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### BUILDING OCCUPANCY CLASSIFICATIONS – V3

Fire and Security Consulting Services (FSCS) is frequently consulted as to the correct Classification for a building. Whilst this is properly in the domain of a Certifier's responsibility, a Fire Engineer, in formulating Alternative Solutions for a building has the responsibility under Clause 1.2.4 (Dominant occupant characteristics) of the International Fire Engineering Guidelines to determine if the BCA (Building Code of Australia) Classification is appropriate.

Whilst the Class 2, 4, 6, 7a and 9 Classes are adequately defined by the BCA, it is the responsibility of the Certifier, QFRS Building Approval Officer and Fire Engineer as appropriate to properly assess the proposed activities in Class 3, 5, 7b and 8 occupancies. This assessment may conclude that the assumed BCA risk / hazard profile is inadequate and consequently the Deemed to satisfy (DtS) fire safety measures of construction, egress and fire protection / detection systems may need enhancement.

The BCA provides various Classes for different occupancy types. Classes 2, 3 and 4 are residential and the increasing requirements for fire safety across the Classes represent an increased risk and / or hazard profile for occupants.

Note that "hazard" is something with the potential to cause harm. This can include chemical substances, plant, work process and/or other aspects of the work environment. "Risk" is the likelihood that illness, injury or even death might result because of the hazard.

Accordingly the BCA Classification takes into account the nature of the occupants and the activities and quantum of combustible storage within each occupancy class.

A **Class 2** occupancy is a residential building with multiple "dwellings" occupied by owners or tenants. Accordingly the occupants are likely to be familiar with their surroundings and means of egress. Fire detection and separation is provided at a minimum level to allow occupants to be alerted and egress via familiar routes.

A **Class 3** occupancy is a residential building with multiple "short term let apartments occupied, as defined in the BCA as *a common place of long term or transient living for a number of unrelated persons*. The definition the goes on to say that it includes buildings such as *boarding houses, residential parts of a hotel or school etc.*

The Queensland Department of Housing and Public Works recently published News Flash 327 addressing the difference between Class 2 and 3 buildings. A copy can be downloaded at <http://www.hpw.qld.gov.au/SiteCollectionDocuments/newsflash-367.pdf>

The Building Fire Safety Regulation 2008, which is administered by QFRS, provides regulatory requirements for the continued occupancy of all buildings regardless of when the building was built under the BCA. Part 47 in this regulation is reproduced below. Clearly there is an issue with resort apartments where the administration of the building sees otherwise.

#### 47 Meaning of *accommodation unit*

(1) In this division, an *accommodation unit* means an apartment, room or other part of a building, used for providing accommodation to a person.

*Examples of an accommodation unit—*

- an apartment used by holiday makers
- a serviced apartment
- a room in a guest house, hotel or motel used for accommodating guests

(2) However, an *accommodation unit* does not include a part of a building occupied by a person who owns, or is a tenant of, the part of the building.

From a Fire Engineering perspective, the short term occupants of resort or holiday apartments are unlikely to be familiar with their surroundings and means of egress. Furthermore, it is quite common for holiday makers to partake in more than the usual consumption of alcoholic drinks and accordingly response to the alarms from a smoke alarm (Class 2 - BCA Specification E2.2a – Clause 3 and 6) system may be either delayed or at worse non existent.

From a developer's perspective, a Class 3 building having increased requirements for energy efficiency, disabled access and smoke detection / early warning features, is considered as an unnecessary cost, so accordingly many Class 3 buildings are built and approved as Class 2 to relieve the owners / developers of the necessity to provide these features.

AS discussed in Part A3.3 in the BCA, a building may have multiple occupancies and many residential buildings can be said to be both Classes 2 and 3 with some units occupied by owners, others by tenants and yet others by holiday makers.

FSCS takes the view that:-

1. If the non owner occupied units are subject to the Queensland Residential Tenancy Regulation, then the building is Class 2.
2. If a building has a "reception" or "Manager's" residence, all or part of that building should be class 3. This is regardless of whether or not there are owner occupied units within the building. The obligation to provide fire safety is overriding.

In respect to the above, developers should be very careful in attributing (insisting on) a Class 2 classification to a building because in the event of fire, a Coronial inquest might find that the reduced fire safety features provided was unlawful. Building Certifiers and QFRS Building Approval Officers should provide appropriate advice in this matter. FSCS has, in the past, declined to accept Fire Engineering commissions in these circumstances.

A **Class 4** occupancy is a residential apartment within another Class of building. For example a caretaker unit in a factory complex.

A Class 4 occupancy has the same fire resistant requirements as Class 2 with the exception that the fire separation the principal building is required to be appropriate to that Class.

