

SECTION 6
PRECAUTIONS DURING BUILDING CONSTRUCTION

Contents

601	GENERAL
601.1	Scope
601.2	Erection of Scaffolds and Safeguards
601.3	Electricity Lines and other Hazards
601.4	Underground Utilities
602	DEMOLITION
603	EXCAVATION
604	SIDEWALKS, SHEDS AND FENCES
604.1	Sheds
604.2	Construction Fences
604.3	Exceptions
605	STORAGE OF MATERIAL
605.1	General
605.2	Hazardous Material
606	HOISTING MACHINERY
607	DERRICKS AND CRANES
607.1	General
607.2	Visibility
607.3	Compliance
607.4	Exceptions
608	CABLES, ROPES, CHAINS AND BLOCKS
609	PLATFORM HOISTS
610	HOIST TOWERS
611	TEMPORARY FLOORING
612	FLOOR OPENINGS
613	RUNWAYS AND RAMPS

614	TEMPORARY STAIRWAYS
615	LADDERS
616	SCAFFOLDS
617	SAFEGUARDS
617.1	Railings
617.2	Toeboards
618	TEMPORARY LIGHT AND POWER
620	SANITATION
621	WELDING AND CUTTING
622	OPEN FIRES
623	FIRE PROTECTION
624	SPECIAL HURRICANE PRECAUTIONS

SECTION 6

PRECAUTIONS DURING BUILDING CONSTRUCTION

601. GENERAL

601.1 Scope

- a) The provisions of this Section shall apply to all work in connection with erection, alteration, repair, removal and demolition of buildings and structures. It is the duty of all builders to make every effort to provide a safe working environment for workers on building sites. On sites on which more than 30 persons are working the use of hard hats may be enforced by the Authority.
- b) The Authority will issue an order to stop work if any provision of the Section is violated. Work will not be allowed to recommence until the owner has complied with the provisions of the Section to the satisfaction of the Authority.

601.2 Erection of Scaffolds and Safeguards

- a) The construction, erection, alteration and removal of scaffolds and the application, installation and setting up of safeguards and equipment devices shall be done by skilled workmen under the supervision of a person qualified by experience and training for such work.
- b) A safeguard, device or piece of equipment which is unsafe shall be reported to the superintendent or foreman, who shall take immediate steps to remedy such condition or remove such safeguard, device or equipment.
- c) Scaffolds, ladders stairs, fuel gas tanks and other devices or equipment regulated by this section shall be maintained in a good, safe and usable condition as long as they are in use.
- d) No ladders, scaffold, railing or other devices or equipment required or regulated by this section, or any part thereof, shall be removed, altered or weakened when required by the work, unless so ordered by the superintendent or foreman in charge.
- e) Scaffolds, temporary floors, ramps, stairway landings, stair treads, and all other walkway surfaces shall be kept free from protruding nails and splinters. They shall be kept free from necessary obstructions so that the workers may move about safely.
- f) Protruding nails and tie wire ends shall be removed, hammered in or bent in a safe condition.

601.3 Electricity Lines and other Hazards

- a) Electric lines, moving ropes and cable gears, or similar hazards with which a worker might come in contact, shall be encased or guarded.
- b) No person, firm or corporation, either personally or through an employee or agent of another, shall operate or move any machine, equipment, material, scaffolds or assembly closer than six feet to any energized high-voltage overhead electrical facilities except with the approval of the Electrical Inspector.

601.4 Underground Utilities

Prior to making an excavation, drilling or otherwise disturbing the ground, the person doing the work, or causing such work to be done, shall contact all public utility organizations to determine the possible location of underground facilities, to avoid the hazard to public safety, health and welfare caused by inadvertent disruption of such facilities.

601.5 Duty of Care

It is the responsibility of the builder to ensure that all operatives in his/her employ are appropriately trained and that they can operate the equipment safely. It is also his/her responsibility to ensure that no member of the public is exposed to a hazardous act.

