. 81, s. 257.

(7) Where electricity, other than from a portable, hand-operated device, is used for firing charges, a fixed device of a design certified by the district electrical-mechanical engineer as meeting the requirements of section 515 shall be used.

(8) One such device shall be maintained for each individual working place in which firing is done by means of electricity using circuits complying with the requirements of section 517. 1961-62, c. 81, s. 254, amended.

EXAMINATION OF MINE WORKINGS AND SHAFT INSPECTION

311.—(1) The manager of a mine or some authorized person or persons shall examine on each working shift all parts where drilling and blasting are being carried on, shall examine at least once a week the other parts in which operations are being carried on, such as shafts, winzes, levels, stopes, drifts, cross-cuts and raises, in order to ascertain that they are in a safe condition.

(2) The manager of a mine or some authorized person or persons shall inspect and scale or cause to be inspected and scaled by a qualified person the roofs, walls and faces of all stopes or other working places as often as the nature of the ground and of the work performed necessitates. 1961-62, c. 81, s. 287, amended.

312.—(1) The manager of a mine where a hoist is in use shall depute some competent person or persons whose duty it is to make an inspection of the shaft at least once
once each week, and in addition a thorough examination shall be made at least once each month of the guides, timber, walls and hoisting compartments generally of the shaft, and a record of such inspection and examination shall be made in the Shaft Inspection Record Book by the person making the examination.

(2) Every such manager shall keep or cause to be kept at the mine a book for each shaft termed the Shaft Inspection Record Book in which shall be recorded a report of every such examination, as is referred to in this section, signed by the persons making the examination. 1961-62, c. 81, s. 288 (1, 2), amended.

(3) Such entries of examinations shall be read and initialled every week by the person in charge of the maintenance of the shaft.

(4) A notation shall be made of any dangerous condition reported and the action taken regarding it over the signature of the person in charge of the maintenance of the shaft.

(5) The Shaft Inspection Record Book shall be made available to an engineer at all times. 1961-62, c. 81, s. 288 (3-5).

LADDERWAYS AND LADDERS

313.—(1) A suitable footway or ladderway shall be provided in every shaft and winze.

(2) In shafts and winzes, no ladder, except an auxiliary ladder used in sinking operations, shall be installed in a vertical position. 1961-62, c. 81, s. 289 (1, 2).

(3) During sinking operations, if a ladder is not maintained to the bottom, an auxiliary ladder that will reach from the permanent ladders to the bottom shall be provided in such convenient position that it may be promptly lowered to any point at which a person is working. 1961-62, c. 81, s. 289 (3), amended.

(4) Wherever, about shafts and winzes and headframes used in conjunction therewith, it is necessary for persons to examine or inspect appliances installed therein, suitable ladderways or stairways and platforms shall be maintained to permit such work to be carried out in a safe manner. 1961-62, c. 81, s. 289 (4).
314. The footway or ladderway in a shaft or winze shall be separated from the compartment or division of the shaft or winze in which material, conveyance or counterweight is hoisted by a suitable and tightly-closed partition in the location required by section 256, and similarly in the remaining shaft sections, or by metal of suitable weight and mesh. 1961-62, c. 81, s. 290.

315.—(1) In a shaft or winze inclined at over 70 degrees from the horizontal or in a headframe used in conjunction with the shaft or winze, substantial platforms shall be built at intervals not exceeding twenty-one feet in the ladderway and shall be covered, except for an opening large enough to permit the passage of a person’s body, and the ladders shall be so placed as to cover this opening in the platform.

(2) In a shaft or winze inclined at less than 70 degrees from the horizontal or in a headframe used in conjunction with the shaft or winze, the ladders may be continuous, but substantial platforms shall be built at intervals not exceeding twenty-one feet in the ladderway and shall be covered, except for an opening large enough to permit the passage of a person’s body. 1961-62, c. 81, s. 291, amended.

316.—(1) Stairways may be used in a shaft or winze inclined at less than 50 degrees from the horizontal.

(2) All stairways in shafts and winzes shall be equipped with a suitably placed hand-rail. 1961-62, c. 81, s. 292.

317.—(1) All ladderways in raises, stopes and other manways shall be installed and maintained in a safe condition to reduce to a minimum the hazard of a person falling therefrom.

(2) In manways inclined at 70 degrees or more, landing platforms shall be installed at intervals not exceeding twenty-one feet in the ladderway and the ladders shall be off-set at the platforms.

(3) In manways inclined at less than 70 degrees and more than 50 degrees, landing platforms shall be installed at intervals not exceeding twenty-one feet in the ladderway and the ladders may be continuous.

(4) In manways inclined at 50 degrees or less, the ladders may be continuous and no platforms are required except at points of off-set. 1961-62, c. 81, s. 293, amended.
318. Wire rope or strands of wire rope shall not be used or be allowed to be used for climbing purposes if they are frayed or have projecting broken wires. 1961-62, c. 81, s. 294.

319.—(1) Every ladder shall project at least three feet above its platform, except where strong hand-rails are provided. 1961-62, c. 81, s. 295.

(2) Every ladder shall be of strong construction, shall be securely placed and shall be maintained in a safe condition.

(3) The distance between the centres of rungs of ladders shall be not more than twelve inches and not less than ten inches, and the spacing of rungs shall not vary more than one-half inch in any ladderway.

(4) In order to give a proper foothold, the rungs of ladders shall in no case be closer than four inches from the wall of a shaft, winze or raise or any timber underneath the ladder. 1961-62, c. 81, s. 296, amended.

320. No person shall be or be permitted to be in a ladderway while,

(a) a bucket is being loaded or unloaded at the top; or

(b) a bucket or material is being hoisted or lowered. New.

HOISTS AND HOISTING

321.—(1) After a depth of 300 feet below the sheave has been attained in the sinking of a vertical shaft or winze at a mine, a suitable bucket and crosshead, as referred to in subsection 2 and in section 322, shall be used. 1961-62, c. 81, s. 336 (1), amended.

(2) When a closed type of crosshead is not used, the bucket shall be barrel-shaped and shall be suspended by the upper rim. 1961-62, c. 81, s. 336 (2).

322.—(1) All sinking crossheads at a mine shall be provided with a safety appliance of a design approved by the district electrical-mechanical engineer for attaching the bucket to the crosshead, so constructed that the crosshead cannot stick in the hoisting compartment without also stopping the bucket.

(2) All crossheads shall be of a design approved by the district electrical-mechanical engineer. 1961-62, c. 81, s. 337, amended.
SHUNT CONVEYANCES, CONSTRUCTION AND OPERATION

323. No cage or skip shall be used in a mine for the raising or lowering of persons unless it is constructed so as to prevent any part of the body of a person riding in it from accidentally coming into contact with the timbering or sides of the shaft or winze. 1961-62, c. 81, s. 338, amended.

324. All cages and skips used for lowering or raising persons in a mine shall comply with the following:

1. The hood shall be made of steel plate not less than three-sixteenths of an inch in thickness or of a material of equivalent strength.

2. The cage shall be provided with sheet-iron or steel side-casing not less than one-eighth of an inch in thickness or of a material of equivalent strength, and the casing shall extend to a height not less than five feet above the floor of the cage.

3. The cage shall be equipped with doors made of suitable material that extend to a height not less than five feet above the floor.

4. The doors shall be so arranged that it is impossible for the doors to open outward from the cage.

5. Doors shall be fitted with a suitable latch and shall have a minimum clearance at the bottom.

6. i. The safety catches and mechanism shall be of sufficient strength to hold the shaft conveyance with its maximum load at any point in the shaft and shall be of a type the design of which has been approved by the chief engineer.

ii. Such safety catches and mechanism shall not be used until approved by the district electrical-mechanical engineer and such approval shall be based upon test performance.

iii. Such approval shall not be considered until the safety catches and mechanism are found to function satisfactorily under load conditions during such number of tests as are required by the chief engineer, each test to consist of suddenly releasing the shaft conveyance.
in a suitable manner under maximum loading conditions for persons so that the safety catches will have the opportunity to grip the guides when the conveyance is descending at maximum rated speed.

iv. A report of such tests shall be submitted to the chief engineer.

7. Before a shaft conveyance equipped with an approved type of safety catches and mechanism is first used for the purpose of lowering and raising persons, the safety catches and mechanism shall be found to function efficiently according to the requirements of the district electrical-mechanical engineer during a test under the same conditions as set out in paragraph 6, and a permit for the use of the conveyance for lowering and raising men shall be obtained from the district mining engineer.

8. A notation of such test shall be entered in the Hoisting Machinery Record Book and two copies of the report shall be sent to the district electrical-mechanical engineer.

9. A shaft conveyance previously permitted for use by the district mining engineer for the purpose of lowering or hoisting persons on which alterations or repairs to the safety catch mechanism necessary to rectify any distortion of the mechanism from its proven satisfactory position are made shall not be put to such use until the safety catch and mechanism have been found to function efficiently according to the requirements of the district electrical-mechanical engineer during a test made under the same conditions as set out in paragraph 6, and the district mining engineer has again issued permission for the use of the conveyance for such purpose.

10. A notation of such test shall be entered in the Hoisting Machinery Record Book and two copies of the report shall be sent to the district electrical-mechanical engineer.

11. A certificate of load capacity of the conveyance and attachments, which shall include the weight of the tail rope, if any, or other suspended load, shall be obtained from the manufacturer and made available to the district electrical-mechanical engineer.
12. Devices for attaching the conveyance to the rope shall have a factor of safety of not less than 10.

13. — (a) When newly installed, each device for attaching the rope or ropes to the conveyance shall have a factor of safety of not less than 10.

(b) When newly installed, or rebuilt, all bails, frame members and other parts affecting the safe operation of the conveyance shall have a factor of safety of not less than 10.

14. The bails and suspension gear of all shaft conveyances shall be cleaned and thoroughly inspected at least once in every twelve months and a record of such inspection shall be made in the Hoisting Machinery Record Book. 1961-62, c. 81, s. 339, amended.

325. The chief engineer may give permission in writing for hoisting men without safety catches if he is satisfied that the equipment and conditions are such that maximum safety is provided. 1961-62, c. 81, s. 340.

326. The cage shall not have chairs attached to it that are operated by a lever or a chain through or from the floor of the cage. 1961-62, c. 81, s. 341.

327. When chairs are used for the purpose of landing a shaft conveyance at any point in a shaft or winze, other than at the lowest point of travel for a skip, they shall be so arranged that they automatically fall clear and remain clear of the hoisting compartment when the cage or other conveyance is lifted off. 1961-62, c. 81, s. 342.

328. The bucket and any device such as the bail, safety latch or other attachment to the bucket shall be of a design approved by the district electrical-mechanical engineer. 1961-62, c. 81, s. 343, amended.

329.—(1) Every device used for lowering into or hoisting from mine workings shall be equipped with a brake or brakes that may be applied directly to each drum so as to safely stop and hold the drum when carrying its maximum load. 1961-62, c. 81, s. 353 (1), amended.
The brakes shall be so arranged that they can be tested separately and, whether the hoist is at work or at rest, can be easily and safely manipulated by the hoistman when at the levers controlling the hoist.

No hoist used for lowering or raising persons or for shaft sinking shall be equipped with a brake or brakes operated by means of the hoistman's foot, unless such brake is an auxiliary electrical device.

The adjustments of the brake or brakes and brake mechanism shall be maintained in such condition that the brake lever or any other part of the brake mechanism will not come to the limit of travel before the normal power of the brake or brakes is applied.

All brake engines shall be so equipped that, in the event of inadvertent or accidental loss of pressure in the brake system, the brakes can be applied.

The brakes for a friction hoist shall be designed, adjusted and maintained to safely stop and hold the conveyance under all conditions of loading, direction of travel and speed. 1961-62, c. 81, s. 353 (2-6).

At all times that persons are in or on a shaft conveyance, the hoist shall be equipped with more than one brake, each capable of safely stopping and holding the drum or drums in use.

In shaft inspection, maintenance or sinking operations, persons may be in or on a shaft conveyance attached to the fixed or clutched-in drum when changing balance. 1961-62, c. 81, s. 353 (7), amended.

At least one of the brakes required shall be arranged for automatic application upon operation of any of the safety devices for brake application.

In a brake system where weights are used to furnish auxiliary pressure on loss of air, the weights shall be tested at least once every twenty-four hours to ensure their freedom of movement.

In the case of single drum air or steam driven hoists, automatic valves to control engine compression, arranged for operation by the safety devices, may serve as a brake. 1961-62, c. 81, s. 353 (8-10).

The arrangements mentioned in subsection 11 are subject to the approval of the district electrical-mechanical engineer. 1961-62, c. 81, s. 353 (11), amended.
HOIST CLUTCHES

330. The device for operating the clutch of the drum shall be provided with adequate means to prevent the inadvertent withdrawal or insertion of the clutch. 1961-62, c. 81, s. 354.

331. The brake and clutch operating gear shall be so installed that it will not be possible to unclutch a drum unless the brake or brakes on the drum are applied, nor shall it be possible to release the brake or brakes until the clutch of the drum is engaged. 1961-62, c. 81, s. 355.

HOIST DRUMS

332. Such bolts and other fittings of the drums, brakes and clutches as might be a danger in the event of their becoming loosened shall be rendered secure by means of suitable locking devices other than spring lockwashers. 1961-62, c. 81, s. 356.

333. On the drum of every hoist used for lowering or raising persons, there shall be flanges and also, if the drum is conical, such other appliances as are sufficient to prevent the rope or cable from slipping off. 1961-62, c. 81, s. 357.

334.—(1) In all hoist installations, the dimensions of the drum or drums shall be suitable for the kind, diameter and length of the rope in service.

(2) The diameters of the hoist drums shall be large enough to prevent the occurrence of unduly large bending stresses in the rope.

(3) Where multiple-layer winding is used, proper arrangements shall be made and maintained to permit the rope to rise evenly from one layer to another and to wind properly without cutting down through any lower layer. 1961-62, c. 81, s. 358.

335.—(1) On and after the 15th day of June, 1948, in all installations of newly-acquired drum hoists and modifications of existing hoists designed to increase the load ratings of the hoist,

(a) all hoist drums over sixty inches in diameter shall have grooving properly machined to fit the rope used, except that, in the case of shaft sinking, preliminary development operations and operations of a temporary nature, hoists with plain drums may be used;

(b)
(b) the drums shall have sufficient rope-carrying capacity to permit hoisting from the lowest regular hoisting point to the highest point of travel in the shaft without the necessity of winding more than three layers of rope on the drum;

(c) the diameter of a hoist drum shall be not less than 80 times the diameter of the hoisting rope in use when the diameter of the rope is greater than one inch and shall be not less than 60 times the diameter of the rope in use when the diameter of the rope is not greater than one inch, except that, in the case of shaft-sinking and preliminary development operations,

(i) a hoist may be used having a drum whose diameter is not less than 60 times the diameter of the hoisting rope in use when the diameter of the rope is greater than one inch, and

(ii) a hoist may be used having a drum whose diameter is not less than 48 times the diameter of the hoisting rope in use when the diameter of the rope is not greater than one inch; and

(d) the hoist and the head sheaves shall be so located in relation to one another as to permit the proper winding of the rope on the hoist drum.

(2) In any change of location of a hoist installed prior to the coming into force of this section, the requirements of clause b of subsection 1 apply. 1961-62, c. 81, s. 359 (1, 2).

(3) In friction hoist installations,

(a) the drum diameter of every friction hoist installed on or after the day on which this Part comes into force shall be not less than 100 times the diameter of the rope in use;

(b) the hoist drive, control and brakes shall be so designed and maintained that slippage of the rope on the drum will not occur under normal operating conditions; and

(c) the rope treads shall be inspected regularly and maintained in good condition; 1961-62, c. 81, s. 359 (3), amended.
(d) in a friction hoist installation, tapered guides or other approved devices shall be installed above and below the limits of regular travel of the conveyance and arranged so as to brake and stop an overwound or underwound conveyance in the event of failure of other devices. 1961-62, c. 81, s. 365, amended.

SHEAVES

336.—(1) Head and deflection sheaves shall be machined and maintained to fit the rope properly.

(2) The diameter of a head sheave shall be determined by clause c of subsection 1 of section 335 as required for a hoist drum. 1961-62, c. 81, s. 360 (1, 2), amended.

(3) The diameter of a deflection sheave shall be determined by,

(a) in the case of a drum hoist system, clause c of subsection 1 of section 335; and

(b) in the case of a friction hoist system, clause a of subsection 2 of section 335. New.

UTILITY HOISTS

337. Utility hoists, including tugger hoists, ropes and other equipment used in connection with the installation, shall be maintained in a safe working condition. 1961-62, c. 81, s. 277, amended.

INDICATORS

338.—(1) Every hoist shall, in addition to any marks on the rope or drum, be provided with a reliable depth indicator that will clearly and accurately show to the operator,

(a) the position of the bucket, cage or skip;

(b) at what position in the shaft a change of gradient necessitates a reduction in speed;

(c) the overwind or underwind position of the shaft conveyance or counter-balance; and

(d) the position above or below the limits as in clause c beyond which the conveyance is not to move. 1961-62, c. 81, s. 363 (1), amended.

(2) Hoist depth indicators shall be driven by a reliable means.

(3) Means shall be provided on a friction hoist to adjust the depth indicators and protective devices on the hoist to the position of the conveyance in the shaft. 1961-62, c. 81, s. 363 (2, 3).
OVERWINDING, ETC. — AIR HOISTS AND STEAM HOISTS

339. Air hoists and steam hoists shall be provided with suitable overwind, underwind and emergency protection for the hoisting conveyance, except that, in shaft-sinking, the underwind protection is not required. 1961-62, c. 81, s. 361, amended.

340. At all air hoists and steam hoists, there shall be a gauge installed within plain view of the operator to indicate the air or steam pressure, as the case may be. 1961-62, c. 81, s. 362, amended.

SPECIFICATIONS AND SPECIAL TESTING

341.—(1) The specifications of hoists and equipment and the general arrangement of the headframe in new installations and in shaft deepening projects shall be approved by the chief engineer.

(2) Before a new hoisting installation is put in service, commissioning tests shall be conducted to prove its compliance with this Act.

(3) A record of such tests and the results obtained shall be kept on file and made available to the district electrical-mechanical engineer.

(4) If the district electrical-mechanical engineer deems it necessary, he may, after consultation with the manager, conduct or require to be conducted specific tests of the efficiency of all brakes, clutches, overwind devices or other hoist controls. 1961-62, c. 81, s. 364, amended.

342.—(1) All shafts, drums, mechanical linkage for controls, brake rods and other vital parts of a mine hoist which could affect the safety of the equipment shall be non-destructively tested before the hoist is placed in service.

(2) Hoist and sheave wheel shafting, hoist brake and mechanical linkage for controls, conveyance drawbars, pins and structural members and other hoisting equipment affecting the safety of the installation shall be non-destructively tested at regular intervals or as required by the district electrical-mechanical engineer.
(3) Dates of the non-destructive testing shall be recorded in the Machinery Record Book and the results shall be reported to the district electrical-mechanical engineer.

(4) The non-destructive testing shall be carried out by methods acceptable to the chief engineer. New.

EXAMINATION

343. The manager of a mine where a hoist is in use shall depute some competent person or persons whose duty it is to examine at least once in each week,

(a) deflection, head and idler sheave wheels;

(b) attachments of the hoisting ropes to the drums and to the counterweights, buckets, cages or skips;

(c) brakes;

(d) interlocks;

(e) depth indicators;

(f) buckets;

(g) counterweights;

(h) cages;

(i) skips;

(j) external parts of the hoist;

(k) mechanical hoisting signalling equipment, if any;

(l) shaft dumping and loading arrangements;

(m) sinking doors and blasting sets, and any attachments thereto;

(n) attachments to any cage, skip or bucket for any underslung regularly-used equipment; and

(o) guide or rubbing rope tensioning devices and attachments,
and to record the report of such examination in a book called the Hoisting Machinery Record Book. 1961-62, c. 81, s. 366, amended.

HOISTING MACHINERY RECORD BOOK

344.—(1) The manager shall keep or cause to be kept at the mine the Hoisting Machinery Record Book referred to in section 343, in which shall be entered a report of every examination or report referred to in sections 324 and 343, subsection 2 of section 355, subsection 3 of section 359 and sections 360 and 361, and a notation of any failure of, accident to, correction or repairs to the hoist, the ropes, the shaft conveyance or any other part of the hoisting, dumping or loading equipment, signed by the person making the examination or report.

(2) Such entries shall be read and signed each day, week or month, as required by this Act, by the person in charge of such equipment or accessories thereto.

(3) A notation shall be made in the Hoisting Machinery Book of the action taken regarding the report of any failure of, accident to, corrections or repairs to the hoist, the ropes, the shaft conveyance or any other part of the hoisting, dumping or loading equipment, over the signature of the person in charge of such equipment or accessories thereto.

(4) The Hoisting Machinery Record Book shall be made available to the engineer at all times. 1961-62, c. 81, s. 386, amended.

HOISTING ROPES

345.—(1) The connecting device between the hoisting rope and the bucket, cage, skip, counterweight or other device shall be of such nature that the risk of accidental disconnection is reduced to a minimum.

(2) Such connecting device shall be of a design approved by the chief engineer.
(3) No open-hook device shall be used for such purpose.

(4) The drum end of the rope shall be fastened to the spider of the drum or around the drum shaft in some suitable manner. 1961-62, c. 81, s. 368, amended.

(5) The rope from the counterweight shall be attached to the drum of the hoist and not to the shaft conveyance in drum hoist installations. 1961-62, c. 81, s. 384.

346. In no case shall a rope that has been spliced be used for hoisting purposes. 1961-62, c. 81, s. 369.

347.—(1) No drum hoist shall be operated with less than three turns of rope on the drum when the bucket, cage or skip is at the lowest point in the shaft from which hoisting is effected.

(2) No drum hoist shall be operated with more than three complete layers of rope on the drum when the conveyance is at the highest point of travel in the shaft. 1961-62, c. 81, s. 370, amended.

348.—(1) No hoisting rope, tail rope, guide rope, or rubbing rope shall be used that has not been tested by the Ontario Government Cable Testing Laboratory and for which a certificate of the test is not in the possession of the user.

(2) In friction hoist installations, where multiple ropes are used and when manufactured have been laid up continuously, a specimen shall be submitted for test, cut from the portion between each pair of ropes,

(a) in the case of four ropes, two specimens shall be required;

(b) in the case of three ropes, two specimens shall be required;

(c) in guide and rubbing rope installations and where these ropes have been laid up continuously, a specimen shall be submitted for test, cut from the portion between each pair of ropes.

(3) No hoisting rope, tail rope, guide rope or rubbing rope shall be used that is not accompanied by a certificate from the manufacturer giving the following information:
1. Name and address of manufacturer.
2. Manufacturer's rope number.
3. Date of manufacture.
4. Diameter of rope in inches.
5. Weight per foot in pounds.
6. Rope construction.
7. Class of core.
8. Trade name of interior rope lubricant.
9. Number of wires in strand.
10. Grade of steel.
11. Diameter of wires in decimals of an inch.
12. Breaking stress of steel of which the wire is made in pounds per square inch.
14. Actual breaking load of rope, as provided by the certificate referred to in subsection 1.
15. Length of rope.

(4) When a rope is put into service in a shaft compartment or hoisting way, the data mentioned in subsection 3 shall be entered in a book called the Rope Record Book, together with the following information:

1. Name of person from whom purchased.
2. Date of purchase.
3. Date put on in present location.
4. Identification number of rope.
5. Name of shaft or winze and compartment in which rope is used.
6. Weight of shaft conveyance.
7. Weight of material carried, or weight or tension applied to guide or rubbing rope.

8. Maximum length of rope in service below sheave or total length of guide or rubbing rope.

9. Maximum weight of rope in service below sheave or total weight of guide or rubbing rope.

10. Static factors of safety at conveyance suspension and at head sheave with rope fully let out, or at guide or rubbing rope suspension point.

11. Date put on and removed from previous locations, if any.

(5) A copy of such entries shall be forwarded to the chief engineer at the time the rope is put on in any location.

(6) The manager shall keep or cause to be kept at the mine a book called the Rope Record Book, in which shall be recorded, in addition to the information referred to in subsections 3 and 4, the following information:

1. A history of the rope, giving the date on which the rope was first put on.

2. Dates of shortening.

3. Dates and results of breaking and electromagnetic tests.

4. Date and reason for taking out of service, for each occasion the rope is put into and taken out of service.

(7) The Rope Record Book shall be available to the district electrical-mechanical engineer.

(8) When a hoisting rope, tail rope, guide or rubbing rope is taken out of service from a shaft compartment, notice to that effect shall be forwarded to the chief engineer, giving the date, the reasons for discarding or discontinuing the use of the rope, disposition of the rope, and such other information as he requires. 1961-62, c. 81, s. 371, amended.
349.—(1) No hoisting rope, tail rope, guide or rubbing rope that has previously been in use in a place beyond the control of the manager shall be put in service anew, except with the permission in writing of the chief engineer.

(2) Request for permission to use such rope shall be accompanied by certification that the rope has been properly examined and that no apparent defects have been found.

(3) The rope shall be electro-magnetically tested throughout its length and copies of the results, together with the interpretations, shall be sent to the chief engineer and to the district electrical-mechanical engineer within fourteen days after the test was made.

1961-62, c. 81, s. 372, amended.

350. No hoisting rope, tail rope, guide or rubbing rope that has been removed from service shall be put in service anew for the purpose of lowering or raising persons, unless proper measures have been taken for the maintenance of the rope and the manager is satisfied that the rope is in safe working condition.

1961-62, c. 81, s. 373, amended.

351. When a shaft compartment has been abandoned for hoisting purposes, the hoisting rope shall be removed immediately from the shaft.

1961-62, c. 81, s. 374, amended.

352. No hoisting rope shall be reversed until approval in writing has been received from the chief engineer.

1961-62, c. 81, s. 375, amended.

353.—(1) For the purpose of this section, the factor of safety of the hoisting rope, tail rope, guide or rubbing rope in a shaft or winze of a mine means the number of times the breaking strength of the rope is greater than the total weight supported by the rope at a definite place in the rope.

(2) The breaking strength of the rope means the breaking strength of the rope as shown in the test certificate issued by the Ontario Government Cable Testing Laboratory before the rope is installed, as required by subsection 1 of section 348.
(3) Every hoisting rope, when newly installed on a drum hoist, shall have a factor of safety of not less than 8.5 at the end of the rope where it is attached to the conveyance and where the total weight consists of the combined weight of the conveyance and the maximum load to be carried.

(4) In addition, the hoisting rope, when newly installed, shall have a factor of safety of not less than 5 at the point where the rope leaves the head sheave and, the rope being fully let out, the total weight consists of the combined weight of the conveyance plus the maximum load to be carried plus the weight of that part of the rope that extends from the head sheave to the conveyance.

(5) The factor of safety of the hoisting ropes for a given friction hoist installation is the lowest actual breaking strength, as determined by the Ontario Government Cable Testing Laboratory, for the ropes, times the number of ropes, divided by the sum weight of the conveyance and attachments, the maximum conveyance load carried and the maximum weight of rope suspended in one compartment of the shaft.

(6) When the hoisting rope is installed on a friction hoist, the factor of safety shall be not less than that determined from the following formula: \( F.\ of\ S. = 8.0 - 0.0005d \), where \( d \) is the maximum length of rope suspended below the head sheave in feet.

(7) For friction hoists, the factor of safety of the hoisting ropes shall be not less than 5.5 for any depth of shaft when the ropes are installed.

