

## **APARTMENT ENTRY (FIRE) DOORS V4**

Fire and Security Consulting Services (FSCS) is frequently asked by apartment owners and Body Corporate managers about the legal requirements for fire doors to apartments.

### **Background**

The Building Code of Australia (BCA) was introduced in Australia in 1990 and since that time it has been a requirement that apartment (sole occupancy) doors opening on to a public corridor be approved fire doors with a fire rating (FRL) of -/60/30 and be fitted with a closer and lock / latch. These figures mean that the door assembly has a structural adequacy of nil (the sign "-"), integrity against the passage of flame of 60 (minutes) and an insulation rating of 30 (minutes).

Prior to 1990, the requirements were contained in the Standard Building By-Laws and later the Standard Building Regulations. For the purposes of this paper it is advised that to the knowledge of FSCS, the requirements for fire doors and the technical specifications have not changed since the 1975 Building Act.

The intent of the BCA is that the door shall be self closing, latching and prevent the passage of fire from within the apartment into the public corridor. Note that the apartment entry door is not smoke proof.

It should be noted that the "door assembly" includes the door frame, the door leaf, the hinges, the primary latching / locking device and the door closer. The complete assembly is warranted by the manufacturer and installer to be compliant with the relevant Australian Standards.

To demonstrate this compliance, compliance tags similar to that shown in Figure 1 below are attached to both the door frame. Each tag has the year of manufacture, the rating (-/60/30) and often a serial number. The tag has the name of the manufacturer (in this case R E Spence) and the name of the Company who sponsored (owned) the original testing approval, in this case Grinnell Building Products.

When the door was installed, compliant and tested hinges, door closer and locking / latching device were fitted. Additionally the maximum gaps between the door leaf and the frame and floor are checked and the presence of a tag certifies the correct installation. Australian standard AS1905.1 (the fire door Standard) requires that these gaps be no larger than 3mm at the head and sides and not less than 3mm nor more than 10mm between the bottom of the door leaf and the floor.

In some cases where apartments open out on to external walkways, solid core (timber) doors are permitted. In this case the requirements for the closer and lock / latch remain but presently there is no requirement for tagging.

There are also instances where a Fire Engineer (such as FSCS) determines that for a particular building a solid core door is more appropriate, or, in other buildings, the Fire Engineer may have specified that "Life Safety Doors" are appropriate or that smoke seals are required to the door frames because of other design constraints in the building. Again, however, the requirements for a door closer and lock / latch will remain.

In these cases the Fire Engineer will have left details of the determination in the form of a Fire Engineering Report with the Body Corporate, this determination would also advise that the smoke seals are a requirement and need to be maintained..



Figure 1 – Typical Door and Frame Tag (photo rotated for clarity)

## Certification

Firstly we must recap what the Building Code requirements are:-

*The door must be a -/60/30 fire door with door closer and locking / latching device so that the door may self close and latch shut from an open position. The hardware (hinges, lock / latch and door closer) must be approved and tested for that door assembly and the door leaf installed so that the clearances between the door leaf and the frame and floor comply with the Standard. Finally an approval tag shall be affixed to both the frame and door leaf. It should also be noted that the installer is required to have completed a Certificate in the form of Appendix E to AS1905.1 listing all the details of the fire doors installed in the building.*

*As a final act of compliance, Section 48 of the Building Regulation, requires all persons constructing (or installing) certain **required** building elements and systems to provide a “Form 16 **Inspection Certificate / Aspect Certificate / QBSA Licensee Aspect Certificate**” certifying that the construction meets the relevant Codes and Standards.*

## Who manufactures fire doors?

There are many manufacturers of fire doors in Queensland. What is more important is that most, if not all the manufacturers construct the doors under licence from one of the two main Australian Companies who developed and successfully tested the doors. It is interesting to note that the first timber veneer fire doors in the world were developed by an Australian Company, (Fire Control Pty Ltd) before then and without them, fire doors were, and still would be, ugly steel sheeted units.

The two main Australian licence holders are:-

1. E+ Building Products, This Company bought the rights of its predecessors and you may see the names of Trafalgar Building products, Grinnell Building Products, Tyco, Fire Research and Fire Control Pty Ltd. Any of these names means that the door leaf is manufactured from a product call ECore, a vermiculite product.
2. Pyropanel. They use a mineral fibre door leaf core.

