

CHANGES TO NBC 2010 PART 3 FIRE PROTECTION

3.1.4 Combustible Construction

- ▶ 3.1.4.2(2) Walk in cooler/freezer permitted to have panels containing foamed plastics with protection as noted.
- ▶ 3.1.4.2(3) Doors containing foamed plastics now require Flame Spread Rating to NBC 3.1.13.2(1) to (3).
- ▶ 3.1.4.3(2) Wiring and cables in plenums have new flame spread requirements. Now FT6 instead of FT4.
- ▶ 3.1.4.8 New requirements for extent of non-combustible exterior cladding and the use of fire retardant treated wood for exterior cladding.

3.1.5 Noncombustible Construction

- ▶ 3.1.5.5 New requirements for combustible cladding on exterior walls.
- ▶ 3.1.5.6 Changes to combustible components in exterior walls. Combustible components are permitted in exterior walls of buildings less than 3 stories and sprinklered.
- ▶ 3.1.5.7 New requirements for factory assembled panels including: walls and ceiling panels, exterior wall panels and walk in cooler/freezer panels.
- ▶ 3.1.5.12 Changes to combustible interior finishes.
- ▶ 3.1.5.14 Changes to combustible insulation requirements.
- ▶ 3.1.5.15 New requirements for foamed plastic insulation.

3.1.8 Fire Separations and Closures

- ▶ 3.1.8.4 New requirements for leakage rates for fire/smoke dampers, smoke dampers and door assemblies. Smoke/fire dampers to CAN/ULC-S112. Doors to ANSI/UL-1784
- ▶ 3.1.8.5 New requirements for leakage rated door assemblies.
 - ▶ Leakage rated door assemblies installed in: fire separations in protected floor areas, fire separations in care and detention occupancies, fire separations of public corridors and firewalls that are a horizontal exit.
- ▶ 3.1.8.7 New requirements for smoke dampers.
 - ▶ Smoke or smoke/fire dampers are required for fire separations in: public corridors, fire separations in assembly, care, treatment, detention or residential occupancy, fire separations used to reduce exit travel distances.

3.1.8 Fire Separations and Closures

- ▶ 3.1.8.8 New exceptions to the requirements for fire dampers.
- ▶ 3.1.8.9 New exceptions for the requirements for smoke and smoke/fire dampers.
- ▶ 3.1.8.11 New requirements for the installation of smoke dampers.
 - ▶ Smoke dampers are to be installed in the plane of the fire separation.
 - ▶ Smoke/fire dampers used as a closure in a duct to be installed within 610 mm of the fire separation.
 - ▶ Smoke/fire dampers to close on signal from smoke detector installed as per CAN/ULC S524 and located on both sides of an air transfer opening and downstream of a smoke or fire/smoke damper in a ducted system.
 - ▶ Note that there is no requirement under NBC 3.2.4.1 to have a fire alarm system in buildings with smoke dampers. As such the smoke detectors can be used solely for the activation of the smoke or smoke/fire damper in a building without a fire alarm system. However if the building is required to have a fire alarm system then these smoke detectors would be connected to the fire alarm system.

3.1.8 Fire Separations and Closures

- ▶ 3.1.8.14 Changes to requirements for Hold Open Devices
 - ▶ Can now have a hold open device release on activation of a smoke alarm on each side of the opening rather than requiring a fire alarm system.
 - ▶ Hold open devices release on the alert signal of a two stage fire alarm system.

3.1.9 Penetrations in Fire Separations and Rated Fire Assemblies

- ▶ 3.1.9.4 New requirements for the penetration of outlet boxes.
- ▶ 3.1.11.5 New requirements for fire blocks in horizontal concealed spaces. These include crawlspaces and attic spaces.
- ▶ 3.1.11.7 New requirements for fire block materials. Structural composite lumber products conforming to ASTM D 5456 are permitted based on thickness and joint locations.

3.1.13 Interior Finish

- ▶ 3.1.13.6 Changes to requirements for flame spread rating in corridors.

3.1.15 Roof Covering

- ▶ 3.1.15.2 Changes to roof covering requirements.
 - ▶ Buildings conforming to 3.2.2.50 or 3.2.2.58 now require Class A classifications where roof height is more than 25 m above the first storey.
 - ▶ For further information on roof classification refer to CAN/ULC S107.