(8) The factor of safety of tail ropes shall be not less than 7 when installed.

(9) The factor of safety of guide and rubbing ropes shall be not less than 5 when installed. 1961-62, c. 81, s. 376, amended.

354.—(1) No hoisting rope shall be used in a shaft or winze of a mine where in any part of the rope,

(a) the existing strength has decreased to less than 90 per cent of the original strength of the rope;

(b) the extension of a test piece has decreased to less than 60 per cent of its original extension when tested to destruction;
(c) the number of broken wires in any section of the rope equalling the length of one lay of the rope exceeds six;

(d) marked corrosion occurs;

(e) the rate of stretch in a friction hoisting rope begins to show a rapid increase over the normal stretch noted during its service. 1961-62, c. 81, s. 377, amended.

(2) No tail rope, guide or rubbing rope shall be used in a shaft where in any part of the rope,

(a) the existing strength has decreased to less than 75 per cent of the original strength of the rope;

(b) the extension of a test piece has decreased to less than 60 per cent of its original extension when tested to destruction;

(c) the number of broken wires in any section of the rope equalling the length of one lay of the rope exceeds six;

(d) marked corrosion occurs. New.

355.—(1) The rope dressing used on a drum hoisting rope shall be suited to the operating conditions of the rope, and the dressing shall be applied at least once in every month and as often as is necessary to maintain the coating on the rope in good condition.

(2) Every time the rope is dressed, a report of the treatment shall be recorded in the Hoisting Machinery Record Book and signed by the person who performed the work. 1961-62, c. 81, s. 378.

356.—(1) After 18 months of service, and thereafter at intervals of six months, the hoisting rope of a drum hoist shall have a portion not less than 8 feet in length cut off the lower end from a position above the clamps or other attachment.

(2) The portion of rope so cut shall have the ends adequately fastened with binding wire before the cut is made to prevent the disturbance of the strands and it shall be sent to the Ontario Government Cable Testing Laboratory for a breaking test. 1961-62, c. 81, s. 379 (1, 2), amended.
Recording of test

(3) The certificate of the test shall be kept on file and a summary thereof recorded in the Rope Record Book. 1961-62, c. 81, s. 379 (4).

Electromagnetic testing

(4) All hoisting ropes on drum hoists and friction hoists shall be tested throughout their working length by an electro-magnetic testing device within the first six months of service, and thereafter at intervals of four months, or as required by the chief engineer.

Idem

(5) All tail ropes, guide and rubbing ropes shall be electro-magnetically tested at the end of twelve months service, and thereafter at such intervals as is necessary to ensure that the rope is in safe condition.

Idem

(6) The electro-magnetic testing service and the agency or company supplying such service shall be approved by the chief engineer.

Tests to be recorded

(7) The dates and results of the electro-magnetic tests shall be entered in the Rope Record Book.

Submission of results

(8) Records of each electro-magnetic test, including graphs and interpretations, over the signature of the person making the interpretation, shall be sent to the chief engineer and to the district electrical-mechanical engineer within fourteen days after the test is made. New.

Special testing of used hoisting ropes

357.—(1) The chief engineer may require that test specimens be cut from any rope discarded for use in mine hoisting at points specified by him and sent to the Ontario Government Cable Testing Laboratory for special testing and investigation if he is of the opinion that such testing and investigation are in the interests of better mine hoisting practice.

No charge for testing

(2) No charge shall be made for such special testing and investigation, but the mine is responsible for the cost of cutting, preparation and shipment of the test specimens. 1961-62, c. 81, s. 380, amended.

CLEARANCE FOR TAIL ROPES

358. Water and spillage in a shaft sump in a mine shall be kept at such a level at all times that,

(a) tail ropes have clear passage; and

(b) guide and rubbing rope connections and tension devices are clear. 1961-62, c. 81, s. 381, amended.
ROPE ATTACHMENTS

359.—(1) Any rope in hoisting service when newly put on, and after any subsequent loosening of the connecting attachments between the rope and the bucket, cage, skip or counterweight and the connection between the rope and the hoist drum, shall have the attachments carefully examined by a qualified person or persons authorized by the manager and shall not be used for ordinary transport in a shaft or winze until two complete trips up and down the working parts of the shaft or winze have been made with the bucket, cage, skip or counterweight bearing its authorized load, and the connecting attachments have been re-examined. 1961-62, c. 81, s. 382 (1), amended.

(2) The hoistman shall make a record of such two complete trips in the Hoistman's Log Book.

(3) The results of the examination of the connecting attachments between the bucket, cage, skip or counterweight and hoist drum and the rope shall be recorded in the Hoisting Machinery Record Book and signed by the person making the examination. 1961-62, c. 81, s. 382 (2, 3).

360.—(1) In drum hoist installations, after every six months of service, that portion of the rope at the conveyance end within the clamps shall be cut off and discarded.

(2) At such time, the connection between the rope and the drum shall be thoroughly cleaned and examined.

(3) In friction hoist installations, after every six months of service, the position of the hoisting rope within the clamps shall be changed, if practicable, or that portion of the rope within the clamps shall be thoroughly cleaned and examined.

(4) Every six months, the tail rope, guide and rubbing rope attachments and tensioning devices shall be thoroughly cleaned and examined. 1961-62, c. 81, s. 383, amended.

EXAMINATION OF ROPES AND SAFETY APPLIANCES

361.—(1) The manager shall depute a competent person or persons who shall examine,
(a) at least once in each day, the exterior of the hoisting rope and tail rope to detect the presence of kinks or other visible damage and to note the appearance of the rope dressing;

(b) at least once in each month, the structure of that portion of the hoisting rope that is not on the hoist drum when the conveyance is at its lowest stopping point, and the tail, guide and rubbing ropes, with a view to ascertaining the deterioration thereof, and for the purpose of this examination the rope shall be cleaned at points selected by such person or persons, who shall note any reduction in the diameter or circumference of and the proportion of wear in the rope, and the starting point of the examination shall be changed slightly from month to month in order to obtain more complete information, but any portion showing appreciable reduction in diameter or circumference or appreciable wear shall be checked when the rope is again examined;

(c) at least once in each month, the portion of the rope that normally remains on the drum of a drum hoist when the conveyance is at its lowest stopping point, and shall lubricate such portion, and, if, during the examination of the rope, significant deterioration is found in the portion on the drum or at the cross-over points, the rope shall be shortened sufficiently to eliminate any crushed portion or to change the position of the cross-over points if either or both are necessary;

(d) at least once in each day, the safety catches, if any, of the conveyance, to be sure they are clean, sharp and in proper adjustment and working condition;

(e) at least once in every three months, the safety catches of the cage or other shaft conveyance so equipped by testing the same, such test to consist of releasing the empty conveyance suddenly in some suitable manner from rest so that the safety catches have the opportunity to grip the guides, and, in case the safety catches do not act satisfactorily, the cage or other shaft conveyance shall not be used further for lowering or raising men until the safety
safety catches have been repaired and have been proved to act satisfactorily, as referred to in paragraph 9 of section 324. 1961-62, c. 81, s. 385 (1), amended.

(2) In friction hoist installations, the stretch of the hoisting rope or ropes shall be measured and recorded in the Friction Hoist Machinery Record Book.

(3) In friction hoist installations, measurement of rope diameters and the location and number of broken wires shall be recorded monthly in the Friction Hoist Machinery Record Book. 1961-62, c. 81, s. 385 (2, 3).

(4) If the district electrical-mechanical engineer deems it necessary, he may, after consultation with the manager, conduct or cause to be conducted specific tests of the safety catches with which a conveyance is equipped.

(5) If on examination there is discovered any weakness or defect whereby the safety of persons may be endangered, the weakness or defect shall be immediately reported to the manager or person in charge and, until the weakness or defect is remedied, the hoisting plant shall not be used. 1961-62, c. 81, s. 385 (4, 5), amended.

(6) It is the duty of the person referred to in subsection 1 to record the reports of all examinations therein referred to and also to record all reports referred to in subsection 5 in a book called the Hoisting Machinery Record Book or the Friction Hoist Machinery Record Book, whichever is applicable. 1961-62, c. 81, s. 385 (6).

HOIST LOADING

362.—(1) In this section,

(a) "authorized maximum load of persons" means the total weight of persons permitted by the district mining engineer to be carried at any time in the shaft conveyance;

(b) "maximum allowable weight" means the maximum weight permitted by this Part to be attached to the rope in service or the maximum weight attached to the rope that the hoist is capable of handling or the maximum weight of material that the conveyance is capable of handling whichever is the least. 1961-62, c. 81, s. 318 (1), amended.
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>Every drum hoist shall be accompanied by a certificate from the manufacturer, or an independent person approved by the chief engineer, giving the maximum permissible rope pull for each drum and the maximum permissible suspended load of the hoist, and the hoist shall not be loaded beyond the maximum loads so specified. 1961-62, c. 81, s. 367 (1), amended.</td>
</tr>
<tr>
<td>3</td>
<td>Every friction hoist shall be accompanied by a certificate from the manufacturer, or an independent person approved by the chief engineer, giving the maximum rated unbalanced load and the maximum rated suspended load of the hoist, and the hoist shall not be loaded beyond the maximum loads so specified. New.</td>
</tr>
<tr>
<td>4</td>
<td>No alterations designed to increase the hoisting capacity shall be made to a hoist unless approval is given by its manufacturer or an independent person approved by the chief engineer. 1961-62, c. 81, s. 367 (2), amended.</td>
</tr>
<tr>
<td>5</td>
<td>Except as provided in clause b of subsection 1, the maximum allowable load to be lowered or raised on the shaft conveyance of a drum hoist means the maximum allowable weight at the end of the rope less the weight of the conveyance.</td>
</tr>
<tr>
<td>6</td>
<td>The maximum material-load allowed on the conveyance of a friction hoist shall be determined from the lesser of the following calculations:</td>
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</table>

1. Maximum allowable suspended load on the hoist, less the weight of the hoisting ropes, less the weight of tail ropes, less the weight of the conveyances and the attachments.

2. The breaking strength of the rope, divided by the required factor of safety, minus the maximum weight of rope suspended in one compartment, minus the weight of the conveyance and attachments in that compartment; and, where multiple ropes are used, the lowest breaking strength of any rope shall be used for all ropes in load calculations.

3. The unbalanced load on the hoist as rated by the manufacturer, which shall not be exceeded.
4. The maximum allowable load on any conveyance, which shall not be greater than that for which the conveyance was rated by the manufacturer. 1961-62, c. 81, s. 318 (7), amended.

(7) Where a shaft conveyance is used for the lowering or raising of both persons and materials, the weight on the conveyance when handling its authorized maximum load of persons, shall not exceed 85 percent of the materials maximum allowable weight permitted for materials. 1961-62, c. 81, s. 318, (3, part, 4), amended.

(8) The manager shall obtain from the district mining engineer resident in the district a certificate in writing setting out the maximum loads of persons or materials that may be carried in the shaft conveyance before persons are so carried. 1961-62, c. 81, s. 318 (3), part, amended.

(9) The district mining engineer may issue the certificate referred to in subsection 8 if he is satisfied that the hoisting installation and signalling equipment meet the requirements of this Act. 1961-62, c. 81, s. 318 (5), amended.

SHAFT HOISTING PRACTICE

363.—(1) The hoisting of persons or materials in a mine by automatic control is subject to the approval of the chief engineer.

(2) Where a hoist in a mine is being operated by automatic control and no other means of hoisting persons is provided, there shall be available a person qualified to operate the hoist manually when persons are underground. 1961-62, c. 81, s. 303, amended.

364.—(1) Where steel, timber or other material is being lowered or raised in a shaft conveyance in a mine, it shall be loaded in such a manner as to prevent it from shifting its position, and, if necessary, it shall be secured to the conveyance.
(2) When such material projects above the sides of the conveyance, it shall be securely fastened to the conveyance or lashed to the hoisting rope in such a manner as not to damage the rope. 1961-62, c. 81, s. 304, amended.

365. Where a crosshead is not used in a vertical shaft or winze in a mine, the compartment in which the bucket works shall be closely lined with sized lumber. 1961-62, c. 81, s. 305, amended.

366. In the course of sinking a shaft or winze in a mine, the bucket or skip shall be filled only in such a manner that no piece of loose rock projects above the level of the brim. 1961-62, c. 81, s. 306, amended.

367. In shaft-sinking operations in a mine, where the hoisting speed exceeds 1,000 feet per minute, persons shall ride in the bucket above the bottom crosshead stop. 1961-62, c. 81, s. 307, amended.

368.—(1) During sinking operations in a shaft or winze in a mine, the bucket or skip used for returning persons to the working place following a blasting operation shall not be lowered on the initial trip beyond the point where, owing to the blast, it may be unsafe to go without a careful examination, and in no case shall the point be less than fifty feet above the blasting set or bulkhead.

(2) The bucket or skip shall be lowered from such point only on signal from the persons accompanying it and at such speed as to be fully under control, by signal, of such persons.

(3) Only sufficient persons shall be carried on such a trip as are required to properly conduct a careful examination of the shaft or winze. 1961-62, c. 81, s. 308, amended.

369. In the course of sinking a shaft or winze in a mine, the bucket or skip shall not be lowered directly to the bottom but shall be held at least fifteen feet above the bottom and shall remain there until a separate signal to lower it has been given by an authorized person. 1961-62, c. 81, s. 309, amended.

370. No bucket shall be allowed to leave the top or bottom of a shaft or winze in a mine until the person in charge of it has steadied it or caused it to be steadied. 1961-62, c. 81, s. 310, amended.
371.—(1) In the course of sinking a shaft or winze in a mine, adequate provision shall be made and maintained to ensure the impossibility of the bucket or skip being dumped while the dumping doors are open and means shall be applied to prevent spillage from falling into the shaft or winze.

(2) A door or doors to cover the sinking compartments shall be provided and maintained at the collar or other point of service of every shaft or winze in a mine while sinking is in progress.

(3) The design of the things required under subsections 1 and 2 shall be submitted for the approval of the approved district electrical-mechanical engineer before such things are installed.

(4) The door or doors referred to in subsection 2 that are referred to in subsection 2 that are at the point of loading shall be kept closed when tools or material are being loaded into or unloaded from the bucket or skip, except when the bucket or skip is unloaded by dumping arrangements as provided for in subsection 1.

(5) The door or doors referred to in subsection 2 shall be closed when persons are loaded or unloaded, except where a safety crosshead fills the compartment at the collar or other point of service. 1961-62, c. 81, s. 311, amended.

(6) Any doors or other shaft fixture which when moved into the travel area of a shaft compartment would interfere with free passage of the conveyance shall be so equipped that their position is indicated to the hoistmen by signal lights. New.

372. Except during sinking operations, whenever a mine shaft or winze exceeds 300 feet in vertical depth, a suitable cage or skip constructed as required by sections 323 and 324 shall be provided for lowering or raising men in the shaft or winze. 1961-62, c. 81, s. 312, amended.

373.—(1) No person shall travel or be permitted to travel in a cage at any time, except during shaft inspection, unless the doors of the cage are securely closed. 1961-62, c. 81, s. 313 (1).

(2) The doors of a cage shall not be opened until a full stop has been made at the point or station signalled except,
(a) during trips of inspection; and

(b) as permitted by subsection 3. 1961-62, c. 81, s. 313 (2), part, amended.

374.—(1) Where chairs are used for the purpose of landing a shaft conveyance at a point in a shaft or winze, except when hoisting in balance from that point, the chairs shall not be put into operation unless the proper chairing signal has been given to the hoistman.

(2) Chairs shall not be used when persons are in or on a shaft conveyance. 1961-62, c. 81, s. 314, amended.

375.—(1) Except as provided for in clause c of section 376, no person shall travel or be permitted to travel in a bucket, cage or skip operated by a hoist that is being simultaneously used for the hoisting of mineral or material.

(2) No person shall be lowered or raised or permit himself to be lowered or raised in a shaft or other underground opening except in an approved raise climber, or a scaling platform, or in an approved hoisting conveyance as provided for in section 376, but this prohibition does not apply where persons are lowered or raised by hand or by means approved by the district electrical-mechanical engineer for use in construction, maintenance or repair work. 1961-62, c. 81, s. 315, amended.

376. No person shall be lowered or raised or allow himself to be lowered or raised in a shaft, winze, or other underground opening of a mine,

(a) in a bucket or skip, except that persons employed in shaft sinking may ascend and descend to and from the sinking deck or other place of safety and the persons employed in shaft inspection and maintenance may be lowered or raised in the shaft by means of such conveyance;

(b)
(b) in a cage or skip that does not meet the requirements of sections 324 and 326, except as provided for in clause a of this section or section 325;

(c) in a cage, skip or bucket that is loaded with explosives or blasting agents, steel, timber or other material or equipment, except where such person is authorized to handle such material in a cage, skip or bucket and the materials are adequately secured as required by section 364, but nothing in this clause prohibits persons from carrying personal hand tools or equipment approved by the district mining engineer in a shaft conveyance if such tools or equipment are properly protected with guards and the conveyance is not overcrowded;

(d) in any shaft conveyance, except during shaft sinking operations or shaft inspection and maintenance operations, except where a person authorized to give signals is in charge of the shaft conveyance. 1961-62, c. 81, s. 316, amended.

377. Except in the course of sinking a shaft in a mine, no person shall enter or be allowed to enter a shaft conveyance or work upon or under a shaft conveyance when the corresponding drum of the hoist is unclutched, unless the conveyance is first secured in position by chairing or blocking. 1961-62, c. 81, s. 317, amended.

378. Permission shall be obtained from the chief engineer before a skip or bucket is used for lowering or raising persons in a shaft or winze of a mine, except during sinking, inspection or maintenance operations. 1961-62, c. 81, s. 338 (2), amended.

379. Where a bucket is used in a shaft or winze in a mine for other than sinking purposes,

(a) a set of doors as required by subsection 2 of section 371 shall be installed at the collar and every point of service of the shaft or winze;

(b) a suitable landing device shall be used at every working level when the bucket is being loaded or unloaded at that level; and
(c) simultaneous operations shall not be carried on at more than one level until the style of structure and method of operation of any such device installed at intermediate levels have been submitted to and have received the approval of the district mining engineer. 1961-62, c. 81, s. 270, amended.

CONVEYANCE NOTICES AND DISCIPLINE

Notice to be posted

380.—(1) A notice showing clearly the number of persons allowed to be carried in and the weight of materials allowed to be loaded on the conveyance, as referred to in subsection 6 of section 362, shall be posted and maintained at the collar of the shaft or winze.

Responsibility

(2) The person authorized to give signals is responsible for the observance of such notice. 1961-62, c. 81, s. 319, amended.

Lamps

381.—(1) When persons are being lowered or raised in a cage or skip, no person, other than the cagetender or skiptender, shall have a burning open-flame lamp of any kind, except that, for shaft inspection or similar purposes, a sufficient number of lighted lamps shall be permitted.

Discipline to be maintained

(2) When persons are being lowered or raised in a cage or skip a proper discipline of the persons riding in the cage or skip shall be maintained.

Obstruction prohibited

(3) No person shall obstruct the enforcement of the requirements of subsection 1 of section 380 or this section. 1961-62, c. 81, s. 320, amended.

SIGNALS

Signal systems

382. Every working shaft in a mine shall be provided with a suitable means of communicating by distinct and definite signals to the hoist room from the bottom of the shaft, from every working level, from the collar and from every landing deck. 1961-62, c. 81, s. 321, amended.

Separate system for each compartment

383. A separate, audible signal system shall be installed for the control of each hoisting conveyance operated from a single hoist in a mine, and there shall be a sufficient difference in the signals to the hoistman so that they are easily distinguishable. 1961-62, c. 81, s. 322, amended.
384.—(1) Where an electrical signal system is installed in a mine, the hoistman shall return the signal to the person giving the signal when persons are about to be lowered or raised. 1961-62, c. 81, s. 323, amended.

(2) Where multi-deck staging is being used for shaft-sinking in a mine, an audible or visible return signal staging system shall be installed and used. New.

385. No device for signalling to or communicating with the hoistman shall be installed or operated in or on any shaft conveyance in a mine without the written permission of the chief engineer. 1961-62, c. 81, s. 324, amended.

386. No cage call system communicating with the hoist-room shall be installed or used at a shaft or winze in a mine. 1961-62, c. 81, s. 325, amended.

387.—(1) The following code of signals shall be used at every mine and a copy of such code shall be printed and kept posted in every hoist room and at every level or other recognized landing place in every working shaft or winze:

1 bell .... Stop immediately — if in motion (Executive Signal).

1 bell .... Hoist (Executive Signal).

2 bells .... Lower (Executive Signal).

3 bells .... Men travelling in hoisting conveyance (Cautionary Signal). This signal shall be given by the conveyance tender at all levels before any person, including the conveyance tender, is permitted to enter or leave the conveyance. Where a stop exceeds one minute, the 3-bell signal shall precede the next destination signal. Where a return-bell signal system is installed, the hoistman shall return the 3-bell signal before any person is permitted to enter or leave the conveyance.

4 bells .... Blasting Signal. The hoistman shall answer by raising the bucket, cage or skip a few feet and letting it back slowly. Following a 4-bell signal, only
a 1-bell signal shall be required to signal for hoisting persons away from a blast and the hoistman shall remain at the controls until the act of hoisting has been completed.

5 bells . . . . Release Signal. The hoistman may act at his own discretion to perform any movements, or series of movements, involving the conveyance or conveyances designated by the destination signals referred to in section 388. Where a return-signal system is installed, the hoistman shall return the signals and may then act at his own discretion. On the completion of the necessary movements, he shall not move the hoist again until he has received a new signal.

9 bells . . . . Danger Signal (Special Cautionary). To be given only in case of fire or other danger. The signal for the level at which the danger exists should be given following the giving of the danger signal. This signal to be given only on the call system or voice communication system except in shaft sinking and maintenance. 1961-62, c. 81, s. 326 (1), amended.

(2) The following method and order shall be observed in giving signals:

1. Strokes on the bell shall be made at regular intervals.

2. Signals shall be given in the following order: 1st, Cautionary Signals; 2nd, Destination Signals; 3rd, Executive Signals. 1961-62, c. 81, s. 326 (2).

388.—(1) At every mine, other signals, termed destination signals, in conjunction with the code set forth in subsection 1 of section 387 shall be used to designate all regular stopping points. 1961-62, c. 81, s. 327 (1), amended.

(2) Special signals shall be used to designate all special hoisting movements. 1961-62, c. 81, s. 327 (2).
(3) Special signals shall be easily distinguishable from the code set forth in subsection 1 of section 387 and shall not interfere with it in any way and shall follow the Department's standard mine signal code, and any deviation from the latter shall be approved by the chief engineer.

(4) Such destination signals and other special signals approved for use at any mine and an adequate description of their application to the movements required shall be posted at every hoist, at the top of the shaft or winze and at every working level of the shaft or winze. 1961-62, c. 81, s. 327, amended.

389.—(1) Except as provided in subsection 2, the hoistman shall not move the hoisting conveyance within a period of ten seconds after receiving a signal designating a movement at any time that persons are carried. 1961-62, c. 81, s. 328 (1), amended.

(2) The waiting period mentioned in subsection 1 is not required where throughout the shaft or winze the executive signal given only after the hoisting conveyance doors and the shaft gates have been completely closed and the person giving the signal is inside the conveyance or in the shaft station or other recognized landing place.

(3) In case the hoistman is unable to act within one minute of the time he has received any complete signal, he shall not move the hoisting conveyance until he has again received another complete signal. 1961-62, c. 81, s. 328 (2), amended.

390.—(1) After a hoistman has received a 3-bell signal, he shall remain at the hoist controls until he has received the signal designating the movement required and has completed that movement. 1961-62, c. 81, s. 329 (1).

(2) After the hoistman has commenced the movement, he shall complete it without interruption, unless he receives a stop signal or in case of emergency. 1961-62, c. 81, s. 329 (2), amended.

391. Except in case of emergency, no person shall speak to the hoistman while the hoist is in motion, and a sign to this effect plainly visible to any person approaching the hoist controls shall be kept posted at all times. 1961-62, c. 81, s. 331, amended.
392.—(1) Except as provided in subsection 2, the hoistman shall not move the hoisting conveyance until he has received a proper signal. 1961-62, c. 81, s. 332, part, amended.

(2) In the event of an inadvertent stop at some point in the shaft or winze other than at a station from which a signal may be given, the hoistman may move the conveyance when he has assured himself that the hoist controls are in proper working order and, when lowering or raising persons he has received instructions from an authorized person. 1961-62, c. 81, s. 332, part, amended.

393.—(1) No person, unless he is authorized so to do, shall give any signal for moving or stopping a bucket, cage or skip in a mine.

(2) No unauthorized person shall give any signal or in any way interfere with the hoist signalling arrangements.

394.—(1) A system shall be installed in any active shaft or winze to provide voice communication between the collar and regular landing places. 1961-62, c. 81, s. 334 (1) amended.

(2) Such installations shall be provided at suitable intervals. New.

395. No signal shall be given unless the bucket, cage or skip is at the level from which the signal is to be given. 1961-62, c. 81, s. 335.

396.—(1) Except when the hoist is operating under automatic control, the hoistman shall remain at the hoist controls at all times the hoist is in motion. 1961-62, c. 81, s. 330, amended.

(2) Before a hoistman leaves the hoist controls, he shall ensure that the brakes are fully set and that there will be no inadvertent motion of the hoist drums. New.

(3) No person, unless he is authorized so to do, shall operate any equipment for controlling the movement of the hoist or interfere with the equipment. 1961-62, c. 81, s. 333, amended.
HOISTING PROCEDURE

397.—(1) If at the commencement of a shift there has been a stoppage of hoisting in a shaft for a period exceeding two hours duration, no regular hoisting shall be done until the shaft conveyance has made one complete trip through the working part of the shaft or, where shaft repairs have been made, a return trip of the shaft conveyance has been made through and below the affected part of the shaft.

(2) The hoistman shall record all such stoppages and trips in the Hoistman’s Log Book. 1961-62, c. 81, s. 344, amended.

398. Where a hoist is equipped with an auxiliary overwind device for preventing persons from being hoisted to the dumping position in skips or in skips of skip-cage assemblies as required in section 533, the hoistman shall place the device in operation or assure himself that it is in operation at all times that persons are in or on the conveyance. 1961-62, c. 81, s. 345, amended.

399. Where obstructions such as those referred to in section 527 may exist, the hoistman shall not lower or raise the shaft conveyance without proper authority. 1961-62, c. 81, s. 346, amended.

400. All overwind and underwind devices shall be tested at least once during every twenty-four hours of operation and a record of the test shall be posted immediately in the Hoistman’s Log Book. 1961-62, c. 81, s. 347, amended.

401.—(1) The operator of a hoist shall, after going on shift and before a conveyance is lowered or raised, assure himself that the brake or brakes are in proper condition to hold the loads suspended on the corresponding drum or drums by testing the brakes of the drums against the normal starting power of the engine or, in the case of an electric hoist, against the normal starting current.

(2) The operator of a hoist shall not unclutch a drum of the hoist until the test mentioned in subsection 1 has been made. 1961-62, c. 81, s. 348, amended.

402.—(1) Where a hoist is fitted with a friction clutch, the operator shall, after going on shift and before a conveyance is lowered or raised, test the holding power
of the clutch, the brake of the corresponding drum being kept on and the brake of the other drum being kept off.