602 DEMOLITION

- a) Before commencing the work of demolition of a building or structure, all gas, electric, water and other meters shall be removed and the supply lines disconnected, except such as are especially provided or required for use in connection with the work of demolition.
- b) Glazed sashes and glazed doors shall be removed before the start of demolition operations.
- c) No wall, chimney or other construction shall be allowed to fall in mass, except under competent supervision. Scaffolds or stagings shall be erected for workers if walls or other elements of the structure are too thin or too weak to work on. Heavy structural members, such as beams or columns, shall be carefully lowered and not allowed to fall freely.
- d) Chutes for the removal of materials and debris shall be provided in all parts of demolition operations which are more than 20 feet above the point from which material is to be removed.

- e) Chutes shall be completely enclosed and shall be equipped, at intervals of 25 feet or less, with substantial stops to prevent descending material from attaining dangerous speeds.
- f) The bottom of each chute shall be equipped with an adjustable gate or stop, for regulating the flow of materials. A danger sign shall be placed at the discharge end of every chute; and except for the discharge of materials, the gate or stop shall be kept closed.
- g) Proper tools shall be provided and kept available to loosen material or debris jammed in the chute. Chutes, floors, stairways and other places shall be effectively wet down, at frequent intervals, when the dust from such operations would cause a menace of hardship to adjoining buildings or premises.
- h) Stairs and stair railings shall be kept in place and in usable condition as long as is practicable, and steps and landings shall be kept from debris.
- i) Floor openings, unless covered or otherwise protected, shall be provided with guard rails and toe boards.
- j) All areas of danger in demolition operations shall be properly enclosed and danger signs posted. Sufficient watchmen shall be provided to warn workers of impending dangers, and all unauthorized persons shall be excluded from places where demolition is in progress.

603

EXCAVATION

- a) The sides of every excavation in connection with building operations, including trenches for pipes or for any purposes, shall be sheet-piled, braced or shored when necessary to prevent the soil from caving in on persons engaged in work within such excavation.
- b) Where workers are employed adjacent to an excavation on work other than that directly connected with the excavation, substantial railings or fences shall be provided to prevent such workers from falling into the excavation.
- c) Every trench, five feet or more in depth, shall have suitable means of exit or escape at least every 25 feet of its length.
- d) Excavations shall be drained and kept clear of excess water and debris to the satisfaction of the Ministry of Health
- e) The need for all excavations and the probable depths of the excavations and the time such excavations shall be in place shall be reported to the Director for approval before the work

commences. It is the duty of the permit holder to ensure that the excavations are completed and covered within the time frame reported to the Director.

604 SIDEWALK SHEDS AND FENCES

604.1 Sheds

- a) Where buildings, which exceed 45 feet in height, are to be erected or demolished closer than ten feet, or buildings which exceed 25 feet in height are to be erected or demolished closer than five, to a street line, there shall be erected and maintained, during such work adjacent to the street line, a shed of sufficient strength and stability to sustain safely the weight of materials that may be placed thereon, and to withstand the shocks incident to the handling of such materials or their preparation for use, and accidental jars from trucks passing or delivering materials.
- b) When the roof of such shed is used for the storage of materials or for the performance of work of any kind, substantial railings not less than three feet high and solid toe boards not less than six inches high shall be placed along the open sides and ends of such roof.
- c) Such shed shall be constructed to afford unobstructed walkways, not less than eight feet high and five feet wide. The street side shall be kept open for a height of not less than seven feet above the curb, and the sheds shall be properly lighted at night with not less than one 100-watt bulb every 20 feet of its length and at each change of grade or elevation of the sidewalk surface.
- d) Such shed shall remain in place until the building is enclosed, or if being demolished, until the building is reduced to 20 feet in height.

604.2 Construction Fences

Buildings which are erected or demolished closer than five feet to a street line and which are not required to have a sidewalk shed shall be provided with protection on the street sides in the form of a substantial fence not less than eight feet high. Such fence shall not restrict the sidewalk to less than five feet in width and shall be built solid for its full length, except for such openings as may be necessary for a proper execution of the work.

604.3 Exceptions

The Director may waive, or may vary, any or all of the provisions of subsection 604 where the safety of the public may otherwise be protected.

