Notes to Part 2
Building and Occupant Fire Safety

A-2.1.2.1.(1) The British Columbia Building Code 1992 introduced changes to the method of determining building height. Application of the current method to existing buildings for the purposes of this Code could result in certain buildings being reclassified as higher buildings. For this reason, the BCFC suggests that building height is that which was established by the building code that was applicable at the time of construction in the case of original construction, or at the time of alteration if additional storeys have been added to the building.

A-2.1.2.2.(1) Arena-type buildings are often used for events such as community dances, rallies and trade shows. These events may increase the occupant and fuel loads beyond that for which the space was designed. To ensure safety during such events, additional egress facilities may be required to compensate for the additional occupant load and, in some cases, additional fire suppression measures may be required to compensate for the increased fuel load.

Large public corridors in mercantile occupancies are also used on a temporary basis for community activities, merchandising and for special displays. In these cases, additional egress facilities and fire suppression may be needed, depending on the increase in hazard.

A-2.1.3.1.(1) The British Columbia Building Code is most often applied to existing buildings when an owner wishes to rehabilitate a building, change its use, or build an addition; or when an enforcement authority decrees that a building be altered for reasons of public safety. It is not intended that either the BCBC or the BCFC be used to enforce the retrospective application of new requirements in the BCBC to existing buildings. Although the BCFC could be interpreted to require the installation of fire alarm, standpipe and hose and automatic sprinkler systems in an existing building for which there were no requirements at the time of construction, it is not intended that the BCFC be applied in this manner to these buildings.

Further, it is not intended that existing fire protection systems that provide an acceptable level of life safety be upgraded with each new edition of the BCBC or in conjunction with the inclusion of new requirements not in force at the time that a building was constructed.

For buildings in which a sprinkler system is installed, this provision is intended to direct Code users to Part 1 of Division A for the application of the BCBC and to Subsection 3.2.5. of Division B of the BCBC, which specifies NFPA 13, "Installation of Sprinkler Systems," as the appropriate standard for the design and installation of automatic sprinkler systems and provides several exceptions and supplementary requirements (in certain cases, other provisions may also apply). However, where a specific hazard, such as highly piled storage or the storage of flammable and combustible liquids or rubber tires, is not addressed in the, the applicable NFPA standards that contain design criteria for the sprinkler system required can be found in the BCFC.

A-2.1.3.3. The British Columbia Fire Code smoke alarm requirements are intended to apply to locations in existing buildings where smoke alarms were not required at the time of construction. The BC Fire Code, in conjunction with the BC Building Code, allow the building owner to add additional smoke alarms to enhance the level of safety that already exists, without requiring that smoke alarms in existing buildings or their systems and components to be upgraded in accordance with each new edition of the BCBC, unless the requirements apply per Article 1.1.1.1. of Division A of the BCBC.

A-2.1.3.4.(1) Editions of the BCBC prior to 2006 permitted the use of combustible sprinkler piping for wet pipe sprinkler systems in residential and light-hazard occupancies on condition that the piping was protected from exposure to a fire in the space beneath. Article 2.1.3.4. requires that the necessary protection of the piping be maintained so that the performance of the sprinkler system will not be compromised in the event of fire. Some of the conditions included restricting use of the piping to light-hazard occupancies, the piping must be a wet system, use of steel suspension grids and correct tile weight, and integrity of the fire protection covering.

A-2.1.3.5.(3)(c) and (d) Concern over the impact of halons on the environment is resulting in changes to the regulations of various agencies that affect their use and release to the atmosphere and their reduction, recycling and eventual phase-out as fire extinguishment agents. Standards referenced in the BCFC may not reflect the current status of requirements developed by certain agencies regarding the installation, use and testing of fire suppression systems that employ halons.

The installation of new halon fire suppression systems is prohibited following the international ban on halon gas production. However, both NFPA 12A, "Halon 1301 Fire Extinguishing Systems," and NFPA 12B, "Halon 1211 Fire Extinguishing Systems," are still relevant to the maintenance, decommissioning and recycling of existing halon fire suppression systems.