(2) In the case of a steam or air hoist, the test mentioned in subsection 1 shall be made against the normal starting power of the engine and, in the case of an electric hoist, against the normal starting current. 1961-62, c. 81, s. 349, amended.

Use of brake when drum unclutched

403.—(1) When the drum of a hoist is unclutched, the brake of the drum shall be used only for the purpose of maintaining the drum in a stationary position, and no lowering shall be done from an unclutched drum. 1961-62, c. 81, s. 350.

Unclutching procedure

(2) Before commencing unclutching operations, the hoistman shall ensure that the brakes have been applied on both hoist drums. New.

When clutch to be kept in

(3) When persons are in or on a shaft conveyance, the corresponding drum of the hoist shall be kept clutched in. 1961-62, c. 81, s. 351, amended.

HOISTMAN'S LOG BOOK

404.—(1) At every shaft or winze hoist, there shall be kept a Hoistman’s Log Book in which the following shall be recorded:

1. A report of the working condition of the hoist, including the brakes, clutches, interlocking devices between the brake and clutch, depth indicators and all other devices and fittings pertaining to the safe operation of the hoist.

2. A report of the working condition of the signalling apparatus and a notation of any signals received by the hoistman, the accuracy of which he has questioned.

3. Any special instructions received involving the safety of persons, such entry to be signed by the hoistman and by the person issuing the instructions.

4. A report of the tests of the overwind and underwind devices.
5. Where the required tests of the overwind and underwind devices are conducted by a hoistman operating on another shift, the hoistman assuming duty shall note over his signature that he has examined the entry in the log book of the hoistman who performed the tests.

6. A report of all abnormal circumstances in connection with the operation of the hoist or attachments thereto and such abnormal conditions as have come to the hoistman's knowledge in connection with the hoisting operations in the shaft or winze.

7. A report of all trial trips referred to in sections 359 and 397.

(2) A notification to the hoistman on a succeeding period of duty of any special circumstances or matter affecting the continued operation of the hoist or the safety of persons in the shaft or winze shall be made in the Hoistman's Log Book. 1961-62, c. 81, s. 352 (1, 2).

(3) All such entries shall be read and countersigned by the hoistman assuming duty for the succeeding period. 1961-62, c. 81, s. 352 (3), amended.

(4) Such entries as are required by this section shall be made and signed by every hoistman for his period of duty on a shaft or winze hoist and the time and duration of his period of duty shall also be noted, and such entries as have been made during the preceding twenty-four hours shall be read and countersigned each day by the master mechanic or other authorized person. 1961-62, c. 81, s. 352 (4).

(5) The log book shall be available to the district engineer at all times. New.

RAISE CLIMBERS

405.-(1) Raise climbers shall be fitted with more than one means of braking, each capable of stopping the climber and holding it in place.

(2) The operator of a raise climber shall ensure at the beginning of his shift that the brakes are in safe working condition.

(3) Raise climbers shall be maintained in safe operating condition.

(4) The rated load capacity of a raise climber as certified by the manufacturer shall not be exceeded.
(5) Where raise climbers are used pursuant to section 263 or subsection 2 of section 375, an approved log book shall be maintained.

(6) A record of inspections, maintenance and repairs shall be maintained in the log book.

(7) The log book shall be available to the district engineer at all times. 1961-62, c. 81, s. 387, amended.

PITS AND QUARRIES

406.—(1) In workings of clay, sand, gravel or other types of unconsolidated material, the method of removing material by undermining shall not be used. 1961-62, c. 81, s. 411 (1).

(2) Where mechanical equipment is not used, no working face in workings of clay, sand, gravel or other types of unconsolidated material shall have a vertical height of more than ten feet unless the material is at a suitable angle to ensure safety. 1961-62, c. 81, s. 411 (2), amended.

(3) Where the thickness of the material exceeds ten feet in vertical depth, the work shall be done in terraces or at a suitable angle to ensure safety.

(4) Where mechanical equipment is used in loading clay, sand, gravel or any other type of unconsolidated material, unless the material is at a suitable angle of repose, no working place shall have a vertical height of more than five feet above the top of the boom or the bottom of the bucket raised to its highest operating position. 1961-62, c. 81, s. 411 (3, 4).

(5) No internal combustion engine shall be installed or operated in any pit or quarry unless adequate provision is made to ensure that exhaust gases and fumes will not accumulate therein to a degree that is likely to endanger the safety of any person. New.

407. Unless permission in writing is first obtained from the chief engineer, all open-cut (cast) operations (workings) in consolidated material over sixty-five feet in depth shall be worked in benches not more than sixty-five feet high, and due precautions shall be taken to maintain the walls, benches and broken material in a safe working condition, and no working face shall be advanced by undercutting, except where a tunnelling method is used. 1961-62, c. 81, s. 412, amended.
408. Every pit or quarry dangerous by reason of its depth shall be securely fenced or otherwise protected against inadvertent access. 1961-62, c. 81, s. 413.

409.—(1) In all open-pit workings, all unconsolidated materials, such as clay, earth, sand, gravel, and loose rock, lying within six feet of the rim of the pit or quarry, shall be removed.

(2) Beyond this strip, all overburden shall be sloped to an angle less than its natural angle of repose. 1961-62, c. 81, s. 414.

410.—(1) When dumping material from a vehicle to a stockpile, appropriate precautions considering weather and other relevant conditions shall be taken to keep the vehicle at a safe distance from the edge. 1961-62, c. 81, s. 415.

(2) Two exits shall be provided from a tunnel under a stockpile. New.

411.—(1) Unless the adjoining owners agree to dispense therewith, in sand, clay or gravel or other natural unconsolidated material, excavation operations shall not be carried on within a distance from the property boundary of half the height of the total pit face, and material that sloughs from within this distance shall not be removed. 1961-62, c. 81, s. 416 (1).

(2) Unless the adjoining owners agree to dispense therewith, no quarrying operation shall be carried on in a rock quarry within a distance of fifteen feet from the property boundary.

(3) Subject to subsection 2, where there is overburden in a rock quarry, the natural slope of the overburden shall be allowed for from the property boundary in addition to the six feet required by subsection 1 of section 409. 1961-62, c. 81, s. 416 (2, 3), amended.

412.—(1) No person shall be permitted to work near a pit or quarry wall until the wall has been examined by the supervisor in charge of the crew.

(2) If the wall is found unsafe, the supervisor shall have all hazards removed before permitting any other work. 1961-62, c. 81, s. 417, amended.

413. Derrick guy wires shall be regularly inspected and maintained. 1961-62, c. 81, s. 418.

414.—(1) Every person engaged in work on the wall of a pit or quarry at such operations as barring loose material
material, scaling or cleaning, shall wear continuously a safety belt or safety harness.

Snubbing, etc. (2) The rope of such belt or harness shall be securely snubbed above the working place or the rope may be held taut by an adequate number of persons. 1961-62, c. 81, s. 419, amended.

Hoisting of persons prohibited 415. No person shall be lowered or raised or allow himself to be lowered or raised by means of a hoist or derrick at a pit or quarry unless permission is first obtained in writing from the chief engineer. 1961-62, c. 81, s. 420, amended.

Signalman to clear area 416. Where a load is being hoisted or lowered by means of a hoist or derrick at a pit or quarry, a signalman, where required, shall notify all persons in the vicinity to retire to a place of safety until the load has cleared the danger zone. 1961-62, c. 81, s. 421, amended.

Derail at top of incline 417.—(1) An effective block, automatic derail or safety switch shall be provided at the top of each inclined place at a pit or quarry to prevent cars from accidentally running down.

Exception (2) Such installation, however, is not required where the skip or car remains attached to the hoisting rope. 1961-62, c. 81, s. 422, amended.

Record of primary blasts 418. At all rock quarries and open pits, a record of each primary blast, signed by the person in charge of the blast, shall be kept and the following information recorded:

1. Date, time and location of the blast.

2. Burden, spacing, depth and number of holes blasted.

3. Weight of explosives or blasting agents, footage of top stemming and firing delay detonators used in respect of each hole.

4. Weight of explosives or blasting agents used per estimated ton broken. 1961-62, c. 81, s. 423, amended.

Hoisting signals 419. Unless the movement of a hoisting conveyance at a pit or quarry is visible to the hoistman at all times, a suitable signal system shall be installed and maintained, and suitable signals, approved by the district mining engineer, shall be used. 1961-62, c. 81, s. 424, amended.
420.—(1) At every pit or quarry, there shall be provided and maintained in good working condition a suitable travelling way leading from the working level of the pit or quarry to the surface. 1961-62, c. 81, s. 425 (1), amended.

(2) Where the travelling way is inclined at more than 30 degrees and less than 50 degrees to the horizontal, stairways or ladders shall be provided.

(3) All stairways shall be equipped with substantial and suitably placed hand-rails. 1961-62, c. 81, s. 425 (2, 3).

(4) Where the travelling way is inclined at more than 50 degrees to the horizontal, ladders shall be provided. 1961-62, c. 81, s. 425 (4), amended.

(5) Substantial platforms shall be built at intervals not exceeding twenty-one feet in the ladderway and at all places where the ladders are off-set.

(6) Except for approved access ladders to equipment, no ladder shall be installed at an inclination of more than 70 degrees to the horizontal. 1961-62, c. 81, s. 425 (5, 6).

STEAM, COMPRESSED AIR

421.—(1) Every steam boiler used for generating steam in or about a mine, whether separate or one of a range,

(a) shall have attached to it a proper safety-valve, steam-gauge and water-gauge to show respectively the pressure of steam and the height of water in each boiler; and

(b) shall be inspected by an Ontario Government boiler inspector or by an inspector of a boiler insurance company at least once in every twelve months, and a certified copy of the report of the inspection shall be forwarded to the chief engineer. 1961-62, c. 81, s. 452 (1), amended.

(2) The certificate of inspection shall be kept posted in the boiler room at all times. 1961-62, c. 81, s. 452 (2).

422. Every such boiler, safety-valve, steam-gauge and water-gauge shall be maintained in proper working condition. 1961-62, c. 81, s. 453.
423.—(1) Every air receiver installed at the surface of a mine and those installed with an air compressor underground shall be inspected by an Ontario Government boiler inspector or by an inspector of a boiler insurance company at least once in every twelve months, and a certified copy of the report of the inspection shall be forwarded to the chief engineer.

(2) The certificate of inspection shall be kept posted in the compressor room at all times.

(3) All intercoolers, aftercoolers, inlet and discharge valves on stationary compressors in operation shall be examined at least once in every twelve months and shall be cleaned when necessary. 1961-62, c. 81, s. 454 (1-3).

(4) A temperature-indicating device shall be installed on the high pressure discharge of each compressor and the normal operating temperature of the compressor shall be indicated by a red mark on the scale of the device. 1961-62, c. 81, s. 454 (4, 5), amended.

(5) The temperature shall be observed at regular intervals during the shift and shall be recorded in the compressor log book.

(6) Subsections 3, 4 and 5 do not apply to,

(a) a compressor discharging to atmosphere;

(b) a compressor installation with a prime-mover having a Therm-hour rating of 1.145 or less;

(c) a compressor plant used for compressing air to a pressure of more than 15 pounds per square inch where the total Therm-hour rating of the prime-mover or movers is 1.908 or less; or

(d) a compressor where the cylinders are not lubricated with oil. 1961-62, c. 81, s. 454 (6, 7), amended.

(7) The air receivers mentioned in subsection 1 shall be examined at least once in every twelve months and shall be cleaned when necessary.

(8) A book, available to the district engineer, shall be kept in which shall be recorded the date of every examination and cleaning under subsections 3 and 7 and a note shall be made as to the condition of the appliance examined or cleaned. 1961-62, c. 81, s. 454 (8, 9), amended.
424.—(1) In this section and in sections 425 to 563, governing the use of electricity,

1. "accessible", as applied to equipment, means interpretation permitting close approach due to not being guarded by locked doors, elevation or other effective means;

2. "armoured cable" means a cable provided with an outer covering, fabricated from a metal other than lead, which forms an integral part of the assembly of the cable and is designed primarily to afford mechanical protection;

3. "authorized person" means,
   i. a qualified person who, because of his duties or occupation, is delegated to approach or handle electrical equipment, or
   ii. any other person who, having been warned of the hazards involved, has been instructed or authorized to approach or handle electrical equipment by some person having authority to give the instructions or authorization;

4. "branch circuit" means the part of a circuit that extends beyond the final over-current devices on the circuit;

5. "circuit" means a path through which electric current can flow;

6. "circuit-breaker" means an electro-mechanical device designed to open, under both overload and short-circuit conditions, a current-carrying circuit without injury to the device;

7. "conductor" means a body so constructed from conducting material that it may be used as a carrier of electric current;
8. "contactor" means a device, operated other than by hand, for repeatedly establishing and interrupting an electric power circuit;

9. "disconnecting means" means a device, group of devices or other means whereby the conductors of a circuit can be disconnected from their source of supply;

10. "electrical equipment" means any apparatus, appliance, device, instrument, fitting, fixture, machinery, material or thing used in or for, or capable of being used in or for, the generation, transformation, transmission, distribution, supply or utilization of electric power or energy, and, without restricting the generality of the foregoing, includes any assemblage or combination of materials or things which is used, or is capable of being used or adapted, to serve or perform any particular purpose or function when connected to an electrical installation, notwithstanding that any such materials or things may be mechanical, metallic or non-electric in origin;

11. "feeder" means a conductor, or group of conductors, which transmits electrical energy from a service supply, transformer, switchboard, distribution centre, generator or other source of supply to branch circuit overcurrent devices;

12. "ground" means a connection to earth obtained by a ground electrode;

13. "ground electrode" means a buried metallic water-piping system or metal object or device buried in or driven into the ground so as to make intimate contact therewith and to which a grounding conductor is electrically and mechanically connected;

14. "grounded" means connected effectively with the general mass of the earth through a grounding system having a current-carrying capacity sufficient at all times, under the most severe conditions that are liable to arise in practice, to prevent a current in the grounding conductor from causing a harmful voltage to exist,
i. between the grounded conductors and
neighbouring exposed conducting sur-
faces that are in good contact with the
earth, or

ii. between the grounded conductors and
neighbouring surfaces of the earth
itself;

15. "grounding conductor" means a path of suit-
able metal specially arranged as a means
whereby electrical equipment is electrically
connected to a ground electrode;

16. "grounding system" means all conductors,
clamps, ground clips, ground plates or pipes
and ground electrodes by means of which the
electrical installation is grounded;

17. "guarded" means covered, shielded, fenced,
enclosed or otherwise protected by means of
suitable covers, or casings, barriers, rails or
screens, mats or platforms, to remove the
likelihood of dangerous contact or approach
by persons or objects;

18. "isolating means" means a device, group of
devices or other means intended for isolating
an electric circuit from its source of power and
intended to be operated only after the circuit
has been opened by some other means;

19. "mobile", as applied to electrical equipment,
means the equipment is specifically designed
not to be used in a fixed position;

20. "overcurrent device" means any device cap-
able of automatically opening an electrical
circuit both under pre-determined overload
and short-circuit conditions either by fusing
of metal or by electro-mechanical means;

21. "overload device" means a device affording
protection from excess current but not neces-
sarily short-circuit protection, and capable of
automatically opening an electric circuit
either by the fusing of metal or by electro-
mechanical means;

22. "qualified person" means a person familiar
with the construction and operation of elec-
trical equipment and the hazards involved;
23. "switch" means a device for making, breaking or changing connections in a circuit, and
   i. "general use switch" means a switch that is intended for use in general distribution and branch circuits, is rated in amperes and is capable of interrupting its rated current at rated voltage, and
   ii. "motor circuit switch" means a switch, rated in horsepower, capable of interrupting the maximum operating overload current of a motor of the same horsepower at the rated voltage;

24. "switchboard" means a panel or assembly of panels on which are mounted any combination of switching, measuring, control and protective devices, buses and connections, designed with a view to successfully carrying and rupturing the maximum fault current encountered when controlling incoming and outgoing feeders;

25. "utilization equipment" means equipment, devices and connected wiring that utilize electrical energy for mechanical, chemical, lighting, testing or similar purposes and are not a part of the supply equipment, supply lines or communication lines;

26. "visible break", where applied to a disconnecting means, means a switch or device wherein the separation between all members of the movable and the fixed current-carrying parts may be readily determined by visual inspection;

27. "voltage" or "volts" means the highest effective difference of potential between the conductors of the circuit concerned;

28. "voltage to ground" means,
   i. in grounded circuits, the highest effective difference of potential between any wire of the circuit and ground,
   ii. in ungrounded circuits, the highest effective difference of potential existing in the circuit;

(2) Except where a contrary intent is provided, sections 425 to 563 apply to mines, on surface and underground, and to plants. New.

GENERAL

425. In case of the abandonment of a mine or plant, the owner, agent or manager shall cause the station or stations supplying power to and being the property of the mine or plant to be disconnected from the power source and within fourteen days shall notify the chief engineer in writing that the disconnection has been made. 1961-62, c. 81, s. 456, amended.

426.—(1) Electrical equipment shall be designed, installed and maintained in compliance with the requirements of this Part. 1961-62, c. 81, s. 457.

(2) The district electrical-mechanical engineer shall be notified of any proposed,

(a) major electrical installation;

(b) radio-frequency transmitter installation; or

(c) major extension to existing installations. New.

427. The edition that is current from time to time of the Canadian Electrical Code, Part I, shall be accepted as good practice in the installation of electrical equipment except where it conflicts with the provisions of this Part in which case the provisions of this Part prevail. 1961-62, c. 81, s. 458, amended.

428. All electrical equipment shall be of such construction and so installed and maintained as to reduce fire hazard and injury to persons as far as is practicable. 1961-62, c. 81, s. 459, amended.

429. All electrical equipment shall be suitably identified where necessary for safety. 1961-62, c. 81, s. 460.

430. Electrical equipment shall show a plate bearing the maker’s name and all other ratings, such as horsepower, voltage or current, necessary to prove its suitability. 1961-62, c. 81, s. 461.
(1) Where electrical equipment is used at a mine or plant, it shall be in the charge of an authorized person who shall be qualified by experience to handle such equipment. 1961-62, c. 81, s. 462 (1), amended.

(2) Every person operating or having charge of electrical equipment shall have been instructed in his duty and shall be competent to perform the work that he is set to do.

(3) Repairs, extensions and changes to existing electrical installations shall be made only by qualified persons. 1961-62, c. 81, s. 462 (2, 3).

Temporary wiring and equipment that do not comply with this Part may be used in an emergency, but only when under competent supervision or protected by suitable barriers or warning signs while it or neighbouring wiring is alive and accessible to unauthorized persons, and such temporary installations are permissible only for the period of the emergency. 1961-62, c. 81, s. 463, amended.

Defective equipment shall be put in good order or permanently disconnected.

Defective wiring shall be repaired or removed. 1961-62, c. 81, s. 464.

(1) No repairs or alterations shall be carried out on live equipment except where complete disconnection of the equipment is not practicable.

(2) When repairs or alterations are being made, whether the equipment is alive or dead, all necessary precautions shall be taken to ensure that the work may be done safely.

(3) In places where explosive or highly flammable materials or gases are present, or in wet locations, repairs or alterations shall not be made on live equipment. 1961-62, c. 81, s. 465, amended.

All switches controlling electrical equipment shall be locked or plainly tagged in the open position to prevent the inadvertent closing thereof while work is being done on the apparatus.

Notices placed on electrical equipment shall be of non-conducting materials. 1961-62, c. 81, s. 466.
436.—(1) Where installed electrical equipment presents a fire hazard, each room or space shall be provided with an adequate approved fire-extinguishing appliance, conveniently located and conspicuously marked.

(2) Any fire-extinguishing appliance that has not been approved for use on live parts shall not be placed in a room containing electrical equipment or exposed lines unless a sign is mounted at the appliance warning against its use on electrical fires. 1961-62, c. 81, s. 467.

GROUNDING

437. Grounding conductors shall have adequate protection where exposed to mechanical injury. 1961-62, c. 81, s. 468.

438.—(1) One conductor of all circuits not over 150 volts shall be grounded if exposed to leakage from higher voltage circuits either through overhead construction or through transformers having a primary voltage exceeding 750 volts, except where such circuits form part of a control circuit or signalling system the grounding of which would affect the reliability of service.

(2) Three-wire single-phase circuits not exceeding 300 volts between outer conductors shall have the neutral grounded.

(3) One conductor of the secondary circuits of all instrument transformers shall be grounded unless the circuits are installed and guarded as required for the high-voltage circuits of the transformers. 1961-62, c. 81, s. 469.

439.—(1) For grounding a.c. circuits, the grounding conductors shall have adequate current-carrying capacity and shall be not less than No. 8, A.W.G.

(2) The grounding conductor for secondary circuits of instrument transformers shall not be smaller than the conductors of the secondary circuit. 1961-62, c. 81, s. 470.

440.—(1) The exposed non-current-carrying metal parts of all electrical equipment shall be grounded when practicable,

(a) for all equipment over 150 volts; and

(b)
(b) for all equipment under 150 volts where the exposed non-current-carrying metal parts are within reach of exposed grounded surfaces, such as metal frames of other machines, plumbing fixtures, conducting floors or walls.

(2) Grounded surfaces within five feet horizontally of the parts considered or within eight feet vertically of the floor shall be considered within reach. 1961-62, c. 81, s. 471.

Size of equipment grounding conductor

441.—(1) The minimum size of grounding conductor for raceways and fixed equipment shall be not less than that provided by a copper conductor of a size indicated in the following table:

**MINIMUM SIZE OF GROUNDING CONDUCTOR FOR RACEWAYS AND EQUIPMENT**

<table>
<thead>
<tr>
<th>Rating or Setting of Automatic Overcurrent Device in Circuit Ahead of Equipment, Conduit, etc., Not exceeding—Amperes</th>
<th>Size of Grounding Conductor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Copper Wire</td>
</tr>
<tr>
<td></td>
<td>AWG</td>
</tr>
<tr>
<td>20</td>
<td>16*</td>
</tr>
<tr>
<td>30</td>
<td>14</td>
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<tr>
<td>40</td>
<td>12</td>
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<td>800</td>
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<tr>
<td>1000</td>
<td>00</td>
</tr>
<tr>
<td>1200</td>
<td>000</td>
</tr>
</tbody>
</table>

*Permissible only when part of an approved cable assembly.

(2) Where the grounding conductor is run outside the cable armour or conduit enclosing the associated circuit conductors, the minimum size of such a grounding conductor shall be No. 8, A.W.G. 1961-62, c. 81, s. 472.

442. Flexible cord used to supply portable equipment having a rating of fifteen amperes or less at voltages not exceeding 250 volts shall have included in the cord assembly a grounding conductor whose size shall be,

(a) not smaller than No. 16, A.W.G. if uninsulated, or No. 18, A.W.G. if insulated; and

(b)
(b) at least the same size as the current-carrying conductors, except that, in cords of No. 12, A.W.G. and larger, it may be two A.W.G. sizes smaller than the other conductors. 1961-62, c. 81, s. 473.

443. The grounding conductor, bond or bonding jumper shall be attached to circuits, conduits, cabinets, equipment and the like, which are to be grounded, by means of suitable lugs, pressure connectors, clamps or other approved means. 1961-62, c. 81, s. 474.

444. The grounding conductor shall be of copper or other metal that will not corrode excessively under the existing conditions. 1961-62, c. 81, s. 475.

445.—(1) Ground connections to metallic water or air systems shall be made beyond any point liable to disconnection.

(2) Main water or air lines shall be substantially bonded together for this purpose, but shall, unless connected to a buried piping system of considerable extent that will provide a low-resistance ground, be connected to an artificial ground electrode. 1961-62, c. 81, s. 476.

446. The grounding conductor shall be connected to the grounding electrode by means of a substantial ground clamp or other equivalent means. 1961-62, c. 81, s. 477.

447.—(1) Artificial ground electrodes shall consist of driven pipes, rods, buried plates or other devices acceptable for the purpose.

(2) Electrodes of iron or steel pipe shall be not less than 3/4-inch internal diameter and shall be galvanized.

(3) Rod electrodes shall be not less than 3/4-inch in diameter if of iron or steel or 3/2-inch in diameter if of non-ferrous metal. 1961-62, c. 81, s. 478.

448. The grounding system shall be connected to the body of the earth, on the surface, through an earth-contact resistance acceptable to the district electrical-mechanical engineer. 1961-62, c. 81, s. 479, amended.
449. The earth-contact of the main grounding system and supplementary earth-contacts shall be provided with means to facilitate measurement of earth-contact resistances. 1961-62, c. 81, s. 480.

WIRING METHODS

450. Conductors shall be suitable for the location, use and voltage of the circuit and shall have sufficient current-carrying capacity for the current they are required to carry. 1961-62, c. 81, s. 481.

451. Portable conductors supplying mobile equipment operating at more than 300 volts shall conform with the following specifications:

1. The cable shall have a voltage rating not less than 50 per cent higher than the normal operating voltage of the circuit.

2. Cable of standard rating for the normal operating voltage may be used where the cable is supplied through a circuit-breaker from a circuit where the neutral point is grounded in such a manner as to,
   
i. limit ground fault current, and
   
   ii. limit the possible rise of ground fault potential on any connected equipment to a maximum of 100 volts,

   and where ground fault protection is provided.

3. All conductors including grounding conductors shall be contained in one flexible, jacketed cable assembly.

4. Where the cable contains both the power circuit and its remote control circuit, each circuit conductor shall be insulated, as required by paragraphs 1 and 2, for the highest potential employed in the cable, except that, where sheathing, as in paragraph 10, is provided, the control conductors need only be insulated for their normal operating voltage.

5. The minimum size of the power conductors shall be No. 12, A.W.G.
6. The cable shall contain as many grounding conductors as power conductors and the grounding conductors shall be located in the outer interstices between the power conductors.

7. Remote control conductors contained in the cable need not be considered power conductors in determining the number of grounding conductors.

8. The grounding conductors contained in the cable shall be uninsulated and shall have a total conductance of not less than 60 per cent of the largest power conductor.

9. The minimum size of each grounding conductor shall be not less than No. 12, A.W.G.

10. Cables on circuits operating over 750 volts shall have a grounded sheathing, consisting of tinned copper wire mesh, or the equivalent, around each power conductor, and this sheathing shall be, throughout the length of the cable, in contact with the interstitial grounding conductors.

11. Where connectors are used to attach cables to mobile equipment, the cable shall be secured in such a manner as to prevent mechanical damage.

12. Portable cable used to supply equipment in underground workings shall have an outer jacket of a material that will not support combustion and shall be continuously identified as having such a jacket. 1961-62, c. 81, s. 482, amended.

452.—(1) All exposed current-carrying parts of electrical equipment, such as bus-bars, conductors and terminals, operating at over 150 volts, shall be,

(a) armoured;

(b) enclosed in a suitable raceway; or

(c) isolated by elevation or guarded. 1961-62, c. 81, s. 483.

(2) Except in cases of emergency, open wiring shall not be used. 1961-62, c. 81, s. 578.
453. All conductors of an a.c. circuit shall be contained in the same raceway. 1961-62, c. 81, s. 484.

454. Where conductors of different systems are installed in the same raceway or armouring, each conductor shall be insulated for the highest potential employed or, in the case of a raceway, separated by a suitable barrier. 1961-62, c. 81, s. 485.

455. Conductors of different systems shall not be installed in the same box, cabinet or auxiliary gutter unless effectively separated by barriers. 1961-62, c. 81, s. 486.

456. Identifying barriers shall be provided between circuits where more than one set of single-pole, blade-type isolating switches are installed adjacent to each other. 1961-62, c. 81, s. 487, amended.

