The BCA made simple – Part 2

Jerry Tyrrell widens the gateway to the BCA with a look at the principles of Volume 1 in relation to Class 2 buildings – units, villas and townhouses.

Most contractors are building, extending or renovating houses. This work is covered in Volume 2 of the Building Code of Australia (BCA), which I introduced to you last issue.

Volume 1 of the BCA deals with all buildings except houses (including small boarding houses) and garages (including sheds and swimming pools). These buildings are known as Classes 2 – 9 inclusive (see Classes of Buildings in the last issue of *Building Connection*, page 21).

The following information is really easy to grasp and handy to know, if only to learn the jargon the BCA uses such as 'egress' and 'FRL' – fire resistance level.

The main purpose of Volume 1 is to tell builders how to build larger and more complex buildings.

In this article, I will cover the principles of Volume 1 and relate them to Class 2 buildings – units, villas and townhouses.

Rules for building units

Volume 1 sets rules which get tougher as the risk to building occupants increases. For instance, it is much harder to get someone out of a 50th floor apartment than a two-storey townhouse with a rear courtyard.

Specifically, a 50-storey building will be built differently and have tougher fire safety measures than a townhouse.

With Class 2 buildings the BCA makes sure:

- each unit (known as 'sole occupancy unit') will be unaffected by a fire in adjoining unit, building or property;
- everyone in the building can safely get out of the building in the event of a fire;
- you install all the right fire safety systems such as hose reels and sprinklers; and
- some units are accessible to people with disabilities.

The BCA sets tougher rules as the risk to building occupants increases – it is much harder to rescue someone from a 50th floor apartment than a two-storey townhouse.

The main tips to remember are:

Fire rating

- the manufacturers' technical information tells you the FRL or fire resistance of their products;
- walls on boundaries between properties and between different classes of buildings are always fire rated;
- every gap or hole in a wall, floor or around a penetration, must be sealed with a fire rated sealant;
- the entry door must be fire rated and have a self closer fitted;
- the maximum gap under a fire door is 10mm;
- doors into and out of fire stairs should open in the direction of travel; and
- all air conditioning and ventilation ducts must have a fire damper at any fire rated wall.

Stairs

- must not have more than 18 risers and not less than two;
- balustrades must be at least 865mm above stair nosing (at least one metre in landings and balconies); and
- risers must not exceed 190mm (minimum 115mm) and treads not more than 355mm (minimum 250mm).

Paths of travel

- at least one metre wide;
- at least two metres high;
- have no trip points in floor;
- contain no stored goods;
- contain no combustible materials; and
- must have emergency lights and signs.

Our culture is changing and more and more units are being built. You will inevitably be involved with building, renovating or ➤

Definitions you need to know

This is the BCA language builders need to use. Some key terms, such as egress and balustrades, are not defined.

BCA definition	What it means in plain English
Common wall: a wall that is common to adjoining buildings.	Walls shared with other building(s).
Exit: (A) any or any combination of the following if they provide egress to a road or open space: (I) an internal or external stairway (Ii) a ramp (Iii) a fire-isolated passageway (Iv) a doorway opening to a road or open space (B) a horizontal exit or a fire-isolated passageway leading to a horizontal exit.	A safe way of getting out of the building.
Fire-isolated passageway: a corridor, hallway or the like, of fire-resisting construction, which provides egress to or from a fire-isolated stairway or fire-isolated ramp or to a road or open space.	A safe way to get through areas that are on fire.
Fire-isolated ramp: a ramp within a fire-resisting enclosure that provides egress from a storey.	
Fire-isolated stairway: A stairway within a fire-resisting shaft and includes the floor and roof or top enclosing structure.	Safe way to get past levels of building which are on fire.
Fire-resistance level (FRL): The grading periods in minutes determined in accordance with specification a2.3, For the following criteria: (A) structural adequacy; and (B) integrity; and (C) insulation and expressed in that order. **Structural adequacy:** in relation to an FRL means the ability to maintain stability and adequate load-bearing capacity as determined by as 1530.4 Fire performance test. **Integrity:** in relation to an FRL, means the ability to resist the passage of flames and hot gases specified in as 1530.4. **Insulation:** in relation to an FRL, means the ability to maintain a temperature on the surface not exposed to the furnace below the limits specified in as 1530.4.	How long a wall, floor, ceiling or door will be safe in a fire. This is measured by how strong it remains, how it seals against flames and gases and how hot it gets.
Egress: the act of coming or going from a place.	The way in and out of a building.
Fire-resisting construction: The types of construction referred to in part c1.	The specific FRLs you must achieve.
Fire safety system: one or any combination of the methods used in a building to: (A) warn people of an emergency; or (B) provide for safe evacuation; or (C) restrict the spread of fire; or (D) extinguish a fire, and includes both active and passive systems.	Ways to make a building safe during a fire.
Fire wall: a wall with an appropriate resistance to the spread of fire that divides a storey or building into fire compartments.	A wall which stops fire spreading – I think this should be fire barrier.
Habitable room: a room used for normal domestic activities, and: (A) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room and sunroom; but (B) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods. Internal wall excludes a common wall or a party wall.	Rooms used for living versus rooms used for bathrooms/laundries, services or storages.
Sole-occupancy unit: a room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes: (A) a dwelling; or (B) a room or suite of rooms in a Class 3 building which includes sleeping facilities; or (C) a room or suite of associated rooms in a Class 5, 6, 7, 8 or 9 building; or (D) a room or suite of associated rooms in a Class 9c aged care building, which includes sleeping facilities and any area for the exclusive use of a resident.	Separate unit, flat, suite or space used by a single family, resident or occupier or group of associated occupiers.

maintaining them. I think the basics are basic. Once you decide you can know this, you will. And, if you are working on these buildings you are less likely to make a mistake from ignorance.

If you want to build in accordance with the BCA, the way you build changes as the building gets higher – the three different types of construction are called Type A, Type B and Type C. Type A is the most fire proof and most walls and floors will not burn. As a very basic rule most buildings over three storeys are Type A. If the BCA requires a specific type of construction, you must use that construction. If you want to use a different construction method you will need to get approval from your certifier or council building surveyor or verify that the method you are using achieves the same requirements as the ones listed in the BCA. ■

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