A-2.1.3.6. The Code requires the installation of several fire safety devices and building fire safety features for the control of fire hazards. The inspection, maintenance and testing requirements for many of these devices are referenced in the applicable Articles. However, several Sections of the Code do not include such references for certain fire safety devices and building fire safety features, examples of which include, but are not limited to:

- ventilation system interlocks and associated audible alarms for rooms or enclosed spaces containing flammable and combustible liquids (e.g. Subsection 4.1.7.)
- vapour detection alarm systems for rooms or enclosed spaces containing flammable and combustible liquids (e.g. Subsection 4.1.7.)
- bonding and grounding systems for flammable and combustible liquid handling processes (e.g. Subsection 4.1.8.)
- fill pipe backflow prevention systems for aboveground storage tanks for flammable and combustible liquids (e.g. Subsection 4.3.1.)
- leak detection monitoring devices for aboveground storage tanks for flammable and combustible liquids (e.g. Section 4.4.).

A-2.1.5.1.(5) Following are examples of measures deemed to minimize the risk of injury for portable extinguisher operators: affixing prominent cautionary labels on portable extinguishers and warning signs at entry points to confined spaces, enabling remote applications such as by providing special nozzles, installing special ventilation systems, providing breathing apparatus and other personal protective equipment, and adequately training personnel.

A-2.2.2.5.(1)(c) A covered mall is considered to be a public corridor and, as such, is subject to the same requirements as a public corridor.

A-2.3.2.2.(1) The small scale match flame test in NFPA 705, "Field Flame Test for Textiles and Films," is a relatively simple test that can be used to assess the condition of flame-retardant treatments on samples from fabrics that have been in use for a while. It is not intended that NFPA 705 be used as the primary standard for the application of fire retardant treatments.

A-2.4.1.1.(1) The accumulation of a certain amount of combustible waste material in and around buildings may be necessary for the day-to-day operation of many industrial or commercial premises. If basic measures of good housekeeping are observed, the presence of these combustibles may not constitute an "undue fire hazard."

A-2.4.1.1.(2) The defined term "service rooms" includes boiler rooms, furnace rooms, incinerator rooms, garbage rooms, janitors' closets and rooms to accommodate air-conditioning or heating appliances, pumps, compressors and electrical services. The intent of Sentence 2.4.1.1.(2) is to discourage the use of these rooms for the storage of miscellaneous combustible materials. If storage space is needed in a building, a room that does not contain building service equipment should be provided. Even in garbage rooms, combustible materials should not be allowed to accumulate. When the garbage is periodically cleared from the room, the room should be empty, except for the garbage container itself.

A-2.4.1.1.(6) Measures such as those described in NFPA 80A, "Protection of Buildings from Exterior Fire Exposures," must be taken to ensure that buildings are protected from fires in outdoor receptacles containing combustible materials.

A-2.4.1.3.(1) Generally, self-heating and self-ignition are most commonly encountered in organic materials, such as animal and vegetable solids and oils. A rag saturated with linseed oil, for example, is susceptible to self-heating and self-ignition when crumpled and put in a waste container.

Certain inorganic materials, such as metal powders, may also self-heat and self-ignite under isolated conditions. Materials such as motor or lubricating oils are not subject to self-heating and self-ignition.

Table A.10 of NFPA's "Fire Protection Handbook" provides a list of materials that are susceptible to spontaneous heating and ignition.

A-2.4.5.1.(1) Measures that can be considered to limit fire spread include sufficient clear space between the fire and adjacent buildings, combustibles and woodlands, the size and height of the pile of combustibles to be burned, prevailing meteorological conditions, fire control measures such as hoses and water tanks and, if a receptacle is to be used, the design of the receptacle. In some cases, a permit or licence may be required for open air fires.

A-2.4.6.1.(1) Vacant buildings frequently become the target of vandalism and arson. They should be locked, and accessible windows and doors should be barricaded to prevent unauthorized entry. However, fire department access to the interior of the building in the event of a fire should not be made unduly difficult.

A-2.6.1.4.(1) External inspection of enclosed chimneys and surrounding construction may require the installation of one or more access openings in the enclosure surrounding the chimney. The presence of scorched or charred adjacent combustible construction or encapsulated mass timber construction will indicate the need for further investigation of the cause of the overheating.

