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to **Innovation...**

2010 NATIONAL MODEL CONSTRUCTION CODES

Secondary Suites

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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.

Secondary Suites – 2005 NBC



- 2005 NBC
 - Secondary suites
 - Not addressed in NBC
 - Addressed by provisions for multi-unit buildings
 - Multi-unit requirements
 - Onerous when compared to single family dwelling units
 - Often too costly
 - Inconsistencies among P/T regulations



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Secondary suites also referred to as accessory apartments/suites or granny suites, are smaller dwelling units often retrofitted into existing single-family house.

This type of housing is not addressed in the National Building Code of Canada (NBC). Currently, the NBC Part 9 regulates secondary suites using same criteria as for duplexes and semi-detached dwelling units. Compared to a single family dwelling, building code provisions that are applicable to these suites often impose additional requirements.

A number of provincial codes and municipal jurisdictions have requirements that apply specifically to the secondary suites but there is little consistency among these jurisdictions.

Secondary Suites



- Goals for 2010 NBC
 - Provide uniform, model requirements
 - Accommodate construction of secondary suites in houses at reasonable cost
 - Do not compromise health and safety of occupants
 - Use mostly requirements for single dwelling units



The provinces and territories have asked the Canadian Commission on Building and Fire Codes to review the requirements of the National Building Code and develop an set of requirements to accommodate this type of housing with the goal of

- providing uniform requirements that would reduce non-conforming construction of secondary suites
- at a reasonable cost and without compromising the health and safety of the occupants.

Secondary Suites – Approach



- Add concept of secondary suite throughout Part 9
- Define “secondary suite”
- Limit size of secondary suites
- Address requirements for:
 - Fire separation
 - Smoke tightness
 - Sound transmission
 - Heat and ventilation
 - Fire detection
- Set adequate level of performance



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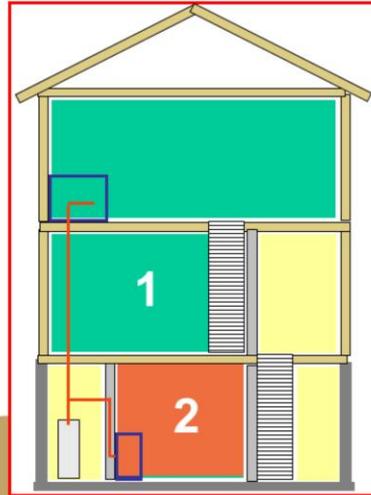
While developing the changes and definitions, the TG developed principles that established directions for sets of requirements. These directions are based on the following approach

- add a concept of "secondary suite" throughout Part 9.
... and requirements are provided incorporated into the same sentences/articles as for houses or multi unit buildings
- limit the size of secondary suites
- relax fire separation requirements
- achieve fire separation by means of smoke-tight barriers
- address fire detection
- address sound, heat and ventilation requirements

Secondary Suites – Definition



- A secondary suite is a dwelling unit located in a building or portion of a building of residential occupancy that is a single real estate entity containing not more than two dwelling units and common spaces one of which has a prescribed floor area



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A new definition for the term “Secondary Suite” clarifies the meaning of the term, facilitates application of requirements, exceptions related to houses with secondary suites and proper interpretation and enforcement of the requirements.

Definition.

Secondary suite means a self-contained dwelling unit with a prescribed floor area located in a building or portion of a building of only residential occupancy that contains only one other dwelling unit and common spaces, and where both dwelling units constitute a single real estate entity.