3.2.2 Building Size and Construction Relative to Occupancy

- ▶ 3.2.2.10 Changes to street access.
 - ▶ Building has single street access if less than 25% of the perimeter is within 15 m of a street.
- ▶ 3.2.2.50 New article for Sprinklered, C occupancy up to 6 stories with combustible or non-combustible construction.
 - ▶ Combustible construction of mid-rise buildings is often done with cross laminated timber (CLT) panels.
 - ▶ Previous maximum height for a combustible constructed buildings with C or D occupancies was 4 stories. F-3 occupancies with combustible construction are still limited to 4 stories.
- ▶ 3.2.2.58 New article for Sprinklered, D occupancy up to 6 stories with combustible or non-combustible construction

3.2.3 Spacial Separation and Exposure Protection

- ▶ 3.2.3.6 Changes to requirements for combustible projections.
 - ▶ A roof soffit is permitted to project to the property line where it faces a street, lane or public thoroughfare.
- ▶ 3.2.3.7 Changes to the requirements for construction of exposed building face.

3.2.4 Fire Alarm and Detection Systems

- ▶ 3.2.4.21 In buildings, not requiring or provided with a fire alarm system, smoke detectors installed as part of a residential fire warning system are permitted to be installed in lieu of smoke alarms provided the system: meets CAN/ULC-S540, is capable of sounding audible signals as per 9.10.19.2 and 9.10.19.5, is powered as per 9.10.19.4 and is provided with a silencing device as per 9.10.19.6
- ▶ 3.2.4.22 Changes to voice communication system requirements.
 - ▶ Visual fire alarm signal devices shall continue to operate while voice instructions are being transmitted.

3.2.5 Provisions for Fire Fighting

- ▶ 3.2.5.6 Changes to access route design.
 - ▶ For buildings conforming to 3.2.2.50 or 3.2.2.58 no portion of the access route can be more than 20 m below the highest floor.

3.2.6 Additional Requirements for High Buildings

- ▶ 3.2.6.2 Changes to requirements for limiting smoke movement.
 - ▶ Air handling systems used to provide make up air to serving suites in C occupancies shall not shut down on fire alarm activation so that corridor pressurization can be maintained.

3.2.7 Lighting and Emergency Power Systems

- ▶ 3.2.7.8 Changes to requirements for emergency power for fire alarm systems.
 - ▶ Emergency power for fire alarm systems must last for at least 1 hour with full load for buildings constructed to 3.2.2.50 or 3.2.2.58

3.2.9 Integrated Fire Protection and Life Safety Systems

- ▶ 3.2.9.1 New article requiring integrated life safety and fire protection systems to be tested and verified as a whole to CAN/ULC-S1001.

3.3 Safety within Floor Areas

- ▶ 3.3.1.11 Changes to door swing requirements.
 - ▶ Doors that serve storage suites not more than 28 m² in warehousing buildings need not swing on their vertical axis.
- ▶ 3.3.1.14 Changes to Ramps and Stairways
 - ▶ Ramps and Stairs that serve Service Rooms, Service Spaces and Industrial occupancies need not conform to requirements provided they are used occasionally for servicing machinery **and they do not serve as exits.**
- ▶ 3.3.1.16 New requirements for "Tapered Treads in a Curved Flight". Replaces former "Curved or Spiral Stairs".

3.3 Safety Within Floor Areas

- ▶ 3.3.1.17 Changes to capacity of access to exits.
 - ▶ In an unsprinklered building an access to exit, serving as the principal entrance for dance halls and licenced beverage establishments with an occupant load more than 250, shall be at least half the required exit width.
- ▶ 3.3.1.18 Changes to requirements for guards.
 - ▶ Guards are required for each raised floor, mezzanine etc, where the adjacent surface, within 1.2 m of the walking surface, has a slope of more than 1 in 2.
- ▶ 3.3.1.19 Changes to requirements for transparent doors and panels.
 - ▶ Transparent doors, sidelights and panels shall visually contrasting elements that are: at least 50 mm high, extend the full width and are located between 1350 and 1500 from the floor.