457. Metal-covered and insulated conductors in conduit, where joined to transformers, motors, switchgear and other electrical equipment, shall have their metal coverings secured to such equipment by clamps, lock-nuts or other devices to protect the insulated conductors from mechanical injury. 1961-62, c. 81, s. 488.

PROTECTION AND CONTROL

458.—(1) The type and rating of protective and control devices shall be suitable for their use.

(2) All protective and control devices installed outdoors shall be of a design suitable for their location. 1961-62, c. 81, s. 489.

459.—(1) Each ungrounded conductor shall be protected by an overcurrent device at the point where it receives its supply of current and at each point where the size of the conductor is decreased, except that such protection may be omitted,

(a) where the branch circuit is not more than twenty-five feet in length;

(b) where the protection for a larger conductor adequately protects a smaller; and

(c) where the opening of the circuit may cause special hazard by the interruption of service or removal of protection.
(2) The rating or setting of the protective device shall not exceed the allowable current-carrying capacity of the circuit conductors except in the case of branch motor circuits where the rating or setting of the device may be increased sufficiently to take care of motor-starting currents.

(3) Unless the opening of the device disconnects all circuit conductors at the same time, no manually-operated or automatically-operated disconnecting device shall be placed in a neutral or grounded conductor. 1961-62, c. 81, s. 490.

Overcurrent devices shall be enclosed in cut-out boxes or cabinets unless they form a part of an approved assembly that affords equivalent protection or unless mounted on switchboards, panel-boards, or controllers located in rooms or enclosures free from easily ignitable material and dampness, and accessible only to authorized persons. 1961-62, c. 81, s. 491.

(1) Suitable control devices shall be inserted in all feeders and branch circuits.

(2) All control devices shall be readily and safely accessible to authorized persons and shall be so located, labelled or marked as to afford means of identifying circuits or equipment supplied through them and shall indicate whether they are open or closed. 1961-62, c. 81, s. 492.

Control devices shall have ratings suitable for the connected load of the circuits they control and, with the exception of isolating switches, shall be capable of interrupting such loads.

Control devices shall be grouped where practicable.

All control devices shall be so arranged that the operating mechanisms are readily accessible to the operator. 1961-62, c. 81, s. 493.

Control devices, unless they are located or guarded so as to render them inaccessible to unauthorized persons and to prevent fire hazards, shall have all current-carrying parts in enclosures of metal or other fire-resisting material.

Manually-operable control devices shall be so constructed that they may be switched to the "off" position without exposing live parts.
(3) Manually-operable control devices shall clearly indicate the "on" and "off" positions. 1961-62, c. 81, s. 494.

464. Control devices shall, if practicable, be so connected that the blades or moving contacts will be dead when the device is in the open position. 1961-62, c. 81, s. 495.

465. Control devices used in combination with overcurrent devices or overload devices for the control of electrical equipment shall be connected so that the overcurrent or overload devices will be dead when the control device is in the open position. 1961-62, c. 81, s. 496.

466.—(1) Disconnecting means of the visible-break type shall be installed on all circuits operating at over 300 volts to ground and shall be as near as is practicable to the point of supply.

(2) Unless a control device on circuits over 300 volts makes a visible break, there shall be installed between the control device and its point of supply a suitable disconnecting switch. 1961-62, c. 81, s. 497.

467.—(1) On each ungrounded utilization system over 300 volts, at least one suitable device shall be installed and maintained for the purpose of indicating ground faults.

(2) Such device shall be provided with,

(a) short-circuit protection; and

(b) disconnecting means. 1961-62, c. 81, s. 498 (1, 2).

(3) When a ground fault is indicated, it shall be located and removed as soon as is practicable. 1961-62, c. 81, s. 498 (4).

468. Adequate illumination shall be provided to allow for proper operation of electrical equipment. 1961-62, c. 81, s. 499.

469. Where electrical equipment requires an attendant, there shall be provided a separate emergency source of illumination from an independent generator, storage battery or other suitable source. 1961-62, c. 81, s. 500.
INSTALLATION OF EQUIPMENT

470. Adequate clear working space with secure footing shall be provided about all electrical equipment. 1961-62, c. 81, s. 501.

TRANSFORMERS

471. Transformers shall be of a type and design suitable for the location in which they are to be installed. 1961-62, c. 81, s. 502.

472. Each transformer shall be provided with a nameplate bearing the following markings:

1. Maker's name.
2. Rating in kva.
3. Rated full load temperature rise.
4. Primary and secondary voltage ratings.
5. Frequency in cycles per second.
6. Liquid capacity, if of the liquid-filled type.
7. Type of liquid to be used, if it is to be filled with an approved liquid that will not burn in air. 1961-62, c. 81, s. 503.
8. Percentage impedance voltage, if of the power or distribution type. New.

473. Transformers having a voltage rating in excess of 750 volts and all transformers having exposed terminals, including their conductors and control and protective devices, shall be accessible only to authorized persons and, unless isolated by elevation, they shall be surrounded by an enclosure that, if of metal, shall be grounded, and suitable warning signs indicating the highest potential employed shall be conspicuously posted. 1961-62, c. 81, s. 504.

474.—(1) Dry-core type transformers with Class A insulation, if installed within a building not of fire-resistant construction, shall be in a fire-resistant enclosure.

(2) Transformers containing an approved liquid that will not burn in air and transformers of the dry-core type with Class B or Class C insulation may be installed within or attached to the wall of a building not of fire-resistant construction, if they are surrounded by a suitable enclosure to prevent mechanical injury and access by unauthorized persons. 1961-62, c. 81, s. 505.
Oil-filled transformers shall be located not less than fifty feet distant from the shafthouse or any combustible building attached thereto, and means shall be provided to contain escaping oil or to direct the flow away from such buildings.

(2) Oil-filled transformers shall not be mounted on or above combustible roofs and, if attached to the exterior of a building other than a transformer-house, shall be placed only against non-combustible walls and away from all openings.

(3) Transformer buildings containing oil-filled transformers, if not entirely of fire-resistive construction, shall be located at least fifty feet distant from any other combustible building.

(4) Oil-filled transformers, if within a building other than a transformer-house, shall be in a vault.

(5) Transformers having their cores immersed in a liquid that will not burn in air may be installed without a vault if,

- the transformer is protected from mechanical damage either by location or guarding;
- a pressure relief vent is provided where the rating exceeds 25 kva at 25 cycles or 37½ kva at 60 cycles; and
- a means of absorbing gases generated by arcing inside the case, or a pressure relief vent connected to outdoors, is provided where the transformer is installed in a poorly-ventilated section. 1961-62, c. 81, s. 506.

When primaries are above 750 volts, secondary circuits of current and potential transformers, unless otherwise adequately protected from injury or contact with persons, shall be in permanently-grounded conduit or armour.

Secondary circuits of current transformers shall be provided with means for short-circuiting them that can be readily connected while the primary is energized and that are so arranged as to permit the removal of any instrument or other device from the circuits without opening the circuits. 1961-62, c. 81, s. 507.
477. Each transformer or each bank of transformers operating as a unit shall have overcurrent protection. 1961-62, c. 81, s. 508.

478. (1) Control and protective devices, complying with one of the following, shall be installed for all power and distribution transformers:

(a) Circuit-breakers of adequate interrupting capacity and rating.

(b) Fuses of adequate rating and interrupting capacity preceded by suitable group-operated visible-break load-interrupting devices capable of making and interrupting their full load rating and that may be closed with safety to the operator with a fault on the system.

(c) Fuses of adequate rating and interrupting capacity preceded by a group-operated visible-break air-break switch capable of interrupting the magnetizing current of the transformer installation and that may be closed with safety to the operator with a fault on the system and so interlocked with the transformer secondary load interrupters as to prevent its operation under load.

(2) Where the transformer rating does not exceed 100 kva per phase and the potential between phases does not exceed 7,500 volts, a single-pole disconnecting fuse of adequate interrupting capacity may be used on the primary. 1961-62, c. 81, s. 509.

SWITCHBOARDS AND SWITCHGEAR

479. Panels of switchboards shall be of incombustible material and shall be substantially supported on a metal framework. 1961-62, c. 81, s. 510.

480. Adequate illumination shall be provided for reading instruments and other operations. 1961-62, c. 81, s. 511.

481. Switchgear, if not of the dead-front or enclosed type, and live parts on the rear of dead-front switchboards shall be inaccessible to unauthorized persons. 1961-62, c. 81, s. 512.
482.—(1) There shall be a space of not less than three feet between equipment on the back of a fixed switchboard and the nearest adjacent wall when such equipment is less than seven feet from the floor.

(2) Ready means for ingress and egress to the space behind the switchboard shall be provided.

(3) Doors or gates of suitable material may be provided at such points for guarding-purposes but they shall be capable of being readily opened from the inside without the use of a key or tool.

(4) The space behind the switchboard shall be kept clear of foreign material and shall not be used for storage purposes. 1961-62, c. 81, s. 513.

TRANSMISSION LINES

483. All electrical supply lines and equipment shall be of suitable design and construction for the service and the conditions under which they are to be operated, and all lines shall be so installed and maintained as to reduce fire hazard and injury to persons as far as is practicable. 1961-62, c. 81, s. 514.

484. Conductors and other current-carrying parts of supply lines shall be so arranged as to provide adequate clearance from the ground or other space generally accessible or shall be provided with guards so as to isolate them effectively from accidental contact of persons. 1961-62, c. 81, s. 515.

485. Where conductors over 300 volts are attached to any building for entrance, they shall be isolated by elevation or guarded. 1961-62, c. 81, s. 516.

486.—(1) Supply lines carried over railways operated by steam, electric or other motive power and on which standard equipment, such as freight cars, is used, shall have the style of construction and the clearances overhead as called for in the Uniform Code of Operating Rules prescribed by the Transport Commissioners for Canada.

(2) Supply lines crossing over railways on which standard equipment is not used and lines crossing over roadways shall have ample clearance for the operating conditions and shall be substantially supported. 1961-62, c. 81, s. 517. amended.
STORAGE BATTERIES

487. Storage batteries shall be kept in inaccessible battery rooms or enclosures used for no other purpose where,

(a) the aggregate capacity at the eight-hour discharge rate exceeds five kilowatt hours; and

(b) the batteries are in open jars or tanks. 1961-62, c. 81, s. 518.

488.—(1) Storage battery rooms shall be thoroughly ventilated.

(2) Adequate means shall be provided for sufficient diffusion and ventilation of the gases from the battery to prevent the accumulation of an explosive mixture. 1961-62, c. 81, s. 519.

LIGHTNING ARRESTERS

489. Where lightning arresters are installed in a building, they shall be located well away from all equipment, other than that which they protect, and from passageways and combustible parts of buildings. 1961-62, c. 81, s. 520.

490. Lightning arresters installed for the protection of utilization equipment,

(a) may be installed either inside or outside the building or enclosure containing the equipment to be protected; and

(b) shall be isolated by elevation or guarded. 1961-62, c. 81, s. 521.

491.—(1) All non-current-carrying parts of lightning arresters shall be grounded, unless effectively isolated by elevation or guarded as required for live parts of the voltage of the circuit to which the arrester is connected.

(2) Grounding conductors for lightning arresters on power transmission systems shall be run as directly as possible and be of low resistance and ample capacity.

(3) In no case shall such grounding conductors be less than No. 6 copper wire, nor shall such grounding conductors pass through metal conduits unless electrically connected to both ends of the conduits. 1961-62, c. 81, s. 522.
492. All motors shall be provided with approved starting and control equipment. 1961-62, c. 81, s. 523, amended.

493. Where it is desired to interlock one motor control circuit with a second motor controller,

(a) the supply or control conductors of one motor branch circuit shall not be run through or connected into the enclosure of a second motor controller unless such conductor or conductors are opened and de-energized by the disconnecting means of the second motor branch circuit; or

(b) a suitable relay may be interposed between the two controllers and located externally to both controllers. New.

494. In all cases, the motor-circuit switch, general-use switch or isolating switch shall be of the visible-break type. 1961-62, c. 81, s. 525.

495. Every motor and its starting and control equipment shall be provided with a disconnecting means which will open all ungrounded conductors to the motor and which conforms to one of the following:

1. An approved attachment plug and receptacle may serve as disconnecting means for a portable motor.

2. An isolating switch or a general use switch may be used as a disconnecting means for motors of more than 50 horsepower.

3. In all other cases the disconnecting means shall consist of a motor circuit switch, a circuit breaker, or equivalent approved device capable of safely establishing and interrupting the stalled rotor current of the motor. New.

496. The disconnecting means shall have a rating not less than the following:

1. A motor circuit switch for a single motor shall have a horsepower rating, not less than that of the motor it serves.
2. A circuit breaker or isolating switch for a single motor shall have a current rating not less than 115 per cent of the full load current rating of the motor it serves.

3. A fused motor circuit switch serving a group of motors under the protection of a single set of fuses need not have a rating greater than that required to accommodate the proper size of fuse.

4. An unfused motor circuit switch serving a group of motors under the protection of a single set of fuses need not have a rating greater than that required if a fused switch were used.

5. A disconnecting means serving a group of motors on a single circuit shall have,

i. a horsepower rating not less than that of the largest motor in the group, if a motor circuit switch is used, and

ii. a current rating not less than 115 per cent of the full load current rating of the largest motor in the group plus the sum of the full load current ratings of all the other motors in the group which may be in operation at the same time.

497. Motors shall be disconnected from the source of supply in case of low voltage by one of the following means unless it is evident that no hazard will be incurred through the lack of such disconnection:

1. Where automatic restarting is liable to create a hazard, the motor control device shall provide low-voltage protection.

2. Where it is necessary or desirable that a motor stop on failure or reduction of voltage and automatically restart on return of voltage, the motor control device shall provide low-voltage release. 1961-62, c. 81, s. 528, amended.

498. Each motor shall be suitably protected against continuous overload.
CRANES, SHOVELS AND OTHER SIMILAR MACHINERY

499.--(1) Crane collector wires shall be isolated by elevation and, where necessary, guarded.

(2) Suitable means that will disconnect all ungrounded conductors of the circuit supplying a crane, as defined in subsection 1 of section 249, shall be,

(a) provided within sight of the main contact conductors or within sight of the equipment if there are no main contact conductors; and

(b) accessible and operable from the ground or the floor over which the equipment operates;

(c) a circuit breaker or switch, capable of interrupting the circuit under heavy loads, shall be installed in the cab unless the current collector can be safely removed, under heavy loads, from the crane collector wires. 1961-62, c. 81, s. 530, amended.

(3) A circuit-breaker or switch, capable of interrupting the circuit under heavy loads, shall be installed in the cab unless the current collector can be safely removed, under heavy loads, from the crane collector wires. 1961-62, c. 81, s. 531.

500. Where it is necessary to operate shovels or other similar machinery having a mast or movable boom near exposed electrical conductors, a clearance equal to not less than one-half the maximum horizontal reach of the machine shall be maintained unless,

(a) the conductors are disconnected from the electrical supply and permission to work on the conductors has been authorized; or

(b) the conductors are first given adequate mechanical protection by the electrical authority involved, to prevent contact by the machine, its attachments or load; or

(c) the work involves the conductors and is being carried out by a qualified person using a machine with an insulated boom designed, built and tested for use on electrical potentials at least as high as that of the conductors involved; or

(d) special permission has been obtained from the district electrical-mechanical engineer and under such conditions and precautions as he may require. New.
TROLLEY WIRES

501. Trolley lines shall be isolated by elevation and, where necessary, guarded. 1961-62, c. 81, s. 532.

502. In underground workings, trolley lines shall,

(a) be isolated by an elevation of not less than six feet;

(b) operate at a potential not exceeding 300 volts to ground;

(c) be effectively guarded. 1961-62, c. 81, s. 533.

LIGHTING

503. The operating voltage of a lighting circuit shall not exceed 300 volts and the voltage to ground of a conductor shall not exceed 150 volts, but this section does not apply in the case of electric locomotives and cranes using direct current. 1961-62, c. 81, s. 534.

504. The neutral conductor on lighting circuits shall be identified by a white braid covering or other equivalent means. 1961-62, c. 81, s. 535.

505. Portable lamps shall have their sockets enclosed in suitably-insulated handles through which the conductors shall be carried and shall have a protective cage that encloses the lamp. 1961-62, c. 81, s. 536.

WIRING IN EXPLOSIVES AND BLASTING AGENTS STORAGES

506. All electrical wiring in explosives or blasting agents magazines, thaw houses, detonator or blasting cap storage buildings, or cap and fuse houses, shall be installed in rigid conduit with screwed water-tight joints or shall be armoured, moisture-proof cable. 1961-62, c. 81, s. 537.

507. All conduit, armour, fittings and fixtures shall be permanently grounded. 1961-62, c. 81, s. 538.

508. The switches and fuses for lighting, heating or telephone circuits for explosives or blasting agents magazines, thaw houses, detonator or blasting cap storage buildings and cap and fuse houses shall be in a fire-resistant cabinet located outside the compartment in which explosives, blasting agents, fuses or detonators, or blasting caps, are stored. 1961-62, c. 81, s. 539.
Type of lighting fixtures required

509. Lighting fixtures shall be of an approved dust-tight type. 1961-62, c. 81, s. 540.

510. Lighting circuits shall be protected by fuses or manual reset overcurrent devices rated at not more than 10 amperes. 1961-62, c. 81, s. 541, amended.

Lightning protection

511. Circuits supplying power to explosives or blasting agents storages shall be protected against lightning surges. 1961-62, c. 81, s. 542.

Type of heating required

512. Heating systems for explosives or blasting agent storages or cap and fuse houses shall be of a type acceptable to the district electrical-mechanical engineer. 1961-62, c. 81, s. 543, amended.

513. Where a liquid is the medium used for distribution of heat for an explosive or blasting agent storage or a cap and fuse house the radiators shall be grounded. 1961-62, c. 81, s. 544, amended.

514. Heater circuits shall be fused at not more than 125 per cent of normal current. 1961-62, c. 81, s. 545.

ELECTRIC BLASTING DEVICES

515. The firing device used for firing charges with electricity in accordance with subsection 7 of section 310 shall be so arranged that,

(a) the switch mechanism will automatically return by gravity to the open position;

(b) the live side of such device is installed in a fixed locked box and shall be accessible only to the authorized blaster;

(c) provision is made that the leads to the face are short-circuited when the contacts of the electric blasting device are in the open position;

(d) the box in which the electric blasting device and the short-circuiting device are mounted is provided with a lock and the door is so arranged that it cannot be closed or locked unless the contacts of the electric blasting device are open and the short-circuiting device is in place;

(e) where electricity from 550-volt circuits is used for blasting, the device shall be electromagnetically operated, except as provided in subsection 7 of section 310.
516. When blasting cables or wires are installed in the vicinity of power or lighting cables, proper precautions shall be taken to prevent the blasting cables or wires coming in contact with the lighting or power cables. 1961-62, c. 81, s. 547.

517. Circuits used for blasting from any source other than hand-held portable blasting devices shall be from an isolated, ungrounded power source and shall be used for blasting only. 1961-62, c. 81, s. 548, amended.

ELECTRIC HOISTS

518. Sections 519 to 544 apply to all electric hoists regardless of the method of operation. 1961-62, c. 81, s. 549.

519.—(1) For each electric hoist, protective devices shall be provided, which, in conjunction with the mechanical braking system, shall be capable of bringing a conveyance or counterbalance safely to rest under all conditions of authorized loading, direction of travel and speed without assistance from the drive.

(2) Where supplementary electrical braking is employed, at least the same degree of safety shall be supplied. 1961-62, c. 81, s. 550.

520. Except where otherwise specified, current-carrying parts of any safety device shall be so designed, installed and maintained that the failure of any such part will initiate emergency braking action to bring the hoist safely to rest. 1961-62, c. 81, s. 551.

521. Devices shall be installed in each hoisting compartment that, in the event of an overwound conveyance or counterbalance, shall be operated directly by the conveyance or counterbalance to initiate an emergency stop and bring the conveyance or counterbalance to rest safely before it or its rope attachments reach any obstruction to its free passage. 1961-62, c. 81, s. 552.

522. Devices shall be installed for each hoisting compartment that, in the event of an underwound conveyance or counterbalance, shall initiate an emergency stop and bring the conveyance or counterbalance to rest safely before it or its rope attachments reach any obstruction to its free passage, except that, in the case of shaft sinking the protection for an underwound conveyance or counterbalance may be dispensed with. 1961-62, c. 81, s. 553.
523. Devices, driven from the operating drum or drums, shall be installed, where the hoist operates at a rope speed of 750 feet per minute or greater, that, in the event of an overwound or underwound conveyance or counterbalance, will initiate an emergency stop and bring the conveyance or counterbalance to rest safely before it or its rope attachments meet any obstruction to its free passage, except that, in the case of shaft sinking the protection for an underwound conveyance or counterbalance may be dispensed with. 1961-62, c. 81, s. 554.

524. Each electric hoist shall have installed a device that will initiate an emergency stop and bring the conveyance or counterbalance to rest safely should the rope speed exceed the authorized maximum by a predetermined amount. 1961-62, c. 81, s. 555.

525. Devices, driven from the operating drum or drums, shall be installed where the hoist operates at a rope speed of 750 feet per minute or greater, that will enforce any necessary reduction in speed as the conveyance approaches the end of travel. 1961-62, c. 81, s. 556.

526. No person shall alter the adjustment of any protective device without proper authority. 1961-62, c. 81, s. 557.

527.—(1) Where ore or waste dumps, loading boxes or spill-doors are installed in a shaft or winze at points other than the upper and lower limits of normal travel of a conveyance and where any part of such dump box or door interferes with the free passage of a conveyance, there shall be installed,

(a) travel-limiting devices;

(b) travel-limiting devices as required to section 523, where applicable;

(c) enforced slow-down devices as required by section 525, where applicable; and

(d) positive locking devices for maintaining such obstructions out of the operating position in the shaft or winze.

(2) The manager, or his agent, of a mine employing such an intermediate obstruction shall provide a procedure to be followed to ensure the safe operation of the installation.
Before such an installation is made, plans and procedure shall be submitted to the chief engineer for approval. 1961-62, c. 81, s. 558.

528. Emergency braking action shall be initiated to bring a conveyance or counterbalance to rest safely before it or its rope attachments reach any obstruction to its free passage in the event of,

(a) the failure of the power supply to the hoist electric system;

(b) an overload on the hoist-drive motors of a magnitude and duration exceeding what would be considered an operating overload; or

(c) a short-circuit on the hoist electric system. 1961-62, c. 81, s. 559.

529.—(1) Every electric hoist shall have installed a device to enable a conveyance or counterbalance to be removed from an overwound or underwound position.

(2) Every such device shall be manually operable only. 1961-62, c. 81, s. 560.

(3) Every such device shall be so designed and installed that the brake or brakes holding a conveyance or counterbalance, when in an overwound or underwound position, cannot be released until sufficient drive motor torque has been developed to ensure movement of the conveyance or counterbalance in the correct direction only. New.

530. A manually-operable switch shall be installed for each electric hoist within reach of the manual controls that will, when operated, initiate emergency braking action to bring the conveyance or counterbalance safely to rest. 1961-62, c. 81, s. 561.

531. An underwind by-pass switch may be installed, where necessary, that will allow the conveyance to be lowered through the underwind position if it is held in the closed position by the hoistman and will return automatically to the open position when not so held. 1961-62, c. 81, s. 562.

532. Each electric hoist shall have installed, within plain view of the manual controls, a meter that will indicate, at all times, the hoist motor load. 1961-62, c. 81, s. 563.
533.—(1) Where men are transported in skips or the skips of skip-cage assemblies, there shall be installed a device that will prevent the conveyance, carrying the men, from entering the dumping position.

(2) Except in shaft sinking, such device shall be so installed that, when it is put into operation, a distinctive signal will be given, automatically, to men about to enter the conveyance.

(3) Such device is not required on electric hoists where men are hoisted for shaft inspection or maintenance operations only.

(4) Such device shall be put into operation, either manually or automatically, when men are transported.

(5) In those cases where the device is automatically put into operation by the hoistman's return of the 3-bell signal, the circuit shall be so arranged that the failure of the relay coils will not render the device inoperative. 1961-62, c. 81, s. 564.

534. Each electric hoist shall have installed a device whereby the hoistman is warned, audibly, that a conveyance or counterbalance is about to enter the region where a reduction in speed is necessary for safe manual braking. 1961-62, c. 81, s. 565.

535. Sections 536 to 544 apply to all electric hoists that may be operated automatically. 1961-62, c. 81, s. 566.

536.—(1) Every electric hoist shall have installed, only in the same location as the manual controls, a device for the change-over from manual to automatic control.

(2) Such device shall be operated by authorized personnel only. 1961-62, c. 81, s. 567.

537. Where an electric hoist is designed to be operated from control stations on the levels or from a control station on the conveyance, any device used to effect the change-over of control shall be operable only at the level at which a conveyance is stopped. 1961-62, c. 81, s. 568.
538.—(1) Devices installed on the levels for the purpose of selecting the conveyance's destination and for initiating hoist motion shall be operable only when the conveyance is stopped at that level, except where the installation has been approved for call operation.

(2) There shall be a minimum delay of five seconds between the operation of the level control device used to initiate hoist motion and the actual motion when men are being handled.

(3) The level control device used to initiate hoist motion shall be so located that it may be operated by someone in the conveyance stopped at that level.

(4) Devices installed on the levels for the purpose of initiating hoist motion shall, except for jogging, be operable only when the shaft gate at the level at which the conveyance is stopped is in the closed position. 1961-62, c. 81, s. 569.

539.—(1) Devices installed in a conveyance for the purpose of controlling hoist motion shall, except for jogging, be operable only when the cage door is in the closed position.

(2) Where devices are installed in a conveyance for the purpose of controlling hoist motion, one of the devices shall be capable of initiating emergency braking action to bring the conveyance safely to rest. 1961-62, c. 81, s. 570.

540. Sections 541 to 544 apply to all electric friction hoists. 1961-62, c. 81, s. 571.

541. Each electric friction hoist shall have installed a device that will initiate emergency braking action to bring the drum to rest in the event of the occurrence of slip between the hoisting rope or ropes and the hoist drum, such as might occur with a conveyance or counterbalance jammed in the shaft or caught at the end of travel. 1961-62, c. 81, s. 572.

542. Where creep or slip may alter the effective position of safety devices, a means of synchronizing the safety devices with the position of the conveyance in the shaft shall be provided. 1961-62, c. 81, s. 573.

543. If the district electrical-mechanical engineer deems it necessary, he may, after consultation with the manager, conduct or require to be conducted specific tests.
tests of the efficiency of all electric overwind and underwind devices, signalling and warning devices and hoisting controls and equipment. 1961-62, c. 81, s. 574, amended.

544.—(1) The manager of a mine where an electric hoist is in use shall depute some competent person or persons whose duty it is to examine at least once in each week the hoist motor and control apparatus, electric safety devices and hoisting signalling equipment. 1961-62, c. 81, s. 575 (1), amended.

(2) The report of such examination shall be recorded as provided in subsection 3. 1961-62, c. 81, s. 575 (2).

(3) The manager shall keep or cause to be kept at the mine for each hoist a book called the Electric Hoisting Equipment Record Book in which shall be recorded a report of every such examination and a notation of any failure or accident to such equipment and the action taken regarding it, signed by the person making the examination. 1961-62, c. 81, s. 575 (3), amended.