Secondary Suites – Definition (Appendix Note)



- Secondary suites may
 - be created within an existing dwelling unit (typically in houses)
 - have more than one storey
 - be on same level as principal suite or
 - be above or below principal suite
- Houses are:
 - individual detached houses
 - semi-detached houses
 - freehold row houses
 - townhouses



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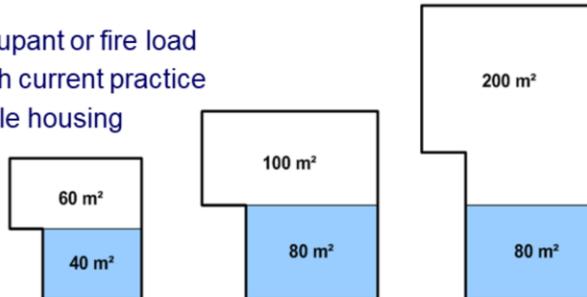
The Appendix Note expands on the definition to clarify that secondary suites are:

- typically created within an existing dwelling unit, commonly called a “house”
- may have more than one storey, be on the same level as the principal suite in the house or be above or below the principal suite in the house
- may include individual detached houses, semi-detached houses and freehold row houses

Secondary Suites – Floor Area



- Floor area of secondary suites limited to
 - up to 80% of total floor area of principle suite
 - and**
 - not more than 80 m²
- Rationale
 - Not increase occupant or fire load
 - Be consistent with current practice
 - Address affordable housing



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Why limited floor area?

The change to limit the floor would:

- better define this type of housing based on the assumption that the inclusion of a secondary suite in a house will not increase occupant load or fire load beyond the loads generally found in the single dwelling units with a finished basement,
- be consistent with current practice already in uses in various provinces and municipalities, and
- accommodate the construction of secondary suites at reasonable cost.

Additional Info

The 2006 British Columbia Code specifies a maximum of 90 m². This is intended to limit secondary suites to 1 or 2 bedroom suites. In general a 2 bedroom suite is in the order of 70 m² and 3 bedroom suites in a range of 85 m² to 90 m². A limit of 80 m² would avoid 3-bedroom suites.

Level of Performance



- Based on existing requirements
 - Treat house with secondary suite
 - as single dwelling unit
 - as multi-unit building
- Develop new requirements
 - Treat house with secondary suite
 - between single dwelling unit and multi-unit building



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As mentioned few slides earlier, the Task Group on Secondary Suites developed a series of changes to regulate secondary suites in the National Building Code. It determined

- which requirements for single dwelling units are also adequate for a house with a secondary suite
- when reduction in performance is acceptable
- when trade off to the existing requirement for duplexes is justified
- when increase in performance is justified

This exercise lead to the requirements being classified into 5 categories:

- Requirements that apply to a single dwelling unit apply to a house with a secondary suite. This means that a house with a secondary suite is treated the same as any single dwelling unit
- Requirements that apply to a multi-unit house apply to a house with a secondary suite. This means that a house with a secondary suite is treated the same as any other multi-unit house or apartment building
- Requirements that apply to a house with a secondary suite or to the secondary suite itself are lower in performance that what should normally be applied
- Requirements that apply to a house with a secondary suite or to the secondary suite itself are higher in performance that what should normally be applied
- Requirements that apply to a house with a secondary suite or to the secondary suite itself are achieved using other means that have equivalent performance level

Single Dwelling Unit



- Treat house with secondary suite as single dwelling unit

Level of hazard for house with secondary suite
=
Level of hazard for single dwelling unit

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1. Requirements for Single Dwelling Units Apply to Houses with Secondary Suite

This principle applies where there is no increase in load or hazard in a house with a secondary suite. It is assumed that the level of hazard in a house containing secondary suites is not sufficiently different from the level of hazard in a single dwelling unit to justify application of more stringent requirements.

Single Dwelling Unit – Examples



- Examples of requirements
 - Structure and building envelope
 - Door size, doorway opening height and width
 - Stair, ramps, handrails and guards
 - Principal entrance
 - Minimum dimension in exits and access to exits
 - Spatial separation and construction of exposing building face
 - Exemption from exit sign requirements

1) Except as provided in Sentence (2) and Articles 9.5.5.3., 9.9.6.2. and 9.9.6.3., doorway openings within *dwelling units* and within houses with a *secondary suite* including their common spaces shall be designed to accommodate at least the door sizes given in Table 9.5.5.1. for swing-type and folding doors.