Contact details for both Companies are as below, who can advise the current status of licensed manufacturers in Queensland:-

### E+ Building Products Pty Ltd.

Cho Nguyen Technical Manager email [cho@eplusbp.com.au](mailto:cho@eplusbp.com.au)

Level 26, 44 Market Street, Sydney NSW 2000

Phone 02 9089 8673 Web: [www.e-core.com.au](http://www.e-core.com.au)

### Pyropanel Developments Pty Ltd

Factory 5, 122-124 Beresford Rd, Lilydale, Victoria, 3140, Australia

Phone: +61 3 9735 5688 Email: [sales@pyropanel.com.au](mailto:sales@pyropanel.com.au) Web: [www.pyropanel.com.au](http://www.pyropanel.com.au)

Both Companies use their proprietary door core with timber edges (stiles) and timber veneer face sheets. However in some cases sheet steel or Laminex may be used as door leaf

facings. Note that each Company's design is specific in nature and especially where reinforcing is used within the door core where hinges, door closer and lock/latch are located. This is important when changing or adding hardware so that it is fixed in the areas where the reinforcing is located – see later notes on adding hardware. Figure 2 below shows the typical door leaf, frame and hardware arrangement with the locations of the reinforcing plates in the door leaf.

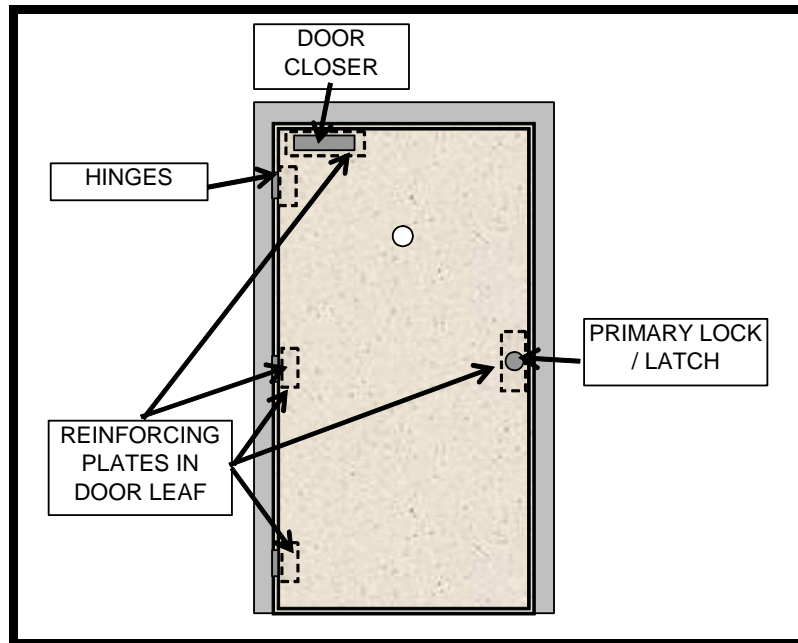


Figure 2 – Typical Door and Frame showing Hardware

### What can be repaired and / or changed?

The implementation of the Queensland Building Fire Safety Regulation 2008 (see separate paper) requires that building owners and occupiers have certain building elements and systems (such as fire doors) inspected and maintained according to Australian Standard AS1851-2005. These inspections are now revealing various levels of defects being reported to the building owners / occupiers in the form of "Defect Notices".

FSCS has noted that some of these Defect Notices have been issued by Fire Service maintenance Contractors without their proper understanding of the BCA, AS1905.1 or the approval status of the door approval. Accordingly FSCS considers that the following advice should be followed. The following advice is general in nature and specific advice must be sought from the installer / manufacturer or Licence holder.

1. In the event that either the approval tag to the door leaf and / or door frame being missing or damaged, the first action would be to source the original installation Certificates (AS1905.1 Appendix E) and the Form 16. This original installer should be consulted as to the possibility of retagging the leaf or frame. In a building with many fire doors and if the one with the missing tag can confidently be assessed as being of the same batch, this should not be a problem.

However in older buildings or when it is obvious that the door leaf is not matched to others in the same building, the original installer is likely not to retag. In this case the only solution is a replacement door. Replacement of the frame is unlikely to be required.