(4) Such entries of the weekly examination shall be read and signed every week by the person in charge of such equipment or accessories thereto.

(5) A notation of the action taken regarding the report of any failure or accident to any part of the electrical equipment used in connection with the hoist or the signalling equipment shall be made over the signature of the person in charge of such equipment or accessories thereto. 1961-62, c. 81, s. 575 (4, 5).

(6) The Electrical Hoisting Equipment Record Book shall be made available to the district electrical-mechanical engineer at all times. 1961-62, c. 81, s. 575 (6), amended.

UNDERGROUND ELECTRICAL INSTALLATIONS

545. The provisions of this Part that apply to surface electrical installations apply equally to underground electrical installations, except sections 546 to 563, which apply only to underground electrical installations. 1961-62, c. 81, s. 576, amended.

546.—(1) Where electrical energy is taken underground, provision shall be made so that the current may be cut off on the surface.

(2)
(2) The control device shall be accessible to authorized persons only. 1961-62, c. 81, s. 577.

547.—(1) Conductors for all circuits not over 150 volts to ground shall either be installed in standard conduits, armoured or have non-flammable jackets and be adequately supported. 1961-62, c. 81, s. 578 (1).

(2) All fixed conductors transmitting power underground at over 150 volts to ground shall be installed in standard conduits or armoured, shall be adequately supported, and any outer jacketing shall be of a non-flammable type.

(3) Open-type wiring shall not be used except in cases of emergency. 1961-62, c. 81, s. 578 (2, 3), amended.

548. All new cables purchased for the transmission of power underground at a potential in excess of 750 volts shall be accompanied by the manufacturer's certified report of insulation tests, a copy of which shall be filed with the chief engineer. 1961-62, c. 81, s. 579.

549.—(1) All cables transmitting power underground at a potential exceeding 750 volts shall have a voltage rating of 50 per cent higher than the normal operating voltage. 1961-62, c. 81, s. 580 (1).

(2) Cable of standard rating for the normal operating voltage may be used where the cable is supplied through a circuit-breaker from a circuit where the neutral point is grounded in such a manner as to,

(a) limit ground fault current; and

(b) limit the possible rise of ground fault potential on any connected equipment to a maximum of 100 volts,

and where ground fault protection is provided. 1961-62, c. 81, s. 580 (2), amended.

550. The armouring or casings of all cables shall be bonded together so as to be electrically continuous and shall be connected at some point or points to a satisfactory ground on surface. 1961-62, c. 81, s. 581.
551. Where the armouring or casings of cables do not provide an adequate grounding system for underground electrical equipment, a copper or other non-corrosive grounding conductor of adequate size shall be run from such equipment to a satisfactory ground on surface. 1961-62, c. 81, s. 582.

552. Suitable terminating facilities shall be provided to protect cables from harm due to moisture or mechanical damage. 1961-62, c. 81, s. 583.

553. Junction boxes on a cable transmitting power at a potential exceeding 300 volts shall not be located in a shaft or winze or attached to any timbers at a shaft or winze station or headframe. 1961-62, c. 81, s. 584.

554. Splices shall not be made in shaft or winze conductors unless approved by the district electrical-mechanical engineer. 1961-62, c. 81, s. 585, amended.

555. Adequate precautions shall be taken to prevent signal and telephone cables from coming into contact with other electric systems. 1961-62, c. 81, s. 586.

556. The operating voltage on signal systems shall not exceed 150 volts to ground. 1961-62, c. 81, s. 587.

557.—(1) One conductor of the two-wire signal circuit shall be grounded where the power supply is obtained from a transformer having a primary voltage in excess of 750 volts.

(2) The signal system may be operated with both conductors ungrounded when the supply is from a transformer having a primary voltage in excess of 750 volts, if an insulating transformer having a 1-to-1 ratio is installed between the supply and the signal system. 1961-62, c. 81, s. 588.

558. Where an electrical hoisting-signal system is installed at a shaft or winze, there shall be a suitable, separate, audible signal system for the control of each hoisting conveyance operated from a single hoist and there shall be a sufficient difference in the sound of the signals to the hoistman that they are easily distinguishable and it shall be so arranged that the hoistman can return the signal to the person giving the signal. 1961-62, c. 81, s. 589.
559. The type and location of transformers installed underground are subject to the approval of the district electrical-mechanical engineer. 1961-62, c. 81, s. 590, amended.

560.—(1) All transformers over 2 kva, unless insulated with non-flammable dielectric liquids or Class B or Class C insulation, when installed underground, shall be effectively isolated from the mine workings by enclosure in rooms constructed of fire-resistive materials throughout and a door sill of not less than six inches in height shall be provided.

(2) No material or equipment of any kind, including air lines, air ducts, water and steam lines, shall pass through or terminate within the room, other than that essential to the transformer installation for its proper operation and safety.

(3) The covers of the ventilation openings shall be held open by thermal fuse links and shall close by gravity, and the door shall be constructed of steel or other suitable material. 1961-62, c. 81, s. 591 (1-3).

(4) No installation of transformers containing a liquid which will burn in air shall be located within 200 feet of an explosives or blasting agents storage.

(5) For installations of transformers containing a liquid which will not burn in air or other suitable types, separation shall be not less than 50 feet from an explosives or blasting agents storage. 1961-62, c. 81, s. 591 (4), amended.

561.—(1) The supports for electric motors, transformers, control and protective equipment and other electric equipment and the compartments in which they are installed shall be of such material and constructed in such a manner as to reduce the fire hazard to a minimum.

(2) No flammable material shall be stored or placed in the same compartment with any such equipment. 1961-62, c. 81, s. 592.

562. Where lamps or heating units are used underground, they shall be so installed and protected as to prevent the heat generated from becoming a fire hazard. 1961-62, c. 81, s. 593.
563.—(1) Approved fire-extinguishing devices for use on electrical fires shall be provided and maintained in condition for immediate use.

(2) They shall be conveniently mounted at or in every place containing electrical equipment having flammable insulation or parts that, once ignited, may support combustion. 1961-62, c. 81, s. 594.

**ELEVATORS**

564.—(1) In this section,

(a) "attendant" means a person who, as a whole or a part of his normal duties,

(i) operates an elevator or incline lift, or

(ii) supervises the loading, passage or unloading of persons on an incline lift;

(b) "dumbwaiter" means a hoisting and lowering mechanism equipped with a conveyance which moves in guides in a substantially vertical direction, the floor area of which does not exceed 9 square feet, whose total inside height whether or not provided with fixed or removable shelves does not exceed 4 feet, the capacity of which does not exceed 500 pounds, and which is used exclusively for carrying materials;

(c) "elevating device" means an elevator, escalator, dumbwaiter, incline lift or manlift and includes its hoistway enclosure;

(d) "elevator" means a mechanism affixed to a building or structure equipped with a conveyance or platform that moves in guides at an angle exceeding 70 degrees from the horizontal and that is used to lift or lower persons or freight in or about the building or structure;

(e) "escalator" means a power-driven inclined continuous stairway used for raising or lowering persons;

(f) "freight elevator" means an elevator primarily used for carrying freight and on which only the attendant and the persons necessary for unloading and loading the freight are permitted to ride;

(g)
(g) "incline lift" means a mechanism having a power-driven rope, belt or chain, with or without handholds or seats, for lifting or lowering persons or freight on an incline of 70 degrees or less from the horizontal;

(h) "manlift" means a device consisting of a power-driven endless belt provided with steps or platforms and handholds attached to it for the transportation of persons from floor to floor;

(i) "passenger elevator" means an elevator used primarily to carry persons.

(2) Elevating devices, except those covered in subsection 3, shall be designed, installed and maintained in accordance with the edition that is current from time to time of C.S.A. Standard B44, "Safety Code for Elevators, Dumb-waiters and Escalators".

(3) Aerial tramways, incline lifts and manlifts shall be of a type approved by the chief engineer.

(4) This section does not apply to,

(a) feeding machines, or belt, bucket, scoop, roller or any similar type of freight conveyor;

(b) a lifting device that is,

(i) part of a conveyor system,

(ii) mechanically loaded and unloaded, and

(iii) so fenced in or guarded as to prevent persons from accidentally entering the hoistway;

(c) freight ramps having a means of adjusting the slope of the ramp;

(d) freight platforms having a rise of sixty inches or less;

(e) lubrication hoists or other similar mechanisms;

(f) piling or stacking machines used within one storey; or

(g) a moving walk.
(5) No person shall commence a new installation or a major alteration of an elevator, dumbwaiter, escalator, manlift or incline lift until the drawings and specifications thereof have been approved by the chief engineer.

(6) The drawings and specifications shall be submitted in duplicate and shall furnish full information as to the size, composition and arrangement of the proposed installation or major alteration.

(7) Upon completion of an installation or major alteration, the elevating device shall not be put into use until it has been inspected and approved by the district electrical-mechanical engineer.

(8) There shall be kept, securely fastened and conspicuously displayed,

(a) in the conveyance of each elevator, dumbwaiter or incline lift; and

(b) as close as is practicable to the bottom landing of each manlift,

a notice, in the form of a metal plate, setting forth the maximum capacity of the elevating device, stating the number of persons and the weight in pounds.

(9) Every freight elevator shall have displayed in a conspicuous place in the conveyance a notice in letters not less than one inch high:

"This is not a passenger elevator. No person other than the attendant and freight handlers are permitted to ride in this conveyance."

(10) The ceiling and its supporting structure over every passageway or other occupied space under an elevating device shall be designed, constructed and maintained so as to safely support the loads that would be applied to it if the conveyance and counterweight dropped.

(11) Where the conveyance and counterweight are both equipped with devices to stop them or arrest their descent in the event of a failure of their supports, the strength of the ceiling and its supporting structure may be reduced accordingly.
There shall be provided safe and convenient access to every machine room and machinery space.

Except where otherwise permitted by the chief engineer, such access shall be by a stairway that is not located in the hoistway.

Every machine room and machinery space shall be enclosed or located so that unauthorized persons cannot have access to the machine room or machinery space.

Only machinery and control equipment required for the operation of the elevating device shall be permitted in the machine room.

Sprinklers, pipes, drains, tanks or similar equipment which might leak or cause condensation shall not be located directly above the machine or control equipment.

No person under the age of eighteen years shall be authorized to operate an elevator.

Subject to subsection 19, an attendant is required for every elevator or incline lift.

An attendant is not required on an elevator or incline lift equipped with automatic controls and emergency stopping devices that will, in the opinion of the chief engineer, ensure the safety of any person having access to or riding on the elevator or incline lift.

Every landing shall be adequately lighted.

No person shall remove, displace, interfere with or damage any device installed in or about an elevating device for its safe operation, except,

(a) a district electrical-mechanical engineer making an inspection, or

(b) a qualified person for the purpose of making a test or repair.

Where a safety device has been removed, displaced, interfered with or damaged, the elevating device shall not be used or operated for any purpose other than testing, inspection or repair until the safety device has been restored to working order.
(23) The ropes, safety devices, signalling devices, doors and other electrical and mechanical equipment necessary to the safe operation of elevating devices shall be inspected by a qualified person at least once each month and the results recorded.

(24) The records of such inspections shall be made available to an engineer.

(25) Hoisting or tail ropes shall not be lengthened or repaired by splicing. *New.*

**CONSTRUCTION, SURFACE**

565.—(1) In this section and in sections 566 to 596,

(a) “allowable unit stress” means the allowable unit stress assigned to the material by the issue that is current from time to time of the National Building Code of Canada or similar recognized authority, or in the absence of a recognized authority, by a professional engineer, based on good engineering practice;

(b) “boom of a crane” means the projecting part of a crane from which the load is supported;

(c) “constructor” means a person who contracts with the owner or agent of a project for the work thereon, and includes an owner or agent who,

(i) contracts with more than one person for the work on a project, or

(ii) undertakes the work on a project or any part thereof;

(d) “excavation” means an excavation on a project, and includes a trench, other than a trench excavated for prospecting purposes;

(e) “extension trestle ladder” means a self-supporting combination of a trestle ladder and a vertically-adjustable single ladder, with a suitable means for locking the ladders together;

(f) “falsework” means the structural supports and bracing for forms;

(g)
(g) “form” or “formwork” means the mould into which concrete is placed;

(k) “framed structure” means a structure designed to act as a unit composed of members so connected to one another that a load applied to any member of it may alter the stresses induced in the other members, and includes a truss, a tubular metal frame and a column where the effective length is dependent upon the provision of lateral restraints between the ends of the column;

(i) “ladder-jack” means a device attached to a ladder used for supporting a scaffold;

(f) “life jacket” means a life jacket bearing a Department of Transport, Canada Approval Number for a body weight more than 90 lb.;

(k) “life-net” means a net of adequate strength so placed and supported as to safely catch a person who might fall into it;

(l) “means of egress” means a passageway, ramp, runway, stairway or ladder leading to an exit from a building, structure or excavation;

(m) “outrigger scaffold” means a scaffold that is supported by rigid members cantilevered out from the structure to which they are anchored;

(n) “project” means,

(i) a building or other structure that is being constructed, altered, repaired, demolished or moved, or

(ii) a roadway that is being built, altered, repaired, demolished or moved;

(o) “recommended load” means the load established for a scaffold for the particular method of loading by a professional engineer based on the test loading of a tubular metal frame and its accessories and which shall not exceed one third of the failure load when the frame is tested by loading axially through the corner posts;
(p) “stable slope” means the slope at which the wall of an excavation in soil will safely remain in place without extra support, during the time period when the walls of the excavation will be unsupported;

(q) “subcontractor” means a person who contracts with a constructor for the work on part of a project and includes a person who contracts with a subcontractor for work on a part of the project;

(r) “supplier” means an owner of any machine, vehicle, tool or other equipment who provides under any rental, leasing or other arrangement, such equipment for use by a person on a project;

(s) “trestle ladder” means a self-supporting portable ladder, non-adjustable in length, consisting of two sections hinged at the top to form equal angles with the base.

(2) Except where a contrary intent is provided, this section and sections 566 to 596 apply only to construction operations on the surface of a mining premises or at a plant. New.

566.—(1) The responsibilities of contractors and subcontractors on a project in connection with the requirements of this section and sections 566 to 573 are as prescribed in subsection 19 of section 169.

(2) No supplier shall provide any machine, vehicle, tool or equipment, or any part thereof, for use by a person on a project under any rental, leasing or other arrangement if such machine, vehicle, tool, equipment or part is in an unsafe condition.

(3) Every constructor and every subcontractor shall appoint one or more competent persons to exercise direction and control over persons employed by him on each shift, and one such person may be himself. New.

567. Where one or more persons may be endangered by passing vehicular traffic on a road on a project, one or more of the following safeguards located at a suitable
suitable distance from the employees shall be provided as appropriate to give them adequate protection:

1. One or more flagmen.
2. Warning signs.
4. Lane control devices.
5. Flashing lights or flares. New.

568.—(1) In applying the requirements of sections 566 Application, alternative methods and materials to 596,

(a) the composition of an object; and

(b) the size and arrangement of material of an object may vary from that prescribed, but only to the extent that the strength of the object and the safety of its use by persons is equal to or greater than the strength and safety as prescribed and where any conflict arises in the application of these sections as to whether the variation and composition of material of the object or the size and arrangement of material of the object is equal to that prescribed, an engineer’s opinion prevails.

(2) In applying subsection 1, the written opinion of the chief engineer takes precedence. New.

GENERAL

569.—(1) During the construction, alteration, repair, dismantling, demolition or moving of a building or other structure, all parts thereof shall be,

(a) capable of safely supporting the loads to which they may be subjected; or

(b) adequately braced, either permanently or temporarily, to safely support the loads to which they may be subjected.

(2) All areas in which persons are present, and the means of access to and egress from such areas, shall be adequately lighted.
(3) Every opening in a floor or other surface used by persons shall,

(a) be protected by a guardrail; or

(b) be covered with securely fastened planks or other material capable of supporting any load likely to be imposed thereon.

(4) During construction of a building, temporary or permanent flooring shall,

(a) be installed progressively so that the flooring will be provided prior to a person being required to work in a position exceeding two storeys above such flooring or three storeys where the vertical distance between column splices exceeds two storeys;

(b) where used as a working surface, extend over the whole area except for necessary openings which shall be protected by a guardrail;

(c) consist of material providing strength sufficient to support any load likely to be applied and at least equal to sound No. 1 Construction Grade Eastern Spruce planking two inches thick and ten inches wide with a span of ten feet;

(d) be securely fastened to and supported on girders, beams or other structural members capable of safely supporting the applied loads; and

(e) not be required where the work is being done from a scaffold.

(5) Overhead protection, at least equal to sound No. 1 Construction Grade Eastern Spruce planking two inches thick and ten inches wide with a maximum span of ten feet shall be provided,

(a) at every means of access to and egress from a building or other structure during construction or demolition where there is danger of material falling on a person;

(b) above a scaffold, where there is danger of material falling on a person on the scaffold; and
(c) above an area where a person is required to be directly below other work being done, and there is danger of material falling on the lower person.

(6) A sufficient number of signs bearing the word "DANGER" in clearly distinguishable lettering shall be posted,

(a) where a covering prescribed by subsection 3 has been temporarily removed while work is being done which cannot be done with the covering installed;

(b) where the installation of a guardrail is prescribed by the requirements of section 586, and the guardrail has temporarily been removed while work is being done which cannot be done with the guardrail installed;

(c) adjacent to a hoisting area;

(d) under a suspended scaffold; and

(e) at the outlet end of a chute. New.

570.—(1) Where a structure has suffered damage likely to endanger the safety of a person by collapse of all or part of it, the structure shall be braced and shored or other measures taken to prevent injury to a person until the structure is demolished, dismantled, or repaired.

(2) The bracing and shoring prescribed in subsection 1 shall be installed progressively so as to provide for the safety of persons installing the bracing and shoring. New.

571.—(1) Means of access to and egress from every excavation, floor, roof, platform and scaffold, other than a suspended scaffold, where work is being performed, shall,

(a) be by a stair, runway, ramp or ladder; and

(b) be maintained in a safe condition at all times.

(2) Every means of access and egress prescribed by subsection 1 and every scaffold from which work is being performed shall,

(a) be kept clear of obstructions;
Where stairs planned

(3) When work on a building or other structure in which stairs are intended to be part of the permanent building or structure has progressed to two storeys or thirty feet above the lowest floor level, whichever is the lesser, the means of egress shall be by permanent or temporary stairs that shall,

(a) be provided for the entire height from the lowest floor level to the uppermost working level, except where the stairs would interfere with work on the uppermost working level, in which case stairs shall be provided to within two storeys or thirty feet vertically, whichever is the lesser, of the uppermost working level; and

(b) be continued as the height of the project is increased.

Where stairs not planned

(4) When work on a building or other structure intended to be 100 feet or more in height, and in which stairs are not intended to be part of the permanent building or structure, is in progress, the means of egress shall be by temporary stairs that shall,

(a) be provided for the entire height from the ground to the uppermost working level, except where the stairs would interfere with work on the uppermost working level, in which case stairs shall be provided to within two storeys or thirty feet vertically, whichever is the lesser, of the uppermost working level; and

(b) be continued as the height of the project is increased.

Exception to subs. 3, 4

(5) Subsections 3 and 4 do not apply to the means of egress from a skeleton structure.

Idem, subs. 4

(6) Subsection 4 does not apply to a structure, including a chimney stack or pressure vessel, which has a permanent ladder attached to it as part of the completed
completed structure and the combined structure and ladder are fabricated before being raised into position as a unit. *New.*

572.—(1) No person shall be in an area where he might be exposed to injury from a noxious gas, liquid, fume or dust, or due to lack of oxygen unless he is suitably protected against the particular type of hazard.

(2) Where the injury exposure referred to in subsection 1 is from skin contact with a noxious gas, liquid, fume or dust, the protection provided shall be,
   (a) protective apparel; or
   (b) protective skin cream suitable for the particular type of hazard.

(3) Where the injury exposure referred to in subsection 1 is from inhalation of a noxious gas, fume or dust, or due to lack of oxygen, the protection provided shall be,
   (a) adequate mechanical ventilation; or
   (b) the wearing of respiratory equipment suitable for the particular type of hazard.

(4) A safety belt shall be used by a person on a structure where he is exposed to the danger of falling, and the nearest surface to which he might fall is more than ten feet below the place where he is working.

(5) The safety belt prescribed in subsection 4 shall be arranged so that if the person should fall he will be suspended at a distance of not more than five feet below the place where he was working.

(6) Subsections 4 and 5 do not apply,
   (a) to a person using a means of access or egress;
   (b) where a life-net is installed to provide equal protection; or
   (c) to a person who is an erector engaged in connecting structural members of a skeleton structure or in gaining access thereto.

(7) Where a person may fall into water at a project with the risk of drowning, he shall wear a life jacket.
(8) Subsection 7 does not apply to shallow water in which a life jacket cannot function properly.

(9) In addition to the life jacket prescribed in subsection 7, rescue equipment shall be provided in a suitable location near the project and, where practicable, shall consist of,

(a) a boat in operating condition, equipped with,

(i) a ring buoy attached to fifty feet of three-eighths of an inch manila rope,

(ii) a boat hook, and

(iii) two or more life jackets to provide one for each of the persons needed to properly operate the boat; and

(b) where there is a current in the water, a line across the water to which there are attached floating objects capable of providing support for a person in the water.

(10) In locations where the water is extremely rough or swift or where a manually operated boat is not practical, the boat prescribed in subsection 9 shall be a power boat suitable for the waters involved.

(11) Where this section applies,

(a) two or more persons shall be designated and shall be immediately available to perform any necessary rescue operations;

(b) a suitable alarm system shall be provided; and

(c) the designated persons shall immediately commence rescue operations when the alarm is given. New.

PROJECT EXCAVATIONS

573.—(1) No excavation or trench shall be commenced until all gas, electrical and other services that are likely to endanger the safety of persons have been properly shut off and disconnected.

(2) No excavation shall be made that may endanger the persons on a project or the stability of an adjacent building or structure.
(3) The walls of an excavation shall be adequately supported by shoring and bracing, and where the excavation is a trench as defined in section 574, the requirements for shoring and bracing as defined therein apply.

(4) Subsection 3 does not apply to the walls of an excavation:
   (a) less than four feet deep;
   (b) into which persons are not required to enter for any purpose;
   (c) cut in solid rock;
   (d) which have been cut and trimmed to a slope having not more than one foot of vertical rise to each foot of horizontal run;
   (e) which have been cut and trimmed to a slope steeper than that prescribed by clause d, and a professional engineer has certified in writing that the steeper slope is a stable slope which will not endanger persons; or
   (f) in which persons are not required to be within a horizontal distance of the walls equal to the height of the walls.

(5) The walls of an excavation shall be stripped of loose rock or other material which might slide, roll or fall upon persons below.

(6) A clear and reasonably level area extending at least two feet back shall be maintained free of all materials at the top of the walls of an excavation.

(7) No vehicle or other machinery shall be driven or operated or located so close to the edge of an excavation as to affect the stability of the walls of the excavation by vibration or otherwise and endanger the safety of any person.

(8) The top of the walls of an excavation shall be protected by an adequate barrier at least forty-two inches high if,
   (a) the depth of the excavation exceeds ten feet; and
(b) the safety of a person can be endangered by falling into the excavation.

(9) When a person is employed adjacent to or near an excavation which is not required to be protected by a barricade as prescribed by subsection 8, warning lights shall be provided and properly maintained from one-half hour before sunset until one-half hour after sunrise and at such other times as there is equally restricted visibility.

(10) Every excavation shall be kept reasonably free of water at all times. New.

574.—(1) In this section and in section 575, "trench" means any excavation in the ground where the vertical dimension from the highest point of the excavation to a point level with the lowest point of the excavation exceeds the least horizontal dimension of the excavation, such dimensions being taken in a vertical plane at right angles to the longitudinal centre line of the excavation.

(2) The requirements of this section for shoring and bracing the walls of a trench do not apply,

(a) to a trench less than four feet deep;

(b) to a trench into which persons are not required to enter for any purpose;

(c) to a trench cut in solid rock;

(d) to a trench where the work therein is done only by the owner thereof in person; or

(e) to a part of a trench excavated for a pipeline or conduit if the trench is mechanically excavated, if the sections of the line or conduit are permanently assembled before being mechanically placed in the trench, and if the trench is mechanically back-filled.

(3) The sides of all trenches exceeding four feet in depth shall be securely shored and timbered with good quality material in accordance with these requirements and the shoring and timbering shall extend at least one foot above the top of the trench, except that where the district mining engineer gives permission in writing to the person in charge of the work
work in connection with the trench, the shoring and timbering need not extend above the top of the trench.

(4) Subsection 3 does not apply where the trench is cut in solid rock or where the trench is excavated in hard and solid soil and does not exceed six feet in depth or where the sides of the trench are sloped to within four feet of the bottom of the trench so that the sloped sides of the trench do not have more than one foot of vertical rise to each foot of horizontal run.

(5) Where the sides of a trench are sloped as described in subsection 4 but not to within four feet of the bottom of the trench, the vertical walls of the trench shall be shored and timbered with good quality material in accordance with these requirements and the shoring and timbering shall extend at least one foot above the vertical walls and be fitted with toeboards to prevent material rolling down the slope and falling into the part of the trench with vertical walls.

(6) Drawings and specifications for the shoring and timbering of all trenches to exceed thirty feet in depth and all trenches to exceed twelve feet in width shall be submitted in duplicate to the district mining engineer and the trench shall not be commenced until the drawings and specifications have been approved by the engineer and the shoring and timbering shall conform to such approved plans.

(7) Shoring and timbering shall be carried along with the excavating of a trench but when conditions permit may be done before the excavating commences.

(8) Where the shoring and timbering is to be removed on completion of the other work in a trench, such removal shall be done by or under the personal supervision of a person experienced in removing shoring and timbering.

(9) Ladders or other means of escape satisfactory to the district mining engineer shall be provided in every trench and such ladders or other means of escape shall be spaced at intervals of not more than fifty feet in each trench and shall extend three feet above the top of the trench.

(10)
(10) Where staging or scaffolding for handling by hand in relays materials excavated from the trench is erected independently of the shoring or timbering on the sides of the trench, it shall be structurally adequate to protect persons working thereon or in the trench from collapse of the staging or scaffolding or from falling objects.

(11) Where the staging or scaffolding is attached to the shoring and timbering on the sides of the trench, the shoring and timbering shall be sufficiently reinforced to withstand the additional load thereby imposed on the shoring and timbering. New.

575.—(1) In this section,

(a) "cleat" means a short member of shoring and timbering that directly resists the downward movement of a strut or wale;

(c) "sheathing" means the vertical members of shoring and timbering that directly resist pressure from the side of a trench;

(d) "strut" means a transverse member of shoring and timbering that directly resists pressure from sheathing or wales;

(e) "wale" means a longitudinal member of shoring and timbering that directly resists pressure from sheathing.

(2) In all methods of shoring and timbering of a trench,

(a) the sheathing shall be placed against the side of the trench so that the length of each piece of sheathing is vertical;

(b) the struts shall be horizontal and at right angles to the wales or sheathing supported thereby; and

(c) the wales shall be parallel to the bottom or the proposed bottom of the trench.

(3) The sheathing shall be held securely in place against the wales or, where wales are not used, the struts by pressure being firmly exerted on the side of the sheathing adjacent to the wall of the trench.
(4) Where the trench is excavated in,

(a) loose, sandy or soft soil;

(b) soil that has been previously excavated; or

(c) soil under hydrostatic pressure,

each piece of sheathing shall be driven into the bottom of the trench so as to be firmly held in place.

