MANUAL OF FIRE PROTECTION ENGINEERING

EDITION 2

Steve Grzeskowiak
Deputy Secretary
Estate and Infrastructure
Department of Defence
CANBERRA ACT 2600
08 May 2018
## AMENDMENT CERTIFICATE

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The Manual of Fire Protection Engineering (this manual) has been issued by First Assistant Secretary Infrastructure with the authority of Deputy Secretary Estate and Infrastructure on 08 May 2018.

The Manual of Fire Protection Engineering describes policies and procedures that enable Defence to comply with the National Construction Code (NCC) series. It also describes Defence-specific aspects for fire protection measures.

This manual also describes Defence’s fire safety policies, standards and procedures that enable the application of fire safety in support of Defence objectives.

This manual is an administrative policy framework document (framework document) and applies to all Defence personnel.

The terms of a relevant contract may extend the application of this manual to a contractor, consultant or outsourced service provider.

The Secretary and the CDF require Defence personnel to comply with provisions in this manual unless the particular circumstances warrant departure from the provisions.

Some provisions in policies in this manual may support Defence personnel to comply with obligations that exist in:

a. applicable laws
b. the Defence Enterprise Agreement
c. directives and determinations issued under the Public Service Act 1999 or the Defence Act 1903 or the Defence Enterprise Agreement or

d. Defence Instructions.

Defence personnel must not depart from this manual or policy provisions in a way that would result in any breach of those obligations.

When considering a possible departure from this manual the Secretary and the CDF require Defence personnel to:

a. consider whether the proposed departure would be inconsistent with:

   (i) applicable laws
(ii) the *Defence Enterprise Agreement*

(iii) directives and determinations issued under the *Public Service Act 1999* or the *Defence Act 1903* or the *Defence Enterprise Agreement*

or

(iv) *Defence Instructions*.

If yes, the departure is not permitted;

b. consider whether a proposed departure is reasonable and justified in the circumstances and will produce a better outcome for Defence

c. consult their supervisor, wherever practicable, about a proposed departure – a properly informed decision also involves consulting the policy owner

d. be responsible and accountable for the consequences of departing from, or not adhering to, the content of this manual including where such departure or non-adherence results in a breach of applicable laws or leads to adverse outcomes for Defence.

Defence personnel may be subject to performance management, administrative action or, in some circumstances, disciplinary action where their decision to depart from manual provisions involves serious errors of judgement.

Failure to adhere to administrative policy may result in a breach of legislation or other legal requirement and sanctions under that legislation may apply.

Defence personnel who award or manage contracts should consider whether there is a specific and documented reason to include in the terms of a contract the requirement to comply with the provisions of this manual and, if so, include such terms.

Failure by a contractor, consultant or outsourced service provider to comply with the mandatory requirements of this policy - where compliance is a term of their contract - may result in a breach of contract.

Structure:

- **Chapter 1** – Fire protection engineering framework
  - Annex 1A – Definitions
  - Annex 1B – Related documents
- **Chapter 2** – Fire protection of Defence assets
  - Annex 2A – Building criticality assessment form
Chapter 3 – Building certification, performance solutions and dispensations

Annex 3A – Exempt building work

Chapter 4 – Egress and physical security requirements

Chapter 5 – Emergency warning systems

Chapter 6 – Bushfire management on the Defence estate

Chapter 7 – Maintenance

Chapter 8 – Fire safety surveys

Annex 8A – Fire safety survey report

Chapter 9 – Portable fire extinguishers and fire blankets

Chapter 10 – Assets and functions – intolerable loss

Chapter 11 – Storage and workshop buildings – intolerable loss

Chapter 12 – Building construction in bushfire prone areas – intolerable loss

Chapter 13 – Aircraft hangars

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Annex 13B – Hangar suppression requirements

Chapter 14 – Explosive ordnance storage buildings

Chapter 15 – Defence living-in accommodation

Chapter 16 – Buildings for disposal

Glossary

Acronyms and abbreviations

Management: This manual will be reviewed three years from its date of issue or sooner if necessitated by business requirements and to ensure it continues to meet the intent of Defence’s policy on this subject. Minor amendments may be made at quarterly intervals commencing three months after the date of issue.

Availability: The latest version of this manual is only available from the Departmental Documents page on the DRN. Its currency cannot be guaranteed if sourced from other locations. It is available for public release.
Policy domain: Estate management.

Accountable officer: Deputy Secretary Estate and Infrastructure

Policy owner: First Assistant Secretary Infrastructure.

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Cancellation: DI(G) ADMIN 20–26 – Manual of fire protection engineering.

Definitions: Administrative definitions that apply to this manual are in Annex 1A.

Related documents: A list of documents relating to this manual is at Annex 1B.

The glossary contains MFPE specific definitions. The glossary defined terms are printed in italics throughout the document.
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CHAPTER 1

FIRE PROTECTION ENGINEERING FRAMEWORK

THIS MANUAL

1.1 This chapter describes the policy framework of the manual of fire protection engineering (MFPE).

POLICY STATEMENT

1.2 The Secretary and the Chief of the Defence Force are committed to ensuring that appropriate levels of building fire safety are achieved and that operational and personnel capability is not compromised as a result of fire. Achieving adequate levels of fire safety in buildings is technically complex and requires the involvement and oversight of skilled practitioners in fire safety engineering and building surveying.

1.3 The MFPE specifies fire safety requirements for the protection of Defence personnel, assets and areas critical to the operation of military platforms in support of Australian Defence objectives. The MFPE also provides the procedural framework for involving appropriately skilled practitioners and prescribed levels of oversight to meet Defence’s regulatory obligations.

1.4 The Secretary and the Chief of the Defence Force require Defence personnel, and contractors, consultants and outsourced service providers - where it is a term of their contract, to comply with the requirements of the following documents for building works, drainage works and plumbing works:

a. National Construction Code Volume One – Building Code of Australia (BCA) – for works in class 2 to 9 parts;

b. National Construction Code Volume Two – for works within class 1 or 10 part; and


1.5 While it is the Defence requirement to comply with the NCC where specified, the primary requirements contained in this manual are related to the BCA.

1.6 The Secretary and the Chief of the Defence Force also prescribe:

a. additional fire protection measures and fire safety policies based on the life safety risk and building criticality; and

b. the Defence framework for building certification and the administrative requirements for building certification activities.

KEY ROLES, FUNCTIONS AND RESPONSIBILITIES

1.7 The Director of Estate Engineering Policy (DEEP) is responsible for administration of this policy. This includes responsibility for ensuring the manual
remains current and for monitoring the implementation of the requirements described in the manual.

1.8 The delivery authority is responsible for implementation of the requirements of this manual and for ensuring the building certifiers and contractors provide evidence of compliance with the provisions therein.

Annexes:
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1B Related documents
ANNEX 1A

DEFINITIONS

**Accountable officer.** Is a member of the Enterprise Business Committee, appointed by, and accountable to, the Secretary and the CDF for policies residing in their policy domain and the framework documents that explain those policies.

**Administrative policy.** Is a term used to refer collectively to a class of documents that expresses the Defence senior leadership’s approach to organising and managing the organisation. It consists of principles and rules that mandate requirements of, or provisions for, members of the organisation (what must be done) and procedures to assist in their implementation (how it should be done). Administrative policy is contained in different document types according to the intended purpose.

**Australian Public Service (APS) employee.** Is a person employed under the *Public Service Act 1999*.

**Commander.** Is an ADF officer, who by virtue of a delegation or instrument of appointment exercises authority and holds responsibility for assigned Defence personnel and includes an Administrative Commanding Officer.

**Consultant.** Consultants are individuals, partnerships or corporations engaged to provide professional, independent and expert advice or services. It involves the application of expert professional skills to investigate or diagnose a defined issue or problem; carry out defined research, reviews or evaluations; or provide independent advice, information or creative solutions to assist in management decision making. Performance of the services is at the discretion and professional expertise of the consultant, with Defence providing oversight. The output reflects the independent views or findings of the individual or organisation and generally belongs to Defence.

**Contractor.** Is a person engaged by Defence under a contract for skills that would normally be maintained in the Australian Public Service (APS) or Australian Defence Force (ADF) workforce. The person is performing the duties required on a temporary basis, or is engaged as a short term measure while more enduring arrangements are put in place such as recruiting an ADF member or APS employee. The person is engaged to perform day-to-day duties of Defence. The person works largely under the supervision of an APS employee or ADF member. Defence specifies how the work is to be undertaken. The resulting output is produced on behalf of Defence and is generally regarded as a Defence product. The person’s remuneration is based on the time worked, usually calculated on an hourly or daily rate. Defence generally provides the necessary equipment and supplies.

**Defence.** Is the Department of Defence.

**Defence civilian.** Is defined in section 3 of the *Defence Force Discipline Act 1982* (DFDA), is a person (other than a Defence member) who:

- with the authority of an authorised officer as defined in the DFDA, accompanies a part of the ADF that is outside Australia, or on operations against the enemy, and
b. has consented, in writing, to subject themselves to ADF discipline while so accompanying that part of the ADF.

**Defence locally engaged employee.** Is any person engaged overseas by contract or under section 74 of the *Public Service Act 1999*.