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1. Requirements for Single Dwelling Units Apply to Houses with Secondary Suite

This allows for the application of requirements that currently apply only to single dwelling units to houses with secondary suites to the following elements

- requirements for stairs, ramps, guards, handrails
- minimum dimensions in exits and access to exits
- construction of exposing building face

Multi-Unit Building



- Treat house with secondary suite same as multi-unit building

Level of hazard for a house with a secondary suite
=
Level of hazard in a building with two dwelling units

- A multi-unit building could be
 - Apartment building
 - Duplex
 - Stacked townhouse

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2. Requirements that apply to a multi-unit house apply to a house with a secondary suite. (No Change)

The level of hazard with respect to dwelling units in a house containing secondary suites is sufficiently comparable to the level of hazard with respect to traditional building with two dwelling units to justify application of the same requirements.

Multi-Unit Building



- Examples of requirements
 - Protection of openings in means of egress
 - Separate plumbing facilities
 - Ducting for HVAC systems to serve only one suite
 - Protection of soffits



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2. Requirements that apply to a multi-unit house apply to a house with a secondary suite. (No Change)

This principle applies where the existing requirements are necessary to achieve minimum acceptable performance levels for life safety in house containing a secondary suite and their common spaces.

- protection of openings in means of egress
- plumbing facilities required
- ducting for HVAC systems to serve only one suite

2. Requirements that apply to a multi-unit house apply to a house with a secondary suite. (No Change)

As if they are real fire compartments, the changes maintain the existing level of protection that is required from one fire compartment to another fire compartment.

These changes

- maintain fire protection between the two suites, limit the spread of fire from one dwelling unit to another dwelling unit through openings near unenclosed exterior exit stairs, opening near exit doors (openings in means of egress) and openings in soffits
- require separate plumbing facilities
- require that ducting for HVAC systems to serve only one suite

Multi-Unit Building – Examples



- Ducting for HVAC systems to serve only one suite
 - Hazard
 - Smoke spread by ducted systems: same as a multi-unit building
 - Requirement:
 - No interconnection of ducts between units



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2. Requirements that apply to a multi-unit house apply to a house with a secondary suite. (No Change)

HVAC Systems

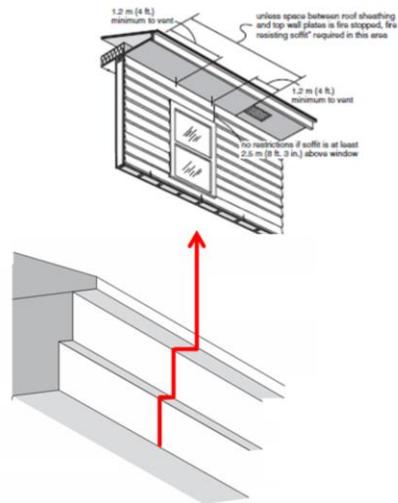
Let's expand a little on HVAC requirements. Due to the hazard of the smoke spread presented by ducted systems, air duct distribution system serving one of the dwelling units in a house with secondary suite shall not be interconnected with other parts of the house (the other suite and the common spaces).

Multi-Unit Building – Examples



- Protection of soffits
 - Hazard:
 - Fire spread same as multi-unit

- Requirement:
 - Minimum distance to vents
 - Fire stop in attic, or
 - Fire resistant soffits



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2. Requirements that apply to a multi-unit house apply to a house with a secondary suite. (No Change)

The hazard here is that a fire might spread from one unit to an adjacent unit.

The requirement therefore remains the same as in a multi-unit building.

This risk has to be addressed by a minimum distance to vents, fire stops in the attic or by installing fire resistant soffits.