This issue reminds us that approval tags on the door leaves and frames should not be removed or painted over.

2. In the event of damage to a fire door, it should be repaired by the original installer. Note that in the experience of FSCS, an approved fire door manufacturer or installer is unlikely to be willing to repair and then recertify a fire door assembly other than that

he is associated with. So you should always go back to the manufacturer / installer named on the approval tag.

Otherwise the fire door leaf should be replaced (see 1 above).

3. In the event of the door leaf clearances being measured as exceeding that specified in AS1905.1, the first action should be to source the original installation Certificates (AS1905.1 Appendix E) and the Form 16. This original installer should be consulted because (especially in newer buildings) it is unlikely that the building structure (walls, door frame or floor) have moved and the gaps changed.

Another possibility that FSCS has seen is that on certain door approvals, the Testing Authority has tested and approved the assembly with gaps greater than that specified in AS1905.1. In this case, the installer should have noted this fact in his Certification.

Finally various Companies have special intumescent edge bottom and top seals that can be installed to reduce the gaps. If this course is followed, be sure that proper Certification is provided by the Contractor and specific details of all doors so modified is provided.

4. In the event of the hardware (hinges, door closer and lock / latch) being damaged, replacement should be with identical makes and models. Otherwise alternative hardware may be available and approved. Contact the Manufacturer who should have a list of alternative hardware that was originally tested by the Licence holder (Pyropanel of E+ Building products). FSCS can supply a list of approved hardware for the principal licence holders.
5. Similarly to the above, if the apartment owner wishes to change the hardware, contact the Manufacturer. FSCS can supply a list of approved hardware for the principal licence holders.
6. Should the owner wish to have additional hardware such as security latches or “peep holes” the requirements are quite clear. Firstly it we should recap the BCA Requirements that the *door may self close and latch shut from an open position*. This means that any additional hardware shall not prevent this happening. FSCS has seen many cases where inappropriate hardware such as deadbolts and security devices have been fitted which prevent the door from latching closed.

Figures 3 to 4 below show examples of these.



Figure 3 – Examples of Deadbolts which, if activated whilst the door was open, would prevent the door from latching.

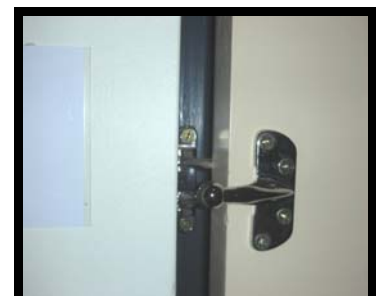


Figure 4 – Example of Security Device which, if activated whilst the door was open, would prevent the door from latching.

A simple test for compliance is to hold the door open, activate any locking / latching / security device and release the door, if the door closes and latches shut, the operation of the device is acceptable. This is achievable when the latch has a chamfered leading edge.

A fire door may not be held in an open position by chocks, wedges, hooks or the like or by the removal or disablement of the automatic door closing device.

Secondly, any device attached to the door or frame should be as tested and approved. Again, contact the Manufacturer who should have a list of alternative hardware that was originally tested by the Licence holder (Pyropanel of E+ Building products). Importantly however is that advice should be sought from the manufacturer and he should install this additional hardware because the location may not coincide with the reinforcing sections in the door leaf – see Figure 2.

Fire Service maintenance Contractors should not issue Defects Notices without their proper understanding of allowable changes to or installation of additional hardware.

7. FCSC has noted Defects Notices being issued to owners / occupiers in the suggesting that *“it is unlawful to lock a door in such a way that the occupants cannot evacuate from the apartment without a key”*. They base this advice on the fact that the BCA (2009 and all earlier editions), in Clause D2.21 (Operation of latch) which states:-

***A door in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single hand downward action or pushing action on a single device which is located between 900 mm and 1.2 m from the floor,***

They mistakenly think that this Clause applies because they forget to note that Clause D2.21 then goes on to say:-

***except if it-***

***(b) serves only, or is within-***

***(i) a sole-occupancy unit in a Class 2 or 3 building or a Class 4 part;***

Therefore apartments, which are Class 2 or 3, are exempt, and an occupier may lock him or herself in. However FSCS recommends that if the owner / occupier elects to provide added security, such device should be operable without a key, or if a key is required, that key should be left in the lock at all times during occupancy.

