



Fire safety in existing apartment buildings

Background

While apartment living has many advantages, the fire at the Grenfell Tower in London and other fire events in Australia and around the world have highlighted the importance of fire safety in high-rise apartment buildings.

To help prevent similar fire incidents, building owners must remain vigilant in the maintenance and routine servicing of fire safety measures and have in place building emergency response plans and procedures in the event of a fire. Occupants also have a role to play in keeping themselves and the building they live in safe from fire.

A common theme with these fires has been the use of certain materials for external wall cladding, which has been linked to the rapid fire spread across the facade of some buildings. The use of external wall cladding systems has been highlighted in previous Building Commission industry bulletins including:

- **IB 062/2016: *Victorian Building Authority external wall cladding audit report***; and
- **IB 054/2015: *External wall cladding – fire safety***.

The Australian Building Codes Board (ABCB) has also published an advisory note on external wall cladding:

- **ABCB Advisory Note 2016-3: *Fire performance of external walls and cladding***.

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The following information provided in this fact sheet is intended to assist building owners, building managers and occupiers on fire safety matters including:

- **building management:** ongoing housekeeping, maintenance and routine servicing;
- **evacuation planning:** knowing what to do in case of a fire; and
- **refurbishment work:** fire safety consideration with refurbishment works.

Please note: for information specific to your building you should seek independent professional advice.

Building management

Good housekeeping, effective maintenance and routine servicing are paramount in ensuring the building occupants are safe in the event of a fire. This means ensuring both active and passive fire safety measures are not compromised and are always in good working order.

Active fire safety measures include fire extinguishers and early warning and detection systems to assist in case of a fire. These safety measures could be either automatic or for manual use (such as fire hose reels, fire sprinklers, smoke detection and alarm systems).

Passive fire safety measures include fire doors, fire walls and other fire rated and non-combustible construction to contain fire or restrict fire spread and provide protection to allow time for escape.

Housekeeping

While the building may have good active and passive fire measures, they will be of little use if there is poor building management and bad housekeeping. It is the responsibility of all owners and occupants to ensure good housekeeping and effective building management is met. Examples of housekeeping and building management matters are provided in Table 1.

Table 1: Building management housekeeping measures	
Keeping fire stairs and escape routes clear	Escape routes should be free of any obstruction – strictly no storage anywhere on common escape stairs and in corridors. Storage in escape routes can contribute to fire load and render the building unsafe. Obstructions make it difficult to exit in a fire evacuation event and hinder access for firefighters.
Keeping fire cabinets storage-free	The storage of materials in fire cabinets or cupboards can delay access for occupants or firefighters who may require the equipment in an emergency. The stored material can also be combustible which presents an additional hazard.
Not interfering with fire safety components	It is essential that any fire safety service is not interfered with as this could affect its operation in an emergency event. This includes (but is not limited to): <ul style="list-style-type: none"> • never tampering with smoke alarms – smoke detection and alarm systems play an important part in providing building occupants with warning in the event of a fire particularly where occupants are sleeping; and • never storing things high up that could block sprinkler heads or smoke alarms – blocking these fire safety components could lead to ineffective operation and affect the occupants ability to safely escape the building.
Reducing fire hazards	It is important to reduce the chance of a fire and prevent it from spreading into escape routes. Examples include (but are not limited to): <ul style="list-style-type: none"> • Power board electrical safety – poor maintenance and incorrect usage of power boards can start a fire. Make sure power boards are placed in a location that is adequately vented and in a way that power leads do not become dislodged, are not overloaded, are protected and cleaned from dust build up, and cables are protected from damage. • Never wedge open fire doors – a fire door is required to be self-closing, which is important in restricting fire or smoke from spreading into escape areas giving occupants sufficient time to escape. Wedging open a fire door to an escape route, such as a fire stair, allows extremely dangerous toxic smoke from a fire to enter and may compromise the safe evacuation of the building's occupants.
Minimising the amount of combustible materials in and around the building	Excessive amounts of combustible materials, including household rubbish, should not be stored in or around the building including (but not limited to) balconies and inside individual units. Ensure rubbish bins are not stored against the external walls of the building. Note: fire stairs and corridors are for emergency exit purposes and should be free from any combustible material and not be used for storage.
Fixing defects found in fire safety equipment	Fix or promptly report faulty fire safety issues to the responsible person for immediate rectification – this may include things like faulty escape lighting (light flickering or not working), faulty smoke alarms (flashing light and/or beeping sound), damaged signage, fire doors not self-closing or latching properly, penetrations through fire rated walls or floors not sealed or protected appropriately. If the building owner is unsure about the condition or compliance of the fire safety systems in the building then he or she should seek professional advice to ensure that the building is fit to occupy in accordance with relevant legislation. Routine servicing is essential to demonstrate fire safety systems and equipment are continuing to operate, and to identify any faults or defects that require rectification or repair.