3.3 Safety Within Floor Areas

- ▶ 3.3.1.20 Changes to exhaust ventilation and explosion venting.
 - ▶ Ducts for power vented enclosures in labs penetrating rated fire separations shall be continuously enclosed through the building to the exterior to maintain the integrity of the penetrated rated fire separations and exempted from the requirements of fire and smoke dampers.
- ▶ 3.3.2.10 New article for handrails in aisles with steps.
 - ▶ New handrail requirements in aisles with steps based on aisle width and whether or not seating is served by on one or both sides.
- ▶ 3.3.4.6 New article on sound transmission.
 - ▶ Dwelling units shall be protected from airborne noise in conformance with Section 5.8.

3.3 Safety Within Floor Areas

- ▶ 3.3.5.4 Changes to requirements for Repair and Storage Garages.
 - ▶ Vehicle guardrails and full height walls to be designed to withstand loads from Article 4.1.5.15.
 - ▶ Where garage floors or ramps are more than 600 mm above adjacent ground or floors then they shall be provided with a full height wall OR a continuous curb of 140 mm, guard of at least 1070 mm and a vehicle guardrail of at least 500 mm.
- ▶ 3.3.6.3 Changes in the requirements for indoor storage of compressed gasses.
 - ▶ Renamed to Indoor Storage of Anhydrous Ammonia and Flammable, Toxic and Oxidizing Gasses.

3.4 Exits

- ▶ 3.4.2.3 Changes to distance between exits.
 - ▶ Distance between two exterior discharges of exit stairs to be: not less than 9 m or not less than 6 m where the building is sprinklered throughout and the discharges are located within 15 m of a street.
- ▶ 3.4.2.6 Changes to requirements for principal entrances.
 - ▶ Unsprinklered dance halls and licenced beverage establishments with occupant loads more than 250 require a principal entrance designed for at least half the required exit width.
- ▶ 3.4.6.4 Changes to dimensions of landings
 - ▶ The length of a landing shall be measured perpendicular to the nosing of adjacent steps at a distance of half the length required from the narrow edge of the landing.
 - ▶ In a straight stair or stair that turns less than 90°, the length of the landing can be the lesser of the required stair width of 1100 mm.

3.4 Exits

▶ 3.4.6.5 Changes to the requirements for handrails.

- ▶ Handrails required on both sides for: stairs more than 1100 mm wide, curved flights of any width and ramps.
- ▶ Intermediate handrails required so that a handrail is reachable within 750 mm of all portions of the exit width, at least one portion of the stair or ramp between two handrails is the minimum width required; all portions of the stair or ramp between two hand rails have a minimum width of 510 mm.
- ▶ Handrail height changed from previous requirement of 865 mm to 965 mm now 865 mm to 1070 mm. Now the top element of the guard can be the handrail.

3.4 Exits

▶ 3.4.6.6 Changes to the requirements for guards.

- ▶ Climability restriction only applies where there is more than 1 storey or more than 4.2 m above the floor.

▶ 3.4.6.7 Changes to the requirements for ramp slope.

- ▶ Ramp slopes in mercantile occupancies changed from 1 in 6 to 1 in 8.

▶ 3.4.6.8 Changes to treads and risers.

- ▶ No open risers except for: stairs in dwelling units, fire escapes, maintenance and service stairs and industrial occupancies other than storage garages. Open risers are considered a tripping hazard.

▶ 3.4.6.9 Changes to curved flights in exits

- ▶ Tapered treads are now permitted in exit stairs with restrictions.

3.4 Exits

▶ 3.4.6.11 Changes to requirements for doors.

- ▶ Thresholds of doors in exits are to be maximum 13 mm high unless used for spillage confinement in a service room or industrial occupancy.
- ▶ Exterior exit doors subject to blockage from parking or storage require a physical barrier or signage on the exterior of the door to prevent blockage.

▶ 3.4.6.12 Changes to requirements for door swing.

- ▶ Doors do not need to swing in the direction of exit travel and swing on vertical axis for: storage garages serving a dwelling unit, accessory buildings serving a dwelling unit, and for self-service storage units.