(5) Each strut shall be,

(a) cut to the proper length required to fit it tightly between,

(i) the wales, or

(ii) where wales are not used, the sheathing, supported by the strut; and

(b) where necessary, held securely in place by wedges driven between the strut and,

(i) the wales, or

(ii) where wales are not used, the sheathing, supported by the strut.

(6) Each strut shall,

(a) have,

(i) cleats that extend over the wales supported by the strut, or

(ii) other similar devices,

attached securely to the strut by spikes or bolts; or

(b) be placed on,

(i) cleats spiked or bolted to posts supporting wales, or

(ii) where wales are not used, cleats or other similar devices spiked to the sheathing.
Wales

(7) Each wale shall be supported,

(a) on cleats spiked to the sheathing; or

(b) by posts set on,

(i) the wale next below it, or

(ii) in the case of the lowest wale, the bottom of the trench.

Composition of materials

(8) The composition of materials used for shoring and timbering shall be,

(a) structural Eastern Spruce; or

(b) any other structural material having strength equal to or greater than that prescribed in clause a.

Members

(9) Each member used for shoring and timbering shall be a solid piece of material.

Wales in trenching

(10) Where wales are used in the shoring and timbering of a trench, the smaller dimension of the wales shall be placed against the sheathing.

Composition of materials

(11) The composition of materials used for shoring and timbering may vary from that prescribed in clause a of subsection 8, and the size, composition and arrangement of materials used for shoring and timbering may vary from that prescribed in subsection 16, but only to the extent that the strength of the shoring and timbering is equal to, or greater than, the strength of the shoring and timbering prescribed in subsection 16.

Arrangement of sheathing

(12) Where two or more pieces of sheathing are used one above another in the shoring and timbering of a trench, the sheathing shall be arranged so that the lower pieces of sheathing,

(a) overlap the lowest wales supporting the pieces of sheathing next above it; and

(b) are firmly driven into the soil and securely supported by wales and struts as the trench is made deeper.

(13)
(13) Subject to subsection 14, in the shoring and timbering of a trench, a trench-jack or trench-brace may be used in place of a strut prescribed by this requirement, but only if the strength of the trench-jack or trench-brace is equal to, or greater than, the strength of the strut.

(14) Where the trench is over four feet in width, a trench-jack or trench-brace that contains a metal pipe-spacer shall not be used.

(15) Where a wedge is used in the shoring and timbering of a trench, the thick end of the wedge shall be at least two inches wide.

(16) Where the material used for shoring and timbering is that prescribed by clause a of subsection 8, the size and arrangement of materials used for shoring and timbering shall be as prescribed in,

(a) table 1 for hard and solid soil;

(b) table 2 for soil that may crack or crumble;

(c) table 3 for loose, sandy or soft soil, or soil that has been previously excavated; or

(d) table 4 for soil under hydrostatic pressure,

for depths of trenches shown in column 1 of the tables and shall have,

(e) the pieces of sheathing,

(i) with a thickness and width not less than that prescribed in column 2, and

(ii) arranged so that the horizontal spacing from the centre of one piece of sheathing to the centre of the next piece of sheathing on the same side of the trench is not greater than the spacing prescribed in column 3;

(f) the wales,

(i) with a thickness and width not less than that prescribed in column 4, and
(ii) arranged so that the vertical spacing from the centre of one wale to the centre of the next wale is not greater than the spacing prescribed in column 5; and

(g) the struts,

(i) with a thickness and width not less than that prescribed in column 6, where the trench is six feet or less in width, or with a thickness and width not less than that prescribed in column 7, where the trench is twelve feet or less in width but greater than six feet in width,

(ii) arranged so that the vertical spacing from the centre of one strut to the centre of the next strut is not greater than the spacing prescribed in column 8, and

(iii) arranged so that the horizontal spacing from the centre of one strut to the centre of the next strut is not greater than the spacing prescribed in column 9.
### TABLE 1
(For hard and solid soil)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Depth of Trench</th>
<th>Sheathing</th>
<th>Wales</th>
<th>Struts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
</tr>
<tr>
<td>1</td>
<td>Feet</td>
<td>Inches</td>
<td>Feet</td>
<td>Inches</td>
</tr>
<tr>
<td>Over 6 but not over 10</td>
<td>2 x 8</td>
<td>6</td>
<td>....</td>
<td>....</td>
</tr>
<tr>
<td>Over 10 but not over 15</td>
<td>2 x 8</td>
<td>4½</td>
<td>6 x 6</td>
<td>4</td>
</tr>
<tr>
<td>Over 15 but not over 20</td>
<td>2 x 8</td>
<td>3</td>
<td>8 x 8</td>
<td>4</td>
</tr>
<tr>
<td>Over 20 but not over 25</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>10 x 10</td>
<td>4</td>
</tr>
<tr>
<td>Over 25 but not over 30</td>
<td>3 x 8</td>
<td>Width of member</td>
<td>8 x 12</td>
<td>4</td>
</tr>
<tr>
<td>Item No.</td>
<td>Depth of Trench</td>
<td>Sheathing</td>
<td>Wales</td>
<td>Struts</td>
</tr>
<tr>
<td>---------</td>
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</tr>
<tr>
<td></td>
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<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
</tr>
<tr>
<td></td>
<td>Feet</td>
<td>Inches</td>
<td>Feet</td>
<td>Inches</td>
</tr>
<tr>
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<td>4½</td>
<td>4 x 6</td>
</tr>
<tr>
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<td>3</td>
<td>6 x 6</td>
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<td>Over 15 but not over 20</td>
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<td>Width of member</td>
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</tr>
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<td>Over 20 but not over 25</td>
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<td>Width of member</td>
<td>10 x 10</td>
</tr>
<tr>
<td>6</td>
<td>Over 25 but not over 30</td>
<td>3 x 8</td>
<td>Width of member</td>
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</tr>
</tbody>
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TABLE 3
(For loose, sandy or soft soil or soil that has been previously excavated)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Depth of Trench</th>
<th>Sheathing</th>
<th>Wales</th>
<th>Struts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
</tr>
<tr>
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<td>Inches</td>
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<td>1 1/2</td>
<td>4 x 6</td>
</tr>
<tr>
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<td>Over 7 but not over 10</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>6 x 8</td>
</tr>
<tr>
<td>4</td>
<td>Over 10 but not over 15</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>8 x 8</td>
</tr>
<tr>
<td>5</td>
<td>Over 15 but not over 20</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>8 x 10</td>
</tr>
<tr>
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<td>Over 20 but not over 25</td>
<td>3 x 8</td>
<td>Width of member</td>
<td>8 x 10</td>
</tr>
<tr>
<td>7</td>
<td>Over 25 but not over 30</td>
<td>3 x 8</td>
<td>Width of member</td>
<td>10 x 10</td>
</tr>
</tbody>
</table>
### TABLE 4

(For soil under hydrostatic pressure)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Depth of Trench</th>
<th>Sheathing</th>
<th>Wales</th>
<th>Struts</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
<td>Column 4</td>
</tr>
<tr>
<td></td>
<td>Feet</td>
<td>Inches</td>
<td>Feet</td>
<td>Inches</td>
</tr>
<tr>
<td>1</td>
<td>Over 4 but not over 7</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>6 x 8</td>
</tr>
<tr>
<td>2</td>
<td>Over 7 but not over 10</td>
<td>2 x 6</td>
<td>Width of member</td>
<td>6 x 10</td>
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<tr>
<td>3</td>
<td>Over 10 but not over 15</td>
<td>3 x 8</td>
<td>Width of member</td>
<td>10 x 10</td>
</tr>
<tr>
<td>4</td>
<td>Over 15 but not over 20</td>
<td>3 x 8</td>
<td>Width of member</td>
<td>10 x 12</td>
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<td>Over 20 but not over 25</td>
<td>4 x 8</td>
<td>Width of member</td>
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</tr>
<tr>
<td>6</td>
<td>Over 25 but not over 30</td>
<td>4 x 8</td>
<td>Width of member</td>
<td>14 x 14</td>
</tr>
</tbody>
</table>
HOUSEKEEPING

576.—(1) No tool or other object shall be placed where it may endanger a person.

(2) Formwork ties protruding from concrete shall be removed or cut off at the surface of the concrete as soon as is practicable after removal of the formwork.

(3) Protruding nails in lumber or scrap material shall be removed or bent so as not to be a source of danger to persons.

(4) Waste material and debris on a project shall be removed to a suitable disposal area as often as necessary to prevent a hazardous condition, but not less frequently than daily.

(5) Rubbish, debris and other materials shall,

(a) not be permitted to fall freely from one level to another; and

(b) be lowered by a chute or in a suitable container.

(6) Large objects of rubbish, debris or other similar material shall be lowered by crane, hoist or other suitable means.

(7) Subsections 5 and 6 do not apply to a demolition project where material falls or is dropped into a designated area which is adequately enclosed and to which persons do not have access.

(8) Every chute shall,

(a) be well constructed and rigidly fastened;

(b) if at more than 45 degrees to the horizontal, be enclosed on four sides;

(c) where of the open type, be inclined at an angle of 45 degrees or less to the horizontal; and

(d) have a strong gate at the bottom end where necessary to control the flow of material from the chute.

(9)
(9) The entrance to a chute shall,

(a) be so constructed as to prevent hazardous overspill when rubbish, debris or other materials are being deposited into the chute;

(b) have 4-inch by 4-inch or larger curb or cleat where the entrance is at or below the floor level;

(c) be not more than four feet high; and

(d) be kept closed when not in use. New.

STORAGE OF MATERIALS

Handing of materials 577.—(1) Material to be used on or removed from a project,

(a) shall be stored in an orderly manner and so as not to endanger the safety of persons;

(b) when being moved or transported on the project, shall be moved only in such a manner that the material cannot endanger the safety of persons; and

(c) when it is to be off-loaded from a vehicle or stockpile, shall not have any blocking or binder that is required to maintain the material in a safe position removed until the removal of the blocking or binder will not allow the material to shift and endanger the safety of persons.

Storage of materials (2) Building materials or equipment shall not be placed or stored on a permanent or temporary structure so as to exceed the safe loadings of the structure or any part thereof.

Idem (3) No building material shall be stored, stacked or piled within six feet of,

(a) a floor or roof opening;

(b) the open edge of a floor, roof or balcony; or

(c) an excavation.
(4) Subsection 3 does not apply to small masonry units, including bricks and blocks, which can be handled by one person and the material is,

(a) to be used at the edge of,

(i) a floor,

(ii) a roof,

(iii) an opening in a floor, or

(iv) an opening in a roof; and

(b) the height of the pile is less than the distance of the pile from the edge described in clause a.

(5) Lumber, structural steel and similar materials shall be stored so that the pile is secure against collapsing or tipping.

(6) A pile of lumber more than four feet high shall have cross pieces to provide stability.

(7) Masonry units shall be stacked,

(a) on level wooden planks, a platform or other level base;

(b) in tiers throughout a pile;

(c) so that a vertical face of a pile is not over seven feet in height;

(d) when the pile is more than seven feet in height, by progressively stepping the pile back from the vertical faces;

(e) when the pile is more than seven feet in height, with wood strips between tiers to provide stability; and

(f) with header units in the pile where necessary to provide stability.

(8) Bagged material shall be,

(a) piled with cross-piles on the exterior of the pile to prevent movement of the bags;
(b) piled not more than ten bags high at a vertical face of a pile, except where the pile is in a storage bin or enclosure and the face of the pile is supported by the walls of the storage bin or enclosure; and

(c) removed from a pile so that the top of the pile is kept approximately level.

Pipe and steel

(9) Pipe and reinforcing steel shall be stacked in substantially supported and braced racks or frames unless some other provision is made to prevent their movement.

Flammable liquids

(10) No flammable liquid in excess of one day's supply in safe containers shall be stored in a building or structure except in a room with sufficient window area to provide explosion relief to the outside and which is separated from the means of egress from the building or structure.

Containers

(11) A container for a combustible (other than a fuel), corrosive or toxic substance shall,

(a) be suitable for the particular substance; and

(b) be clearly labeled to identify,

(i) the substance,

(ii) the hazard involved in the use of the substance, and

(iii) the safeguards and protective measures to be taken by persons before, during and after using the substance.

Fuel containers

(12) A container for a fuel shall be identified as to content. New.

SANITATION

Drinking water

578.—(1) An adequate supply of potable water shall be kept readily accessible for persons.

Idem

(2) The potable water shall be supplied from a piping system or from a clean, covered container having a drain faucet.

Drinking cups

(3) No person shall be required to, or shall, use a dipper or drinking cup in common with another person.
(4) Adequate flush toilets, chemical toilets or privies shall be provided or made available for the use of persons from the start of the project,

(a) within reasonably easy access of their place of work; and

(b) so that there is at least one toilet or privy for every thirty or fewer persons on the project at any one time.

(5) Every flush toilet, chemical toilet or privy shall,

(a) be constructed so that any user is sheltered from view and protected from the weather and from falling objects;

(b) have natural or artificial illumination;

(c) be provided with adequate supplies of toilet paper and disinfectant;

(d) be maintained in a clean and sanitary condition;

(e) be equipped with a toilet seat and cover; and

(f) if portable, be equipped with a urinal trough in addition to the toilet or privy.

(6) Washing facilities with adequate clean water, soap and individual towels or other drying equipment shall be provided for persons who use or handle corrosive, poisonous or other substances likely to endanger their safety. New.

FIRE PROTECTION
579.—(1) Fire extinguishing equipment shall be provided where risk of fire exists that is,

(a) suitable as to type and size for combatting the likely fire;

(b) protected from mechanical injury;

(c) located for easy access at suitably marked stations;

(d) maintained in good operating condition, and

(e) protected from freezing.
Standpipes

(2) Where a permanent standpipe is to be installed in a building, it shall,

(a) be installed progressively, so far as is practicable, as the building construction proceeds;

(b) be provided with a valve at each hose outlet;

(c) have a 1½-inch diameter hose, with a combination straight stream and fog nozzle, connected to the valve at each hose outlet and shall be installed in all storeys in such locations that each portion of the building is protected by means of hose not over seventy-five feet in length;

(d) where applicable, have a suitable connection for the municipal fire department located on the street side not more than three feet and not less than one foot above grade and clear and easy access to the connection shall be maintained at all times; and

(e) be provided with adequate water pressure.

Fire extinguishers

(3) A fire extinguisher shall,

(a) be recharged immediately after use and returned to its designated position;

(b) be inspected at least monthly and the date of the last inspection recorded on it; and

(c) not contain carbon tetrachloride, methyl bromide or other toxic vapourizing liquids.

Water-type fire extinguishers

(4) At least one water-type fire extinguisher of a stored pressure, cartridge operated or pump tank type, having a capacity of two Imperial gallons, shall be provided,

(a) in every workshop;

(b) in every storage building for combustible materials;

(c) in places where welding or flame-cutting operations are carried on, while the operations are being carried on and for a reasonable time after their conclusion; and
(d) on each storey having a floor space of 5,000 sq. ft. or less in an enclosed building being constructed or altered, and an additional fire extinguisher for each additional 5,000 sq. ft. of floor space in the storey or any fraction thereof.

(5) Clause d of subsection 4 does not apply to a single storey building without a basement or cellar.

(6) One or more dry chemical fire extinguishers, the contents of which are discharged under pressure and with a capacity of at least four pounds or other equally effective extinguishers shall be provided,

(a) where flammable liquids are stored or handled;

(b) where oil-fired or gas-fired equipment is used; and

(c) where a tar or asphalt kettle is used. New.

ELECTRICAL, WELDING, AND HAULAGE REQUIREMENTS DURING CONSTRUCTION

580.—(1) Electrical equipment and wiring methods used during the construction period shall comply with the electrical requirements of this Part.

(2) Where welding and burning is done during the construction period, the requirements of section 248 apply.

(3) Where haulage equipment is used during the construction period, the requirements of sections 238 to 240 apply. New.

TEMPORARY HEAT

581.—(1) A fuel-fire heating device shall,

(a) be so located, protected and used that it will not risk the ignition of,

(i) a tarpaulin or similar temporary enclosure, or

(ii) adjacent wood or other combustible materials;

(b)
(b) be used only in a confined or enclosed space where there is provided,

(i) an adequate supply of air for combustion, and

(ii) adequate general ventilation of the space;

(c) be located so as to be protected from damage or overturning;

(d) not be located in or adjacent to a means of egress; and

(e) when used to burn a solid fuel, be connected by a securely supported sheet metal pipe to discharge properly the products of combustion outdoors.

(2) Fuel supply lines shall be protected from damage.

(3) Temporary steam piping shall be,

(a) installed properly and supported securely; and

(b) insulated or protected by screens or guards where persons may accidentally come into contact with the piping. New.

CONSTRUCTION EQUIPMENT

582.—(1) Vehicles, machinery, tools and equipment used on a project,

(a) shall be in such condition that when used they will not endanger persons;

(b) shall not be used while being repaired or serviced;

(c) shall, when operated by motive power, have been inspected by an authorized person at least once in the twenty-four hours prior to their use;

(d) shall, when applicable, have a safe means of access to the operator's station; and

(e) shall have at least the same factor of safety as the original design for all modifications, extensions, replacement parts or repairs.
(2) No person shall operate a motorized vehicle unless he is authorized to do so.

(3) Subsection 2 does not apply to a person, Exception

   (a) who is under instruction in the operation of the vehicle; and

   (b) who is accompanied by a person who is authorized to operate a motorized vehicle.

(4) No person shall be on a moving support, including a moving support, platform, bucket, basket, load, hook or sling, supported by,

   (a) the boom of a crane or other similar hoisting machine; or

   (b) a fork-lift truck, front-end loader or other similar machine.

(5) Subsection 4 does not apply to,

   (a) a bucket or basket attached to a hydraulic-powered machine on which the operating controls are on the bucket or basket and the machine is equipped with a fail-safe device which automatically locks the support in position; and

   (b) the platform of an approved device for hoisting persons.

(6) All hoisting hooks shall be equipped with a safety catch.

(7) Subsection 6 does not apply to hoisting hooks while being used in the placing of structural members when the method of placing is such that persons are as safe as if a safety catch were installed.

(8) Friction-type clamps used in hoisting materials shall be so constructed that the accidental slackening of the hoisting cable does not release the clamp.

(9) Where hoisting is done by a device in which the weight of the load is not transferred to ground support at all times, such as by a balloon or helicopter, written permission shall be obtained from an engineer prior to hoisting.
Cranes

(10) A crane shall be equipped with a boom,

(a) authorized by the manufacturer; or

(b) designed by a professional engineer and fabricated in accordance with the requirements of his design.

Load-rating plates

(11) Manufacturers' load-rating plates shall be attached to all cranes in clear view of the operator and shall contain sufficient information to enable the operator to determine the safe load which can be hoisted by the crane under any conditions.

Idem

(12) Where the boom of a crane is other than that authorized by the manufacturer, the load-rating plate shall be in accordance with information supplied by a professional engineer.

Guide ropes

(13) Where a person may be endangered by the rotation or uncontrolled motion of a load being hoisted by a crane or similar machine, one or more guide ropes or tag lines shall be used to prevent the rotation or other uncontrolled motion.

Where signalmen required

(14) When the operator of a crane, shovel or similar machine has his view of the path of travel of any part of the machine or its load obstructed, one or more competent signalmen shall assist him by keeping the part of the machine or its load under observation and communicating with the operator by adequate visual signals, or where this is impracticable, by a suitable telecommunication system.

Repairs to pipeline

(15) While a section of a pipeline or hose is under pressure, no person shall commence to disconnect or carry out any repairs on that section.

Pile drivers supply hoses

(16) A hose supplying steam or air to the hammer of a pile driver shall have attached to it a wire rope or chain to prevent the hose from whipping if the hose becomes separated from the hammer.

Lifting jacks

(17) Every lifting jack shall,

(a) have its rated capacity legibly cast or stamped in plain view on the jack; and

(b) be equipped with a positive stop to prevent over-travel or with an indicator where a positive stop is impracticable.

(18)
(18) During the hoisting, placing, removal or withdrawal of piles or sheet-piling, they shall be adequately supported at all times and all persons not actually engaged in the operation shall be kept from the area.

(19) No internal combustion engine shall be operated, in an excavation unless adequate provision is made to ensure that exhaust gases and fumes will not accumulate in the excavation; or in an enclosed building or other enclosed structure unless:

(a) the exhaust gases and fumes are discharged directly to outdoors to a point sufficiently remote to prevent their return, or

(b) there is an adequate supply of air for combustion and adequate mechanical exhaust ventilation. New.

SPECIAL PROVISIONS

583.—(1) Where the walls of an excavation for a well are not supported as prescribed by subsection 3 of section 573, no person shall enter or remain in the excavation if it is over four feet in depth, unless,

(a) a steel liner of adequate strength has been installed which,

(i) extends two feet above ground level and to within four feet of the point where the work is being done,

(ii) is adequately supported on two sides by steel wire rope, and

(iii) is such that the difference between the diameter of the excavation and the diameter of the liner does not exceed four inches; and

(b) the person,

(i) works from within the steel liner,

(ii)
(2) No person shall enter a confined space where the means of egress is restricted, unless,

(a) the space has been tested to ascertain if a hazard exists;

(b) adequate precautions as prescribed by these requirements have been taken against any hazard found to exist;

(c) he is attended by another person stationed outside the confined space; and

(d) suitable arrangements have been made to remove the person from the confined space if he requires assistance, and where practicable, these arrangements shall include his use of a safety harness or safety belt.

(3) During rock drilling operations, an adequate supply of water shall be provided where necessary to control the dissemination of dust into the breathing zone of persons in the area who are not protected as required by subsection 3 of section 572.

(4) Where explosives are used on a project, sections 279 to 310 apply. New.

RUNWAYS, RAMPS, PLATFORMS

584.—(1) A runway, ramp or platform, other than a scaffold platform shall be,

(a) designed, constructed and maintained to safely support all loads that may reasonably be expected to be applied to it;

(b) nineteen inches or more in width; and

(c) securely fastened in place.

(2) A ramp shall have,

(a) a slope not exceeding one foot of vertical rise to each three feet of horizontal run; and
(b) cross cleats if the slope exceeds one foot of vertical rise to each eight feet of horizontal run, and the cleats shall be,

(i) spaced at regular intervals not exceeding eighteen inches, and

(ii) of equivalent strength and have equivalent resistance to slipping as one inch by two inch dressed boards securely nailed to the ramp.

(3) Subsection 2 does not apply to a ramp installed in the stairwell of a building not exceeding two storeys in height, but every such ramp shall have,

(a) a slope not exceeding one foot of vertical rise to one foot of horizontal run; and

(b) cross cleats,

(i) spaced at regular intervals not exceeding twelve inches, and

(ii) of equivalent strength and have equivalent resistance to slipping as two inch by two inch dressed boards securely nailed to the ramp. New.

LADDERS

585.—(1) A ladder shall,

(a) be designed, constructed, maintained and used so as not to endanger the safety of any person;

(b) be used only in such a way that the loads applied do not cause the materials used in any part of the ladder to be stressed beyond the allowable unit stresses for the materials used;

(c) be free from broken or loose members or other faults;

(d) have rungs evenly spaced twelve inches on centres;

(e) have side rails not less than twelve inches apart;
(f) be placed on a firm footing;

(g) be held in place by one or more persons while being used, if it exceeds thirty feet in length and is not securely fastened;

(h) when not securely fastened, be placed so that the base of the ladder 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 same level as the base of the ladder;

(i) if used as a regular means of access between floors,

   (i) be securely fastened in place,

   (ii) extend at least three feet above every landing or floor,

   (iii) have a clear space of four inches behind any rung, and

   (iv) be so located that an adequate landing surface, clear of obstructions, is available at the top and bottom of the ladder;

(j) not be in an elevator shaft or hoistway when such space is being used for hoisting; and

(k) not be lashed to another ladder to increase its length.

(2) A wooden ladder shall,

(a) consist of wood that is straight-grained and free from loose knots, sharp edges, splinters and shakes;

(b) not be painted or coated with an opaque material; and

(c) have rungs of clear straight-grained material that is free of knots.

(3) A wooden ladder of the cleat type shall have,

(a) side rails,
(i) not less than $1\frac{5}{8}$ inches by $3\frac{3}{8}$ inches for ladders up to and including nineteen feet long, and

(ii) not less than $1\frac{5}{8}$ inches by $5\frac{5}{8}$ inches for ladders over nineteen feet long; and

(b) cleats or rungs,

(i) not less than five eighths of an inch by $2\frac{3}{8}$ inches, and

(ii) braced by filler blocks between the cleats or rungs.

(4) A double width ladder shall,

(a) have three rails evenly spaced;

(b) be not less than five feet in width;

(c) have cleats or rungs that extend the full width of the ladder; and

(d) be securely fastened in place.

(5) The maximum length of a ladder measured along the side rail shall be,

(a) 16 feet for a trestle ladder, a base section of an extension trestle ladder, or an extension section of an extension trestle ladder;

(b) 20 feet for a step ladder;

(c) 30 feet for a single ladder or individual section of a ladder;

(d) 48 feet for a two-section extension ladder; and

(e) 66 feet for an extension ladder having more than two sections.

(6) Runs of ladders shall,

(a) have rest platforms at intervals not greater than thirty-five feet; and

(b) be offset at every rest platform to provide overhead protection.
(7) Subsection 6 does not apply to a permanently installed ladder which is provided with a safety cage over its entire length.

(8) When a step-ladder is being used as a self-supporting unit,

(a) the legs shall be fully spread and the spreader shall be locked;

(b) the top of the step-ladder shall not be used as a step; and

(c) the pail shelf shall not be used as a step.

STAIRS

(9) Temporary stairs and landings shall be designed and constructed to safely support a live load of 100 pounds per square foot.

(10) Stairs shall,

(a) have treads and risers uniform in width, length and height in any one flight;

(b) have stringers making an angle not exceeding fifty degrees from the horizontal;

(c) have a vertical distance between landings not exceeding twelve feet; and

(d) have a handrail equivalent to the top-rail of a guardrail as prescribed in these requirements securely fastened and supported in place on the open side or sides of each flight and at each landing.

(11) Temporary stairs shall have a clear width of not less than thirty inches.

(12) Skeleton steel stairs shall have temporary wooden treads,

(a) of suitable planking extending the full width and breadth of the stairs and landings; and

(b) securely fastened in place.
(13) Clause b of subsection 10 and subsection 11 do not apply to a prefabricated stair erected inside a tower formed by scaffold frame sections where,

(a) the stringers make an angle not exceeding sixty degrees from the horizontal; and

(b) the stairs have a clear width of twenty inches. New.

GUARDRAILS

586.—(1) A guardrail shall be provided and maintained in good condition,

(a) around any uncovered opening in a floor, roof or other surface; and

(b) at the perimeter or any other open side of,

(i) a floor, including a mezzanine and a balcony,

(ii) a surface of a bridge,

(iii) a scaffold, including a platform, runway or ramp, or

(iv) a concrete roof, while the formwork remains in place,

from which a person may fall,

(v) into water,

(vi) for a vertical distance of four feet or more where the scaffold referred to in subclause iii of clause b is used for wheelbarrows or other vehicles, or

(vii) for a vertical distance of ten feet or more.

(2) A guardrail shall have a height of not less than thirty-six inches and not more than forty-two inches above the surface, floor, scaffold or concrete roof on which it is installed.