Internal inspection of chimneys can be accomplished by lowering a light from the top, insertion of a light at the bottom or at intermediate locations, together with the use of one or more mirrors.

During inspection of a chimney connected to an operating appliance, the presence of dense smoke at the outlet will indicate improper operation of the appliance, incorrect sizing of the chimney or that unsuitable fuels are being used. These factors must be promptly corrected to reduce the accumulation of combustible deposits on the chimney and flue pipe walls.

A-2.6.1.4.(2) The presence in a chimney of deposits of soot or creosote in excess of 3 mm thick will indicate the need for immediate cleaning, possible modification of burning procedures, and more frequent inspections.

A-2.6.1.4.(3)(a) Structural deficiencies are deviations from required construction, such as the absence of a liner or inadequate design of supports or ties. Instances of decay are cracking, settling, crumbling mortar, distortion, advanced corrosion, separation of sections, or loose or broken supports.

A-2.6.1.9.(3) Depending on the amount of cooking equipment usage, the entire exhaust system, including grease extractors, should be inspected at intervals not greater than 7 days to determine if grease or other residues have been deposited within. When grease or other residues are in evidence as deposits within the hood, grease removal devices, or ducts, the system should be cleaned. In general, exhaust systems should be cleaned at intervals not greater than 12 months, but in the case of deep fat cooking, char broiling or similar cooking operations, the systems should be cleaned at intervals not greater than 3 months.

A-2.7.1.3.(1) The BCFC uses two criteria to determine the maximum permissible occupant load in existing buildings: the exit capacity, and the total clear floor space per person. Assuming that exit capacity is sufficient, the value of 0.4 m^2/person ensures that a crowd of people will be able to move steadily toward the exits.

Table 3.1.17.1. of Division B of the BCBC should not be used to determine the maximum permissible occupant load for rooms or spaces in existing buildings. Table 3.1.17.1. is intended to allow a building designer to calculate a minimum occupant load for the purpose of designing certain building features, such as means of egress and fire alarm systems. The designer may choose to design for more or fewer persons, in which case the actual design occupant load must be posted in a conspicuous location. In an existing building, the process must be calculated in reverse, from the measured exit capacity, or other building features, to a maximum permissible occupant load. The result of the calculation may not be, and is not intended to be, consistent with values obtained using Table 3.1.17.1.

Net floor space referred to in Clause (a) is the floor space in a room excluding areas occupied by structural features and fixtures, such as tables, furnishings or equipment. In certain assembly occupancies, where the number and type of furnishings may change according to the nature of the function taking place, it may be appropriate to calculate maximum occupant loads for each of the different functions anticipated.

It should also be noted that Article 2.1.3.1. of this Code requires fire alarm systems to be installed in conformance with the BCBC. This means that if the occupant load determined by Sentence 2.7.1.3.(1) exceeds that for which a fire alarm system is required by the BCBC, a fire alarm system must be provided in the building.

A-2.7.1.4.(2) Sentence 3.1.17.1.(2) of Division B of the BCBC requires that the occupant load used in the design of a floor area be posted if it differs from that determined by Table 3.1.17.1. of Division B of the BCBC.

A-2.7.3.1.(1) Subsections 3.2.7. and 3.4.5. of Division B of the BCBC describe the requirements for the placement of exit signs and for emergency and non-emergency lighting.

It is not intended that existing buildings or their systems and components be required to be upgraded with each new edition of the British Columbia Building Code unless the requirements apply per Article 1.1.1.1. of Division A of the British Columbia Building Code. For example, newly installed or replaced exit signs must conform to the requirements of the current edition of the British Columbia Building Code, but other existing signs that complied when the building was constructed or previously altered are not required to be upgraded as a result (unless as a function of ongoing maintenance).

A-2.8.1.2.(1) Adequately trained supervisory staff can be of great value in directing people to move in an orderly fashion in the event of a fire and in carrying out appropriate fire control measures until the public fire department arrives. These measures are, as described in the fire safety plan, developed in cooperation with the fire department. The supervisory staff referred to in this Section are assigned their responsibilities by the building owner, unless the public fire department is prepared to take on these responsibilities. Except in hospitals and nursing homes, it is not intended that supervisory staff should be in the building on a continuous basis, but that they should be available to fulfill their obligations as described in the fire safety plan on notification of a fire emergency. In hospitals and nursing homes, however, staff must be in the building at all times to assist occupants who are not capable of caring for themselves in an emergency.