**Defence member.** As defined in the Defence Force Discipline Act 1982 is a person who is:

a. a member of the Permanent Navy, the Regular Army or the Permanent Air Force; or

b. a member of the Reserves who:

   (1) is rendering continuous full-time service; or

   (2) is on duty or in uniform.

**Defence personnel.** Is all Australian Public Service employees in the Department of Defence, Defence locally engaged employees, Defence civilians, Defence members and the equivalents from other Defence organisations on exchange to Defence.

**Defence-wide administrative policy framework document.** Is a framework document that applies to Defence personnel in more than one Group or Service.

**Framework documents.** Are administrative policy documents that are part of the administrative policy framework. They are: the Defence Instruction – Administrative policy, interim Defence Instructions, Defence accountable authority instructions, manuals, group/service-specific instructions.

**Group-specific instruction.** An instruction that applies to Defence personnel working in the group of the issuing Group Head.

**Manager.** Means Defence personnel or contractors, who direct a range of human and physical resources and their associated financial responsibilities to achieve corporate objectives. A manager may be a first-level supervisor or performs the role of a first-level supervisor where they have immediate subordinates, as well as the role of a second-level supervisor where they have Defence personnel supervised by those subordinates.

**Outsourced service provider.** Defence has made a decision that the function is to be performed by an external service provider on a long term or permanent basis. It involves skills or expertise that are not required to be maintained by APS or ADF in Defence. Performance of the services is left largely up to the discretion and professional expertise of the provider. Typically, service standards or performance indicators are agreed as part of the contracting process and monitored periodically. The resulting output is produced for Defence as a customer. Remuneration is paid when milestones are reached or a task is completed, or periodically for the provision of ongoing services such as maintenance, cleaning or travel bookings. The provider generally supplies their own equipment and supplies.
**Period of effect.** Is the period of time a framework document remains current. Framework documents that reach the end of their period of effect will be cancelled. Framework documents can be assigned a new period of effect by being reviewed.

**Policy domain.** Means administrative policies that have been grouped together under one accountable officer due to their related content or business function.

**Policy owner.** Is a person appointed by an accountable officer to be responsible to that accountable officer for achieving effective policy outcomes for their particular business function and for effectively implementing policies and procedures contained in framework documents.

**Provision.** Is a condition or stipulation formally incorporated in a framework document.

**Supervisor.** Means Defence personnel or contractors who have direct or line supervisory responsibilities for Defence personnel.
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33 AS ISO 14520.1—Gaseous fire extinguishing systems—Physical properties and system design – General requirements
34 National Fire Protection Association (NFPA) 11—Standard for Low-, Medium-, and High-Expansion Foam
35 National Fire Protection Association (NFPA) 409—Standard on aircraft hangars
36 Development of performance solutions’ - Version 2.1, Australian Building Codes Board
38 Codes of Practice: How to Manage Work Health and Safety Risks, Managing the Work environment and Facilities and Work Health and Safety Consultation, Cooperation and Coordination
39 National Guidelines for bushfire Management and Mitigation on the Defence Estate
40 The following guidelines related to the MFPE are located at the Fire Engineering & Fire Safety page of the Defense Estate Quality Management System (DEQMS) website:
   a. Guidelines for building criticality assessments
   b. Guidelines for certification, performance solutions and dispensations
   c. Guidelines for fire safety surveys
   d. Guidelines for aircraft hangars
   e. Guidelines for testing fixed Aqueous Film Forming Foam (AFFF) suppression systems
41 The following templates related to the MFPE are located at the Fire Engineering & Fire Safety page of DEQMS:
   a. Building criticality assessment form
   b. Building approval example
   c. Fire safety measures example
   d. Certificate of occupancy example
   e. Request for dispensation
   f. Request for performance solution
   g. Fire safety survey report
   h. Hangar assessment form
INTRODUCTION

2.1 Defence protects the health and safety of its personnel and prevents loss of its strategic assets to fire by implementing the fire protection policies detailed within the Manual of Fire Protection Engineering (MFPE). The MFPE specifies compliance with the National Construction Code (NCC) series for new works and prescribes additional fire protection measures and fire safety policies based on the life safety risk and building criticality. The MFPE also contains requirements for Defence building certification, operation and maintenance as well as requirements for disposal of existing buildings.

2.2 All Defence buildings are required to have their Contribution Factor (CF) identified. Buildings with a CF1 or CF2 have additional asset protection requirements as detailed in this policy.

2.3 There is also a requirement to identify whether the loss of the building or any part of the building in a fire event is intolerable. These buildings or parts also have additional asset protection requirements as detailed in this policy.

2.4 The requirements of the MFPE are mandatory for all building work, plumbing work or drainage work. There are also specific requirements for existing buildings included in relevant chapters.

AIM

2.5 The aim of this chapter is to detail Defence policy and requirements in relation to:

a. compliance requirements for the design, construction, operation and maintenance of Defence buildings. Defence buildings includes owned, leased and Public Private Partnership buildings;

b. Contribution Factor categories for Defence buildings;

c. Defence buildings or parts with an intolerable loss in a fire event;

d. general fire protection provisions for Defence buildings; and

e. requirements for reporting of fires.

REFERENCES

2.6 Reference is necessary to the following documents:


b. documents adopted by reference in the NCC;
c. standards or codes referred to by the MFPE that are not referenced in the NCC;
d. International Fire Engineering Guidelines (IFEG) – Edition 2005, Australian Building Codes Board, Australia; and

2.7 Where a NCC referenced document, standard or code is referred to in the MFPE, the year version of the standard is the one that is applicable in the NCC at the time of building approval.

2.8 Unless otherwise specified in this policy, standards or codes referred to by the MFPE that are not referenced in the NCC shall be the current version at the time of building approval.

2.9 Guidelines related to the MFPE are located at the Fire Engineering and Fire Safety page of the Defence Estate Quality Management System (DEQMS) website.

COMPLIANCE REQUIREMENTS

NATIONAL CONSTRUCTION CODE COMPLIANCE

2.10 The NCC shall be adopted as the minimum standard for Defence buildings. The NCC that is applicable for any building work, plumbing work and drainage work is the one that is adopted by the Australian Government at the time of building approval or when exempt building works are undertaken. State and Territory appendices of the NCC – for that State or Territory – shall be applied for Defence buildings.

BUILDING CODE OF AUSTRALIA COMPLIANCE

2.11 Whilst it is the Defence requirement to comply with the NCC where specified, the primary requirements contained in this manual are related to the BCA.

2.12 The primary fire safety objectives of the BCA are to provide for life safety and adjoining property protection. The MFPE specifies additional levels of fire protection to those required by the BCA based on the CF and the determination of intolerable loss of the building or part. The MFPE may also stipulate compliance with other codes and standards to enhance life safety or to provide building / asset protection and support continuity of operations. The requirements of the MFPE are mandatory for new buildings / works and are to be applied for existing buildings where specified at the start of a chapter. The ongoing compliance of existing buildings is to be assessed and issues addressed through the fire safety survey process detailed in Chapter 8.

2.13 The specific requirements of the MFPE are met by demonstrating compliance with the prescriptive requirements of this manual. The MFPE contains chapters for specific building types and where required, details additional requirements based on the CF or intolerable loss. Release from the requirements of the MFPE is only permitted if a dispensation is granted in accordance with Chapter 3.
2.14 The requirements of the BCA are met by demonstrating compliance with the performance requirements of the BCA. This is achieved by either developing a performance solution, and / or by a developing a Deemed-to-Satisfy Solution. The use of a performance solution is addressed in the process detailed in Chapter 3.

2.15 Building certifiers, project managers, designers and builders are to note that the foregoing are the minimum compliance requirements. Where there is a perceived conflict between the MFPE and the BCA, standards and codes or any other Defence policy, the matter shall be referred to the Director of Estate Engineering Policy (DEEP). The referral must be accompanied by a proposal to address the conflict for formal agreement by DEEP and relevant stakeholders.

2.16 Where the nature of specialist military facilities prevents the reasonable application of BCA performance requirements, a special structure classification may be applied. Refer to Chapter 3 for further requirements for the application of special structures.

NEW CONSTRUCTION

2.17 All new construction including alterations and additions to existing buildings shall comply with the requirements of the MFPE and the BCA.

2.18 Where existing Defence owned or leased buildings are proposed to be altered or extended, and those alterations constitute a substantial alteration, the existing building shall be brought into full compliance with the current BCA and MFPE in accordance with the requirements of Chapter 3.

2.19 Where existing Defence owned or leased buildings are proposed to be altered or extended, and those alterations do not constitute a substantial alteration, then the following applies:

a. the new works shall comply with the MFPE and the BCA;

b. the new works shall not reduce the fire safety within the remainder of the building or adjacent buildings; and

c. the fire safety in the existing building shall not adversely impact safety of the new works.

CHANGE–IN–USE AND SUBSTANTIAL ALTERATIONS

2.20 Where a BCA occupancy classification is changed, the building or portion affected is to be upgraded as required to comply with the current MFPE and BCA. Refer to Chapter 3 for further requirements for the change-in-use.

2.21 Where a BCA occupancy classification change exceeds 50% of the floor area of the building within a three year period, then this is considered a substantial alteration and the entire building shall be brought into full compliance with the current MFPE and the BCA in accordance with the requirements of Chapter 3.