Note that a Class 4 occupancy can only be within a Class 5 to 9 building and the separation from the building must be in accordance with BCA Parts C2.8 and C2.9.

A **Class 5** occupancy generally relates to offices with the BCA assuming a moderate risk / hazard profile in terms of fire load and ignition potential. However this profile can vary greatly from fairly innocuous medical consulting rooms with small area, low fire loading, minor ignition sources and limited population up to an open plan data processing facility with associated call centre activities. The latter having a large area, high fire loading, major ignition sources and a large population.

The BCA definition includes an office building being used for *professional purposes*. FSCS has seen many Class 5 buildings with professional medical suites where dental, optical or medical examinations are carried out. Many of these including pediatric dentistry, laser surgery, endoscopy, colonoscopy and the like are carried out under levels of anesthetic ranging from mild sedation to full anesthesia. Accordingly the occupant profile of these occupants needs to be taken into account under the building classification because of the patients not being able to respond to fire cues and self evacuate.

Whilst FSCS does not necessarily advocate Class 9a classification in the circumstances cited above, the occupancy profile may require additional fire safety features in the building. If the subject building is not subject to an Alternative Solution for other reasons, a Fire Engineer is not engaged and cannot assess the occupancy and require the implementation of such features. In this case, the Certifier and / or QFRS Building Approval Officer needs to call for these features.

A **Class 6** occupancy can range from a small shop up to a multi storey shopping centre. Obviously the risk / hazard profile in these occupancies can vary greatly and the BCA provides for additional and enhanced fire safety features for this Class as the size increases.

FSCS has recently been asked to provide advice regarding the Classification of gymnasiums or fitness centres. Where these are obviously separate buildings or sole occupancy units with street access, it is considered that they are Class 6, being premises "providing services" to the public. However when incorporated into a residential or office building it is likely that they are providing a facility for the occupants and accordingly it is considered that they gave the same Classification as the

predominant building, e.g. Class 2, 3 or 5. Notwithstanding the Classification, FSCS considers that because of the type and quantity of equipment contained, including electrical / friction equipment, due consideration should be given to the increased fire loading and ignition potential.

The BCA has two Class 7 occupancies. **Class 7a** being for car parks and **Class 7b** for storage, or warehouses. Whilst the Class 7a car park has a well defined risk / hazard profile, Class 7b occupancies can vary greatly and the BCA provides for additional and enhanced fire safety features for this Class as the hazard of goods stored and the size increases.

Many Class 7b warehouses permit access by members of the public, especially trade contractors to purchase goods that otherwise might only be available at retail premises; this is usually at a front counter. This brings into question whether it should be a Class 6 building. As discussed earlier, the BCA permits minor (<10%) portions of a building to have a different classification. Whilst some might consider that dual Class 6 and 7b Classification be appropriate, it should be remembered that BCA would require each to be a separate fire compartment with Parts C2.12 and C2.13 for fire separation being imposed as appropriate. Where such activities are contemplated and the building is formally classified as Class 7b, FSCS suggests that a note on the Certificate of Classification be effected with a requirement that the public not be permitted to enter the warehouse portion.

One issue that perplexes me is where buildings (usually of enclosed structure) are used for short or long term valet parking of cars near airports. Invariably they accommodate more than 40 vehicles and yet, as required by the BCA, none that I have used are sprinkler protected. Surely they cannot be Class 7b – a warehouse.

Whilst on this subject with the BCA requiring sprinkler protection where 40 or more vehicles are accommodated, what is a **vehicle**? I have seen many basement car parks with 39 car spaces and 8 motorcycle spaces, surely both cars and motorcycles are vehicles!

The **Class 8** occupancy definition in the BCA is quite archaic, with activities such as “handicraft” included; however a Class 8 can be usefully defined as manufacturing type occupancy. The BCA provides for additional and enhanced fire safety features for this Class as the hazards of the goods processed increases.

The BCA has three Class 9 occupancies. **Class 9a** for a health care building such as a hospital, **Class 9b** for an assembly building such as a school and **Class 9c** for an aged care building. The BCA recognises that whilst these occupancies have a low risk / hazard profile in terms of fire loading, the consequences of a fire can be considerable and enhanced fire safety measures are imposed.

FSCS often sees designs incorporating the provision of crèche or childcare (being Class 9b) in buildings. Under Part A3.3 (a) (i) of the BCA, a part of a storey being less than 10% of the floor area of the whole storey and, having a different use, may have the same classification as the major use. However what is often missed is that the BCA in Part A3.3 (b) requires the 9b part to be a separate classification and be subject to separation from the major part in accordance with BCA Parts C2.8 and C2.9.

I trust that this paper provides appropriate and sensible advice regarding building classification.

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