New Requirements



- Examples of requirements where house with secondary suite treated somewhere in between single dwelling unit and multi-unit building
 - Exemption from providing two separate exits
 - Permission to have non-ducted heating system
 - Exemption for party wall on property line to be fire wall
 - Room ceiling height
 - Sound transmission rating (STC) between suites
 - Ventilation for shared/common spaces
 - Smoke alarm in dwelling units
 - Smoke-tight barrier in lieu of fire separation

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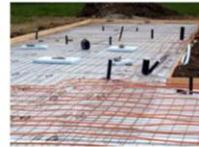
1. Requirements for Single Dwelling Units Apply to Houses with Secondary Suite

Let`s expand a little on the last three bullets

New Requirements – Examples



- Single common exit permitted where:
 - exit separated with smoke-tight barrier
 - solid-core wood doors, 45 mm thick, and
 - in addition to existing requirements:
 - window or balcony required as means of egress in each unit
- Non-ducted heating systems
 - Installation same as for one dwelling unit
 - Individual temperature controls in suites and common areas



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1. Requirements for Single Dwelling Units Apply to Houses with Secondary Suite

Exemption to have two separate exits:

A house with a secondary suite is allowed to share a common exit without having to apply the requirements in Article 9.9.7.2.

Under current requirements, the two units in a house containing a secondary suite are not allowed to share a common exit (considered to be a public corridor) unless:

the two dwelling units have a second means of egress or
from the point where each of the doors enters the shared exit it shall be possible to go in opposite directions to 2 separate exits.

The new requirement allows both dwelling units to use the same exit under the conditions that:
a smoke tight barrier is installed between the exit and each unit, and
that each dwelling unit has at least one egress

1. Requirements for Single Dwelling Units Apply to Houses with Secondary Suite

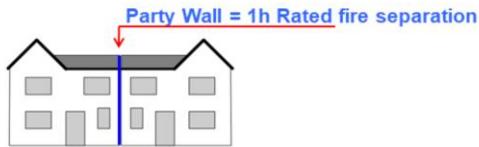
HVAC Systems:

Non-ducted heating systems, such as electric radiant and hydronic heating system, for houses containing a secondary suite, is not sufficiently different from single dwelling units to justify requiring that two separate heating systems be installed or that the heating/ventilation system be designed and installed to Part 6 of the Code that would require for professional design.

New Requirements – Examples



- Party wall on property line build as 1h-rated fire separation in lieu of fire wall
 - Where it separates:
 - two dwelling units with no dwelling unit above another



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In the current code there is an exemption for a party wall on a property line to be constructed as a fire wall provided it is constructed as a fire separation (1 h FRR) where the party wall separates:

- two dwelling units with no dwelling unit above another,

New Requirements – Examples



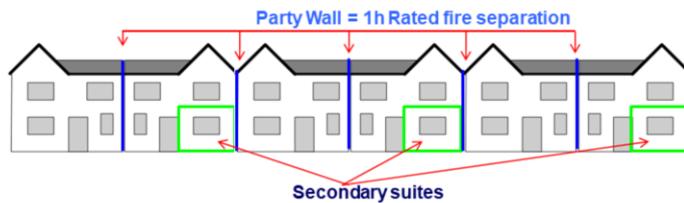
- Party wall on property line build as 1h-rated fire separation in lieu of fire wall

– Where it separates:

- two dwelling units with no dwelling unit above another

- a dwelling unit and one house with a secondary suite and their common spaces, or

New
Exceptions



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In the 2010 there are additional requirements (two new exceptions) that exempt a party wall to be constructed as a fire wall where the party wall separates :

- a dwelling unit and one house with a secondary suite and heir common spaces, or

New Requirements – Examples

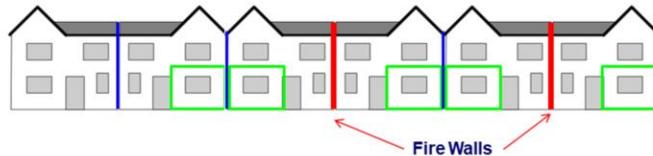


- Party wall on property line build as 1h-rated fire separation in lieu of fire wall