A-2.8.2.1.(1) The fire safety plan may provide important information to the fire department for use in the preparation of plans for firefighting procedures in specific buildings. This is especially true for buildings where flammable or combustible liquids or other dangerous goods are stored.

The development of the fire safety plan for large retail occupancies, especially the bulk merchandising stores, should take into consideration various unique risk factors prevalent in these stores. A bulk merchandising store is characterized as a retail store in which the sales area includes the storage of material usually located in piles, on pallets or on racks up to 3.7 metres in storage height. These mercantile occupancies tend to store and display in the sales area, large quantities of products ranging from compressed gas cylinders, oxidizers, flammable liquids, combustible liquids, foamed plastics, and combustible materials.

Documented evidence of fires in these types of stores has shown that smoke obscuration occurs within 7.5 to 12 min from the inception of a fire. Prompt response by occupants in a fire emergency is therefore critical. Human behaviour studies have shown that occupants in a retail environment tend to delay evacuation for various reasons such as unfamiliarity with exits or a lack of visibility of exits, reluctance to leave check-out lines, and uncertainty about the events unfolding. The training and education of staff are crucial elements in clearly notifying and instructing occupants during an emergency. A reliable public address system should be an integral part of the fire safety plan.

Furthermore, although the Code does not address the use of mass notification systems, many organizations integrate them into their fire alarm and public address systems. Mass notification systems provide real-time notification and instructions to persons in a building or series of buildings, a campus, a community or similar areas using a series of voice communications, signals, and text or phone messages to communicate the appropriate actions and responses in the event of an emergency situation.

Where such systems are installed, the authority having jurisdiction should be consulted to ensure that the interconnection and cross-communication with other Code-prescribed life safety systems (e.g. fire alarm systems) is well coordinated and understood. The sequencing of events must be carefully prioritized to ensure that persons are not given instructions that are contrary to the life safety requirements of the Code.

Note that, where strobes are used in mass notification systems, consideration should be given to ensure that all strobes, including those for the fire alarm system, are synchronized.

The fire safety plan should be commensurate with the known risks and address the concerns identified above.

A-2.8.2.1.(1)(a)(i) These procedures should also include training authorized personnel to silence fire alarm and alert signals under specified conditions. If special keys or devices are required to operate the alarm system, they should be readily available to supervisory staff on duty.

A-2.8.2.1.(1)(a)(iv) Some occupants of a building may require special assistance during evacuation because cognitive or physical limitations make them unable to proceed independently to a place of safety. Fire safety for these persons will depend to a large extent on preplanning and on their awareness of the fire protection measures incorporated into the building. In some buildings, it may be appropriate to advise such occupants of these provisions by posted notices, handouts or other suitable means. In certain residential occupancies, such as hotels or motels, staff should be aware of rooms occupied by persons requiring special assistance during evacuation and should inform the responding fire department.

A-2.8.3.1.(1) A fire safety plan is of little value if it is not reviewed periodically so that all supervisory staff remain familiar with their responsibilities. A fire drill, then, is at least a review of the fire safety plan by supervisory staff. The extent to which non-supervisory staff participate in a fire drill should be worked out in cooperation with the fire department. The decision as to whether all occupants should leave the building during a fire drill should be based on the nature of the occupancy.

It may be necessary to hold additional fire drills outside normal working hours for the benefit of employees on afternoon or night shifts, who should be as familiar with fire drill procedures as those who work during the day. If full scale fire drills are not possible during non-regular working hours, arrangements should be made so that night-shift supervisory staff can participate in fire drills conducted during the daytime.

A-2.9.3.5.(1) The type of fire alarm and emergency communication system anticipated for tents and air-supported structures will vary according to the hazard and the number of occupants. If a tent or air-supported structure is to be permanent, a fire alarm and emergency communication system, as defined in the BCBC, may be required. If such structures are to be temporary, however, a somewhat less sophisticated system is anticipated, depending on local conditions.