

Section 5.6. Construction and Demolition Sites

5.6.1. General

5.6.1.1. Application

(See Note A-5.6.1.1.)

1) This Section applies to fire safety for *buildings*, parts of *buildings*, facilities, adjacent *buildings* or facilities, and associated areas undergoing construction, alteration or demolition operations.

5.6.1.2. Protection of Adjacent Buildings

1) Protection shall be provided for adjacent *buildings* and facilities that would be exposed to fire originating from *buildings*, parts of *buildings*, facilities and associated areas undergoing construction, alteration or demolition operations. (See Note A-5.6.1.2.(1).)

5.6.1.3. Fire Safety Plan

1) Except as required in Sentence (2), prior to the commencement of construction, alteration or demolition operations, a fire safety plan shall be prepared for the site and shall include

- a) the designation and organization of site personnel to carry out fire safety duties, including a fire watch service if applicable,
- b) the emergency procedures to be followed in the event of a fire, including
 - i) initiating a fire warning,
 - ii) notifying the fire department,
 - iii) instructing site personnel on the procedures to be followed once the warning has been initiated, and
 - iv) confining, controlling and extinguishing the fire,
- c) measures for controlling fire hazards in and around the *building* (see Note A-5.6.1.3.(1)(c)), and
- d) a maintenance procedure for firefighting measures required in Section 5.6.

2) Where construction, alteration or demolition operations occur in an existing *building* that is required to have a fire safety plan conforming to Section 2.8., the fire safety plan shall take into account the changes occurring to the *building*.

5.6.1.4. Access for Firefighting

1) Unobstructed access to fire hydrants, portable extinguishers and to fire department connections for standpipe and sprinkler systems shall be maintained.

2) A means shall be provided to allow firefighters to perform their duties on all levels of the *building*.

3) Provision shall be made for the use of existing elevators, hoists or lifts to assist firefighting personnel in reaching all levels of the *building*.

4) Access routes for fire department vehicles shall be provided and maintained to [construction and demolition sites](#). (See Note A-5.6.1.4.(4).)

5) Where a construction or demolition site is fenced so as to prevent general entry, provision shall be made for access by fire department equipment and personnel.

5.6.1.5. Portable Extinguishers

1) In addition to the other requirements of this Code, portable extinguishers shall be provided in unobstructed and easily accessible locations in any areas

- a) where hot work operations are carried out,
- b) where combustibles are stored,
- c) near or on any internal combustion engines,
- d) where *flammable liquids* and *combustible liquids* or gases are stored or handled,

- e) where temporary fuel-fired equipment is used, or
 - f) that are designated for smoking.
- 2) The extinguishers required by Sentence (1) shall have a minimum rating of
- a) 3-A:20-B:C on moveable equipment (see Note A-5.6.1.5.(2)(a)), and
 - b) 4-A:40-B:C in all other locations.

5.6.1.6. Standpipe Systems

(See Note A-5.6.1.6.)

1) Where a standpipe system is to be installed in a *building* under construction or alteration, the system shall be installed progressively in conformance with Subsection 3.2.5. of Division B of the British Columbia Building Code in areas permitted to be occupied.

2) Where a standpipe system is to be installed in portions of a *building* under construction or alteration that are not occupied, the following shall apply:

- a) a permanent or temporary standpipe system is permitted in accordance with Clauses (b) and (c),
- b) the standpipe system shall be provided with conspicuously marked and readily accessible fire department connections on the outside of the *building* at *street* level and shall have at least one hose outlet at each floor,
- c) the pipe size, hose valves and water supply shall conform to Subsection 3.2.5. of Division B of the British Columbia Building Code,
- d) the standpipe system shall, as a minimum, be securely supported and restrained on alternate floors,
- e) at least one hose valve for attaching fire department hose shall be provided at each intermediate landing or floor level in the *exit* stairway,
- f) valves shall be kept closed at all times and guarded against mechanical damage,
- g) the standpipe shall be not more than one floor below the highest forms, staging, and similar combustible elements at all times, and
- h) temporary standpipe systems shall remain in service until the permanent standpipe installation is complete.

3) Where a *building* being demolished floor by floor is equipped with a standpipe system, the system, together with fire department connections and valves, shall be maintained in operable condition on all *storeys* below the one being demolished, except for the *storey* immediately below it.

5.6.1.7. Hot Surface Applications

1) Roofing operations and other surface applications that involve heat sources and hot processes shall be considered hot works and shall conform to the requirements in Sentences (2) and (3) and Section 5.2.

2) Bitumen kettles shall

- a) not be located on roofs,
- b) be provided with adequate metal covers that are close-fitting and constructed of steel having a thickness of not less than No. 14 sheet metal gauge thickness,
- c) be under constant supervision when in operation, and
- d) be maintained free of excessive residue.

