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2010 NATIONAL MODEL CONSTRUCTION CODES

Residential Care

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Introduction

- Presentation is part of a series on the 2010 National Model Construction Codes
- Model codes developed by Canadian Commission on Building and Fire Codes
- These codes must be adopted by provincial/territorial authorities to become law

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This presentation is part of a series of 13
on the 2010 National Model Construction Codes.

It is important to note that the model codes, which are developed
by the Canadian Commission on Building and Fire Codes,
must be adopted by provincial/territorial authorities to become law.

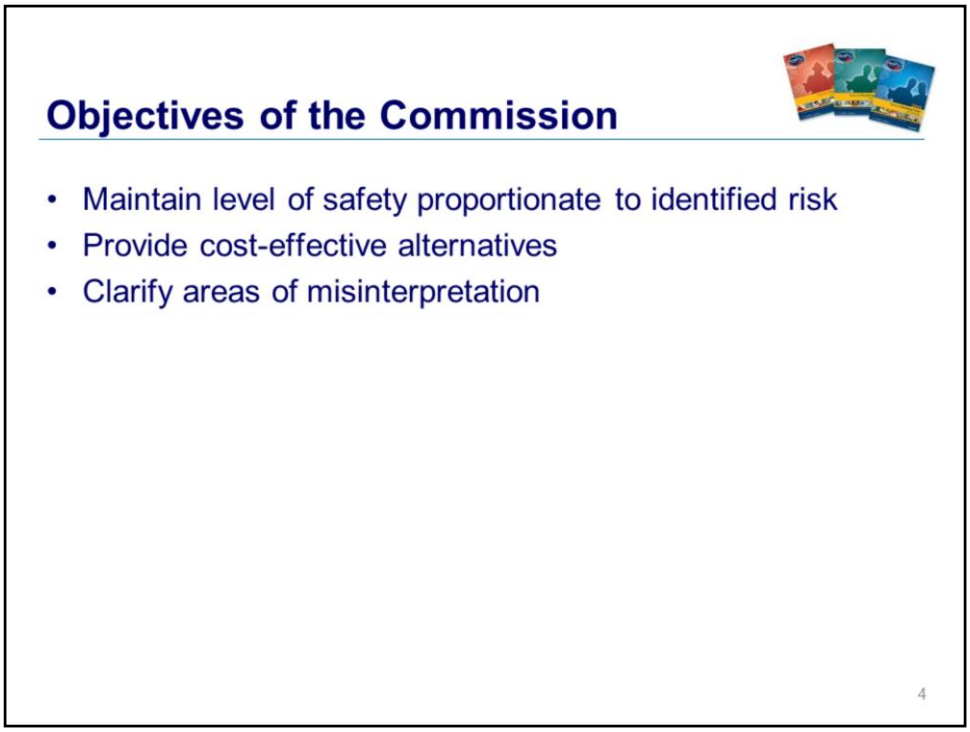
This may mean that code requirements enacted by legislation within
your province or territory might differ from what is presented here.

Please check with your local authority.

There are classes of care facilities where persons receive special or supervisory care because of cognitive or physical limitations. These include, but are not limited to: retirement homes, certain group homes, supportive housing, children's custodial homes, convalescent homes, residential care facilities, and sanatoria without detention quarters.

Residents of these care facilities may be adults or children and may receive care services under a variety of different programs/models. These programs/models range from a highly supported setting in which residents with multiple disabilities receive 24 hr. supervisory care to a low support setting in which adult residents are capable of independent living but receive periodic visits from an off-site caseworker.