2.22 Where the use, function or contents of an existing building changes and results in an increase in CF, intolerable loss or aircraft capability level – without a
change to the building’s BCA occupancy classification – then the entire building shall be upgraded to comply with the current MFPE.

NEW LEASES AND ACQUISITIONS AND PUBLIC PRIVATE PARTNERSHIP BUILDINGS

2.23 All new leases and acquisitions and Public Private Partnership buildings shall be assessed against the requirements of the current MFPE and the BCA that applied at the time of building approval and compliance confirmed prior to entering into the lease or acquisition. Any new lease involving new construction shall follow the requirements for new construction detailed above.

2.24 A certificate of occupancy shall be obtained to ensure that the building has been certified as fit for occupancy. In addition, a BCA/MFPE audit – including a fire safety survey in accordance with the requirements of Chapter 8 – is to be undertaken to confirm suitability prior to entering into the lease or acquisition.

2.25 The Assistant Secretary Property Management Branch and / or Assistant Secretary Regional Services as appropriate are responsible for ensuring that the above process has been completed and the documents saved in the Defence Estate Information System (DEIS) once the lease or acquisition is complete.

EXISTING BUILDINGS AND EXISTING LEASED BUILDINGS – NO CONSTRUCTION WORKS

2.26 Existing Defence owned or leased buildings that are not the subject of any building work must comply with the requirements of the certificate of occupancy. Where no certificate of occupancy is available, assessment of the fire safety of the building must be undertaken as required by Chapter 8 – Fire Safety Surveys. The MFPE also contains requirements for operation and maintenance as well as requirements for disposal of existing buildings.

2.27 The intention is not to apply the MFPE design requirements to existing buildings unless they are the subject of new works or a change-in-use. The ongoing compliance of existing buildings is to be assessed and issues addressed through the fire safety survey process detailed in Chapter 8.

NON-DEFENCE OWNED BUILDINGS

2.28 Non-Defence buildings that contain strategic Defence assets and equipment, where their loss would have a strategic impact, shall have the same fire protection requirements as Defence owned or leased buildings. To determine the strategic impact use, the Building Criticality Assessment Form at Annex 2A shall be used.
BUILDING CONTRIBUTION FACTOR

CONTRIBUTION FACTOR

2.29 Defence buildings are categorised in accordance with their contribution to capability as explained under the Building Contribution Factor attachment which can be found in Estate Appraisal section on the Estate Planning and Upkeep page of DEQMS. In summary, under this process the entire building is categorised as follows:

a. Contribution Factor 1 (CF1). These are major assets providing a very high level contribution towards operational capability.

b. Contribution Factor 2 (CF2). These are important assets providing a direct and high level contribution towards operational capability.

c. Contribution Factor 3 (CF3). These are support assets performing a capability support function.

d. Contribution Factor 4 (CF4). These are general purpose assets performing day-to-day base functions supporting operational capability.

e. Contribution Factor 5 (CF5). These are low importance assets.

CRITICALITY ASSESSMENT

2.30 A criticality assessment is to be undertaken and the outcome recorded on the form at Annex 2A. Under this process, a single CF is assigned to an entire building according to the majority use. The assessment in Annex 2A also requires identification of any level or space that has a CF1 or CF2 – or an intolerable loss in a fire event – that is different to the entire buildings determination.

2.31 Buildings or parts identified as having a CF1 or CF2 or with an intolerable loss in a fire event - and other specific occupancies - have additional asset protection requirements specified in this chapter and in Chapter 10 to Chapter 15 as applicable.

2.32 To facilitate the process and to formally record its conclusions, the Building Criticality Assessment Form at Annex 2A shall be used.

Note

• A template is provided at the Fire Engineering and Fire Safety page of DEQMS.

RESPONSIBILITIES

2.33 The delivery authority is responsible for ensuring the Building Criticality Assessment Form has been completed for all new building work – during design phase – and that the form is saved in the DEIS.
GENERAL FIRE PROTECTION PROVISIONS

FIRE SYSTEM PRODUCT ACCREDITATION

2.34 Passive and active fire protection measures must be installed in an appropriate manner to achieve the requirements of the BCA and MFPE, using materials that are fit for the purpose for which they are intended.

2.35 Evidence of suitability for passive and active fire systems in Defence owned buildings shall be in accordance with clause A2.2(a)(i), (ii) and / or (iv) of the BCA.

EMERGENCY VEHICULAR ACCESS AND HYDRANT SYSTEM REQUIREMENTS

2.36 Emergency vehicular access and hydrant systems are to comply with the requirements of the BCA and related Australian Standards in force at the time of building approval and the operational requirements of the responding fire service. The delivery authority for new projects shall ensure the responding fire services requirements for vehicular access – including pavement load bearing capacity – and hydrant systems are met. The design process is to include consultation with the responding firefighting services and the relevant Defence representatives. The evidence of consultation shall be documented in the project design report.

FIRE DETECTION

2.37 Fire detection and alarm systems shall be installed where required to meet the performance requirements of the BCA. Refer to Defence specific requirements in Chapter 5 for Building Emergency Warning Systems and Chapter 15 for Living-in Accommodation and sleeping areas.

2.38 Fire detection and alarm systems shall also be provided to facilitate early warning and enhance asset protection for:

a. all CF1 and CF2 buildings;

b. an entire building that has a CF1 of CF2 part; or

c. an entire building that has a part identified as having an intolerable loss in a fire event.

2.39 Defence specific requirements for fire detection and alarm systems required under the paragraph above for certain building types are detailed in the following chapters:

a. Chapter 10 – Assets and Functions – Intolerable Loss;

b. Chapter 11 – Stores and workshop buildings – Intolerable Loss;

c. Chapter 13 – Aircraft hangars; and

d. Chapter 14 – Explosive Ordnance storage buildings.
2.40 Fire detection and alarm systems for CF1 and CF2 buildings or parts – or those identified as having an intolerable loss in a fire event – not covered in the paragraph above shall be installed in accordance with clause 4 of specification E2.2a of the BCA.

2.41 Fire detection and alarm systems should also be considered in other facilities on a case by case basis when the addition of such a system would provide an asset protection benefit and / or improved safety at reasonable cost. The consideration shall be documented in the project design report.

FIRE PROTECTION

2.42 Where the Building Criticality Assessment Form at Annex 2A identifies any building or part as having an intolerable loss in a fire event – regardless of CF category – the building or part is to be protected from a fire event in accordance with this chapter. Specific requirements for fire protection for certain building types are also detailed in the following chapters:

a. Chapter 10 – Assets and Functions – Intolerable Loss;

b. Chapter 11 – Stores and workshop buildings – Intolerable Loss;

c. Chapter 12 – Building Construction in bushfire prone areas – Intolerable Loss; and

d. Chapter 13 – Aircraft hangars.

2.43 Any building or part having an intolerable loss in a fire event that is not covered by the paragraph above shall have a fire safety strategy developed to protect that building or its contents from a fire event. The proposed strategy must have written agreement from DEEP prior to a building approval being issued.

FIRE SUPPRESSION AND DETECTION SYSTEM MONITORING

2.44 All fire suppression and detection systems shall be connected to a monitoring service provider, fire station dispatch centre or an appropriately staffed monitoring point where available – eg guard house, duty room or the like. Monitoring is not required for remote facilities that are not provided with a fire service response or any staff to monitor alarms in a building.

2.45 Where Defence Service fire stations or contracted fire services are available, all fire alarms are to terminate at the fire alarm console of the fire station. Where this occurs, the fire alarm monitoring system shall comply with Australian Standard (AS) 1670.3—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire alarm monitoring. If no permanently manned Defence service fire station or contracted fire service station is available, alarms are to terminate at a fire alarm console in an appropriately staffed monitoring point on the base or installation where available. Connection from the console to the public authority fire service to provide automatic alerting is not necessarily required. Where possible, mutual aid arrangements should be developed so that support may be obtained from the public authority fire service where available.
REPORTING OF FIRES

2.46 All building and equipment fires within Department of Defence owned or leased properties shall be reported to Assistant Director Estate Engineering Policy—Fire Safety using the Form AB 047—Fire Service Incident Report available from the Defence Web Form System on the Defence Intranet. Bushfires are to be reported in accordance with the requirements of paragraphs 6.64 and 6.65. Fires shall also be reported to the Base Support Manager, Estate and Infrastructure Group (E&IG), of the Base Support Area in which the fire occurs. When the GEMS estate incident report form incorporates estate building and equipment fire incidents, reporting on GEMS will also be required.