– Where it separates:

- two dwelling units with no dwelling unit above another
- a dwelling unit and one house with a secondary suite and their common spaces, or
- two houses with secondary suites where no more than two such houses are located side-by-side without a fire wall

New
Exceptions



or

- two houses with secondary suites where no more than two such houses are located side-by-side without a fire wall

The later requirement does not allow secondary suites into row houses. In fact, in buildings with more than 2 houses with secondary suites, a party wall shall be constructed as a firewall to create separate buildings, each having not more than two adjacent houses with a secondary suite.

This is based on the assumption that in row houses, the level of fire risk with respect to more than two houses with secondary suites located side-by-side could be higher because of the higher occupant load where all such dwelling units were built or retrofitted to contain a secondary suite.

New Requirements – Examples



- Room ceiling height
 - Ceiling height 1.95 m (2.1 m for dwelling units)
 - Ceiling height under beams 1.85 m (2.1 m for dwelling units)
- Sound transmission rating (STC) between suites
 - STC Rating of 43 for walls and floors (normally STC 50)
OR
 - Prescriptive construction requirement (insulation filled cavities, resilient channels, gypsum board on both sides)
- Ventilation for shared/common spaces
 - Not required (normally design to Part 6)

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3. Reduction in Performance Acceptable

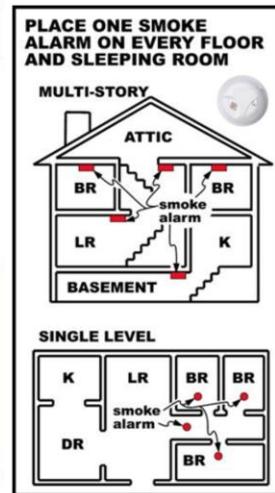
The existing requirements for clear heights in spaces and control of sound transmission could be difficult to comply with, when constructing a secondary suite in an existing building, and because of the smoke spread hazard presented by ventilation systems and the cost of separate ventilation systems, an exception is proposed to the requirement for ventilation of exits, public corridors and ancillary spaces serving houses with secondary suites.

New Requirements – Examples



- Smoke alarm shall be installed in all dwelling units **New**
 - In sleeping room
 - In each storey including basement
 - Between sleeping rooms and remainder of storey

- New for houses with secondary suites
 - Smoke alarms in ancillary spaces and common spaces not in dwelling units
 - Interconnected smoke & CO alarms between suites



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In addition to requiring smoke alarms in sleeping rooms and on each floor level, smoke alarms is also required to be installed in ancillary spaces and common spaces not in dwelling units in a house with a secondary suite.

Wired smoke alarms:

Smoke alarm in a house with a secondary suite shall be wired so that the activation of any one smoke alarm causes all smoke alarms in the house with secondary suite to sound.

Wired CO alarms:

Where CO alarms are installed in a house with a secondary suite including their common spaces, the CO alarms shall be wired so that the activation of any one CO alarm causes all CO alarms within the house with a secondary suite including their common spaces to sound.

Why?

To limit the probability that persons in any part of the house with secondary suite will not promptly notified of smoke and carbon monoxide presence in the air, interconnected of smoke and CO alarms between dwelling units will provide a simple back-up safety.