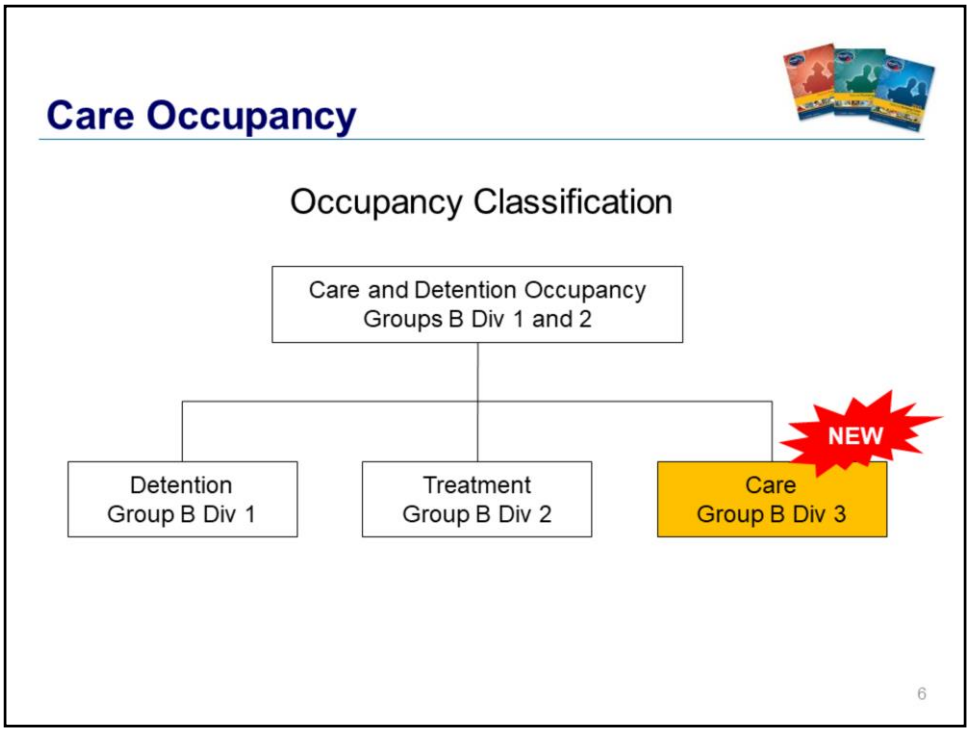
As these care facilities are found across Canada, PTPACC has indicated among its priorities, to consider ways to amend the model National Building Code to address the issue of whether, and how, to establish a new occupancy classification and related Building Code requirements that are more stringent than those that are applied to residential uses, but less stringent than those that are applied in care and detention uses.



Due to the nature of occupancy, these premises generally require more fire and structural safety features than those found in a residential occupancy (e.g., Group C Major Occupancy), but do not generally require the extensive fire and structural safety features found in institutional uses such as hospitals or nursing homes (i.e., Group B, Division 2). Currently, owners of such facilities are often burdened with the capital cost of meeting the higher B2 requirements, without corresponding benefit to their clients or occupants.

This new series of technical changes to the National Building and Fire Codes establish requirements that are more stringent than those applied to residential uses, but less stringent that those currently applied to care and detention uses.

Let’s start with the new definitions associated with care occupancies.



The unshaded portion illustrates the occupancy classifications in the 2005 NBC. The 2010 Code has introduced a new classification Group B division 3.

2005 Classification

- *Care or detention occupancy* means the *occupancy* or use of a *building* or part thereof by persons who require special care or treatment because of cognitive or physical limitations or by persons who are restrained from, or are incapable of, self-preservation because of security measures not under their control
  - Group B Division 1 - Detention
  - Group B Division 2 - Care

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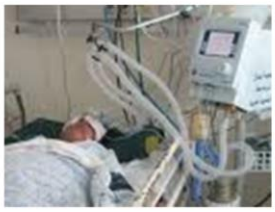
Under the 2005 code, care occupancies were treated similar to treatment occupancies. In other words, requirements for hospitals could be applied to residential care facilities where occupants were not receiving the type of care received by incapacitated residents. The 2005 definitions read as follows:

Definition – Treatment

- … provision of medical or other health-related intervention to persons... may render them incapable of evacuating to a safe location without the assistance of another person



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Read Definition

Treatment means the provision of medical or other health-related intervention to persons, where the administration or lack of administration of these interventions may render them incapable of evacuating to a safe location without the assistance of another person.

Treatment

“Treatments” may include such things as surgery, intensive care, and emergency medical intervention. Treatment services differ from the services provided by care occupancies like personal care assistance or the administration of medication, and from those provided by business and personal services like dentistry or day procedures.

The ability to evacuate unassisted implies that a person is capable of recognizing and responding to an emergency given their physical, cognitive and behavioural abilities. This person is able to move to a safe location without the assistance of another person. For example, such a person must be able to arise and walk, or transfer from a bed or chair to a means of mobility, and leave the building or move to a safe location.

Definition – Treatment Occupancy

- … provision of *treatment* where overnight accommodation is available to facilitate the *treatment*

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Treatment occupancy means the occupancy or use of a building or part thereof for the provision of treatment where overnight accommodation is available to facilitate the treatment. Examples would include hospitals and palliative care centres.

Definition – Care

- … provision of services other than *treatment* by, or through, facility care management to residents who require these services because of cognitive, physical or behavioural limitations

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(Read Definition)

Care means the provision of services other than *treatment* by or through facility care management to residents who requires these services because of cognitive, physical or behavioural limitations.