Annex:
2A Building Criticality Assessment form
# Building Criticality Assessment Form

<table>
<thead>
<tr>
<th>E&amp;I Region</th>
<th>Establishment</th>
<th>Building Name</th>
<th>DEIS ID</th>
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</table>

## STEP 1 – ENTIRE BUILDING

<table>
<thead>
<tr>
<th>Nature of use / function (for the entire building)</th>
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<tbody>
<tr>
<td>Contribution Factor (CF) Refer to notes (a) and (b)</td>
<td>(CF1-5)</td>
</tr>
<tr>
<td>Is the loss of the entire building or part in a fire event intolerable? Specify extent of intolerable loss of critical equipment, platform, contents or function.</td>
<td>(YES/NO) % OR QUANTITY</td>
</tr>
<tr>
<td>Intolerable loss in a fire event description (e.g., High impact on capability, high risk to WHS, high impact on operations etc.)</td>
<td></td>
</tr>
</tbody>
</table>

## STEP 2 – LEVEL / SPACE

<table>
<thead>
<tr>
<th>Level / Space</th>
<th>Level / Space</th>
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<tbody>
<tr>
<td>Nature of use / function (for the room / area function as appropriate)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Contribution Factor (CF) Refer to notes (a) and (b)</td>
<td>(CF1-5)</td>
<td></td>
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</tr>
<tr>
<td>Is the loss of the entire building or part in a fire event intolerable? Specify extent of intolerable loss of critical equipment, platform, contents or function.</td>
<td>(YES/NO) % OR QUANTITY</td>
<td></td>
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</tr>
<tr>
<td>Intolerable loss in a fire event description (e.g., High impact on capability, high risk to WHS, high impact on operations etc.)</td>
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</tbody>
</table>
**STEP 3 – PROJECT SPONSOR / AS ESTATE PLANNING COMMENTS**

**STEP 4**

<table>
<thead>
<tr>
<th>Project Sponsor</th>
<th>AS Estate Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
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<tr>
<td>Position/title</td>
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<tr>
<td>Signature</td>
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<tr>
<td>Date</td>
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</tr>
</tbody>
</table>

**Notes:**

(a) Step 1 must always be completed by the Project Sponsor for all buildings.

(b) Step 2 needs to be completed by the Project Sponsor where it is identified that a level or space has a CF1 or CF2 – or an intolerable loss in a fire event – that is different to the entire building’s determination.

(c) Buildings or parts identified as having a CF1 or CF2 or with an intolerable loss in a fire event have additional asset protection requirements specified in the MFPE.

(d) The assessment process for a hangar aircraft area is detailed in Chapter 13 and is to be used in combination with this form.
CHAPTER 3

BUILDING CERTIFICATION, PERFORMANCE SOLUTIONS
AND DISPENSATIONS

SCOPE

3.1 This chapter sets out requirements for the certification of building works, drainage works and plumbing works and the approval of performance solutions and dispensations in Defence buildings including leased buildings. These requirements apply to new construction, alterations, additions or change-in-use.

3.2 The requirements of this chapter are in addition to the relevant State / Territory requirements for certification of buildings.

AIM

3.3 The aim of this chapter is to ensure that buildings are constructed in accordance with Defence requirements and to detail the formal approval processes required for:

a. building works, drainage works and plumbing works to receive building approval and certificate of occupancy;

b. performance solutions to meet the performance requirements of the BCA; and

c. dispensation from the requirements of the MFPE.

REFERENCES

3.4 Reference is necessary to the following documents:

a. National Construction Code (NCC) including Building Code of Australia – Volumes One and Two (BCA) and Plumbing Code of Australia Volume Three (PCA);


3.5 The primary requirements of this manual are related to the BCA. This chapter also specifies approval requirements for drainage works and plumbing works to meet NCC Volume Three requirements. The BCA is specifically referred to in relation to the requirements for building Fire Safety Provisions. As such NCC and / or BCA are referred to where applicable.

3.6 Guidelines for Certification, performance solutions and dispensations are available at the Fire Engineering and Fire Safety page of DEQMS.
COMPLIANCE REQUIREMENTS

GENERAL

3.7 Defence compliance requirements are detailed in Chapter 2 of this policy. All building works, drainage works and plumbing works must be certified in accordance with paragraphs 3.11 to 3.38. This also applies to a change-in-use to existing buildings and leased buildings.

3.8 The requirements of the NCC are met by demonstrating compliance with the performance requirements of the NCC. This is achieved by either developing a performance solution, a Deemed-to-Satisfy (DTS) Solution and / or a combination of performance solution or DTS solution.

3.9 Any departure to the DTS provisions of the NCC must be addressed by a performance solution. Refer to paragraphs 3.39 to 3.47 for specific requirements related to this process.

3.10 The MFPE details Defence specific requirements that are in addition to the BCA. The requirements of the MFPE are met by demonstrating compliance with the provisions of the applicable chapters of the manual. Any non-compliance with the MFPE provisions must be addressed via a dispensation. Paragraphs 3.48 to 3.54 detail the specific requirements related to this process.

BUILDING CERTIFICATION

REQUIREMENTS OF BUILDING CERTIFIER

3.11 It is a Defence requirement that certification of Defence building works be carried out by a building certifier. The certifier shall:

a. be accredited / licenced as a building certifier in the State or Territory where the work is being performed; and

b. only perform building assessments to the extent allowable by their accreditation / licence level for the respective State / Territory where the work is being performed.

CONFLICT OF INTEREST

3.12 A person cannot be engaged as the building certifier if, in performing the building approval and / or certificate of occupancy process, the person has a conflict of interest. A building certifier has a conflict of interest in performing the building approval and / or certificate of occupancy process if the building certifier:

a. carries out the building work that is the subject of the building approval process;

b. preparation of the design for all or part of the building work;

c. has any pecuniary interest in a company or entity that is otherwise engaged in the project;
d. has a direct or indirect pecuniary interest in the building work;

e. is engaged by the builder or designer to perform a function other than:

   (1) a building approval process for the project; or

   (2) give regulatory advice about any matter;

f. arranges any third party approvals – eg plumbing or electrical – to achieve compliance with building approval or certificate of occupancy requirements.

BUILDING WORKS, DRAINAGE WORKS AND PLUMBING WORKS

3.13 All building works, drainage works and plumbing works must be the subject of a building approval and a certificate of occupancy unless the works are defined as exempt under Annex 3A – Exempt building works. All exempt building works must be completed in accordance with the applicable design standards and codes and the builder or installer shall provide certificates or evidence of compliance as appropriate.

3.14 Building approvals and Certificates of Occupancy can only be issued by a building certifier appointed for the specific building works, drainage works and plumbing works.

3.15 For building works, drainage works and plumbing works not on Crown land, all necessary State / Territory building and planning legislation and the requirements of the MFPE must be complied with.

BUILDING APPROVAL

3.16 A building approval is issued by the building certifier at the time when:

a. the building certifier has completed the assessment of the documentation and is satisfied that the building work is capable of complying with the MFPE and the NCC if constructed in accordance with the building approval and its referenced documents;

b. documentation used as supporting evidence for a building approval has been received. This evidence shall include but not be limited to:

   (1) project requirements;

   (2) Building Criticality Assessment Form;

   (3) Hangar Assessment Form – if applicable;

   (4) written agreement from Director Estate Engineering Policy (DEEP) for the building assessment provisions applicable to the use of a special structure classification;

   (5) evidence of consultation with the responding fire services;

   (6) architectural design documentation and design certificates as appropriate;
(7) structural design documentation and design certificates as appropriate;

(8) services design documentation and design certificates as appropriate;

(9) civil design documentation and design certificates as appropriate;

(10) specialist practitioners design certificates as appropriate – eg bushfire, access, energy and the like;

(11) *plumbing works* and *drainage works* design documentation and design certificates as appropriate – eg disposal of non-domestic waste, an increase in the water demand or sewer load, discharge stormwater to sewer and the like;

(12) *performance solutions* are supported by DEEP; and

(13) *dispensations* have been approved by the Assistant Secretary Environment and Engineering (ASEE).

3.17 In sub-paragraphs above, “as appropriate” means the information required to be collected by the building certifier under the relevant State or Territory building approval legislation. In addition, this shall include any consultant’s design certificates required under Defence contracts.

3.18 A *building approval* must:

a. identify the building location and property details including the *Defence Estate Information System (DEIS)* identification;

b. identify the Contribution Factor for the building or part;

c. identify any building or part that has an intolerable loss in a fire event;

d. identify the required fire protection level for an aircraft *hangar* – if applicable;

e. identify the BCA and MFPE versions applicable to the *building approval*;

f. identify whether a *special structure* classification is being applied;

g. include any conditions or building assessment provisions applicable to the *building approval*;

h. include any restriction applying to the use of the building;

i. if the building uses a *performance solution*, list the solution and the performance requirements applicable including any required measures applying to the use of the building;

j. if the building has a *dispensation*, outline the MFPE non-compliance including any required measures applying to the use of the building;

k. list the referenced documents applicable to the *building approval* including document identifier such as version number and date;
l. include a preliminary statement identifying all applicable fire safety measures including the applicable standard of performance – ie BCA provisions, specific MFPE requirements as well as relevant standards – including all relevant year versions.

m. identify the required inspections by the building certifier and any relevant practitioner – including a final inspection – required to be undertaken;

n. nominate the date the building approval will expire if work is not substantially commenced;

o. nominate the date for the completion of works; and

p. identify the building certifier including accreditation number and level and relevant State or Territory accreditation or licence details and be signed and dated.

3.19 The building certifier shall provide the building approval and supporting evidence to the delivery authority. The documents shall be stamped as approved or otherwise endorsed by the building certifier. The building certifier shall retain one set of the approved documents and provide a minimum of two copies to the delivery authority.