605 STORAGE OF MATERIAL

605.1 General

- a) Materials to be stored at or near locations where workers are employed or on any public property shall be piled or stacked in an orderly manner to avoid toppling over or being otherwise displaced.
- b) No material shall be piled or stacked to a greater height than six feet except in yards or sheds intended especially for storage. When piles exceed four feet in height, the material shall be so placed that the sides and ends of the piles taper back.
- c) The placing of construction materials in a building or structure during building operations shall be done with due consideration of the effect of such loads on the structural members, and such loads shall, in general, be placed as near to the points of support of the structural members as possible. Such loadings shall not cause stresses in any structural member beyond the design stresses.
- d) Waste material rubbish resulting from building operations shall be removed as rapidly as possible and shall not be allowed to accumulate on the premises or adjacent thereto.

605.2 Hazardous Materials

- a) When storing hazardous materials (eg flammable, explosive or toxic materials) the manufacturer's recommendations shall be followed. In any event the owner and builder shall construct and maintain safe storage areas in accordance with the requirements given in Part 3 Section 3 of CUBiC.
- b) In general hazardous materials should be stored in well ventilated, shaded areas away from naked flames, water courses and high traffic areas. The plans and drawings for such storage areas must be submitted to the Director.

606 HOISTING MACHINERY

- a) Every hoisting engine shall be provided with adequate breaks, capable of holding the maximum load at any point of travel.

- b) Guards shall be provided for exposed gears and other moving parts and around hoisting cables at all points to prevent workers from tripping or getting clothing caught.
- c) Ample room shall be provided around hoisting engines, motors or other machinery or apparatus for the free and safe movement of those who operate or otherwise attend such engines, motors or other machinery apparatus.
- d) Hoisting machinery shall be enclosed to exclude unauthorized persons and if placed outside the building, further protection against falling objects shall be provided.
- e) When hoisting machinery is set on an elevated platform, such platform shall be of substantial construction, and guard rails and toe boards shall be provided along all open sides platform.

607

DERRICKS AND CRANES

- (a) Derricks shall be so designed and assembled that no part shall be stressed beyond the safe-working stress for the material, as specified in this Code, under maximum-rated load in any possible position. Such maximum-rated load shall be conspicuously posted on each derrick.
- (b) The foot-block of every derrick shall be firmly secured against motion in any direction.
- (c) Guy derricks shall have the top of the mast held by not less than six steel guy cables secured by firm anchorages and so placed that the angle of the guy with the mast shall be as large as possible.
- (d) The moving parts of derricks and cranes shall be kept well lubricated, and all parts shall be inspected at least every other day.

607.2

Visibility

Masts and booms of derricks and cranes, where higher than 150 feet above ground, shall have installed:

- (a) At the top in a manner to ensure unobstructed visibility of at least one beacon and one flag from any angle, one or more flashing 300 mm beacons, each equipped with two lamps and aviation colour filters and rectangular flag markers of solid colour not less than two feet on a side.
- (b) Along the height of the mast or boom, a pair of lamps of at least 100 watts each, enclosed in aviation-red obstruction light globes, on opposite sides or corners at regular intervals not to

exceed 50 feet and, rectangular flag markers of solid colour aviation-surface-orange, not less than two feet on a side at regular intervals not to exceed 50 feet.

- (c) Where masts and booms are within 50 feet, measured horizontally of existing buildings which exceed the maximum heights of such masts or booms, light and flags may be omitted.

607.3

Compliance

- (a) Compliance with this Section shall not be construed as satisfying the zoning height requirements or any special provisions needed for safety of flying aircraft etc.
- (b) Compliance can be achieved by contacting the Director.

608

CABLES, ROPES, CHAINS AND BLOCKS

- a) Cables, ropes, chains and blocks shall be of such size that the maximum load supported by them will not exceed one sixth of their breaking strength.
- b) Blocks designed for use with manila ropes shall not be used for steel cables. Blocks used at or near floors or in other exposed places to change the direction of cables shall be enclosed or otherwise effectively guarded.
- c) All ropes and cables used in connection with scaffolds, derricks and hoisting apparatus shall be tested before being put to use and at least once every 30 days while in use, to insure their safety and suitability for the purpose to which they are to be put. Any rope or cable found to be unsafe or unfit shall not be used.
- d) Chains shall not be used for slings, bridles or other similar purposes, but shall be restricted to only such purposes as require a straight pull.
- e) Hooks shall not be used for hoisting buckets, cages or skips.