3) Mops that have been used for spreading bitumen shall be kept outside the *building* in a safe location when not in use.

5.6.1.8. Ignition Sources

(See Note A-5.6.1.8.)

1) Devices capable of producing ignition, internal combustion engines, temporary heating equipment and associated devices shall be kept at a safe distance from combustible material so as not to cause ignition.

2) The clearance between combustible materials and temporary heating equipment, including *flues*, shall be in conformance with Part 6 of Division B of the British Columbia Building Code or in conformance with the minimum clearances shown on certified heating equipment.

5.6.1.9. Building Services at Demolition Sites

- 1) Except as required in Sentence (3) and except for water supplies for firefighting, *building* services shall be terminated at a point located outside the *building* or part thereof being demolished. (See Note A-5.6.1.9.(1).)
- 2) The service company whose service connections will be affected shall be notified before any action mentioned in Sentence (1) is taken and, if it is necessary to maintain any service, it shall be
 - a) relocated as necessary, and
 - b) protected from damage.
- 3) Temporary electrical installations shall be installed in conformance with the requirements of the British Columbia Electrical Safety Regulation.

5.6.1.10. Fuel Supply Installation

- 1) Fuel supplies for heating equipment and internal combustion engines shall conform to
 - a) CSA B139, “Installation Code for Oil-Burning Equipment,” for oil-burning equipment, or
 - b) the British Columbia Gas Safety Regulation.

5.6.1.11. Tank, Piping and Machinery Reservoir Safety at Demolition Sites

- 1) Tanks, piping and machinery reservoirs at a demolition site shall be taken out of service in conformance with Subsection 4.3.16.
- 2) Tanks, piping and machinery reservoirs at a demolition site that contain *combustible liquids* or *flammable liquids* or that are likely to contain flammable vapours shall be drained and, except as permitted by Sentence (3), removed prior to the demolition of the *building*.
- 3) Where it is impracticable to remove tanks, piping or machinery reservoirs from the *building* prior to demolition, such equipment shall be conspicuously identified and removed as soon as conditions permit.
- 4) Tanks, piping and machinery reservoirs referred to in Sentences (1), (2) and (3) that once contained *combustible liquids*, *flammable liquids* or flammable gases shall be purged with inert materials prior to demolition to prevent an explosion. (See Note A-5.6.1.11.(4).)

5.6.1.12. Fire Separations in Partly Occupied Buildings

- 1) Where part of a *building* continues to be occupied, the occupied part shall be separated from the part being demolished or constructed by a *fire separation* having a *fire-resistance rating* of not less than 1 h.

5.6.1.13. Protection during Shutdown

- 1) Except as permitted in Sentence (2), where a fire protection system is provided, it shall remain operational throughout the construction, alteration or demolition area where reasonably practical.
- 2) When any portion of a fire protection system is temporarily shut down during construction, alteration or demolition operations, protection during shutdown shall comply with Article 6.1.1.4.

5.6.1.14. Watch

- 1) A watch, with tours at intervals of not more than 1 h, shall be provided throughout demolition sites when there are occupants in the portion of the *building* not being demolished.
- 2) Except where a *building* is provided with a fire alarm system or similar equipment, a watch, with tours at intervals of not more than 1 h, shall be provided when a portion of the *building* is occupied while construction operations are taking place.
- 3) Facilities shall be provided to enable the watcher referred to in Sentences (1) and (2) to
 - a) ensure a fire warning is sounded to notify occupants, and
 - b) communicate with the fire department.

5.6.1.15. Smoking Restrictions

- 1) Smoking shall be permitted only under the conditions stated in Subsection 2.4.2.

5.6.1.16. Provision for Egress

- 1) In areas of a *building* where construction, alteration or demolition operations are taking place, at least one *exit* shall be accessible and usable at all times.
- 2) In *buildings* being demolished, at least one stairway shall be maintained in usable condition at all times.

5.6.1.17. Fire Warning

- 1) A means shall be provided to alert site personnel of a fire and such means shall be capable of being heard throughout the *building* or facility.

5.6.1.18. Storage and Use of Dangerous Goods

- 1) *Combustible liquids* and *flammable liquids* shall be stored and used in conformance with Part 4.
- 2) *Dangerous goods* shall be stored in conformance with Part 3.
- 3) *Dangerous goods* shall be used in conformance with Part 5.

5.6.1.19. Temporary Enclosures

- 1) Fabrics and films used to temporarily enclose *buildings* shall be securely fastened to prevent them from being blown against heaters or other ignition sources.

5.6.1.20. Disposal of Combustible Refuse

- 1) Combustible refuse in sufficient quantities to constitute a fire hazard shall be moved to a safe location. (See also Subsection 8.2.5. of Division B of the British Columbia Building Code.)