Maintenance and routine servicing

Building legislation in Western Australia requires owners of Class 2 to Class 9 buildings (which includes residential apartments) to ensure the building's safety measures are maintained. This is to ensure that safety systems remain capable of performing to a standard not less than they were originally required and commissioned to achieve.

Under Regulation 48A of the Building Regulations 2012, the following safety measures are required to be maintained in accordance with relevant building standards:

- a) building fire integrity;
- b) means of egress;
- c) signs;
- d) lighting;
- e) firefighting services and equipment;
- f) air handling systems;
- g) automatic fire detection and alarm;
- h) occupant warning systems;
- i) lifts;
- j) standby power supply systems;
- k) building clearance and fire appliances;
- l) glazed assemblies, balconies, balustrades, refrigerated chambers, strong rooms, vaults;
- m) bushfire protection measures; and
- n) building use and application.

The Building Commission considers the adoption of Australian Standard *AS1851-2012 Routine service of fire protection systems and equipment* as good practice and a means for owners to ensure fire safety measures are serviced at regular frequencies to demonstrate suitable operation, and rectified or repaired if necessary to meet their regulatory obligation on maintenance.

AS 1851-2012 Routine service of fire protection systems and equipment prescribes a methodology of a systematic and uniform basis for administering inspection, testing, preventive maintenance and survey programs applicable to fire safety to ensure its reliability in service. This standard also provides an administrative record and report keeping framework.

Meeting maintenance obligations

Foremost, know your building. This means the building owner (or relevant management body) must ensure they have adequate information on the safety measures of the building. This knowledge is required in order to identify which safety measures need to be maintained. Information on safety measures for a building is obtained from the building approval records that contain details on compliance with the relevant building standards.

Building records should be retained by the owner. If these documents have been misplaced, the owner can request archived information on building approvals from the relevant permit authority (local government, shire, or council).

When taking on occupancy or ownership of a building, all relevant documentation should be obtained relating to the safety measures of the building such as user manuals, design specifications, compliance records for all safety measures (including any performance solutions), and recent commissioning certificates to confirm that all fire protection systems and equipment are in good working order.

A log book for recording the routine servicing of fire protection systems and equipment will assist with good management in meeting maintenance obligations. This log book should be located at a conspicuous but secure place.

Performance (alternative) solutions

The Building Code of Australia (BCA) sets out the minimum necessary standards of relevant safety (including structural safety and safety from fire), health, amenity and sustainability objectives efficiently. The BCA is a performance-based document which allows the option of following prescriptive deemed-to-satisfy requirements or developing a performance solution to meet the minimum performance requirements.

Performance solutions, especially for fire safety, can be complex by nature and may require further specific details to assist in maintenance of the building.

Routine servicing and any rectification or repair maintenance should be carried out by competent personnel with relevant skills, experience and training. It is important to test relevant system interfaces as part of routine servicing. A system interface is where an installed fire safety system is connected with another safety system in the building and each system needs to work collectively.

Routine servicing should identify any technical faults and rectify issues as part of ongoing maintenance. Servicing should also identify components that may be approaching the end of their service life for replacement before likely failure.

Fire Protection Association Australia provides an accreditation scheme for individuals competent to undertake a range of activities in fire protection. For information visit www.fpaa.com.au/fpas.

Evacuation planning

Building owners and occupiers should be familiar with the evacuation procedures in their building and importantly, what to do in case of a fire.

The information on the following page should be given consideration when developing a fire emergency plan (see Table 2).

Emergency planning for evacuation, in the event of a fire, will differ depending on the merits of each building. Further guidance on emergency evacuation can be found in Australian Standard *AS 3745-2010 Planning for emergencies in facilities* that provides information on developing an emergency plan and evacuation diagrams for buildings. Fire Protection Association Australia provides information on emergency evacuation and may be able to provide contact details of relevant practitioners who can assist in developing emergency plans.

Refurbishment works

All refurbishment work is required to comply with the BCA and must not impact on the fire safety of the occupants of the existing building.

Proposed refurbishment work

Some proposed refurbishment, which may appear minor in nature, may have a significant impact on fire safety. For example, changes to an apartment entry fire door, its frame or hardware could compromise its fire safety certification and integrity.

Other common BCA fire safety compliance matters that may require attention, in respect to refurbishment works, include (but are not limited to):

- Providing appropriate fire protection to penetrations made through fire rated construction (such as walls and floors). This can include sealing for fire-proofing around pipes. Fire collars or dampers may also be required. Please note in some cases service penetrations may not be permitted through fire rated construction.
- Ensuring the suitability of external cladding on existing buildings.
- Ensuring appropriate fire hazard properties for floor coverings such as carpet or vinyls.
- Checking that the existing fire strategy, which may include performance solutions, is not being compromised by the proposed refurbishment works.
- The impact on fire safety if enclosing balconies.
- Making changes in a fire safety system. For example, replacing smoke detectors with heat detectors in a smoke detection and alarm system may require consultation with the Department of Fire and Emergency Services.

Any plans to upgrade an existing building must have the safety of occupants as the first priority – over and above any aesthetic or cost considerations.