609

PLATFORM HOISTS

- a) No person shall be permitted to ride on any platform hoist unless it has been designed and constructed for passenger service. Elevators used for the transportation of workers during construction shall comply with the requirements of Section 11.
- b) Platform hoists for the handling of materials within buildings under construction shall have the car substantially constructed

and provided with covers, either solid or wire mesh. Sections of the cover may be arranged to swing upward for the handling of bulky materials, or the covers may be omitted if suitable overhead protection is provided.

- c) Hoists shall be equipped with a broken-rope safety device.
- d) Where wheel barrows or buggies are used for handling material on platform hoists, cleats shall be nailed to the platform to fix the proper position so that handles shall not project beyond platform edges.
- e) Supports for the overhead sheave shall be designed to carry no more than the hoist and its maximum load.

610

HOIST TOWERS

- a) Hoist towers, erected in connection with building construction shall be substantially constructed, and all members shall be so proportioned that the stresses shall not exceed those specified for that material, when carrying the dead load of the tower plus two times the weight of the platform or bucket. Hoist towers shall not be used unless the design and construction of the tower is approved by the Director.
- b) Every hoist tower shall rest on a sufficiently solid foundation to prevent injurious settlement or distortion of its framework.
- c) Every hoist tower shall be secured in not less than four directions against swaying or tipping, at intervals of not more than 32 feet in its height, by steel cable guys adequately anchored or by other satisfactory means. Such towers which are constructed adjacent to buildings shall be secured to the building frame at each floor as the building progresses.
- d) Landing platforms in hoist towers or platform connecting a hoist tower to a building or other structure shall be provided with guard rails and toe boards.
- e) The bottom of every hoist tower shall be screened or otherwise protected on all sides to a height of not less than six feet.
- f) Hoist towers erected within the building, but not occupying the entire opening through which they pass, shall be completely enclosed on all sides and shall be provided with doors at the unloading points unless the platform hoist is solidly enclosed on all sides to the height to which material is to be loaded or unloaded.

TEMPORARY FLOORING

- a) In buildings of skeleton construction, the permanent floor, except for necessary hoistway openings, shall, when possible, be constructed as the building progresses. There shall be not more than three unfilled floors above the highest permanent floor.
- b) In buildings of skeleton construction, the entire working floor shall be planked over, except spaces required for construction work, for raising or lowering materials, and for stairways or ladders. Planks shall be placed so that they cannot tip under the weight of a worker at any point and secured so that they cannot slip out of place.
- c) In buildings of wood joist construction, the underfloor shall be laid for each floor as the building progresses.

FLOOR OPENINGS

- a) All floor openings, used as hoistways or elevator shaftways, shall be guarded on all sides, except the side being used for loading or unloading. Guards shall be barricades not less than four feet high along or near the edges of such openings, or guard rails not less than three feet high, placed not less than two feet distant at all points from the edges of such openings. If guard rails are used, toe boards shall be provided along the edges of the openings. Sides left open for loading or unloading shall be guarded by similar solid doors or gates.
- b) All floor openings used as stairways, or for the accommodations of ladders or runways, shall be guarded by railings and toe boards.
- c) All other floor openings shall be guarded on all sides by solid barriers not less than three feet high, or by railings and toe boards or shall be planked over or otherwise covered over by temporary construction capable of sustaining safely such loads as are likely to come thereon.
- d) Barriers for the guarding of openings used as hoistways or elevators shall be constructed so that workers cannot thrust head, arm or legs through them, and loose material cannot fall or be pushed into the shaftway.
- e) Barriers and guard rails around floor openings shall remain in place until permanent enclosures or protection are otherwise provided.

