

A Guide to the Building Code of Australia (BCA)

The Building Code of Australia is a National Code that applies to all states and territories through their own building control legislation. Regulation 5 of the Building Regulations 1989 (WA)(CI) adopts the BCA and requires all building work to comply with the Code.

Building Class

The BCA classifies buildings by their use. A building may be made up of a number of classes if it has a mixed use. The BCA identifies the following building classes:

- Class 1(a)** - a single dwelling or attached dwellings (eg: a terrace, duplex, etc) where each dwelling is separated by a fire wall.
- Class 1(b)** - one or more buildings that constitute a boarding house, guest house, hostel of small scale (ie: not exceeding 12 persons or 300m² in floor area).
- Class 2** - a building containing 2 or more dwelling units (eg: flats, apartments).
- Class 3** - a residential building for a number of persons such as a large scale boarding house, guest house, hostel, the residential part of a hotel, motel, school, etc.
- Class 4** - a dwelling unit that is a part of a commercial use (eg: a caretakers/managers flat).
- Class 5** - an office building.
- Class 6** - a shop or other building where goods or services are retailed directly to the public.
- Class 7(a)** - a car park building.
- Class 7(b)** - a storage building or building where goods are wholesaled (eg: a warehouse).
- Class 8** - a laboratory or a building where a process takes place (eg: factory, workshop, etc).
- Class 9(a)** - a health care building (eg: a hospital, clinic, etc).
- Class 9(b)** - an assembly building (eg: community hall, sports hall, etc)
- Class 9(c)** - an aged care building.
- Class 10(a)** - a non-habitable building being a private garage, shed, or the like.
- Class 10(b)** - a structure (eg: a fence, wall, mast, swimming pool, etc).

Format of the BCA

The BCA is split into two volumes. Volume One deals with buildings in Classes 2 to 9 and Volume Two, also known as the Housing Provisions, deals with buildings of Class 1 and 10.

Volume One

Volume One is split into nine sections with the first section containing administrative provisions, the remainder containing technical provisions. Volume One of the BCA is structured so that each technical section contains:

- **Objectives** - a statement that is considered to reflect community expectations.
- **Functional Statements** - statements of how a building achieves the objective.
- **Performance Requirements** - the level of performance a building solution must meet (ie: the minimum standard).
- **Building Solutions** - the way in which the performance requirements are met. The solution may be one that complies with the deemed-to-satisfy provisions or an alternate solution or a combination of both. The deemed-to-satisfy provisions are the "black and white" solutions and if followed ensure compliance with the performance requirements. Alternate solutions allow for innovative design and use of materials and normally require certification by an expert in the particular field.

Section A - General Provisions

This contains information such as definitions, how buildings are to be classified and the list of guidance documents such as Australian Standards that have been referenced by the BCA as deemed-to-satisfy solutions.

Section B - Structure

This section contains the requirements for the structural stability of the building including the structural resistance that materials and forms of construction must achieve against effects such as dampness, termites, water penetration, etc.

Section C - Fire Resistance

This section contains requirements for the fire resistance of the building. This is to ensure that not only fire spread from one building to another is prevented but also a building maintains structural stability during a fire to allow for occupants to evacuate and the fire brigade to fight the fire. This is achieved by separation distances between buildings, fire protection to external walls (including any openings such as windows) and the splitting up of the internal spaces of the building into separated compartments.

It is important to understand the following terminology in relation to this section:

- **Type of Construction:** Not to be confused with building class, this determines the level of fire resistance particular elements of the building must achieve. There are three types of construction, namely A, B and C, which are determined by the building's class and rise in storeys. Type A includes buildings that have a higher risk such as high rise, high occupant buildings and is thus the most fire resistant. Type C includes buildings that have a lower risk and is thus the least fire resistant.

- **Fire Source Feature:** This represents the potential location that fire may spread from or to. It is normally the external wall of another building on the same lot, a side or rear boundary or the far boundary of a road adjoining the lot. Boundaries are regarded as fire source features because the owner of one lot has no control over what is built on adjoining lots and there is potential for a building to be built up to the boundary on the adjoining lot.
- **Fire-Resistance Level (FRL):** Measured in minutes, this is the resistance to the passage of fire an element of a building achieves. It consists of the criteria structural adequacy, integrity and insulation. Thus a 90/30/60 FRL represents an element that must achieve a fire resistance level of 90 minutes for structural adequacy, 30 minutes for integrity and 60 minutes for insulation.
- **Sole Occupancy Unit:** This means a room or part of a building for occupation by one occupant to the exclusion of others.

Section D - Access & Egress

This section includes provisions relating to the number, size and type, and separation of emergency exits, as well as the distance to an emergency exit. These provisions are determined by the building's class, size of the building and the number of persons the building accommodates. The section also includes provisions relating to the accessibility of a building for people with disabilities.

Section E - Services & Equipment

This section identifies the fire safety equipment that must be installed in a building. This equipment includes fire fighting equipment (eg: fire hydrants, hose reels, portable fire extinguishers, etc), smoke hazard management (eg: smoke detectors and alarms) and emergency lighting and signs. The section also provides the requirements for lift installations when one is installed in a building. As a general rule all buildings require portable fire extinguishers to be installed. The provision of any other equipment is dependant on the size of the building.

Section F - Health & Amenity

This section contains the requirements for damp & weatherproofing, sanitary facilities, room sizes, light and ventilation, and sound insulation. The number of sanitary facilities is dependant on the number of people the building accommodates. Provisions relating to sanitary facilities for people with disabilities are also included in this section. The light and ventilation provision relates to both natural as well as artificial lighting and ventilation. Not all buildings are required to be provided with natural ventilation or lighting.

Section G - Ancillary Provisions

This section contains requirements that affect structures that are ancillary to the main use of the building including minor structures (swimming pools, vaults, cool rooms), heating appliances (fireplaces, flues and chimneys), and atrium construction. It also contains requirements for buildings constructed in alpine areas and bush fire prone areas.

Section H - Special Use Buildings

This section contains requirements specific to certain buildings such as theatres and public halls.

Section I - Maintenance

This section contains the requirements for the maintenance of equipment in buildings.

Volume Two

Volume Two is split into three sections, the first section containing administrative provisions, the second the performance provisions and the third the acceptable construction provisions.

Section 1 - General Provisions

This contains information such as definitions, how buildings are to be classified and the list of guidance documents such as Australian Standards that have been referenced by the BCA as deemed-to-satisfy solutions.

Section 2 - Performance Provisions

This section is further split into five subsections entitled Structure, Damp & Weatherproofing, Fire Safety, Health & Amenity and Safe Movement and Access. Within each subsection the Objectives, Functional Statements and Performance Requirements are stated.

Section 3 - Acceptable Construction

This section, also known as the acceptable construction manual, contains the deemed-to-satisfy building solutions for Class 1 and 10 buildings. The section is split into 11 subsections, namely Site Preparation, Footings & Slabs, Masonry, Framing, Roof & Wall Cladding, Glazing, Fire Safety, Health & Amenity, Safe Movement and Access, Additional Construction Requirements and Structural Design Manuals.