3.20 The delivery authority or their delegated representative is to ensure that a minimum of one set of approved documents is maintained on site for the period of building works. In addition, the building approval and supporting evidence shall be saved in DEIS prior to handover. This requirement does not limit further distribution of the approved documents as necessary for project completion.

3.21 If no timeframe is nominated as per paragraph 3.18n, the building approval expires 3 years from the date of the approval. Where a building approval has expired a new building approval is required.

3.22 Other than exempt building work, no building work, drainage works and plumbing works shall commence until a building approval has been issued by the building certifier.

REQUIRED INSPECTIONS

3.23 The building approval issued by the building certifier shall detail the required inspections. The inspection of building work must include, but is not limited to the following:

a. any stage or element required under the relevant State or Territory building approval legislation;

b. structural stages / milestones;

c. fire / smoke separation construction;

d. sound rated construction;

e. witness testing of fire safety systems;
f. witness testing of emergency evacuation lighting systems;

g. any other stages / inspections nominated within the building approval; and

h. final inspection when the building works are completed.

CERTIFICATE OF OCCUPANCY

3.24 A certificate of occupancy or equivalent can be issued by the building certifier when:

a. the inspections nominated in the building approval have been undertaken and the building certifier is satisfied that the building works, drainage works and plumbing works is substantially completed;

b. suitable evidence of installation / construction compliance from designers, installers and builder, including consultant certificates required by State or Territory legislation and Defence contracts has been received and accepted by the building certifier;

c. verification from the entity and / or person responsible for the performance solution or dispensation report that any requirements are installed and implemented; and

d. reasonable evidence is provided that any requirement or condition included within the building approval has been complied with, or that requirement or condition has ceased to apply.

3.25 In paragraph 3.24 above ‘or equivalent’ means the document issued by the building certifier under the relevant State or Territory building approval legislation (for example the ‘Certificate of Classification’ for Queensland).

3.26 A certificate of occupancy must:

a. identify the building location and property details including the DEIS identification;

b. include building description of the relevant works being;

(1) BCA occupancy classification(s);

(2) type of construction;

(3) large-isolated building status;

(4) floor area;

(5) rise in storeys;

(6) effective height;

(7) MFPE Contribution Factor and any area of intolerable loss in a fire event; and
(8) level of protection for hangar – if applicable

c. include any restriction applying to the use of the building;

d. if the building uses a performance solution, list the solution and the performance requirements applicable including any required measures applying to the use of the building;

e. if the building has a dispensation, outline the MFPE non-compliance including any required measures applying to the use of the building;

f. list all referenced documents applicable to the building approval;

g. identify the building certifier including accreditation number and level and relevant State or Territory accreditation or licence details and be signed and dated; and

h. include a statement identifying all applicable fire safety measures which must identify the applicable standard of performance – ie. BCA provisions, specific MFPE requirements as well as relevant standards – including all relevant year versions.

3.27 A completed example of a fire safety measures statement is available within the Guidelines for Certification, performance solutions and dispensations is available in the Fire Engineering and Fire Safety page of DEQMS. A template statement is also provided at this website.

3.28 The building certifier shall provide the certificate of occupancy and supporting evidence to the delivery authority for retention on the project file. The delivery authority or their delegated representative is to ensure that the staged, interim or final certificate of occupancy and supporting evidence is saved in the DEIS at the time of handover.

3.29 The building or part shall not be occupied or used until a staged, interim or final certificate of occupancy has been issued.

3.30 The building or part shall not be occupied or used in a manner that is not consistent with the building approval and the certificate of occupancy.

3.31 A copy of the certificate of occupancy – and any subsequent certificate of occupancy amendments as a result of new works – shall be provided and conspicuously displayed as near as practicable to the building’s Designated Building Entry Point (DBEP).

STAGED OR INTERIM CERTIFICATE OF OCCUPANCY

3.32 Where permitted under relevant State or Territory building approval legislation, a staged or interim certificate of occupancy shall comply with the requirements of paragraphs 3.26 and 3.28 and may be issued where a building is to be completed and occupied in stages. The part of the building occupied must comply with the applicable building approval requirements and the safety of occupants of that part must not be compromised by the future works or vice versa.
3.33 The staged or interim certificate of occupancy will expire on the earliest occurrence of any of the following events:

a. written cancellation by the building certifier;

b. issue of the final certificate of occupancy; or

c. the date nominated on the staged or interim certificate of occupancy.

3.34 If a staged or interim certificate of occupancy expires, occupation of the building or part is no longer permitted unless the process in paragraph 3.32 is repeated.

SPECIAL STRUCTURES

3.35 All Defence buildings can be given an occupancy classification under Part A3 of the BCA. However constructing according to the BCA performance requirements can lead to provisions that are not appropriate for specialist military facilities. For this reason a Defence special structure classification has been developed.

3.36 Where a special structure classification is applied, a building certifier must prepare a statement outlining the building assessment provisions applicable to the building work. The proposed building assessment provisions must have written agreement from DEEP prior to a building approval being issued.

3.37 When applying the special structure classification the building certifier must decide which building assessment or BCA provisions are applicable having due regard to all the circumstances associated with the intended use. Further to this, the building certifier shall ensure that the structure:

a. will be structurally sound and capable of withstanding the loadings likely to arise from its use; and

b. will reasonably provide for the safety of persons in the special structure, including but not limited to:

   (1) means of egress;

   (2) occupant warning (if relevant);

   (3) the prevention and suppression of fire; and

   (4) the prevention of the spread of fire.

3.38 The building certifier may require further information to assess compliance with requirements of paragraphs 3.37a and 3.37b. If required, the information is to be provided by an accredited structural engineer and accredited fire safety engineer respectively. The engineer must be registered / accredited in accordance with the requirements of paragraphs 3.58 to 3.60 as applicable.
PERFORMANCE SOLUTIONS

3.39 Where a departure to the DTS provisions of the BCA is sought, a performance solution is required to demonstrate compliance with the performance requirements of that code. The performance solution shall detail the methodology of meeting the performance requirements of the BCA, in particular clauses A0.3, A0.4 and A0.5.

3.40 The delivery authority or their delegated representative shall forward a formal request for agreement of any performance solution to DEEP using the approved template ‘Request for performance solution’ provided in the Fire Engineering and Fire Safety page of DEQMS. A copy of supported requests will be returned to the delivery authority. In the event a request is not supported, formal advice outlining the reasoning will be provided to the delivery authority.

3.41 The formal request for agreement shall be submitted in a manner and a rate which will give the relevant delegate a reasonable opportunity to review the request within the period of time nominated in the relevant contract particulars.

3.42 In the assessment of any single building, separate performance solution reports are required for fire and non-fire-related issues but shall be included in one ‘Request for performance solution’.

3.43 The development of fire-related performance solutions shall be in accordance with the IFEG, which requires the establishment of a Fire Engineering Brief (FEB) team at the start of the performance solution development process. DEEP, or an appointed representative, shall be a stakeholder (as per the IFEG) on the FEB team for all Defence projects involving fire-related performance solutions. This needs to be completed prior to submission for agreement to a ‘Request for performance solution’.

3.44 The development of non-fire-related performance solutions requires consultation with relevant stakeholders at the start of the performance solution development process. DEEP, or a delegated representative, shall form part of the consultation process.

3.45 The Australian Building Codes Board (ABCB) has produced a document titled ‘Development of performance solutions’ which outlines a process to assist practitioners with the development and approval of performance solutions. This document can be found at the ABCB website. The processes nominated in this document are to be adopted for the development of all non-fire-related performance solutions.

3.46 Reports supporting a ‘Request for performance solution’ are to include the site and DEIS identification number(s) and name(s) on the front cover. Requests for Defence consideration of performance solutions must be building specific.

3.47 The delivery authority or their delegated representative shall ensure that agreed requests and supporting evidence are saved in the DEIS prior to the building being handed over to the relevant Estate and Infrastructure Group (E&IG) region.
3.48 Where a non-compliance to the Defence specific policy requirements of the MFPE is sought, a *dispensation* is required.

3.49 The *delivery authority* or their delegated representative shall forward a formal request for *dispensation* to ASEE through DEEP. Requests for Defence approval of *dispensations* must use the approved template ‘Request for *dispensation*’ provided in the Fire Engineering and Fire Safety page of DEQMS. A copy of any supported requests will be returned to the *delivery authority*. In the event of non-agreement, formal advice outlining the reasoning will be provided from the delegated representative to the *delivery authority*.

3.50 The development of *dispensations* requires consultation with relevant stakeholders at the start of the *dispensation* development process. DEEP, or a delegated representative, shall form part of the consultation process.

3.51 The level of supporting information required for a *dispensation* shall be agreed as part of the DEEP consultation process referred to in paragraph 3.50. As a minimum the request must clearly identify:

a. the *delivery authority*;

b. the area of non-compliance (with specific reference to the appropriate section of the compliance document);

c. the reason for non-compliance;

d. the risk mitigation strategy including any compensating factors or alternatives proposed;

e. cost implications, where relevant, by comparison of the initial and whole of life costs of the MFPE provisions with those of the proposed design solutions; and

f. copies of any technical opinions or reports sought shall be enclosed.

3.52 When required by DEEP, the project sponsor or manager of the operational capability is to acknowledge a reduced level of asset protection and accept the increased capability risk in writing. When this is required, DEEP will seek acknowledgement and acceptance from the project sponsor or manager of the operational capability prior to ASEE approval.