RUNWAYS AND RAMPS

- a) Runways and ramps in connection with scaffolds or extending from story to story or otherwise located and maintained for an extended period of time or for the transfer of bulky material shall be constructed of at least three 10-inch planks laid closely side by side and substantially supported and braced to prevent unequal deflection and springing action.
- b) Runways and ramps shall have a slope not steeper than one in three, and the total rise of a runway or ramp between landings shall not exceed 12 feet.
- c) When the rise is steeper than one in six, or when the rise is more than six feet and steeper than one in eight, runways or ramps shall be provided with cleats spaced not more than eight inches apart.
- d) Runways and ramps, having a total rise of more than six feet, or passing over or near floor openings, high-tension wires or other dangerous places, shall be provided with guard rails and toe boards.

TEMPORARY STAIRWAYS

- a) In all buildings, the permanent stairways shall be installed as soon as conditions will permit. When the work on a building has progressed to a height in excess of 36 feet and it has not been practicable to install the permanent stairways, at least one temporary stairway shall be provided for the full height and continued upward as rapidly as the work progresses.
- b) Stairs and stairways shall be of sufficient strength to support a load of at least 100 pounds per square foot, and all stairways shall be guarded on all open sides with hand rails and toe boards.
- c) Temporary stairs shall be constructed so that treads and risers are uniform in width and height in any one flight. The sum of the height of the two risers and the width of one tread shall be not less than 24 nor more than 26 inches. Temporary stairways shall be not less than 36 inches wide. Landings shall be not less than 30 inches long.
- d) No flight of stairs of a temporary stairway shall have a vertical rise in excess of 12 feet, and when necessary, intermediate landings shall be provided.
- e) Temporary and permanent stairways shall be adequately lighted as set forth in 618.

- f) No door shall open directly onto a flight of stairs, but a landing equal to at least the width of the door shall be provided between the door and the stairs. Temporary doors higher than 4 ft. 6 ins. shall be fitted with wire glass panels.
- g) Permanent stairs that are to be used during construction and on which treads are to be filled in later shall have wooden treads firmly fitted in place for the full area of the tread. The top surface of the temporary treads shall be maintained above the tops of the risers or nosings.
- h) The storage of materials on stairs or in stairways or adjacent to stair openings shall not be permitted.

615

LADDERS

- a) Except where either permanent or temporary stairways or runways are required, ladders shall be provided to give access to all floors, stagings or platforms where work is being done more than five stories above ground or above a permanent or temporary floor.
- b) Ladders required by this Code shall be left in place until the permanent stairways are ready for use or until temporary stairways are installed, and stairways shall be erected as soon as the building exceeds 60 feet in height.
- c) All ladders, when in use, shall be set up in a manner to be secure and to prevent slipping; and ladders, except stepladders or other self-supporting ladders, shall be securely fastened to a permanent support at the top, and if necessary, at the bottom, and braced to prevent swaying, bending or shaking.
- d) Ladders, leading to floors, stagings or platforms, shall extend at least three feet above the level of such floors, stagings or platforms.
- e) No single ladder shall exceed 20 feet in length. When greater heights are to be reached, intermediate platforms shall be erected. Ladder landings shall be at least four feet square and equipped with handrails and toe boards.
- f) Ladder rungs shall be spaced uniformly as near to 12 inches as is practicable.
- g) When used temporarily, in place of stairways or runways, ladders serving traffic in both directions simultaneously shall be at least 40 inches wide. If separate ladders are provided for going up and coming down, they shall be marked "UP" and "DOWN" respectively at each floor and platform level.

- h) Ladders, other than sectional or extension ladders, shall not be extended by joining two or more together.
- i) Ladders shall not be placed or used in shafts of operative elevators or hoists except by workers engaged in the erection, construction, alteration or repair or any such shafts, hoistways or equipment.
- j) Ladders shall not be painted, but may be oiled or otherwise treated with preservative so as to permit the detection of faults. Every ladder shall be inspected by the superintendent or foreman in charge before being put to use on a building operation and thereafter at least once every 30 days while continued in use. Broken or weak ladders with weak or missing rungs, shall not be used or permitted to remain on the site of building operations, but shall be repaired and made safe or destroyed.
- k) The angle of any access ladder shall be at not less than 60 degrees nor more than 80 degrees to the horizontal.