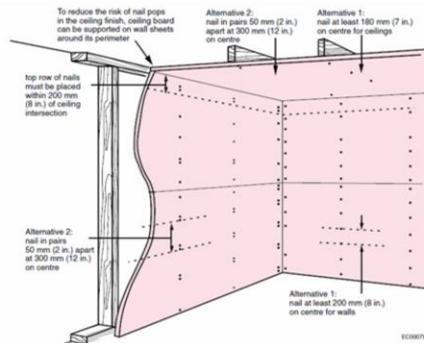
New Requirements – Examples



- Smoke-tight barrier in lieu of fire separation

- Applies to walls and floor/ceiling assemblies separating:

- Two dwelling units
- Two dwelling units and common spaces (e.g. public corridor)
- Two dwelling units and common exit
- Two dwelling units and service room



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As we mentioned previously, NBC regulates secondary suites using same criteria as for duplexes and semi-detached dwelling units. The level of fire safety hazard with respect to houses containing a secondary suite is not sufficiently similar to the level of hazard with respect to traditional buildings with two dwelling units to justify the same level of protection.

Wall and floor/ceiling framing assemblies contained within dwelling units and house with secondary suites need not be constructed as fire separation. Requiring a fire resistance rating for wall and floor/ceiling framing between dwelling units in a house containing a secondary suite is unnecessary stringent.

As a trade off to the fire resistance rating of 45 min that would otherwise be applicable to structural members, the change requires that wall and floor/ceiling framing between dwelling unit or between dwelling units and other spaces, (suite to suite, suite to corridor rated separations, floor separations, separated mechanical room) in a house with a secondary suite to be protected with a continuous smoke-tight barrier that provides some resistance to fire.

While providing less than 30 min fire resistance rating, this change maintain fire protection between the two suites, limit the spread of fire from one dwelling unit to another dwelling unit and limits the probability that a floor between dwelling units will collapse before the occupant can escape. In addition, knowing that smoke distribution is more immediate hazard than fire spread, the installation of hard wired smoke alarms between both units and the common areas give an early warning to the occupants to escape in case of fire.

New Requirements – Examples

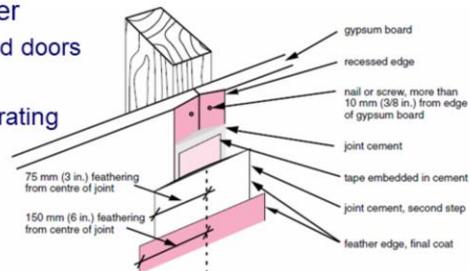


- Smoke-tight barrier in lieu of fire separation

- Required construction for smoke tight-barrier
 - 12.7 mm gypsum board on both side of walls and underside of floor-ceiling assemblies
 - Finished (mudded, taped, etc)
 - Continuity (sealed at junctions and penetrations)

- Doors in a smoke-tight barrier

- 45 mm thick solid-core wood doors
- Self-closing device
- Deemed to provide 20 min rating



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Continuous smoke-tight barrier is achieved by 12.7 mm thick gypsum board installed on both side of walls, floors separating the space from the rest of the building (house with secondary suite).

Summary – Approach



- Determined
 - NBC 2005 requirements
 - Key issues to be addressed
 - Provincial/territorial and municipal requirements for “key issues”
- Compared to NBC 2005 as a baseline
- Assessed
 - Performance level relative to risk and NBC 2005 requirements
 - Costs relative to NBC 2005 requirements

Summary – Technical Requirements



- Areas of requirements
 - Heights of spaces
 - Means of egress
 - Stairs, ramps, handrails, guards
 - Spatial separation
 - Heating, ventilation
 - Sound transmission
 - Definition (secondary suite)
 - Area limits
 - Party walls
 - Smoke-tight barriers
 - Smoke and CO alarms



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Key message is that 90 % of requirements for houses with secondary are those that apply to single dwelling units.

Summary – Technical Requirements



- Areas of requirements

- Heights of spaces
- Means of egress
- Stairs, ramps, handrails, guards
- Spatial separation
- Heating, ventilation
- Sound transmission
- **Definition (secondary suite)**
- **Area limits**
- **Party walls**
- **Smoke-tight barriers**
- **Smoke and CO alarms**



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Here are some requirements that are important to keep in mind and that apply only to

- secondary suites, or
- houses with secondary suites, or
- common spaces in those houses.



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Questions?

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

Thank you!