3.53 Information supporting a ‘Request for *dispensation*’ are to include the site and *DEIS* identification number(s) and name(s) on the front cover. The request for *dispensation* must be building specific.

3.54 The *delivery authority* or their delegated representatives shall ensure that supported applications and supporting evidence are saved in the *DEIS* prior to responsibility for the building being handed over to the relevant E&IG region.
PERFORMANCE SOLUTIONS AND DISPENSATIONS IDENTIFIED DURING CONSTRUCTION

3.55 Should a departure from the DTS provisions of the BCA or a non-compliance with the MFPE be identified during the construction stage, revalidation of design compliance is required by the building certifier. Where a performance solution or dispensation is sought, an application must be lodged and approved following the process within this chapter.

PERFORMANCE SOLUTION AND DISPENSATION SIGNAGE

3.56 Where an approval has been based on a performance solution and / or dispensation, there shall be no changes in building use, elements of building structure, building services, or building fire safety systems without prior consultation with an accredited building certifier.

3.57 Permanent signage shall be provided and displayed with the certificate of occupancy required at paragraph 3.31. The wording on the signage is to be adapted to suit the circumstance for the building – eg if no dispensation is relevant, remove references to dispensation from the sign. Typically, signage shall be as detailed below.

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>This building has been certified on the basis of complying performance solution(s) / dispensation(s), current building use, and design fuel loads and limitations. Any changes in building use, elements of building structure, or building services can affect building compliance and may require recertification by an accredited and licenced building certifier.</td>
</tr>
<tr>
<td>Notice—Times New Roman 15 mm high capitals.</td>
</tr>
<tr>
<td>Remaining lettering: Times New Roman 10 mm high.</td>
</tr>
<tr>
<td>All lettering must be in a colour contrasting with the background.</td>
</tr>
</tbody>
</table>

QUALIFICATIONS OF PERSONS PREPARING / REVIEWING PERFORMANCE SOLUTIONS, DISPENSATIONS OR OTHER SUPPORTING INFORMATION

3.58 Any performance solution, dispensation or supporting information related to building fire safety must be written or authorised by an appropriately qualified person who is:

a. registered / accredited as a fire safety engineer / fire engineer by the applicable accreditation body in the State or Territory where the work is to be undertaken; or

b. in a State or Territory where registration / accreditation for the area of practice of fire safety engineering is not available, persons shall be:
(1) listed on the National Engineers Register (NER) – maintained by Engineers Australia – in the area of practice of fire safety engineering;

(2) listed on the National Fire Engineers Register (NFER) – maintained by the Institution of Fire Engineers Australia – in the area of practice of fire engineering; or

(3) hold appropriate registration/accreditation for the area of practice of fire safety engineering / fire engineering in another Australian State or Territory.

3.59 Any performance solution or supporting information for a dispensation related to building bushfire safety must be undertaken or verified by a person holding accreditation with the Fire Protection Association Australia Bushfire Planning and Design (BPAD)-Level 3 accredited practitioner as per paragraph 12.10 in addition to relevant State or Territory building approval legislation.

3.60 Any performance solution or supporting information for a dispensation related to areas other than fire safety must be undertaken by an appropriately qualified person within the area and be in accordance with the relevant State or Territory building approval legislation where relevant. This person must be accepted by the building certifier as being appropriately qualified.

Annex:
3A Exempt building works
EXEMPT BUILDING WORKS

1. The building work listed in this annex is exempt from the MFPE unless otherwise required by the applicable State or Territory.

Note

• Whilst exempt building work is not required to comply with the MFPE, all work must be still be completed in accordance with the applicable design standards and codes.

ATTACHING SUNSCREENS OR SUNHOODS

2. Attaching a sunscreen or sun hood to an existing building is exempt if the sunscreen or sun hood’s area is less than 2m².

PARTICULAR WORK FOR CLASS 10 BUILDINGS OR STRUCTURES

3. An exemption applies to the following building work:

   a. an above-ground rainwater tank providing:

      (1) non-potable water supply; and

      (2) less than 3m in height.

PARTICULAR CLASS 10A BUILDINGS

4. Buildings having a floor area not exceeding 10m² – except those that are defined as having intolerable loss in a fire event and/or are sited in a “cyclonic zone/area” – are exempt. Cyclonic areas are those determined as being located in wind regions C and D in accordance with Australian/New Zealand Standard (AS/NZS) 1170.2.

PARTICULAR CLASS 10B STRUCTURES OR ASPECIAL STRUCTURES

5. Building work for a class 10b structure or special structure is exempted if:

   a. the structure is

      (1) sporting or playground equipment; or

      (2) physical training equipment; or

      (3) minor plant and equipment covers; and

   b. the structure is no higher than 3m above its natural ground surface.
PARTICULAR REPAIRS, MAINTENANCE OR ALTERATIONS NOT AFFECTING STRUCTURAL COMPONENT OR FIRE SAFETY SYSTEM

6. **Building work** that consists of repairs, maintenance or alterations to an existing building or structure, is exempt if they do not:

   a. change the building or structure’s floor area or height;
   b. alter egress paths or evacuation processes;
   c. change the building classification under the BCA;
   d. affect safety provisions required under the MFPE;
   e. affect structural components; and
   f. affect fire safety systems – required by the BCA or the MFPE for CF1 and CF2 or intolerable loss in a fire event – of the building or structure.

**Examples**

- An internal refurbishment changing office fixed equipment; or
- An installation/alteration of an air-conditioning system that doesn’t affect any fire safety measure.

PARTICULAR REPAIRS, MAINTENANCE OR ALTERATIONS ONLY AFFECTING A MINOR COMPONENT OF A FIRE SAFETY SYSTEM

7. **Building works** that consist of repairs, maintenance or alterations to an existing building are exempt if they:

   a. comply with the provisions above, excluding paragraph 6f; and
   b. only affect a minor component of the building’s fire safety system.

**Notes**

- A minor component means an element of the fire safety system that is required for the system and is not an addition and does not affect more than 20% of the overall system.
- Examples of a minor component of a fire safety system include a sprinkler head or a smoke detector.

TENTS, MEMBRANE STRUCTURES, OR DEPLOYABLE HANGARS

8. Tents, membrane structures, or deployable hangars are exempt if:

   a. the floor area is less than 100m² (no time limit applies);
   b. erected and removed within 2 months (no area limit applies); or
c. they are only used for an Australian Defence Force operational activity.

WORK FOR PARTICULAR FENCES

9. Construction of a fence is exempt if the fence is not for a swimming pool.

WORK FOR PARTICULAR NON-LOADBEARING DEVICES

10. This exemption applies to building work for any of the following devices if they are non-loadbearing and outside restricted areas including but limited to hazardous object zones required for aircraft (as stipulated in Defence (Areas Control) Regulations 1989):

a. an aerial;

b. an antenna;

c. a satellite dish with a maximum diameter of 900mm; and

d. a flagpole, mast or tower.

The exemption to these devices only applies if the device is:

(1) attached to a building or structure and is no more than 3.5m above the highest point of fixing building or structure; or

(2) detached from any building or structure and is no more than 10m above the device’s finished ground surface.

WORK FOR PARTICULAR RETAINING WALLS

11. Building work for a retaining wall is exempt if:

a. there is no surcharge loading over the zone of influence for the wall; and

b. the total height of the wall and of the fill or cut retained by the wall is no more than 1m above the wall’s finished ground surface; and

c. the wall is no closer than 1.5m to a building, swimming pool fence or another retaining wall.

12. A surcharge loading means a load applied to a soil stratum that has, or may have, the effect of consolidating the stratum, other than a load arising only from:

a. persons or vehicles on, or moving over, the stratum; or

b. the effects of rain on the stratum.

13. A zone of influence, for the retaining wall, means the volume of soil stratum behind the wall that affects the wall’s structural integrity.
WORK FOR PARTICULAR SIGNS

14. *Building work* is exempt if it consists of the erection of a sign that is detached from a building and is:

a. no higher than 2m; and
b. no wider than 1.2m.

WORK FOR PARTICULAR TEMPORARY STRUCTURES ON BUILDING SITES

15. *Building work* is exempt if it is for:

a. a temporary site office or amenities provided for the duration of building works on or serving a building site;

b. a *transportable building* that has a maximum floor area not exceeding 100m² for a maximum period of 6 months;

c. a gantry; or

d. scaffolding.
CHAPTER 4
EGRESS AND PHYSICAL SECURITY REQUIREMENTS

SCOPE

4.1 This chapter details the requirements for door hardware in all new and existing Defence owned or occupied buildings where physical security is necessary, including requirements for egress through barriers in the path of travel to open space.

AIM

4.2 The aim of this chapter is to provide guidance for reducing the possibility of conflict between fire safety and physical security requirements by providing guidance on how the required levels of egress and security can be obtained. This chapter clarifies the BCA provisions for secure areas as they apply to Defence.

REFERENCES

4.3 Reference is necessary to current issues of the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. electronic Defence Security Manual (eDSM); and


APPLICATION

4.4 This chapter specifies requirements for:

a. doorways in a required exit;

b. doorways forming part of a required exit;

c. doorways or security barriers in the path of travel to a required exit; and

d. egress through barriers in the path of travel to open space.