What is important to note here, is that there is a distinction between care and treatment, the definition for treatment shown in the preceding slides.

Definition – Care Occupancy

- … *occupancy* or use of a *building* or part thereof where care is provided to residents

- Now referred to as GROUP B DIV 3
  - Exceeding 24 hours
  - By or through facility management

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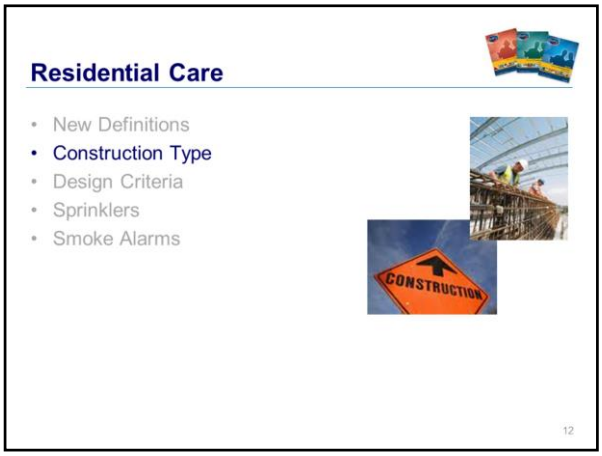
(Read the definition)

Support services rendered by or through care facility management refer to services provided by the organization that is responsible for the care for a period exceeding 24 consecutive hours. It does not refer to services provided by residents of dwelling units, or suites, or to services arranged directly by residents of dwelling units or suites with outside agencies.

In the context of care occupancies, these services may include a daily assessment of the resident's functioning, awareness of their whereabouts, the making of appointments for residents and reminding them of those appointments, the ability and readiness to intervene if a crisis arises for a resident, supervision in areas of nutrition or medication, and provision of transient medical services. Services may also include activities of daily living such as bathing, dressing, feeding, and assistance in the use of washroom facilities, etc. No actual treatment is provided by or through care facility management.



Care Occupancies:
Let’s take a look at some of the new construction requirements.

Construction

- Allows options in types of construction materials used

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Some construction requirements for the B3 residential care occupancy provide a relaxation form the current 2005 requirements for the Group B2 occupancy.

Construction

- Maximum building area for combustible construction, sprinklered

Building Height	Group B Div 2	Group B Div 3	Group C
1 Storey	2400 m²	5400 m²	7200 m²
2 Storeys	1600 m²	2700 m²	3600 m²
3 Storeys	Not allowed	1800 m²	2400 m²
4 Storeys	Not allowed	Not allowed	1800 m²

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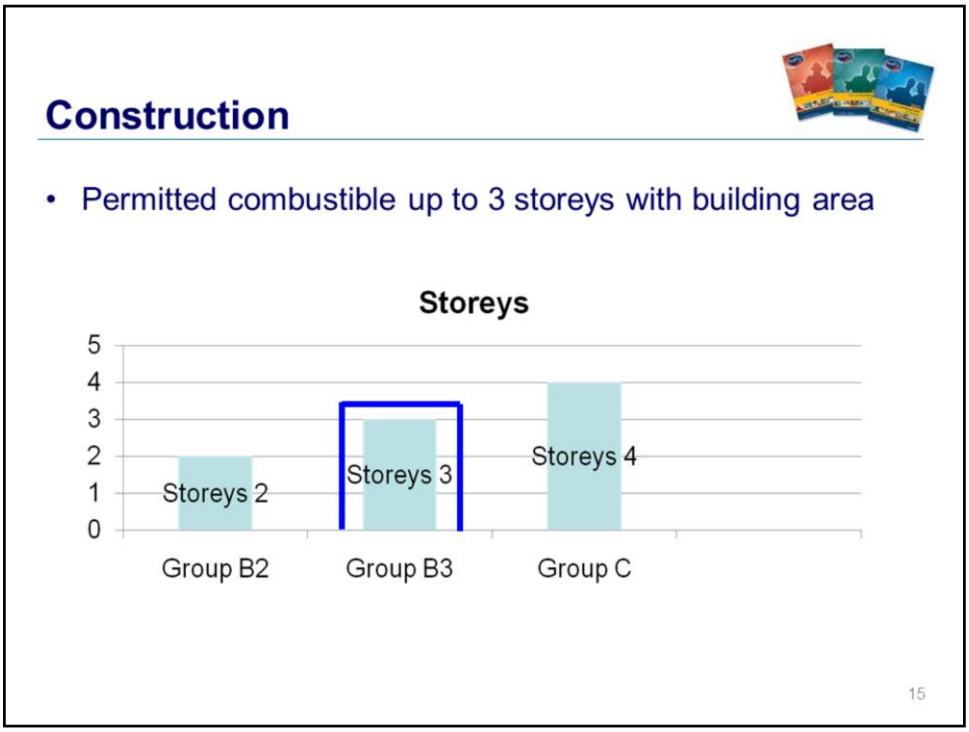
Permission to construct B3 occupancies up to three stories in building height having a limited occupant load, using either combustible or non combustible construction under Part 3 of the NBC.