## **Security Doors**

FSCS has noted many apartments where the owner / occupier has elected to install a mesh security door to the outside rebate of the apartment entry door. There have been a number of instances in recent times where fire door suppliers / installers have refused to certify (by affixing the required “tag”) to fire door assemblies where the existing door frame has a security door fitted. Likewise Fire Service maintenance Contractors have issued Defects Notices on the following basis:

1. The Contractor may have grounds to refuse certification or issue a Defect Notice on the basis of their “duty of care” in that they knowingly certified a fire safety installation which would not be used in a correct manner. Fitment of security screen doors to the door frame may lead to the fire doors being chocked open thus resulting in an “offence”; thus compromising the safety and reliability of a “fire safety” installation contrary to Section 104D of the Fire and Rescue Act 1990; and
2. Fitment of screen doors require the door frame to be drilled for the hinges thus compromising the integrity of the door frame. Additionally combustible materials



located near the leaf / frame rebate would have ignited during the AS1530.4 fire door test and therefore would have caused the door assembly to fail the test.

Therefore screen doors fitted to fire door sets do not conform to the tested prototype therefore cannot be tagged or certified as per AS1905.1 Clause 5.1.

Contractors are both right and wrong in these instances and it is considered appropriate to address the issues.

1. It is the responsibility of the owner / occupier to ensure that the operation of the apartment entry door to be self closing by not chocking or hooking it open. The Fire Service maintenance Contractor cannot assume that the owner will chock the door open and has no right to impose this requirement, only to provide appropriate advice. The Body Corporate should advise the owner / occupier of the potential offence and the consequences. A suitable sign is provided in this paper which should relieve the Body Corporate of its responsibilities.
2. It is known that doors licensed by E+ Building Products permit such security doors to be fitted to the outside rebate of apartment entry fire doors.

CSIRO gave the opinion that the fitment of a security screen door fixed to the door frame would not detrimentally affect the established fire-resistance levels of the approved fire-resistant doorset.

Examination of the CSIRO report and the detail in AS1905.1 indicates that one of the issues is that combustible materials adjacent to the door leaf / door frame meeting style are not permitted. Therefore security screen doors having fibreglass screen netting and plastic door stops are not permitted and the screens and stops should be non-combustible metal. Another often missed combustible source is the screen door closer. Where these have hydraulic oil as a damper they are also prohibited.

It is not known if Pyropanel have such approval. Where doors are of another make or based on another licence holder, then appropriate (if any) test data should be obtained from that manufacturer.

I trust that this paper provides timely and sensible advice as to the requirements for apartment entry (fire) doors.

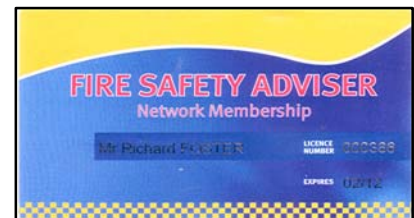
Prepared by:

Richard A Foster, RPEQ, Dip Mech Eng; Dip Mar Eng; MSFPE; Member IE (Aust) SFS

Fire Safety Engineer

QFRS Accredited Fire safety Advisor

Principal – Fire and Security Consulting Services



## **SUGGESTED NOTICE WHERE SECURITY SCREEN DOORS ARE FITTED**

The notice below shall be circulated to all apartment owners and occupiers and furthermore be reproduced in a durable manner and affixed to the inside of all apartment entry doors.

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### **NOTICE TO APARTMENT OWNERS / OCCUPIERS**

**It is an offence under Section 104 D Of the Queensland Fire and Rescue Act 1990 to interfere with the operation of fire safety equipment thus:**

Occupier of building to maintain prescribed fire safety installations

- (1) The occupier of a building must maintain at all times every prescribed fire safety installation to a standard of safety and reliability in the event of fire.

**This notice specifically relates to the fire doors at the entry to apartments which are a key element in the fire safety of this building. Accordingly it is an offence to:**

- 1. Cause the fire door to be held in an open position by chocks, wedges, hooks or the like or by the removal or disablement of the automatic door closing device.**
- 2. Install or affix any combustible material to the outside face of the door leaf or frame. This includes combustible finishes or fixings to supplementary door security screens.**