3.4 Exits

- ▶ 3.4.6.16 Changes to requirements for door release hardware.
 - ▶ Electromagnetic locks can now be installed on all doors including exit and egress doors except those in a high hazard industrial occupancy.
 - ▶ The 15 second delay permitted on electromagnetic locks is now defined as the total delay time in the path of egress.
 - ▶ New provision to allow for a bypass switch to allow testing of fire alarms while the electromagnetic locks are engaged.
 - ▶ Emergency lighting is required at each door with an electromagnetic lock.
 - ▶ Electromagnetic locks are now permitted on doors to cross over floors provided they: release immediately on fire alarm activation, have fire alarm pull stations on the exit stair side and have signage to describe the operation.

3.4 Exits

- ▶ 3.4.6.16 Changes to the requirements for door release hardware.
 - ▶ Electromagnetic locks can be installed on doors in B-2 and B-3 occupancies provided:
 - ▶ The building is sprinklered and has a fire alarm system.
 - ▶ The electromagnetic lock releases upon: actuation of the fire alarm, loss of power, actuation of manual switch at constantly attended location within the locked space, actuation of the fire alarm pull station installed near the door.
 - ▶ The door has emergency lighting
 - ▶ Manual reset for the electromagnetic lock is required
 - ▶ Signage on the door is required.
 - ▶ Fire alarm test bypass is permitted.

3.4 Exits

- ▶ 3.4.6.18 Changes to emergency crossover access to floor areas.
 - ▶ Now applies to all buildings not just buildings more than 6 stories in height as required by NBC 2010. Requirement for a crossover floor when you go up or down more than 2 stories remains the same.
 - ▶ How does this new requirement work with NFC 2015 Article 2.7.1.1 which requires all buildings to be provided with means of egress in conformance with NBC 2015 ?
 - ▶ Use of electromagnetic locks on doors providing access to cross over floors are permitted provided they meet 3.4.6.16(4) and (5).

3.6 Service Facilities

- ▶ 3.6.1.3 New requirements for lightning protection systems to conform to CAN/CSA-B72 "Installation Code for Lightning Protection Systems" when provided.
- ▶ 3.6.3.5 New requirements for grease duct enclosures.
 - ▶ Fire separations enclosing grease ducts to conform to NFPA #96.
 - ▶ Fire resistance rating for factory built or field applied grease duct enclosures to be determined in conformance with CAN/ULC-S144 "Fire Resistance Test-Grease Duct Assemblies".
- ▶ 3.6.4.3 Changes to plenum requirements.
 - ▶ Fire stop flaps in ceiling membranes used to separate a return air plenum in a concealed space now have an extra provision to release when the temperature in the return air plenum is more than 30° C over the normal maximum temperature in the plenum.

3.7 Health Requirements

- ▶ 3.7.2.3 Changes to flushing requirements of laboratories.
- ▶ 3.7.2.8 Changes to grab bar requirements.
- ▶ 3.7.2.9 Changes to bathtub requirements.

3.8 Accessibility

- ▶ Now references **CSA B651 "Accessible Design for the Built Environment in Article 3.8.3.1.**
- ▶ Significant changes to most Articles in Section 3.8
- ▶ **Changes to the following Articles:** 3.8.2.6 Controls, 3.8.2.8 Plumbing Facilities, 3.8.2.9 Assistive Listening Devices, 3.8.2.11 Counters and Counters for Telephones, 3.8.3.1 Design Standards, 3.8.3.2 Barrier-Free Path of Travel, 3.8.3.5 Ramps, 3.8.3.6 Doorways and Doors, 3.8.3.8 Controls, 3.8.3.10 Drinking Fountains, 3.8.3.11 Water-Closet Stalls, 3.8.3.12 Universal Washrooms, 3.8.3.13 Water Closets, 3.1.8.14 Urinals, 3.8.3.15 Lavatories and Mirrors, 3.8.3.16 Showers, 3.8.3.17 Bathtubs,

3.9 Self-service Storage Buildings

- ▶ New Section for self-service storage buildings open to the public and for the sole purpose of providing individual self storage units.
- ▶ 3.9.1.2 Section applies to buildings that are: single storey, no basement or mezzanine, consist of self storage units with external access only, no purpose other than storage, no other major occupancies other than an office or dwelling unit as per mitted in 3.9.3.1
- ▶ 3.9.1.3 Classified as F-2 major occupancies
- ▶ 3.9.2.1 Building area is based on individual buildings or all buildings as a group. If the buildings are considered as individual then the special separation requirements of 3.9.2.2 will apply between individual buildings.

END