One of the major differences between the B2 and B3 construction requirements is the option to build with combustible construction up to 3 storeys for buildings of a limited area.

Permission to construct B3 occupancies up to three stories in building height having a limited occupant load, using either combustible or non combustible construction under Part 3 of the NBC.

You can see here that the Group B3 construction requirements fall in between the Group B2 and C.

Construction

- No mezzanine floor fire-resistance rating requirement for one storey ≤ 600 m^2

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Another relaxation is the elimination of the mezzanine floor rating requirements in smaller one-storey (≤ 600 m^2) B3 occupancies.

Residential Care

- New Definitions
- Construction Type
- **Design Criteria**
- Sprinklers
- Smoke Alarms

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Let’s move into the issues related to corridor and door widths

Corridor Width

- Treatment where patients moved in beds: **2400 mm**
- Treatment where corridors not used to move patients: **1650 mm**
- Care > 10 residents and corridors serve those residents: **1650 mm**
- Care ≤ 10 residents: **1100 mm**

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In treatment occupancies where patients or residents are moved in beds, corridors must be at least 2400 mm in width.

In care or treatment occupancies where the corridors will not be used to move patients or residents in beds and in buildings of care occupancy with more than 10 residents and the corridors serve those residents must be 1650 mm.

In care occupancies with not more than 10 residents 1100 mm corridor width is permitted.

Ramp Width

- Ramps serving residents' sleeping rooms permitted to be **1100 mm**

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The 2005 requirements stipulated a ramp width of 1650 mm where it served a patient or resident sleeping room. The new changes for B3 allow a ramp width of 1100 mm.

Stair Width

- More than 10 residents
  - Not more than 2 storeys above lowest exit level
    - 1100 mm
  - Serves more than 2 storeys above lowest exit level
    - 1650 mm

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The 2005 requirements stipulated a stair width of 1650 mm where it served a patient or resident sleeping room.

The new changes for B3 allow a stair width of 1650mm where there are more than 10 residents and the stairwell serves more than 2 storeys above the exit level.

A further relaxation is permitted down to 1100 mm where there are more than 10 residents and the stairwell serves not more than 2 storeys above the exit level.

Stair Width

- Not more than 10 residents
  - Not more than 2 storeys above lowest exit level
    - 900 mm
  - Serves more than 2 storeys above lowest exit level
    - 1100 mm

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Further relaxation where there is no more than 10 residents

900 mm where there are not more than two storeys above the lowest exit level,

The 1100 mm where there are more than two storeys above the lowest exit level,

Door Width

- **2005** Code
  - 1050 mm
- **2010** Code
  Any B3 Occupancy
  - Clear width of 850 mm

- Width based on the concept of one person providing assistance to another during evacuation

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The current requirements stipulated a door width of 1050 mm where it served a patient or resident sleeping room.

The new changes for B3 allow a door clear width of 850 mm regardless of the number of residents. The use of the term clear width implies that the opening must have an unobstructed width of 850 mm.

Residential Care

- New Definitions
- Construction Type
- Design Criteria
- Sprinklers
- Smoke Alarms

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Moving on to the sprinkler requirements

Sprinklers

- NFPA 13 – most Group B Div 3 occupancies
  - Occupant load exceeds 10, OR
  - Greater than 3 storeys in building height

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In all cases Group B Division 3 buildings must be sprinklered. The new changes will allow relaxations on the type of sprinkler systems that are permitted to be used.

In the case were the occupant load exceeds 10 persons and the building has more than 3 storeys in height NFPA 13 must be utilized.

The concept of occupant load and number of residents is utilized throughout the requirements for care occupancy. Each term is deliberately applied. Occupant load includes all persons in the building, staff, and residents.

In the cases where residents is used it refers to those expected to reside in the premises not those that may come to work during a shift.

