Adaptive Reuse Fact Sheets

Fire & Life Safety

ARCHI
Adaptive Reuse
City Housing Initiative

Introduction

The safety of buildings in cases of fire and emergency is critical to their use. Residential buildings have particular requirements for detection and fire suppression as well as for evacuation in cases of emergency. The *National Construction Code* (NCC) has specific provisions for fire resistance, escape routes, and fire detection.

A Building Certifier can provide advice about the specific requirements for an individual building and an Architect will be able to provide practical design guidance for achieving the required performance.

Expert advice from a licensed Fire Engineer may also be required to assess fire risks specific to the building's type, age, and use. They can provide guidance on required upgrades and develop strategies for minimising fire risks while maintaining building integrity.

Fire Safety

Fire resistance and protection of existing buildings focuses on the ability of the building to remain safe and structurally sound for an adequate length of time in order to facilitate evacuation of occupants and fire fighting operations. This also contributes to limiting the spread of fire vertically and between buildings.

Meeting the fire resistance and protection requirements can involve providing early warning systems, protecting the structure of the building from fire with fire resistant materials, implementing smoke control and ventilation measures, and installing sprinkler systems.

Older buildings may have outdated electrical, gas and heating systems that could pose a fire risk. All wiring should be inspected, and outdated systems should be replaced or upgraded to meet current fire safety standards.

Emergency Egress

To ensure a reasonable standard of fire safety, existing buildings must have adequate means of egress to enable occupants to evacuate to a safe place before being overcome by the effects of fire. The number, location, and dimensions of exits and evacuation routes and stairs, as well as the operation of exit door latches, must be appropriate to the travel distance, the number and characteristics of the occupants, the function or use of the building, the building height, and the practicality of upgrading an existing building.

Sprinkler System & Smoke Hazard Management

A sprinkler system may need to be installed or upgraded as part of a residential adaptive reuse project to ensure occupant safety in the event of a fire. A Building Certifier and Fire Engineer can provide advice on specific requirements and appropriate solutions.

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Checklist & Key Considerations

- [ ] Have you sought advice from a Building Certifier and/or Fire Engineer?
- [ ] What is the current building class and use?
- [ ] What is the proposed use of the building?
- [ ] How many dwellings are proposed?
- [ ] How much of the existing building will be altered as part of the project?
- [ ] How many storeys is the building?
- [ ] Is there any existing information about the condition of the building or hazardous materials?

The installation of sprinklers can provide significant benefits in terms of fire safety and compliance with performance standards.

In buildings with sleeping accommodations, automatic early warning systems must be provided to ensure occupants can evacuate safely upon detection of smoke. For existing buildings undergoing alterations or a change of classification, performance standards for smoke hazard management must be met. Alterations should not reduce the effectiveness of existing smoke detection and alarm systems.

Fire Fighting Water Supply System

To ensure a robust fire-fighting response capable of meeting the needs of adaptive reuse projects, it is critical that the water supply system for fire-fighting purposes is thoroughly assessed and, if necessary, upgraded. This assessment considers several key factors, including firefighting requirements, the building's floor area, fire hazard level, the age of the building, and the practicality of upgrading existing infrastructure.

Fire Safety & Heritage Preservation

Adaptive reuse projects that involve heritage buildings require a balance between fire safety requirements with the preservation of heritage elements. Fire safety measures must be compatible with the structure and aesthetics of the building, requiring thoughtful integration of modern fire protection systems while respecting the original design.

Resources

Find a Building Surveyor

ARCHI has been established by the City of Adelaide in partnership with the State Government of South Australia.

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