5.6.2. Excavation**5.6.2.1. Services Shut-off**

- 1) Except as provided in Article 5.6.2.2., before excavation begins, *building* services shall be shut off, terminated and labelled so as to be easily identifiable outside the limits of the excavation. (See also Sentence 5.6.1.9.(1).)
- 2) The service company whose service connections will be affected shall be notified before any action mentioned in Sentence (1) is taken and, if it is necessary to maintain any service, it shall be
 - a) relocated as necessary, and
 - b) protected from damage.

5.6.2.2. Maintaining Existing Services

- 1) Existing gas, electrical, water, steam and other services are permitted to be left within the area of the excavation provided that
 - a) before work begins, the service company concerned has approved the proposed method of operation,
 - b) the location of the services is determined before excavation commences,
 - c) a suitable method of excavation is adopted that will ensure that the services are not damaged, and
 - d) the services are provided with suitable temporary supports.

5.6.3. Additional Requirements for Residential and Business and Personal Services Occupancies

5.6.3.1. Application

1) This Subsection applies only to *buildings or parts of buildings* conforming to Articles 3.2.2.48EMTC., 3.2.2.50., 3.2.2.57EMTC., and 3.2.2.58. of Division B of the British Columbia Building Code.

5.6.3.2. Smoking Restrictions

- 1) Where smoking is permitted on a construction, alteration, or demolition site, it shall only be permitted in designated smoking areas, which shall
- be located not less than 3 m away from the *building* or part of the *building* under construction, demolition, or alteration,
 - be identified with appropriate signage,
 - be provided with safe receptacles for the disposal of smoking materials, and
 - have a clearance of not less than 3 m from any combustible storage or combustible refuse maintained at all times.

(See Note A-5.6.3.2.(1).)

5.6.3.3. Site Identification

- A sign identifying the civic address of the construction or demolition site shall be visible from the access route at the entrance to the site at all times.
- A sign identifying the floor level, stair location and civic address shall be posted at each floor in a stairway required by Sentence 5.6.3.7.(1).

5.6.3.4. Disposal of Combustible Refuse

- For *buildings* or parts of *buildings* conforming to Article 3.2.2.50. or 3.2.2.58. of Division B of the British Columbia Building Code, a clearance of not less than 3 m shall be maintained between containers used for the disposal of combustible refuse and *exits*.
- For *buildings* or parts of *buildings* conforming to Article 3.2.2.48EMTC. or 3.2.2.57EMTC. of Division B of the British Columbia Building Code, a clearance of not less than 3 m between *exits* or any portion of the *building* and containers used for the disposal of combustible refuse shall be maintained, or equivalent protection shall be provided as specified in the fire safety plan.
- Disposal chutes described in Clause 8.2.5.2.(1)(b) of Division B of the British Columbia Building Code shall
 - be constructed of noncombustible material, or
 - terminate not less than 2 m above the disposal bin they serve.

5.6.3.5. Water Supply

1) An adequate water supply for firefighting shall be provided as soon as *combustible construction or encapsulated mass timber construction* material arrives on the site. (See Note A-5.6.3.5.(1).) (See also Note A-3.2.5.7.(1) of Division B of the British Columbia Building Code.)

5.6.3.6. Hydrant Access

- Hydrants on a construction, alteration, or demolition site shall
 - be clearly marked with a sign,
 - be accessible, and
 - have an unobstructed clearance of not less than 2 m at all times.

5.6.3.7. Construction Access

- 1) For buildings or parts of buildings conforming to Article 3.2.2.50. or 3.2.2.58. of Division B of the British Columbia Building Code, during construction and in addition to the means of access required by Sentences 5.6.1.4.(2) and (3), at least one stairway shall be provided that
 - a) consists of treads and risers complying with the dimensional requirements of Article 3.4.6.8. of Division B of the British Columbia Building Code,
 - b) is equipped with one handrail conforming to Sentences 3.4.6.5.(5), (6), (7), (11), (13), and (14) of Division B of the British Columbia Building Code,
 - c) is not less than 900 mm wide, and
 - d) is equipped with guards that are
 - i) not less than 920 mm high when measured vertically to the top of the guard from a line drawn through the outside edges of the stair nosings, and
 - ii) not less than 1070 mm high around landings.
- 2) At least one stairway conforming to Sentence (1) shall be
 - a) extended upward as each floor is installed in new construction, or
 - b) maintained for each floor still remaining during demolition.
- 3) For buildings or parts of buildings conforming to Article 3.2.2.48EMTC. or 3.2.2.57EMTC. of Division B of the British Columbia Building Code, during construction, in addition to the requirements of Sentences 5.6.1.4.(2) and (3), at least two stairways complying with Clauses (1)(a) to (d), Clauses (2)(a) and (b), and Sentence (4) shall be provided.
(See Note A-5.6.3.7.(3).)
 - 4) Stairways referred to in Sentence (3)
 - a) shall be separated from the remainder of the storey by a wall assembly have a fire-resistance rating not less than 30 min, and
 - b) shall have doorways that are provided with
 - i) 45 mm solid core wood doors,
 - ii) hollow metal doors,
 - iii) doors constructed of not less than 12.7 mm thick gypsum board mechanically fastened to not less than 12.7 mm thick plywood with the gypsum board facing the floor area, or
 - iv) door assemblies having a fire-protection rating not less than 20 min.
(See Note A-5.6.3.7.(3).)
 - 5) Doors for stairways described in Clause (4)(b) shall
 - a) swing on the vertical axis, and
 - b) be equipped with
 - i) latches, and
 - ii) a means to close automatically.