Notes

- A required exit is as defined in the BCA;

- A doorway forming part of a required exit means a doorway or door that provides access to or is within a fire-isolated stairway or ramp; or a fire-isolated passageway;

- A doorway or door in a path of travel to an exit is any door, excluding cupboards and service openings that a building occupant must pass through to reach the exit from the storey; and
Open space is as defined in the BCA. This means a space on the allotment, or a roof or similar part of a building adequately protected from fire, open to the sky and connected directly with a public road – refer to paragraph 4.11 for the Manual of Fire Protection Engineering (MFPE) requirement.

COMPLIANCE REQUIREMENTS

4.5 Means of egress from Defence buildings shall be in accordance with the requirements of the BCA.

4.6 Required levels of security may be achieved by:

a. mechanical locks;

b. electromechanical locks; and

c. electromagnetic locks, in combination with mechanical locks.

Note

a. The above locks are defined in the eDSM.

4.7 Mechanical locks are permitted to be installed on exit doors when they comply with clause D2.21 of the BCA. Doors that are required by the BCA to be fitted with panic bars may not have locks installed that would prevent the functioning of the panic bar door release. Mechanical locks must not restrict persons from exiting from the side of the door facing the person seeking egress. Redlam bolts or the like are prohibited on ‘exits’ and doors in the path of travel to an exit.

4.8 In Australian Government Security Zones 4 or 5 the hardware on exit doors, or doors in the path of travel to an exit may use the concession in clause D2.21 of the BCA provided that they can be immediately unlocked:

a. by operating a fail-safe control switch, not contained within a protective enclosure, to actuate a device to unlock the door; or

b. by hand by a person or persons, specifically nominated by the owner, properly instructed as to the duties and responsibilities involved and available at all times when the building is lawfully occupied so that persons in the building or part may immediately escape if there is a fire.

4.9 Where the option in paragraph 4.8a is used the manual override device must be able to release the lock immediately by an action in a security control room or the like, or by a device such as a break glass unit (BGU) installed on the side of the door facing the person seeking egress. Where BGUs are used they must comply with the following points:

a. be located between 0.9m and 1.1m above finished floor level and adjacent to the door hardware side of the door;

b. be green in colour;

c. the operation of the BGU must release the locking mechanism of the door;
d. must have battery back-up. The locking mechanism of the door must release in the event of mains supply and backup power failure; and

e. signage saying Emergency Door Release or similar is to be provided with the BGUs. The signage should be white lettering on a green background.

Note

- The exits may be wired to a security system and sounders if required.

4.10 Any security latches on doors in areas that are not classified as Australian Government Security Zones 4 or 5 must release in fire mode. The fail-safe operation is to be initiated by the building smoke detection and alarm system installed and/or the building sprinkler system.

4.11 Where Defence buildings have secure perimeter fencing or the like, a means of egress to a public road must be available according to the requirements of clause D1.10 of the BCA. For the purpose of the application of these requirements the road infrastructure on a Defence site may be considered as a public road.

4.12 Where Defence mandatory security requirements result in non-compliance with the egress related deemed-to-satisfy provisions of the BCA, a performance solution process detailed at Chapter 3 may be considered.

FIRE RESISTANT DOORSETS

4.13 Door hardware must not be installed on fire resistant doorsets unless it complies with the egress requirements herein and has been tested in accordance with the requirements of AS 1905.1 and found to be compliant with the prototype fire doorset.
CHAPTER 5

EMERGENCY WARNING SYSTEMS

SCOPE

5.1 This chapter details the Defence design requirements for the provision of building emergency warning systems in Defence buildings.

5.2 Where sprinkler and/or fire detection systems are provided, these systems also require the installation of a building occupant warnings system (BOWS). Refer to clause 8 of specification E1.5 and clause 6 of specification E2.2a of the Building Code of Australia (BCA). Certain buildings – eg greater than 25m effective height, aged care and hospitals require the BOWS to be an Australian Standard (AS) 1670.4–2015 Emergency Warning & Intercommunication System (EWIS). Refer clause E4.9 of the BCA.

5.3 For the purposes of this chapter, an emergency warning system includes:

a. a Building Occupant Warning System (BOWS) which is required as part of a fire detection and/or sprinkler system, or


AIM

5.4 The aim of this chapter is to set out the minimum requirements of building emergency warning systems for Defence buildings.

REFERENCES

5.5 Reference is necessary to the following documents.

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. AS 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire; and

c. AS 1670.4—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Emergency warning and intercom systems.
REQUIREMENTS

5.6 A BOWS shall be installed in *new construction*, alterations, additions or *change-in-use* to Defence buildings when required by the BCA or when the MFPE specifies sprinklers or detection over and above BCA requirements. All new BOWS shall be installed in accordance with the BCA and AS 1670.1 and shall include:

a. A public address (PA) system with a service microphone that is audible throughout all parts of the building. In particular:

   (1) the PA module shall be located adjacent to or within the Fire Detection Control and Indicating Equipment (FDCIE);

   (2) the PA function shall comply with the requirements of AS 1670.1 for grade 3 equipment.

   (3) the PA function shall be secured from unauthorized persons by a locked door and the key shall be identical with other keys required for access to the FDCIE; and

   (4) the system shall be considered as an essential service.

b. The requirements for a PA system connected to a BOWS do not include a requirement for intercom facilities. This is only applicable when a SSISEP is required.

c. Warning signals for the hearing impaired via means other than loudspeakers as appropriate.

5.7 The requirement for a BOWS applies to existing buildings with either a fire detection system or sprinkler system installed where an existing internal warning system is not already provided.

5.8 A SSISEP shall be installed in *new construction*, alterations, additions or *change-in-use* Defence buildings when required by the BCA. All SSISEP shall be installed in accordance with the BCA and AS 1670.4 and shall include:

a. red fire alarm Manual Call Points connected to both the fire and warning systems. White Emergency Call Points that are connected only to the warning system shall not be used; and

b. warning signals for the hearing impaired via means other than loudspeakers as appropriate.
CHAPTER 6

BUSHFIRE MANAGEMENT ON THE DEFENCE ESTATE

SCOPE

6.1 The provisions of this chapter apply to all properties owned or leased by Defence.

6.2 Each property that is owned or leased by Defence shall be assessed to determine if it is bushfire prone in accordance with paragraph 6.11. If found to be bushfire prone, the property shall be assessed for overall bushfire risk in accordance with paragraph 6.13. Those properties determined to be of medium or high overall risk must be included within a Bushfire Management Plan (BMP). BMPs shall be prepared in accordance with Defence National Guidelines for Bushfire Management and Mitigation (‘the Guidelines’) available on DEQMS Bushfire Management Page.

AIM

6.3 The aim of this chapter is to describe the process for identifying, managing and mitigating bushfire risk on the Defence estate and documenting that process in Bushfire Management Plans.

REFERENCES

6.4 The following documents will assist in implementing aspects of this policy:

a. Relevant and applicable State and Territory legislation, codes of practice and guidance pertaining to Bushfire Management;

b. Commonwealth Workplace Health and Safety (WHS) Act 2011 and regulations;

c. Environment Protection and Biodiversity Conservation (EPBC) Act 1999;

d. Codes of Practice: How to Manage Work Health and Safety Risks, Managing the Work Environment and Facilities and Work Health and Safety Consultation, Cooperation and Coordination;

e. Australian Standard (AS) 3959-2009 Construction of buildings in bushfire-prone areas;

f. DI(G) Operations 05-1 – Defence Assistance to the Civil Community – Policy and Procedures;

g. DI(G) ADMIN 40-3 – Assessment and approval of Defence activities under the Environment Protection and Biodiversity Conservation Act 1999;

h. DI(G) ADMIN 59-1 – Management of Defence Training Areas and the Defence Training Area Management Manual (DTAMM); and

i. LWP-CA (ENGR) 4-1-6, Wildfire Suppression, Prevention and Mitigation, 2016.
BACKGROUND

6.5 Defence manages in excess of 150 bushfire prone properties. Bushfire prone areas expose Defence personnel, capability, contractors and local communities to varying degrees of risk. Defence processes and procedures must ensure these risks are managed to minimise or prevent detrimental impacts of bushfire, while recognising the fundamental role bushfire plays in the Australian environment.

6.6 Defence’s Bushfire Management approach is aligned to the Australian Government’s National Bushfire Policy Statement for Forests and Rangelands (2012). This sets out principles, strategic objectives and national goals for Bushfire Management. The principles establish protection of human life as the highest consideration, and emphasise the importance of bushfire risk awareness, preparedness, and proactive planning for bushfire survival. The notion of ‘shared responsibility’ is emphasised, whereby fire and emergency services, bushfire-prone property owners, and individuals living, working or visiting bushfire prone areas all have important parts to play in managing bushfire risk. The need to actively and adaptively manage the land with fire is highlighted to maximise environmental benefits and ecosystem resilience, and reduce the adverse impact of severe fires.

6.7 Defence has adopted the “Prepare, Act, Survive” bushfire awareness, warnings and safety framework that is used by all of Australia’s land and fire management agencies. A critical element of the Prepare, Act, Survive framework is that communities (Defence and civilian) understand local bushfire risks, know how to mitigate bushfire risks, prepare for bushfire season, and respond to bushfire incidents in accordance with pre-planned bushfire survival plans.