B3 Construction Sprinklers

- NFPA 13R – B3 occupancies
  - Occupant load not more 10, AND
  - 3 storeys or less in building height

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The first relaxation permits the use of NFPA 13R in buildings where the occupant load is not more than 10 and the building does not exceed 3 storeys in building height.

B3 Construction Sprinklers Relaxation

- NFPA 13D – B3 occupancies
  - Contains not more than 2 suites
  - Not more than 5 residents throughout

  AND
  - 30 minute water supply demand can be met

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A second relaxation permits the use of NFPA 13D in buildings where the building

- Contains not more than 2 suites
- Contains not more than 5 residents throughout
- 30 minute water supply demand can be met

This change essentially permits the small dwelling type care facility to utilize the less expensive NFPA 13D type sprinkler where care services are provided to no more than 5 residents. Keeping in mind that the 5 residents throughout include the staff that reside in the premises.

Residential Care

- New Definitions
- Construction Type
- Design Criteria
- Sprinklers
- Smoke Alarms

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•Finally we look at detection and alarm requirements

Smoke Detectors and Alarms

- Permit use of smoke alarms within sleeping rooms and suites of residential care in lieu of smoke detectors

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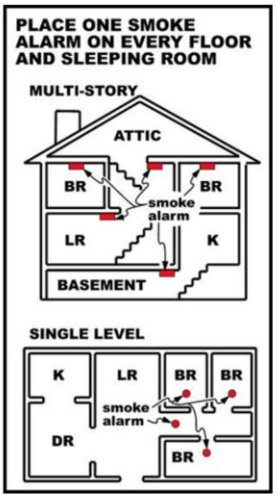
One of the relaxations permitted which provides a cost effective approach is by permitting the use of smoke alarms within sleeping rooms and suites of residential care in lieu of smoke detectors. This change does not eliminate the need to install a fire alarm system throughout the building as the common elements ie public corridors, stairwells, etc. will still require smoke detectors.

Smoke Alarms

- Smoke alarm shall
  - be installed in bedrooms
    - Fires in sleeping rooms are second highest causes of fire deaths



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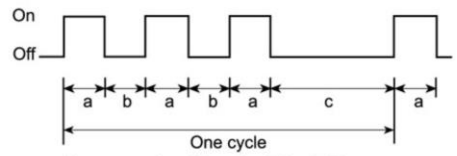
Statistics have shown that next to kitchen fires, fires originating in sleeping rooms within dwelling units account for the second highest causes of fire deaths in homes. With the current code requirement for smoke alarms to be located in corridors outside the sleeping rooms, this has caused a delay in notifying occupants in the sleeping rooms of a fire especially if the fire originates within that room with the door closed. This is for two reasons:

- the audibility levels within the sleeping room may be reduced due to the closed door, and
- secondly the smoke travel from the sleeping room to the detector (if door is closed) will be impeded thus delaying activation and early notification of occupants.

Smoke alarms located within the corridor will be still be required as they are better capable of detecting a fire originating outside of the room.

Smoke Alarms

- Smoke alarm shall
  - meet the temporal pattern or voice relay
    - Improve audibility and early detection



Phase a: = signal is on for 0.5 ± 0.05 s
Phase b: = signal is off for 0.5 ± 0.05 s
Phase c: = signal is off for 1.5 ± 0.15 s
Total cycle to last 4.0 ± 0.40 s

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The requirement of a temporal pattern for smoke alarms that was introduced for residential occupancies has been expanded to include care occupancies.

Another provision has been introduced to improve the capacity of the alarm sound of the smoke alarm to be heard at night time. Studies have shown that a sound pattern respecting the temporal pattern is more probable to awake the elderly and very young occupants than standard alarm. Combine with the bedroom installation, this measure will improve the effectiveness of evacuation in the residential home.

Convalescent homes and children's custodial homes are permitted to be classified as *residential occupancies* within the application of Part 3, provided that occupants are ambulatory and live as a single housekeeping unit in a *suite* with sleeping accommodation for not more than 10 persons.

This change provides clarification as to the application of convalescent and custodial homes within Part 3. Smaller buildings (less than 600 metres squared) that fall within the category of residential based on these conditions must meet the residential requirements of Part 3.

Summary

- New classification group B Div. 3 introduced
- Various relaxations from current B2 requirements for
  - Construction
  - Corridor and door widths
  - Sprinkler
  - Fire alarm

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Questions?

Send them to us at codes@nrc-cnrc.gc.ca

Thank you!