(3) A guardrail shall be constructed in accordance with one of the following specifications:
1. A wooden guardrail, free from splinters and protruding nails, consisting of,

   i. a top rail not less than \(1\frac{5}{8}\) inches by \(3\frac{5}{8}\) inches in cross-section, securely supported on posts not less than \(1\frac{5}{8}\) inches by \(3\frac{5}{8}\) inches in cross-section, spaced at intervals of not more than eight feet,

   ii. an intermediate rail not less than three inches wide, securely fastened to the inner side of the post midway between the top rail and the toe-board, and

   iii. a toe-board securely fastened to the posts or other vertical supports, and extending from the surface, floor, scaffold or roof, to a height of not less than five inches;

2. A wire cable guardrail maintained taut by means of a turnbuckle consisting of,

   i. a top-rail and an intermediate rail of not less than one-half of an inch diameter wire cable with vertical separators at least two inches wide, spaced at intervals of not more than eight feet, and

   ii. a toe-board securely fastened to the inner side of the vertical separators and extending from the surface, floor, scaffold or roof to a height of not less than five inches; or

3. Notwithstanding the height limitations of subsection 2, a guardrail of fencing material, commonly referred to as snow fencing, adequately supported in a vertical position and maintained taut, which shall have,

   i. vertical pieces of lumber four feet long, not less than one and one-half inches wide and three-eighths of an inch thick, painted a distinctive colour, and woven between five double strands of number thirteen Imperial Standard Gauge steel wire so that the lumber shall be tight
between the wire and space at not more than three and one half inches centre to centre, and

ii. the double stranded wires shall be wrapped round each other at least three times in each space between the lumber and shall be evenly spaced ten inches apart.

(4) A guardrail shall be constructed in accordance with paragraph 1 of subsection 3 if the district mining engineer is of the opinion that the wire cable guardrail or fencing material is not installed or is not being maintained in good condition. New.

SCAFFOLDS

587.—(1) Where work cannot be done safely on or from the ground or from a building or other permanent structure, a scaffold constructed as prescribed in this section, or some other equally safe means of support for persons, shall be provided.

(2) No person shall use stilts, a barrel, box or other loose object,

(a) to stand upon while working; or

(b) to support a scaffold or working platform.

(3) The erection, use, dismantling or removal of a scaffold shall be done under the supervision of a person experienced in this work.

(4) During the erection, alteration or dismantling of a scaffold or scaffold platform, work, other than that required for the erection, alteration or dismantling,

(a) shall be done only from the parts of the scaffold or scaffold platform which comply with subsection 1 of section 586 and subsection 5 of this section; and

(b) shall not be performed beneath the part being erected, altered or dismantled unless adequate overhead protection is provided.

(5) A scaffold shall,

(a) be capable of supporting two or more times the maximum loading to which it may be subjected

Guardrails

New.

Use of loose objects prohibited

Scaffolds required

Where scaffolds required

SCAFFOLDS

587.—(1) Where work cannot be done safely on or from the ground or from a building or other permanent structure, a scaffold constructed as prescribed in this section, or some other equally safe means of support for persons, shall be provided.

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(3) The erection, use, dismantling or removal of a scaffold shall be done under the supervision of a person experienced in this work.

(4) During the erection, alteration or dismantling of a scaffold or scaffold platform, work, other than that required for the erection, alteration or dismantling,

(a) shall be done only from the parts of the scaffold or scaffold platform which comply with subsection 1 of section 586 and subsection 5 of this section; and

(b) shall not be performed beneath the part being erected, altered or dismantled unless adequate overhead protection is provided.

(5) A scaffold shall,

(a) be capable of supporting two or more times the maximum loading to which it may be subjected

Scaffolds required

Requirements for scaffolds

Guardrails

New.
subjected without exceeding the allowable unit stresses for the materials used and where the principal component of the scaffold is a tubular metal frame;

(b) be constructed only of suitable structural material and where lumber is used, it shall be No. 1 Construction Grade Eastern Spruce or better;

(c) have all uprights diagonally and horizontally braced to prevent lateral movement;

(d) have no splices between the points of support of horizontal members;

(e) have footings, sills or supports which shall be sound, rigid, and capable of supporting the maximum load without unsafe settlement or deformation;

(f) have all necessary fittings and gear, which shall be suitable and properly installed;

(g) have safety catches on all hooks; and

(h) be adequately secured to prevent lateral movement at vertical intervals not exceeding three times the least lateral dimension of the scaffold measured at the base.

(6) A scaffold platform shall,

(a) be designed, constructed and maintained to safely support all loads to be applied to it in accordance with clause a of subsection 5;

(b) be at least nineteen inches wide;

(c) when ten or more feet above a floor, roof or other surface, consist of planks tightly laid for the full width of the scaffold; and

(d) when lumber is used, have planks which,

(i) are of No. 1 Construction Grade Eastern Spruce or better,

(ii) are at least two inches thick and ten inches wide.
(iii) overhang its end supports by not less than six inches and not more than eighteen inches, and

(iv) are cleated or otherwise secured against slipping.

(7) A suspended scaffold shall,

(a) be attached to a fixed support or an outrigger beam capable of supporting four or more times the maximum loading to which it may be subjected, without overturning and without exceeding the allowable unit stresses for the materials used;

(b) have hangers located not less than six inches and not more than eighteen inches from the ends of the platform;

(c) when capable of moving either vertically or horizontally,

   (i) have rope falls equipped with suitable pulley blocks, or

   (ii) have a mechanical hoisting device equipped with a positive locking device to prevent the scaffold from falling freely;

(d) not use fibre rope where,

   (i) the distance between blocks exceeds three hundred feet,

   (ii) any corrosive substance is in the vicinity of the rope, or

   (iii) any mechanical grinding or flame cutting equipment is to be used in the vicinity of the rope;

(e) when not being raised or lowered, where practicable, be secured to and firmly anchored to the building or structure; and

(f) have wire mesh of at least No. 16 gauge rejecting a ball one and a half inches in diameter, extending from the toe-board to the rail of the guardrail and fastened securely in place.

(8)
(8) A boatswain’s chair shall,

(a) be not less than two feet long and ten inches wide;

(b) be supported by a sling which shall be at least three-eighths of an inch wire rope, if the workman on the chair is using,

(i) any corrosive substance, or

(ii) any mechanical grinding or flame cutting equipment; and

(c) not be required to comply with clauses b and f of subsection 7.

(9) Each person on a suspended scaffold shall use a safety belt attached in a satisfactory manner to a separate independently suspended life-line of at least five-eighths of an inch manila rope securely attached overhead to the project or other suitable support in such a way that, failure of the scaffold support does not cause failure of the life-line support, the life-line is free from danger of chafing on any sharp edge, and if the person should fall, he will be suspended at a distance of not more than five feet from the place where he was working.

(10) Subsection 9 does not apply to a part of a suspended scaffold which is designed, constructed and maintained in such a way that the failure of one support or one suspension will not cause the collapse of the part of the scaffold directly or by progressive collapse of the other supports or suspensions.

(11) An outrigger scaffold shall have,

(a) the platform commencing within three inches of the wall; and

(b) outrigger beams which are well secured against horizontal and vertical movement.

(12) A ladder jack scaffold shall,

(a) have ladder jacks that transmit their load directly to the ladder side rails;

(b) not be used to provide a working platform more than ten feet above a floor, roof or any other surface supporting the ladders; and

(c)
(c) not be used where the distance between the ladders exceeds ten feet.

(13) A mobile scaffold mounted on casters or wheels shall, Mobile scaffolds

(a) where the height of the scaffold exceeds three times its least lateral dimension measured at the base, be equipped with outriggers, guy wires or other positive means to prevent overturning;

(b) be equipped with a suitable braking device on each wheel;

(c) have the brakes applied when any person is on the scaffold or scaffold platform; and

(d) not be moved when a person is on the scaffold or scaffold platform except when every person on the scaffold is using a safety belt in a similar manner to that prescribed in subsection 9 for a person on a suspended scaffold. New.

FORMWORK AND FALSEWORK

588.—(1) Every structure and every part of a structure for the purpose of forming concrete shall be designed, constructed, supported and braced to safely withstand all loads likely to be applied to it before, during and after the placing of concrete.

(2) Where shores are used,

(a) the bracing required by subsection 1 shall include sufficient bracing in the vertical and horizontal planes to prevent lateral movement of the formwork and buckling of the shores; and

(b) footings for shores shall be sound, rigid and capable of carrying the maximum load without excessive settlement or deformation.

(3) Where shoring is more than one tier in height, the Shoring in tiers junction of each tier shall be braced to prevent any lateral movement.
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(4) Without limiting the generality of subsection 1, where falsework consists of shoring more than one tier in height or is a framed structure,

(a) such falsework shall be designed by a professional engineer to safely withstand the loads mentioned in subsection 1;

(b) the drawings of such falsework shall be prepared and shall,

(i) show the size and specifications of the falsework, including the type and grade of all materials for its construction,

(ii) bear the seal or signature of the professional engineer, and

(iii) be kept at the project at all times while the falsework is being constructed or used; and

(c) such falsework shall be constructed in accordance with the drawings prescribed in clause b and any revisions shall be countersigned by the professional engineer mentioned in clause a.

(5) Removal of falsework and formwork shall not be commenced until the concrete has attained sufficient strength to be,

(a) self-supporting, or

(b) capable of being adequately supported by reshoring. New.

DEMOLITION

589.—(1) No person shall commence or continue to demolish, dismantle or move a building or other structure until such times as,

(a) he has taken steps to prevent injury to any person in or near the project or the adjoining property; and

(b)
(b) all existing gas, electrical and other services that are likely to endanger the safety of persons having access to the building or other structure have been properly shut off and disconnected.

(2) No person shall stand on top of a wall, pier or chimney to remove material therefrom, unless safe flooring or adequate scaffolding or staging is provided on all sides not more than ten feet below his place of working.

(3) Scaffolding shall be made self-supporting to be independent of that portion of the project being demolished.

(4) This section applies to demolition by,

(a) a heavy weight suspended by cable from a crane or other hoist machine;

(b) a power shovel, bulldozer or other vehicle;

(c) any other powered mechanical device;

(d) explosives; or

(e) any combination of the foregoing.

(5) The person in charge of demolition shall ensure that no person except his employees directly engaged on the demolition described in subsection 4, enters a demolition zone,

(a) having its centre at the point of demolition; and

(b) having a horizontal radius equal to one and a half times the height of the project, or portion of the project being demolished.

(6) The controls of a mechanical device for demolishing a project shall be operated from a safe location which shall be as remote as is practicable from the demolishing operation.
(7) Where a swinging weight is used for demolishing, the supporting cable shall be of such length or so restrained that the weight will not swing against any structure other than the structure being demolished.

(8) Before demolition commences, glass shall be removed from windows and other locations on the project or otherwise protected so that there is no possibility of breakage of the glass at any stage of the demolition.

(9) Demolition shall proceed systematically from the highest to the lowest point of the project.

(10) In a skeleton structural frame building, the skeleton structural frame may be left in place during the demolition or dismantling of the masonry if the masonry and any loose material is removed from the skeleton structural frame in the order prescribed in subsection 9.

(11) The work above each tier or floor shall be completed before the safety of its supports is impaired by the demolition or dismantling operations.

(12) Where work on a building or structure being demolished or dismantled is suspended or discontinued prior to the completion of the demolition or dismantling, access to the part which has still to be demolished or dismantled shall be prevented by the installation of fencing or other equally effective barriers.

(13) A truss, girder or other structural member shall not be disconnected until it has been relieved of all loads except its own weight and has been temporarily supported.

(14) Masonry walls shall be removed in reasonably level courses.

(15) Materials shall not be loosened or permitted to fall in such masses as to endanger the structural stability of a floor or other support of the project or of any scaffold.
(16) A basement, cellar or excavation on a project being demolished or dismantled shall be backfilled to grade upon completion of the demolition or dismantling unless the open edges of the basement, cellar or excavation are protected by adequate fencing.

(17) Subsection 16 does not apply to a basement or cellar which has a roof, floor or other solid covering over it and all openings are boarded up to prevent access to the basement or cellar. New.

EXPLOSIVE ACTUATED FASTENING TOOLS

590.—(1) An explosive actuated fastening tool shall,

(a) be operated only by an authorized person who has been duly instructed in the use of the equipment according to the manufacturer's specifications and recommendations;

(b) be operated only in accordance with the manufacturer's approved recommendations;

(c) be inspected by the operator before use to ensure that it is clean and in all ways suitable for use;

(d) not be left unattended in a place where it might be available to an unauthorized person;

(e) be stored in a locked container.

(2) Explosive loads shall,

(a) be suitably identified;

(b) be stored in separate compartments if of varied strength;

(c) be stored in a locked container; and

(d) not be left unattended in a place where they may be available to unauthorized persons. New.
591.—(1) In this section and in sections 592 to 596,

(a) “attendant” means a person who is stationed on the conveyance or at its landing places and has control of any movement of the conveyance of the hoist as whole or part of his duties;

(b) “chimney hoist” means a hoist used for hoisting or lowering persons or materials in or without a chimney;

(c) “concrete bucket hoist” means a construction hoist used for hoisting or lowering concrete only;

(d) “construction hoist” means a mechanism for use in connection with the construction, maintenance or demolition of a building, structure or other work on surface of a mining property,

(i) for hoisting or lowering materials or persons or both, and

(ii) equipped with a conveyance that moves in guides during its vertical movement, and includes its hoistway and hoistway enclosure;

(e) “materials hoist” means a construction hoist used for hoisting or lowering materials only;

(f) “operator” means a person who is stationed at the driving unit of a construction hoist and has direct control of any movement of the conveyance of the hoist as the whole or part of his duties;

(g) “permit” means a permit granted under this section to operate a construction hoist under specific loadings;

(h) “user” means the person in charge of a construction hoist as owner, lessee or otherwise, but does not include an operator or attendant as such;
"workmen's hoist" means a construction hoist used for hoisting or lowering persons or materials.

(2) The specifications for a construction hoist and its equipment, and the general arrangement of the installation including location, tower and hoistway, shall be submitted to the chief engineer for approval and no installation shall be made until such approval has been received.

(3) The second or any subsequent installation on the same property of a construction hoist and hoistway, originally approved by the chief engineer, may be made on the approval of the district electrical-mechanical engineer, without the submission of plans and specifications, after he has inspected the site.

(4) Every construction hoist shall have tests conducted to prove the safe operation of all brakes, clutches, safety devices and controls, before being put into operation at a new location and thereafter, at such intervals as to ensure safe operation.

(5) The results of such tests shall be recorded in the Machinery Record Book and made available to the district electrical-mechanical engineer.

(6) No construction hoist shall be put into operation until a permit showing the maximum allowable loadings for persons or materials has been obtained from the district mining engineer, and such permit shall be displayed in a conspicuous place in the hoisting area.

(7) Where the permit for a construction hoist does not designate the capacity in terms of persons, or persons and pounds, the user of the hoist shall furnish and display a notice, in the conveyance or other load carrying unit of the hoist, setting forth in letters not less than two inches high the words "No person shall ride in or on this conveyance".

(8) The prohibition contained in the notice mentioned in subsection 7 applies to every person except a person engaged in the lubrication, repair, erection, dismantling or maintenance of a construction hoist.
Where operator and attendant required

(9) Where a construction hoist has a driving unit that is not directly controlled by a device installed in the conveyance or at each landing of the hoistway, there shall be,

(a) an operator at all times; and

(b) an attendant in the conveyance or at each landing of the hoistway when persons are being conveyed.

Operators must be qualified

(10) Where an operator is required for the operation of a construction hoist, he shall, if required, possess a certificate of qualification.

Attendants must be experienced

(11) Where an attendant is necessary for the operation of a construction hoist, the attendant shall have attained the age of eighteen years and shall have had adequate training and experience to perform his duties safely.

Safety of persons

(12) Every construction hoist and all equipment used in connection therewith shall be so designed, installed and maintained that the safety of persons being carried or being near shall be ensured at all times.

Load capacity certificate

(13) The owner or user of a construction hoist shall provide a certificate from the manufacturer or an independent person approved by the chief engineer showing the maximum allowable weight that the hoist is capable of handling.

Protection of hoist operators and hoists

(14) The operator of a construction hoist and the hoist shall be adequately protected against falling objects and other hazards consistent with the project.

Idem

(15) The installation shall be so arranged that the hoist operator will have the maximum practicable view of the tower.

Idem

(16) The building housing the hoist shall be adequately lighted.

Idem

(17) The machine area, tower landings and pit shall be kept free of building materials, debris, and equipment not required for the hoist.

Idem

(18) Flammable fuels, oil or other readily combustible materials shall be stored away from the hoist area.

(19)
(19) The main overhead beams at the top of the tower and the immediate members supporting the beams shall,

(a) be of steel; and

(b) safely support the loads likely to be imposed thereon, including,

(i) twice the maximum load on the ropes suspended from the overhead beams, and

(ii) the weight of the overhead beams and machinery thereon, and

(iii) be rigidly and safely supported at each end.

(20) A construction hoist tower shall,

(a) be of steel;

(b) safely support the loads likely to be imposed upon it, including,

(i) twice the maximum static load suspended from the overhead beams,

(ii) any loads due to a hoist boom or concrete bucket chute,

(iii) the weight of the tower, and

(iv) loads due to wind and ice;

(c) be supported upon a safe, firm, level foundation such that the tower will remain in vertical alignment and the bearing capacity of the soil will not be exceeded by the maximum load from the tower, the hoist and its load;

(d) extend above the top landing so that, when the conveyance is at the top landing, ten feet of overhead clearance will be provided from the topmost part of the conveyance to the lowest part of the tower or machinery over the hoistway;

(e) not be located wholly or partially in front of an entrance to a building;
(f) be plumb;

(g) be securely braced or guyed to the building or to other adequate anchorage at vertical spacings of not over forty feet; and

(h) have each guy wire of steel, a quarter of an inch or larger in diameter, securely attached at each end with rope clips, and with a turn-buckle to adjust its length.

Foundations

(21) Where part of a building or structure is used for a hoist foundation, it shall be constructed or reinforced to withstand any load that is likely to be placed upon it, and any space beneath a hoist foundation shall be enclosed to prevent any person from entering therein.

Access to sheaves

(22) Safe means of access to the overhead sheaves shall be provided by a ladder from the highest landing of the tower.

Assembling steel

(23) In the assembling of the segments of steel hoist towers, connections shall be made with bolts, pins or special devices to prevent the connections from accidentally disengaging.

Counterweight runways

(24) Where the counterweight runway is located within 36 inches of the building floor or landing, the entire length of the runway adjacent to the building shall be screened with wire mesh (16 gauge) that will reject a ball one and one half inches in diameter.

Counterweight guards

(25) Counterweight guards shall consist of a metal frame and No. 16 gauge sheet steel, or plywood three-quarters inch thick, properly reinforced and braced, and securely fastened in position.

Idem

(26) Guards shall be installed on all counterweight runways in the open side or sides at grade or working levels and extend to a height of at least eight feet above that level. New.

Hoistways

592.—(1) The hoistway of a construction hoist shall be enclosed,

(a) on sides not facing conveyance entrances at the lowest landing to a height of at least six feet; and

(b) on sides facing conveyance entrances, from the top of each landing opening to the underside.
side of the next landing above or to the top of the hoistway, with No. 16 gauge wire mesh rejecting a ball one and a half inches in diameter and the mesh shall be securely fastened to the tower.

(2) The enclosure described in clause b of subsection 1 may be omitted where the conveyance is equipped on its entrance sides with a door of the vertically sliding or horizontal-swinging type,

(a) extending from within two inches of the conveyance floor to a height of not less than five feet;

(b) consisting of a metal frame and No. 16 gauge wire mesh that rejects a ball one and a half inches in diameter; and

(c) equipped with a positive locking device.

(3) A hoistway within a building shall be fully enclosed, except at landing entrances, with No. 16 gauge wire mesh rejecting a ball one and a half inches in diameter or with substantial building materials having equivalent strength and openings.

(4) The hoistway pit shall be deep enough to allow the conveyance platform or bucket to descend to the proper level required for smooth loading and unloading at the lowest landing.

(5) A substantial gate shall be provided at each entrance to the hoistway of a construction hoist and shall,

(a) extend from within two inches of floor level to a height of six feet;

(b) be of the vertically-lifting or horizontally-sliding type, or one-section horizontally-swinging type;

(c) not be of the vertically-collapsible type;

(d) reject a ball one and a half inches in diameter;

(e) be located between two and four inches of the landing platform; and

(f) provide minimum headroom clearance of six feet six inches when in the open position.

(6)
(6) A counterweight for a gate shall be so enclosed that it will be retained if its means of suspension fails.

(7) Each gate shall be equipped with a mechanical latch to keep the gate in the closed position.

(8) Each landing gate shall be equipped with an electric contact switch that will turn on a light to indicate to the hoist operator when the gate is fully closed.

(9) A substantial landing platform shall be provided at each entrance to the hoistway of a construction hoist and shall,

(a) be securely fastened and safely supported at each end; and

(b) be at least equal in width to the hoistway entrance and have, except at the lowest landing, for at least five feet to each side, a guard railing forty-two inches in height and a toe-board five inches in height, with the space between the railing and the toe-board filled in completely and securely with No. 16 gauge wire mesh that rejects a ball one and a half inches in diameter or equal enclosure. New.

593.—(1) The conveyance of a construction hoist shall,

(a) be designed using a factor of safety of not less than five, based upon static loads and ultimate stresses of the materials;

(b) adequately support fifty or more pounds per square foot of conveyance floor area;

(c) operate in steel guides that will adequately withstand, without permanent deformation or damage, the application of the safety devices;

(d) be equipped with approved guide shoes or rollers adjusted to provide only the necessary running clearance between the shoes and the guide rails;

(e) be equipped with a safety device that will stop and sustain the conveyance when loaded to its maximum capacity should the means of suspension fail;
(f) be located so that the clearance between the conveyance platform and the landing sill is not less than three-quarters of an inch and not more than two inches;

(g) be enclosed on each non-entrance side with a toe-board five inches in height and with No. 16 gauge wire mesh extending at least six feet in height above the conveyance floor and rejecting a ball one and a half inches in diameter or shall be enclosed with solid material of adequate strength;

(h) have an adequate hood, part of which may be hinged, composed of No. 10 gauge wire mesh rejecting a ball one and a half inches in diameter or composed of solid material of equivalent strength;

(i) be equipped with a door or doors at least five feet in height above the conveyance floor, when used for the handling of persons, and so arranged that the doors can not open outward;

(j) be equipped when conveying persons with safety devices activated by governors arranged to trip at 25 per cent above normal operating speed.

(2) Where a wheelbarrow or other rolling equipment is to be transported, restraining cleats or blocks shall be provided on the conveyance platform.

(3) All counterweights shall have their sections strongly bolted together, shall be so placed that they cannot fall on any part of the machinery and shall be suspended in guides in such a manner that they will run freely. New.

594.—(1) The hoisting rope or ropes of a construction hoist shall,

(a) safely support the maximum static load to be imposed upon it without exceeding the ultimate breaking strength of the rope divided by the factor of safety for a construction hoist rope as set forth in the table in clause k;

(b) be not less than one half inch in diameter and composed of not less than six strands each of nineteen steel wires;
(c) where used on a drum hoist have at least three complete turns of rope on the drum when the conveyance is at its lowest point of travel;

(d) be examined daily for kinks, broken wires or other physical defects;

(e) be properly dressed and maintained in a safe working condition;

(f) be protected from falling material and rope-ways shall be maintained free of all material;

(g) not cross over or under ropes from other hoists;

(h) not be spliced;

(i) not encircle or be supported or guided by a sheave or drum whose diameter is less than twenty-four times the diameter of the rope in use;

(j) be securely anchored at each end by approved means;

(k) provide a factor of safety, when considering the static loadings involved, not less than required in the following table:

<table>
<thead>
<tr>
<th>Rope Speed (Feet per Minute)</th>
<th>Minimum Factor of Safety Workmen's Hoist</th>
<th>Minimum Factor of Safety Materials Hoist</th>
<th>Rope Speed (Feet per Minute)</th>
<th>Minimum Factor of Safety Workmen's Hoist</th>
<th>Minimum Factor of Safety Materials Hoist</th>
</tr>
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<tbody>
<tr>
<td>50</td>
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<td>6.65</td>
<td>300</td>
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<td>7.00</td>
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<tr>
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<td>7.90</td>
<td>700</td>
<td>11.00</td>
<td>9.80</td>
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</tbody>
</table>
(2) Where practicable, travelways and walkways shall be routed clear of ropes and the hoistman’s view of the hoistway, but in any event, a safe travelway shall be provided.

(3) No used rope shall be installed anew or used on a newly installed hoist until its condition has been proven satisfactory by examination, electro-magnetic test, laboratory test or combination of these tests as required by the district electrical-mechanical engineer.

(4) No rope shall be used where more than 5 per cent of the total number of wires in any one lay of the rope are broken, or where visual inspection shows evidence of severe wear, corrosion, kink, or other possible cause of rope failure. New.

595.—(1) Electrical or mechanical means of signalling the operator of a construction hoist shall be provided at each landing,

(a) where the travel of the conveyance is more than thirty-five feet; or

(b) where the hoist operator does not have a clear view of the landing.

(2) The following code shall be used to give signals to a hoist operator:

1 signal—Stop immediately if in motion.

1 signal—Hoist.

2 signals—Lower.

*3 signals—Persons will be on conveyance, operate carefully.

*(This signal to be given before persons enter the conveyance).

(3) Where the operator does not have a clear view of all the hoistway landings, the operator shall have voice communication with each landing, but movement of the conveyance shall be made upon signal only.

(4) The voltage of the signal system shall not exceed 30 volts. New.
596.—(1) Every construction hoist shall be,

(a) equipped with a permanent tag or nameplate showing the horse power of the driving unit;

(b) securely fastened to its foundation;

(c) equipped with a brake or brakes that will stop and hold the conveyance when 150 per cent loaded, at every position in the hoistway;

(d) if electrically driven, so arranged that the brake or brakes will be applied automatically in case of power failure;

(e) if of a drum winder type, equipped with drum flanges of a height sufficient to provide a clearance of not less than twice the nominal diameter of the rope above the top layer of rope on the drum;

(f) equipped with a device to indicate to the operator,

(i) position of conveyance in the hoistway,

(ii) limits of travel,

(iii) position at which underwind and overwind protective devices operate, and

(iv) position of all points at which landings may be made;

(g) when the hoisting drum is of the free-running type, equipped with a pawl or other device that will hold the conveyance with its maximum load at any point in the hoistway;

(h) provided with a disconnect switch at each location, wired in series, when the machine and the controller are in separate locations.

(i) equipped with limit switches;

(j) properly guarded to prevent injury to persons from gearing, shafting or other equipment;

(k)
(k) capable of lifting the conveyance and its maximum allowable load, and it shall not be loaded beyond its rated capacity;

(l) not operated until the hoistway is provided with adequate overwind and underwind clearance;

(m) not used for the transportation of men at any time, unless equipped as a workmen’s hoist.