616

SCAFFOLDS

- a) Properly constructed scaffolds shall be provided for all work which cannot be done safely by workmen standing on permanent or solid construction, except when such work can be done safely from ladders. All such scaffolds shall be substantially constructed, to support at least four times the maximum load and shall be secured to prevent swaying.
- b) Planks used in the construction of stationary scaffolds shall be not less than two inches nominal thickness. Where such planks overlap at the ends, the overlap shall be not less than six inches.
- c) Planks shall be so placed that they cannot tip under the weight of the worker at any point. Nails used in the construction of scaffolds shall be of ample size and length to carry the loads they are intended to support, and all nails shall be driven full length. No nails shall be subject to direct pull.
- d) Ropes, cables and blocks used in the support of swinging scaffolds shall be of sufficient size and strength to sustain at least six times the maximum loads to which they will be subject. Where acids are likely to come into contact with them, ropes shall not be used in the support of scaffolds, but steel cables properly protected by grease or oil or other effective method shall be used instead.
- e) Every scaffold, the platform level of which is more than six feet above the ground or above a permanent or temporary floor, other than iron workers' scaffolds and carpenters'

bracket scaffolds, shall be provided with guard rails and toe board extending the full length of the scaffold and along the ends except where ramps or runways connect with them, unless otherwise enclosed or guarded. On suspended, swinging and pole scaffolds, the space between guard rails and toe boards shall be fitted with wire mesh screens securely attached.

- f) Where objects are likely to fall on a scaffold from above, a substantial overhead protection shall be provided. Not more than ten feet above the scaffold platform, and at doorways, passageways or other points where workers must pass under scaffolds, a substantial overhead protection shall be provided. No materials or equipment, other than required by the workers, shall be placed on scaffold platforms.
- g) Roof brackets, roof scantling, crawling boards and similar forms of support shall be substantial in construction and securely fastened in place when in use.
- h) Barrels, boxes or other similar unstable objects shall not be used as supports for planking intended as scaffolds or places of work.
- i) When used over public sidewalks or other places of public use, scaffolds used for minor building repairs, alterations, or painting shall be equipped with drop cloths to effectively prevent the falling of paint or debris.
- j) Scaffolds used for sandblasting and guniting operations shall be entirely and effectively enclosed, and the determination of effective enclosure shall be the complete absence of particles of material of operation in the air at a horizontal distance of 50 feet from the point of operation.

617

SAFEGUARDS

617.1

Railings

- (a) Railings, where required during construction, shall comply with the standards of safety approved by the Authority and in accordance with the following:
 - (i) The top rail of such railings shall be not less than 42 inches above walking surfaces.
 - (ii) Such railings shall be provided with an intermediate rail midway between the walking surface and the top rail and shall be constructed to resist a load of 50 pounds per lineal foot at the top rail.

617.2 Toeboards

Toeboards, where required during construction, shall comply with the Standards, referenced in 617.1 (a) herein, or any approved alternate design.

618 TEMPORARY LIGHT AND POWER

- a) All parts of buildings under construction, or other operations covered by the general provision of this Section, and all sheds, scaffolds, covered walks, other work or storage areas, and equipment in connection with such operations shall have sufficient light to ensure safety and protection of life and property. In passageways, stairways and corridors, the average light intensity measured at the floor level shall be not less than two foot candles.
- b) At locations where tools and/or machinery are used, the average light intensity measured at the floor level shall be not less than five foot candles. Natural or artificial illumination shall be provided in such a manner that glare and shadows will not adversely affect the safety protection of workers and property.
- c) Temporary wiring for light, heat and/or power shall be adequately protected against mechanical or overcurrent failures. All conductive materials enclosing fixed or portable electrical equipment, or forming a part of such equipment, shall be grounded by one or more of the methods permitted by Section 11 of this Code.
- d) Temporary electric service poles shall be self-supporting or adequately braced or guyed at all times.
- (e) The installation of temporary lighting and power must be done in accordance with the electricity supply regulations of the State. The developer must obtain a permit for this installation from the Electrical Inspector before electricity can be supplied to the site.