Consult with the relevant local government permit authority before starting any building work to determine whether the work requires a building permit.

Existing refurbishment work

The Building Commission urges building owners and managers to review the fire safety of existing buildings to confirm that previous building work has not left building occupants vulnerable in the event of a fire.

An appropriately qualified registered building surveyor, with relevant knowledge of the BCA,

can coordinate a fire safety assessment of the existing building. Complex buildings with fire safety performance solutions, and older high-rise buildings that may have had a number of ad hoc alterations throughout its life, may also require review by a suitably qualified fire safety engineer.

Table 2: Factors to consider towards a fire emergency plan	
Floor plan and evacuation diagrams	Floor plans, indicating the position of emergency stairs, exits, emergency equipment and general instructions for occupants, should be prominently displayed in each floor level or area. Each floor plan should also indicate the primary assembly area and evacuation routes.
Awareness raising	The owner, or building management body, should clearly communicate the building's evacuation procedures to the occupants. This could include providing relevant information in meetings, through newsletters, flyers, and notices around the building.
Fire evacuation drills	Conducting regular emergency based exercises assists in raising familiarity with exit routes and identifying any improvements that can be implemented for evacuation. It may be useful to have an appointed fire marshal for the building, keeping a register and mobile phone contact for each occupier/owner of each individual unit in the building. This way everyone can be accounted for in an emergency evacuation.
Not using lifts	Lifts should not be used in the event of a fire, unless forming part of an approved performance solution for the building.
Fire extinguisher training	Apartment buildings should generally contain fire hose reels and/or portable fire extinguishers in common areas to allow occupants to undertake an initial attack on a fire. It is important to become familiar with where extinguishers are located and how to use them. However, if it is not possible or safe to extinguish a fire occupants should immediately evacuate the building to a place of safety.
Not re-entering the building	It is dangerous to re-enter a building in a fire. Occupants should only re-enter the building when the fire brigade advises that it is safe.
Notifying others	Only if it is safe to do so, notify: <ul style="list-style-type: none"> • other occupants in the building that there is a fire and they need to evacuate; and • the fire brigade by dialling triple zero (000).
Being familiar with the fire alarm tone	Different sounds may be heard in a unit or throughout the building such as doorbells, smoke alarms within individual units, ringtones, alarm clocks, alert tone from a building-wide fire alarm system, and alarm bell or alert tone from a security system. Occupants should be familiar with the sound of the alert tone for fire evacuation in the building.

Further information

If you have any fire safety concerns over an apartment building or its external cladding, please contact your local government permit authority for advice. In the first instance, the matter should be raised with the building owner or body corporate (strata company) who should seek relevant professional advice on fire safety for the specific building.

Other useful resources

There are non-mandatory handbooks and videos relating to fire safety published by the ABCB including the following:

- Maintenance of Safety Measures, Equipment and Energy Efficiency Installations Handbook – 2015 Second Edition, www.abcb.gov.au/Resources/Publications/Education-Training/Maintenance-of-Safety-Measures-Equipment-and-EE-Installations.
- Upgrading Existing Buildings Handbook – 2016, www.abcb.gov.au/Resources/Publications/Education-Training/Upgrading-existing-buildings.
- Fire Safety in High Rise Buildings video from the 2017 NCC Information Seminars, www.abcb.gov.au/Resources/Videos/2017-NCC-Seminars-Fire-Safety-in-High-Rise-Buildings.
- NCC Volume One, Fire Safety Resource Kit, www.abcb.gov.au/Resources/Publications/Education-Training/NCC-Volume-One-Fire-Safety-Resource-Kit.

Information published by the Department of Fire and Emergency Services includes:

- Multi-Storey Fire Safety: Know Your Neighbours – Factsheet 01, www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know_Your_Neighbours.pdf.
- Multi-Storey Fire Safety: Know Your Building – Factsheet 02, www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know_Your_Building.pdf.

Associations such as the Fire Protection Association Australia can provide information on fire safety matters and may be able to assist in providing contact details for fire professionals. Information includes:

- Evacuation Diagrams (to assist in planning for emergencies), www.fpaa.com.au/technical/technical-documents/information-bulletins/ib-11-evacuation-diagrams.aspx.
- GPG-03 Adoption and Use of AS1851-2012, www.fpaa.com.au/technical/technical-documents/good-practice-guides/gpg-03-v3-adoption-and-use-of-as-1851-2012.aspx.
- FPA Australia Fire Protection Accreditation Scheme (FPAS), www.fpaa.com.au/fpas.

The ABCB is continually reviewing fire safety building standards in the BCA. For further information on the BCA and to gain free access to the BCA, please visit the ABCB website at www.abcb.gov.au.

This publication is available in alternative formats upon request.

Disclaimer - The information contained in this factsheet is provided as general information only and should not be relied upon as legal advice or as an accurate statement of the relevant legislation provisions. If you are uncertain as to your legal obligations you should obtain independent legal advice.