5.6.3.8. Site Security

(See also Article 8.2.1.3. of Division B of the British Columbia Building Code.)

- 1) A strongly constructed fence, boarding or barricade not less than 1.8 m high shall be erected around the perimeter of the construction or demolition site.
- 2) Barricades shall have
 - a) a reasonably smooth surface facing the outside, and
 - b) no openings other than those required for access.

- 3) Access openings through barricades shall be equipped with gates, which shall be
 - a) kept closed and locked when the site is unattended, and
 - b) maintained in place until completion of the construction or demolition activity.
- 4) Fencing, boarding and barricades shall be constructed and maintained in a manner that does not restrict access to the construction or demolition site for firefighting purposes or to fire protection equipment.

5.6.4. Additional Requirements for Buildings of Encapsulated Mass Timber Construction

5.6.4.1. Application

- 1) This Subsection applies only to *buildings* or parts of *buildings* conforming to Articles 3.2.2.48EMTC. or 3.2.2.57EMTC. of Division B of the British Columbia Building Code that are under construction.

5.6.4.2. Standpipe Installation

- 1) For each new level at which hose valves are installed, the standpipe system shall be subjected to
 - a) a pneumatic test at 275 kPa for not less than 24 h, or
 - b) a hydrostatic test at 1 380 kPa for not less than 2 h.
- 2) The standpipe system shall be corrected and re-tested if the drop in pressure
 - a) when tested in accordance with Clause (1)(a), is in excess of 21 kPa, or
 - b) when tested in accordance with Clause (1)(b), is in excess of 35 kPa.
- 3) Where a standpipe system is maintained dry,
 - a) after each test or re-test carried out in accordance with Sentence (1), it shall be provided with supervisory air not greater than 172 kPa and not less than 35 kPa,
 - b) each fire department connection shall be provided with
 - i) an audible warning system that sounds when the supervisory air is less than 35 kPa, or
 - ii) an air pressure gauge indicating the supervisory air pressure.
 - c) a manual air release with one or more valves of a minimum 30 mm diameter shall be provided immediately adjacent to each fire department connection such that the air pressure from a pneumatic test is released in not more than 3 min.
 - d) each fire department connection shall be provided with signage
 - i) indicating that the dry standpipe system is pressurized with air, and
 - ii) showing the location of the manual air release, and
 - e) provisions shall be made to drain water in any trapped sections of the dry standpipe system that are subject to freezing.
- 4) Where a standpipe system is maintained wet, each fire department connection shall be provided with a water pressure gauge.
- 5) The standpipe system, whether a temporary system or a permanent system being installed progressively, shall be in operable condition at all times when it is not actively being worked on, until the permanent standpipe system is completed.

5.6.4.3. Protective Encapsulation

- 1) Except as provided in Sentences (2) and (3), to address safety during construction, a protective encapsulation material or an assembly of materials providing an *encapsulation rating* of not less than 25 min, as determined in accordance with Sentence 3.1.19.1.(1) of Division B of the British Columbia Building Code, shall be installed
- such that not more than 20% of the area of the underside of each mass timber floor assembly on each *storey* is exposed during construction.
 - on the interior side of stairways required by Sentence 5.6.3.7.(3) and of *vertical service spaces* where the enclosures are constructed of mass timber elements.
 - on each face of solid lumber or mass timber *partitions* not less than 38 mm thick and of *partitions* containing wood framing as permitted by Article 3.1.18.13. of Division B of the British Columbia Building Code, and
 - such that not more than 35% of the total area of structural mass timber walls within the *storey* is exposed during construction.

(See Note A-5.6.4.3.(1).)

- 2) Not more than the four uppermost contiguous *storeys* are permitted to be unprotected as required by Sentence (1) during construction.

- 3) The encapsulation material or assembly of materials used to meet the requirements of Sentence (1) is permitted to consist of a single layer of Type X gypsum board not less than 12.7 mm thick conforming to Clauses 3.1.19.2.(2)(a), (d), and (e) of Division B of the British Columbia Building Code.