619 FIRST AID

- a) On every building operation, arrangements shall be made for prompt medical attention in case of accidents, and an ample supply of suitable antiseptic solution and sterile gauze bandages shall be provided and maintained in a clean, sanitary cabinet, and at all times available under the direction of the superintendent or a person designated by him.

- b) Unless competent medical attention is otherwise quickly available, where more than 200 workers are employed, a properly equipped first-aid room or field hospital shall be provided, and a physician or nurse shall be available on call.

620

SANITATION

- a) Adequate toilet facilities, maintained in a clean, sanitary condition, shall be provided as set forth in Section 9.
- b) An adequate supply of pure, drinking water shall be provided for workers during hours of employment, and adequate, sanitary washing facilities shall be provided for workers within reasonable access.

621

WELDING AND CUTTING

- a) Gas welding and cutting and arc welding in building construction and demolition operations shall be restricted to experienced workers acceptable to the Director. Suitable goggles or helmets and gloves shall be provided for and worn by workers engaged in gas welding or cutting or welding.
- b) Incombustible shields shall be provided to the worker when exposed to falling hot metal or oxide.
- c) Unless unavoidable, gas welding or cutting or arc welding shall not be done above other workers. When unavoidable, an incombustible shield shall be provided between the work and the workers below; or a watchman shall be stationed to give warning at places where workers, in the course of their employment are likely to pass under a gas welding or cutting or an arc welding operation.
- d) Unless unavoidable, gas welding or cutting shall not be carried on in any place where ample ventilation is not provided, or from which quick escape is difficult. When unavoidable, workers engaged in such work in confined spaces shall be allowed frequent access to fresh air and a relief worker shall be stationed close at hand to assist the worker in case of accident and to shut off the gases.
- e) Tanks of fuel gas shall not be moved or allowed to stand for any extended period when not in use unless the caps of such tanks are placed. Suitable cradles shall be used for lifting or lowering oxygen or fuel tanks, to reduce to a minimum the possibility of dropping tanks. Ordinary rope slings shall not be used.

- f) Tanks supplying gasses for welding or cutting shall be located at no greater distance from the work than is necessary for safety. Such tanks shall be securely fastened in place and in an upright position. They shall be stored, or set in place for use, so that they are not exposed to the direct rays of the sun or to high temperature.
- g) Before steel beams or other structural shapes or elements of construction are cut by means of a gas flame, they shall be secured by cables or chains to prevent dropping or swinging.

622

OPEN FIRES

- a) Open fires, for the purposes of disposing of waste materials, the heating of roofing or other materials, or for any other purpose whatsoever, shall not be allowed except with the permission of the Director.
- b) Wherever any enclosed flame heaters or open fires are used, there shall be a workman in constant attendance, whose duty it shall be to have such heater or fire under proper control at all times.

623

FIRE PROTECTION

- a) Storage of combustible material shall not be permitted under or near welding operations. No part of the building shall be used for the storage of combustible materials until such fireproofing of the part has been installed.
- b) In every building of reinforced concrete construction, forms of combustible materials shall be stripped from the concrete and removed from the building as soon as practicable. No part of the building shall be used for the storage of combustible materials until such forms have been removed in that part of the building.
- c) In every building operation wherever a tool house, storeroom or other shanty is placed, or a room or space is used for storage, dressing room or workshop, at least one approved hand pump, tank or portable chemical extinguisher shall be provided and maintained in an accessible location.
- d) During building operations, free access from the street to fire hydrants where installed and to outside connections for stand pipes, sprinklers or other fire-extinguishing equipment, whether permanent or temporary, shall be provided and maintained at all times.

- e) No material or construction equipment shall be placed within ten feet of such hydrant or connection, nor between it and the central line of the street.

624

SPECIAL HURRICANE PRECAUTIONS

- a) During such periods of time as are designated by the Government being a hurricane watch, all construction materials or equipment shall be secured against displacement by wind forces; provided that where a full complement of personnel is employed or otherwise in attendance, or engaged for such protection purposes, normal construction procedures or use of materials or equipment may continue allowing such reasonable times as may be necessary to secure such materials or equipment before winds of hurricane force are anticipated.
- b) Construction materials and equipment shall be secured by guying and shoring, and by tying down loose materials, equipment and construction sheds.