(2) Every workmen’s hoist, in addition to the requirements of section 591, shall be,

(a) equipped with two or more ropes;

(b) equipped with overwind and underwind limit switches activated by the movement of the conveyance or counterweight, and in the latter case, the overwind protective device may be located at the lower end of travel;

(c) equipped with a speed control device which shall automatically return to the “off” or “neutral" position when released;

(d) equipped with a slack rope device, a reverse phase relay and a stop motion switch where the hoist is of the drum winding type;

(e) so arranged that the brake or brakes shall be applied automatically in case of failure of electrical supply to the safety circuit, and one brake shall be mechanically applied and electrically released;

(f) so arranged that the power unit shall drive the hoist drum when the conveyance is being raised or lowered and no mechanism for disconnecting the hoist drum from the power unit shall be available;

(g) not used for the purpose of handling men and materials simultaneously with the exception of hand tools;

(h) not operated until the hoistway is provided with,

(i) buffers in the pit,

(ii) a counterweight guard at the bottom of the hoistway, and

(iii) Workmen's hoists additional requirements
(iii) an electro-mechanical interlock on each landing gate or a means to lock the gate mechanically so that it cannot be opened from the landing side unless the conveyance is at the landing, but at the lowest landing means of unlocking the gate from the landing side shall be provided;

(i) inoperable unless the conveyance doors and hoistway gates at all landings are fully closed;

(j) so arranged that control of the movement of the conveyance shall be by a conveyance-switch or push-button located in the conveyance with or without a push-button at each landing;

(k) provided with a Machinery Record Book in which shall be recorded inspections, tests, and other data as required.

(3) The requirements of this Part applicable to construction hoists apply also to concrete bucket hoists, except that a conveyance safety device shall not be required.

(4) No person shall ride in or on a concrete bucket, except any person engaged in maintenance or repair work.

(5) The plans and specifications for chimney hoists and the general arrangements of the installation shall be submitted to the chief engineer for approval before being put into use.

(6) The bottom fastening of a boom to the tower shall be located at a level where guy ropes are fastened at horizontal girts, and the upper fastening for the boom shall be located at a distance not less than one-half the length of the boom above its bottom fastening and at a level where guy ropes are fastened at horizontal girts.

(7) The boom and its associated equipment shall be of an approved design and construction and operated in a safe manner.

(8) A qualified person shall be in charge of the operation of the boom. New.
597.—(1) No person shall wilfully damage or, without proper authority, remove or render useless any fencing, casing, lining, guide, means of signalling, signal, cover, chain, flange, horn, brake, indicator, ladder, platform, steam gauge, water gauge, safety valve, electrical equipment, fire-fighting equipment, first-aid equipment or other appliance or thing provided at a mine or plant in compliance with this Act. 1961-62, c. 81, s. 595.

(2) No person under the influence of or carrying intoxicating liquor shall enter a mine or be in the proximity of a working place on the surface or near machinery in motion. 1961-62, c. 81, s. 596.

(3) Abstracts of the provisions of this Act, authorized by the chief engineer, shall be posted up in suitable places at the mine or works where they can be conveniently read, and the owner, agent or manager of the mine shall maintain such abstracts duly posted, and the removal or destruction of any of them is an offence against this Act. 1961-62, c. 81, s. 597.

(4) The owner, agent or manager of a mine or plant shall maintain a copy or copies of Parts IX and XI of this Act at each mine or plant and such Parts shall be available for reference on request by any employee.

(5) The owner, agent or manager of a mine or plant shall maintain a notice at each mine or plant in suitable places setting out the name, address and telephone number of the district engineer for the mine or plant. New.

(6) The Minister may prescribe the charge to be made for any record or log book required under this Part. 1961-62, c. 81, s. 598.

TESTING LABORATORIES

598. The Minister may, out of the moneys that are appropriated for the purpose, establish, maintain and operate one or more laboratories for the purpose of testing or examining hoisting ropes or other appliances used in or about a mine and, by regulations made by the Lieutenant Governor in Council, may provide for,

(a) the management and operation of such laboratory or laboratories;
(b) the charges to be paid for services performed in such laboratory or laboratories;

(c) such other purposes as the Lieutenant Governor in Council deems proper. 1961-62, c. 81, s. 599.

**PARTY WALLS**

599.—(1) Subject to section 195 and except by agreement under subsection 3, no mining operations shall be carried on within a distance from the property boundary of a mine or mining property of twice the width or thickness of the orebody at the boundary, measured parallel to the boundary from foot wall to hanging wall and normal to the dip, and in no event shall mining operations be carried on within a distance of twenty feet from the boundary measured from the perpendicular to the boundary,

(a) except that, for the purposes of preliminary investigation, development headings may be advanced to twenty feet from the boundary; and

(b) except that exploratory diamond drilling may be done.

(2) Subsection 1 does not apply to operations at sand, gravel or clay pits or open-cast rock quarries. 1961-62, c. 81, s. 600 (1, 2).

(3) Adjoining owners or their agents may, by agreement in writing signed by them, carry on mining operations within the distances from the property boundary mentioned in subsection 1.

(4) Two certified copies of every such agreement shall be sent to the chief engineer. 1961-62, c. 81, s. 600 (3, 4), amended.

600.—(1) Where adjoining owners or their agents are unable to agree to carry on mining operations within the distances from the property boundary mentioned in subsection 1 of section 599, application may be made to the Minister by either owner or his agent requesting the appointment of a committee to investigate in what manner and within what distances from the boundary mining operations may be carried on. 1961-62, c. 81, s. 601 (1), amended.

(2) Upon receipt of an application under subsection 1, the Minister may appoint a committee of three disinterested persons, one of whom shall be designated chairman, who are competent to investigate mining conditions at the boundary.
(3) The committee so appointed shall hear representations from the adjoining owners and conduct such investigation of mining conditions on the adjoining mining properties as may be necessary at a time or times named by the Minister.

(4) Upon completion of their investigation, the committee shall forthwith submit a report in writing to the Minister with recommendations concerning terms and conditions of mining operations at the boundary.

(5) Upon receipt of the report of the committee, the Minister may issue an order establishing the terms and conditions to be observed in mining operations at the boundary and shall fix the costs of the committee to the adjoining owners. 1961-62, c. 81, s. 601 (2-5).

601.—(1) Where the owner or his agent of a mine or mining property has reason to believe that a breach has been made in or a trespass has been committed with respect to the party wall between his mine or mining property and an adjoining mine or mining property, application may be made to the Minister by the owner for the appointment of a committee to examine the party wall and enter the adjoining mines or mining properties with an assistant or assistants and use where necessary the workings and appliances thereof. 1961-62, c. 81, s. 602 (1), amended.

(2) Upon receipt of an application under subsection 1, the Minister may appoint a committee of three disinterested persons, one of whom shall be designated chairman, who are competent to conduct such examination of the party wall as may be necessary.

(3) The committee so appointed shall conduct such examination of the party wall as may be necessary at a time or times named by the Minister.

(4) Upon completion of the examination the committee shall forthwith submit a report of its findings in writing to the Minister.

(5) Upon receipt of the report of the committee, the Minister shall fix the costs of the committee to one or both owners.

(6) Where a breach has been made in a party wall of a mine by the owner of an adjoining mine, or by his employees
employees or agents, without the permission in writing of the owner of the first-mentioned mine or without authority under this Act, the Minister may make an order directing the offending owner to close the breach permanently or to carry out such measures as the Minister deems necessary to prevent water from flowing into the mine of the owner complaining of the breach.

(7) Where work has been discontinued in the mine of the offending owner or where expedient for any other reason, the Minister may authorize the owner complaining of the breach, his employees or agents, to enter the mine and works of the offending owner to erect bulkheads and carry out such measures as the Minister deems necessary to protect from damage the mine of the owner complaining of the breach and his employees and agents from danger from accumulations of water in the mine of the offending owner. 1961-62, c. 81, s. 602 (2-7).

602. For good cause shown and upon such terms as seem just, the Minister may vary or rescind an order made under section 600 or 601. 1961-62, c. 81, s. 603.

**BRINE WELLS**

603.—(1) In this section,

(a) "brine well" means a hole or opening in the ground for use in brining;

(b) "brining" means the extraction of salt in solution by any method. 1961-62, c. 81, s. 604 (1).

(2) No person shall drill or bore a brine well except under the authority of a permit in writing issued by the chief engineer upon application therefor in the prescribed form. 1961-62, c. 81, s. 604 (2), amended.

(3) A permit shall not be issued,

(a) to authorize a person to drill or bore a brine well on property in which he does not own, hold or lease, or is not otherwise entitled to, the mining rights; or

(b) where the proposed brine well is nearer the boundary of such property than 500 feet.
(4) The chief engineer may reduce or extend the distance referred to in clause \(b\) of subsection 3 where in his opinion it is advisable to do so and shall notify the applicant of any such reduction or extension within thirty days from the date upon which the application for the permit is filed.

(5) A permit is subject to the condition that the brine well in respect of which it is issued is bored or drilled in the location described in the permit. 1961-62, c. 81, s. 604 (3-5).

(6) A permit shall be issued or refused within thirty days from the date on which the application therefor is filed, except that, where notice has been given by the chief engineer under subsection 4, the permit shall be issued upon the receipt by the chief engineer of the applicant’s consent thereto. 1961-62, c. 81, s. 604 (6), amended.

(7) Where a person drills or bores a brine well, he shall forward a log of the drilling or boring in the prescribed form in duplicate to the chief engineer within thirty days of the completion of the drilling or boring operations, and, upon his request in writing, the log shall be confidential for a period of six months.

(8) A person boring or drilling a brine well shall take such reasonable measures as are necessary to control the infiltration of water from one horizon to any other horizon that may be penetrated during the drilling or boring operations.

(9) All brine wells shall be cased and equipped so as to reasonably ensure against the uncontrolled flow of oil, natural gas, brine or water.

(10) Casing and equipment shall be in good condition and of a thickness and strength adequate to withstand any fluid pressure to which they might normally be subjected.

(11) Where practicable, all brine wells shall be plugged by the person operating them, before being abandoned, in a manner that will,

\(\text{(a)}\) reasonably ensure that salt horizons and potential oil or natural gas producing horizons are protected; and

\(\text{(b)}\) retain water and brine in their original formations.

(12)
(12) Before commencing to plug a brine well, the person proposing to carry out the plugging operations shall report the particulars thereof to the chief engineer in the prescribed form.

(13) Where a person plugs a brine well, he shall forward a record of the plugging in the prescribed form in duplicate to the chief engineer within thirty days of the completion of the plugging operations. 1961-62, c. 81, s. 604 (7-13).

FATAL ACCIDENTS

(6) Subject to subsection 6, no person shall, except for the purpose of saving life or relieving human suffering, interfere with, destroy, carry away or alter the position of any wreckage, article or thing at the scene of or connected with the accident until the engineer has completed an investigation of the circumstances surrounding the accident.
(6) Where it is impossible for the engineer to make an immediate investigation of an accident, the chief engineer or engineer may permit the wreckage, article and things at the scene of or connected with the accident to be moved to such extent as is necessary to permit the work of the mine, plant, quarry, or sand, clay or gravel pit, to be proceeded with, if photographs or drawings showing details of the scene of the accident have been made prior to the moving. 1961-62, c. 81, s. 169, amended.

NON-FATAL ACCIDENTS

605. Where, in or about a mine, plant, quarry, or a sand, clay or gravel pit, an accident occurs to a person employed therein that causes fracture or dislocation of any bones of the body, or any other injury that in the opinion of the attending physician may result in the injured person being incapacitated for regular work for at least one day, the owner, agent or manager shall within three days of the accident send notice in writing to the engineer resident in that part of Ontario in which the mine, plant, quarry or pit is situate on the form prescribed for such purpose. 1961-62, c. 81, s. 605, amended.

SPECIAL OCCURRENCES

606.—(1) Where, in or about a mine or plant,

(a) an accident involving the hoist, sheaves, hoisting rope, shaft or winze conveyance, or shaft or winze timbering;

(b) an explosion or fire involving an air compressor, air receiver or compressed air line;

(c) an inrush of water from old workings or otherwise;

(d) a failure of an underground dam or bulkhead, as defined by subsection 1 of section 278;

(e) an outbreak of fire below ground or an outbreak of fire above ground if it endangers any structure of the mine plant;

(f) a premature or unexpected explosion or ignition of explosives or blasting agents;

(g)
(g) an asphyxiation effecting a partial or total loss of physical control;

(h) a flammable gas in the mine workings;

(i) an unexpected and non-controlled extensive subsidence or caving of mine workings; or

(j) a failure or incident which causes, or threatens to cause, injury to personnel or damage to major equipment or property involving,

(i) electrical equipment,

(ii) standard gauge railway equipment, or

(iii) crane equipment,

occurs, whether or not loss of life or personal injury is caused thereby, the owner, agent or manager of the mine shall, within the twenty-four hours next after the occurrence, send notice in writing in duplicate to the engineer resident in that part of Ontario in which the mine or plant is situate and shall furnish, upon request, such particulars in respect thereof as the engineer requires.

(2) Where, in or about a mine, an outbreak of fire occurs that endangers the health or safety of one or more persons and the services of the mine rescue stations are required, the manager shall immediately notify the mine rescue training officer and the district mining engineer resident in that part of Ontario in which the mine is situate.

(3) Where a rockburst occurs, whether or not loss of life or personal injury is caused thereby, and its location is determined as being within the workings of a mine, the manager of the mine shall, within the twenty-four hours next after the location of the burst has been determined, send notice in writing to the district mining engineer resident in that part of Ontario in which the mine is situate and shall furnish, upon request, such particulars with respect thereto as the engineer requires.

(4) A record of the occurrence of all rockbursts at a mine shall be kept, showing, as far as possible, the time, location, extent of the burst, any injury to persons and any other information pertaining to the

burst
burst, and such record shall be available to the
district mining engineer at all times. 1961-62, c. 81,
s. 606, amended.

OTHER NOTICES AND INFORMATION

607.—(1) The owner or agent of a mine or plant shall give
or cause the manager to give to the chief engineer
and to the district mining engineer resident in that part of Ontario in which the mine or plant is situate,
written notice of,

(a) (i) the intended installation of, including
the specifications and layout of,

1. any mine hoisting facilities,

2. any power supply facilities, and

3. any ore treatment facilities,

(ii) the lot, concession and township on
which the operations are to commence,

(iii) the name and address of the person in
charge;

(b) the connection or reconnection of any mining
electrical equipment with a source of electrical energy controlled by any other person, at least fourteen days prior to the connection or reconnection;

(c) the commencement, or resumption after an interruption of one month or more, of mining operations, within fourteen days after the commencement or resumption; and

(d) the closing down of the mine and that,

(i) the requirements of subsection 1 of section 168 as to the fencing of the top of the shaft, entrances from the surface, pits and openings,

(ii) the requirements of section 289 as to the disposal of explosives and blasting agents,

(iii) the requirements of section 351 as to the abandonment of a shaft compartment for hoisting purposes and as to the removal and disposition of hoisting ropes,
(iv) the requirements of section 425 as to the disconnection of the supply station from the power source and notification of same to the chief engineer, and

(v) the requirements of subsections 7 and 8 of section 609 as to the filing of plans and sections,

have been complied with within fourteen days of the closing down.

(2) The owner, agent or manager of a mine or plant shall furnish to the engineer resident in that part of Ontario in which the mine or plant is situate all information that the engineer requires for the purposes of his returns. 1961-62, c. 81, s. 607, amended.

STATISTICAL RETURNS

608.—(1) For the purpose of their tabulation, under the instruction of the Minister, the owner, agent or manager of every mine, plant, pit, quarry or other works to which this Act applies shall, on or before the 31st day of March in every year, send to the Department on the forms supplied a correct return for the year that ended on the 31st day of December next preceding, showing the number of persons ordinarily employed below and above ground respectively, the total amount of wages paid during the year, the quantity in standard weight of the minerals dressed and of the undressed mineral that has been sold, treated or used during such year, and the value or estimated value thereof, and such other particulars as the Minister by regulation prescribes.

(2) The owner, agent or manager of every metalliferous mine shall, if required, make a similar return for the month or quarter at the end of each month or quarter of the calendar year.

(3) Every owner, agent or manager of a mine, plant, pit, quarry or other works who fails to comply with this section, or makes a return that is to his knowledge false in any particular, is guilty of an offence against this Act. 1961-62, c. 81, s. 608, amended.

MINE OR PLANT PLANS

609.—(1) At every mine, the owner, agent or manager shall cause the following plans on a scale acceptable to the chief
chief engineer to be kept up to a date not more than six months last past:

1. A surface plan showing the boundaries of the property, the co-ordinates of the section of property under which mining has been done, all lakes, streams, roads, railways, electric power transmission lines, main pipe lines, buildings, adits, open surface workings, diamond-drill holes, outcroppings of rock, dumps, tailings-disposal sites and shafts, the latter having been geographically located by connection with a survey on record with the Department.

2. The method of capping any opening shall be described on the plans referred to in item 1.

3. Underground plans of each level and section showing all underground workings, including shafts and tunnels, diamond-drill holes, dams and bulkheads, and each level plan shall be shown on a separate drawing.

4. Vertical mine sections at suitable intervals and at suitable azimuths, showing all shafts, tunnels, drifts, stopes and other mine workings in relation to the surface, including the location of the top of the bedrock, surface of the overburden and the bottom and surface of any known watercourse or body of water, and each section shall be shown on a separate drawing.

5. Adequate ventilation plans, showing the direction and volume of the main air currents, the location of permanent fans, ventilation doors and stoppings, and connections with adjacent mines.

(2) The owner, agent or manager of every mine in which electricity is used underground shall keep or cause to be kept up to a date not more than six months last past an adequate plan or diagram showing on a suitable scale the following information:

1. The position of all fixed electrical apparatus in the mine.

2. The routes of all fixed power feeders and fixed branch feeders properly noted and referenced.
3. The rating of all electrical feeder control apparatus and equipment.

Idem

(3) Such plans or diagrams shall be available to the district electrical-mechanical engineer at all times and copies of the plans or diagrams shall be furnished him upon request.

Plans to be available to engineer

(4) On any examination or inspection of a mine or plant, the owner, agent or manager shall, if required, produce to the engineer or other person authorized by the Minister or the Deputy Minister all plans and sections of the workings referred to in subsections 1, 2 and 3.

Marking subsequent progress on plan

(5) The owner, agent or manager shall, if required by the engineer or other person authorized by the Minister or Deputy Minister, cause to be marked on such plans and sections the progress of the mine up to the time of the examination or inspection, and shall furnish him with a copy or tracing thereof.

Plans of working mines to be filed

(6) A certified copy of the plans required by paragraph 3 of subsection 1 and mine sections showing all shafts as required by paragraph 4 of subsection 1 shall be made and forwarded to the chief engineer on or before the 31st day of March in each year, showing the workings of the mine up to and including the 31st day of December next preceding.

Plans to be filed before abandonment

(7) Before a mine or part of a mine is abandoned, closed down or otherwise rendered inaccessible, all underground plans and sections referred to in paragraphs 3 and 4 of subsection 1 shall be brought up to date and two certified copies forwarded, one to the chief engineer, the other to the district mining engineer.

Idem

(8) Before work at a mine ceases, the surface plan referred to in paragraph 1 of subsection 1 showing all openings to underground workings shall be brought up to date and two certified copies forwarded, one to the chief engineer, the other to the district mining engineer.

Responsibility of owner

(9) The owner, agent or manager of every mine, plant, pit, quarry or other works to which this section applies is responsible for compliance with the provisions thereof and every owner, agent or manager or other person who fails to comply with any of the provisions
provisions of this section, or who produces to an engineer or other authorized person, or files or causes to be produced or filed, a plan that to his knowledge is false in any particular is guilty of an offence against this Act.

(10) Every such plan shall be treated as confidential information for the use of the officers of the Department and shall not be exhibited, nor shall any information contained therein be imparted to any person except with the written permission of the owner or agent of the mine or plant. 1961-62, c. 81, s. 609, amended.

POWERS AND DUTIES OF ENGINEERS

610.—(1) It is the duty of the engineer and he has power, to make such examination and inquiry as he deems necessary to ascertain whether this Act is complied with, and to give notice in writing to the owner, agent or manager of any particulars in which he considers the mine or plant or any part thereof, or any matter, thing or practice, to be dangerous or defective or contrary to this Act, and to require the same to be remedied within the time named in the notice;

(b) to enter, inspect and examine any mine or plant or any part thereof at any reasonable time by day or night, but so as not to unnecessarily impede or obstruct the working of the mine or plant;

(c) to order the immediate cessation of work in and the departure of all persons from any mine or plant or part thereof that he considers unsafe, or to allow persons to continue to work therein on such precautions being taken as he deems necessary; and

(d) to exercise such other powers as he deems necessary for ensuring the health and safety of miners and all other persons employed in or about mines, plants, pits, quarries or other works.

(2) It is the duty of the engineer to make a report of every examination and inquiry made in the course of his duties during the year to the Minister, the Deputy Minister or the chief engineer, as required by
Special report

611.—(1) The Minister may direct an engineer to make a special report with respect to any accident in or about a mine or plant that has caused the loss of life or injury to any person, or with respect to any condition in or about a mine or plant. 1961-62, c. 81, s. 611 (1), amended.

Engineer may take evidence

(2) In conducting the inquiry, the engineer has power to compel the attendance of witnesses and the production of books, documents and things, and to take evidence upon oath. 1961-62, c. 81, s. 611 (2).

Offence

612.—(1) Non-compliance with a written order of the engineer issued in accordance with section 610 shall be deemed an offence against this Part.

Idem

(2) Failure to give written notice of the completion of any work in accordance with a written order of the engineer issued under section 610 shall be deemed an offence against this Part. 1961-62, c. 81, s. 612.

R.S.O. 1960, c. 241, Pt. XI (1961-62, c. 81, s. 1), re-enacted

3. Part XI of The Mining Act, as re-enacted by section 1 of The Mining Amendment Act, 1961-62, is repealed and the following substituted therefor:

PART XI

OFFENCES, PENALTIES AND PROSECUTIONS

620.—(1) Every person who,

(a) prospects, occupies or works any Crown lands or mining rights for minerals otherwise than in accordance with this Act;

(b) performs or causes to be performed on any Crown lands, or on any lands where the mining rights are in the Crown, any boring by diamond or other core drill for the purpose of locating valuable mineral in place, except where such Crown lands or mining rights have been staked out and recorded as a mining claim in accordance with this Act;

(c) wilfully defaces, alters, removes or disturbs any post, stake, picket, boundary line, figure, writing
writing or other mark lawfully placed, standing or made under this Act;

(d) wilfully pulls down, injures or defaces any rules or notices posted up by the owner, agent or manager of a mine or plant;

(e) wilfully obstructs the Commissioner or any officer appointed under this Act in the execution of his duty;

(f) being the owner or agent of a mine, refuses or neglects to furnish to the Commissioner or to any person appointed by him or to any officer appointed under this Act the means necessary for making an entry, inspection, examination or inquiry in relation to a mine under this Act, other than Part IX;

(g) unlawfully marks or stakes out in whole or in part a mining claim, a placer mining claim, or an area for a bore permit;

(h) wilfully acts in contravention of this Act, other than Part IX or Part X, in any particular not hereinbefore set forth;

(i) wilfully contravenes any provision of this Act or any regulation for the contravention of which no other penalty is provided;

(j) wilfully makes any material change in the wording or numbering of a miner's licence after its issue; or

(k) attempts to do any of the acts mentioned in the foregoing clauses,

is guilty of an offence against this Act and is liable to a fine of not more than $20 for every day upon which the offence occurs or continues. 1961-62, c. 81, s. 620 (1), amended.

(2) Every person who knowingly makes a false statement in an application, certificate, report, statement or other document filed or made as required by or under this Act or the regulations is guilty of an offence and is liable to a fine of $500 or to imprisonment for a term of not more than six months, or to both. 1961-62, c. 81, s. 620 (2).
621.—(1) No person shall construct or cause to be constructed a plant for the smelting, roasting, refining or other treatment of ores or minerals that may result in the escape or release into the open air of sulphur, arsenic or other fumes in quantities that may injure trees or other vegetation unless and until the site of the plant has been approved by the Lieutenant Governor in Council.

(2) Every person who constructs or causes to be constructed a plant for the smelting, roasting, refining or other treatment of ores or minerals, without the approval of the Lieutenant Governor in Council, and sulphur, arsenic or other fumes escape or are released therefrom into the open air and injure trees or other vegetation is guilty of an offence and is liable to a fine of not more than $1,000 for every day upon which such fumes escape or are released therefrom into the open air. 1961-62, c. 81, s. 621.

622. Every person who wilfully neglects or refuses to obey any order or award of the Commissioner, except for the payment of money, is, in addition to any other liability, liable to a fine of not more than $250 and, upon conviction thereof, is liable to imprisonment for a term of not more than six months unless the fine and costs are sooner paid. 1961-62, c. 81, s. 622.

623.—(1) No person who,

(a) carries on the business of mining or dealing in mines, mining claims, mining lands, or mining rights, or the shares, stocks, or bonds of a mining company; or

(b) acts as broker or agent in or for the disposal of mines, mining claims, mining lands, or mining rights, or of any such shares, stocks or bonds; or

(c) offers or undertakes to examine or report on a mine, mining claim, mining land or mining rights,

shall use the word “Bureau” as the name or title or part of the name or title under which he acts or carries on business.

(2) Every person who contravenes any of the provisions of this section is guilty of an offence and is liable to a fine of not more than $20 for every day upon which
the offence occurs or continues. 1961-62, c. 81, s. 623.

624.—(1) In this section, the noun "mine" includes "plant" as defined in Part IX. New.

(2) An owner, agent or other person who contravenes any provision of Part IX is guilty of an offence and is liable to a fine of not more than $1,000.

(3) Where the Deputy Minister or an engineer has given written notice to an owner or agent or a person engaged or employed in or about a mine that an offence has been committed against Part IX, such owner or agent or other person is liable to a further fine of not more than $100 for every day upon which the offence continues after such notice.

(4) An owner, agent or other person is, upon conviction, liable to imprisonment for a term of not more than three months unless the fine and costs are sooner paid.

(5) Where the offence is one that might have endangered the safety of those employed in or about the mine or caused serious personal injury or a dangerous accident, and was committed wilfully by the personal act, default or negligence of the accused, every person who is guilty of an offence against Part IX is, in addition to or in substitution for any fine that may be imposed, liable to imprisonment with or without hard labour for a term of not more than three months. 1961-62, c. 81, s. 624.

625.—(1) No prosecution shall be instituted for an offence against Part IX or Part X or any regulation made in pursuance thereof except,

(a) by an engineer;

(b) by direction of the county or district Crown attorney; or

(c) by the leave in writing of the Minister of Justice and Attorney General,

or for an offence against any other provision of this Act or of any regulation made in pursuance thereof except,

(d)
(d) by or by leave of the Commissioner or a recorder;

(e) by direction of the county or district Crown attorney; or

(f) by leave of the Minister of Justice and Attorney General.

(2) No person not being the actual offender is liable in respect of such offence if he proves that he did not participate in the contravention of the provision for a breach of which he is charged and that he was not to blame for the breach and that according to his position and authority he took all reasonable means in his power to prevent the breach and to secure compliance with the provisions of Part IX or Part X.

(3) The burden of proving that the provisions of sections 172 to 596 have been suspended is upon the person charged with a contravention thereof and any such suspension may be proved by the evidence or certificate of an engineer. 1961-62, c. 81, s. 625.

626. Except as to offences against section 14, every prosecution for an offence against or for the recovery of a penalty imposed by or under the authority of this Act shall take place before a provincial judge or before the Commissioner, and, save as herein otherwise provided, The Summary Convictions Act applies to every such prosecution. 1961-62, c. 81, s. 626, amended.

4. This Act comes into force on a day to be named by the Lieutenant Governor by his proclamation.

5. This Act may be cited as The Mining Amendment Act, 1970.