6.8 The Workplace Health and Safety (WHS) Act 2011 requires that hazards are identified and reasonably practical actions are taken to eliminate or minimise risks to ensure a safe work environment. This bushfire policy establishes a framework for assessing and managing risks arising from bushfire hazards. Implementation of appropriate mitigation activities shall be consistent with the National Codes of Practice; How to Manage Work Health and Safety Risks, Managing the Work Environment and Facilities and Work Health and Safety Consultation, Cooperation and Coordination.

6.9 This policy is implemented through the Defence National Guidelines for Bushfire Management (‘the Guidelines’). These contain technical information and templates to facilitate nationally consistent, policy compliant, Bushfire Management.

OBJECTIVES

6.10 In order of priority, the objectives of Defence Bushfire Management policy are to:

a. Protect human life;

b. Protect Defence and civilian property and assets;

c. Support ADF training; and

d. Promote pro-active, environmentally sustainable management of bushfire.
REQUIREMENTS FOR BUSHFIRE PRONE PROPERTIES

6.11 A Defence property is designated as ‘bushfire prone’ if:

a. It includes areas mapped as bushfire prone by a local government or local fire authority; or

b. If the property has not been assessed by local authorities, it includes areas that would meet the definitions of class 1, 2 or 3 bushfire prone land as set out in the NSW Rural Fire Service Guide for Bush Fire Prone Land Mapping (2015).

6.12 A map that delineates bushfire prone areas shall be prepared for every bushfire prone property. Maps shall be prepared using the process detailed in the NSW Rural Fire Service Guide for Bush Fire Prone Land Mapping (2015). Maps shall be made available as digital layers linked to a bushfire prone area environmental factor record (EFR) in the Garrison and Estate Management System (GEMS) that delineates the entire bushfire prone area.

6.13 All bushfire prone properties shall be subject to an ‘Overall Site Bushfire Risk Assessment’ to determine the degree of planning requirements for the property. Once assessed, the Overall Site Bushfire Risk (OSBR) is to be recorded in GEMS, and only requires review when a substantive change occurs in the parameters contributing to the assessment. Criteria to determine OSBR are:

a. Low OSBR properties include:
   
   (1) small arms ranges where the range, safety template and immediate surrounds constitute the entire property and are the sole function of the property;
   
   (2) properties where live-fire activities do not occur, and either; there are less than 5 built assets in fire prone vegetation of any class, or, only class 2 vegetation (grassland) occurs, or, urban fringe buildings where evacuation or fire response are entirely controlled by civilian authorities;

b. Medium OSBR properties include:

   (1) training areas on which Defence live-fire activities occur, but which only contain basic assets such as camp, range control and firing ranges; or

   (2) bases with no attached training area that only include restricted areas of class 1 or 3 bushfire prone vegetation (less than 10 ha total with no patches greater than 2 ha); and

c. High OSBR properties include military areas incorporating both training areas and cantonments, or bases with significant areas of bushfire prone vegetation adjoining assets (>10 ha, or with multiple patches 2-10 ha), or, as for medium training areas, but with medium or high density residential properties or fire-sensitive high-value economic assets such as forestry plantations adjoining the boundary.
6.14 Properties rated as having a low OSBR are not required to be included in a BMP. Risks arising from the bushfire hazard on low OSBR properties shall still be assessed and managed through grounds maintenance in keeping with the degree of risk and construction standards of any assets as described in the Guidelines and, where relevant, Prepare, Act, Survive material. Other requirements for bushfire prone properties shall still apply, including building design requirements for new constructions and restrictions on Defence activities in accordance with paragraphs 6.45 to 6.47 and Chapter 7 of the DTAMM.

6.15 Properties rated as having a medium or high OSBR shall be included in a BMP prepared in accordance with the MFPE requirements and the guidelines. The BMP shall include a Bushfire Risk Management Plan prepared by an external bushfire expert, and covering all medium and high OSBR properties within a Base Service Area. The Bushfire Management Plan shall be endorsed by the Base Support Manager.

6.16 Requirements for bushfire prone properties shall apply to properties that have been identified for disposal and are no longer occupied by Defence. Ongoing implementation of the BMP on unoccupied properties shall take into account the degree of requirement for any risk treatments that may have been in place to manage risks that are no longer relevant, such as risks associated with live-fire activities or evacuation of large numbers of personnel. Treatments that apply to ongoing risk, such as boundary fire breaks that separate a Defence-owned hazard from surrounding civilian residences shall be maintained until the time of sale.

DEFENCE BUSHFIRE MANAGEMENT APPROACH

6.17 This section describes Defence's overall bushfire management framework including property specific measures detailed in BMPs prepared in accordance with paragraph 6.29. Collaboration with State and Territory agencies is essential to build mutual understanding of the respective roles of Defence and civilian authorities prior to, and during, fire events. Where possible, collaborative arrangements should be formally documented in memoranda of understanding between agencies, and in local-level mutual aid agreements that set down operational requirements for relevant sites.

6.18 Bushfire hazard management and mitigation activities are undertaken to render a site safer should a bushfire occur, or to minimise the risk of a fire taking hold. These include fuel reduction activities such as prescribed burning, asset protection zones (APZ), fire breaks, Fire Trail upgrades / maintenance and / or the provision of strategic water sources and building upgrades.

6.19 Fire prevention – Defence will implement an incremental restriction of activities as fire danger rating increases, and in response to the specific condition of the site on which activities are conducted.

6.20 Response capability should be available when any activities that may start a fire are to be conducted. The capability shall be commensurate with the likelihood of starting a fire, and the risks associated with an ignition occurring. This may include equipment carried by those conducting an activity (user mitigation response) and dedicated site-based fire-fighting assets (first response).
6.21 Prepare, Act, Survive programs shall be developed to ensure that the highly mobile Defence workforce can easily familiarise themselves with actions required at a site during the fire danger period and during a bushfire.

6.22 Monitoring and reporting of bushfires and Bushfire Management activities shall be undertaken to ensure that triggers for management actions are registered and acted on, and that the outcomes of management programs are assessed for practicality and effectiveness.

KEY ROLES AND RESPONSIBILITIES

6.23 Bushfire Management requires collaboration between many parties within and outside Defence. Accordingly, roles and responsibilities can be complex, and can differ between sites. Implementation of many aspects may also involve multiple responsible persons. In view of this, each BMP shall document persons responsible for key actions at each site in a responsibilities schedule included in the BMP summary.

6.24 All persons implementing this policy and any plans and works arising from it shall act in accordance with the Commonwealth Workplace Health and Safety (WHS) Act 2011 and the Code of Practice- How to Manage Work Health and Safety Risks.

6.25 The roles and responsibilities of the First Assistant Secretary Service Delivery (FASSD) and Service Delivery Division are:

a. FASSD has executive responsibility for funding of bushfire mitigation works, management of contracted services related to Bushfire Management, development of Bushfire Management Plans and management of Defence training areas and facilities subject to bushfire hazards;

b. Director Operations and Training Area Management (Director DOTAM) has overarching responsibility to provide training areas and ranges fit-for-purpose for the safe conduct of Defence training exercises and for provision of baseline bushfire fighting resources for first response on training areas;

c. Zone Assistant Secretaries and Regional Manager ACT are responsible for overseeing the management of any risks that require escalation to them through the E&IG risk management framework, and for higher-level oversight of BMP implementation across their respective Base Service Areas;

d. Base Support Managers (BSMs) have responsibility for the development of emergency management plans and arrangements within their Base Service Areas. BSMs shall review and formally accept bushfire management plans for their Base Service Area. BSMs are accountable for the integration of relevant BMP outcomes into emergency management arrangements for a site, governance of Mutual Aid Agreements for a site, reviewing site preparedness for each fire season including delivery of Prepare, Act, Survive programs, and accepting annual bushfire implementation checklists in GEMS;

e. Regional Environment and Sustainability Officers (RESOs) with suitable training shall conduct a technical review of BMPs prior to their acceptance by
Defence. RESOs shall provide environmental approval for new or modified mitigation works and prescribed burns via an environmental clearance certificate. RESOs shall conduct assurance inspections of mitigation works to ensure standards and prescription in the BMP are being achieved;

f. Director Estate Environment and Energy Service Delivery (Director DEEESD) has national oversight of contracted land management services delivering elements of bushfire mitigation and management works. DEEESD, in consultation with BSMs and RESOs, has responsibility for funding and supporting delivery of risk-managed works programs proposed by Estate Maintenance and Operations Services (EMOS) contractors;

g. Director Estate Works Program Office (Director DEWPO) has national oversight of new works or civil works required to implement the BMP mitigation works schedule; and

h. EMOS contractors have the central delivery role for ongoing Bushfire Management works in accordance with the BMP including:

1. Undertaking or coordinating risk mitigation works;
2. Monitoring fuel loads;
3. Reporting on implementation of BMP to site staff and DEEESD;
4. Collaboratively developing and reviewing annual works mitigation schedules with Defence based on the BMP recommendations and past works delivery;
5. Providing GEMS data including bushfire incident and response information and fire mapping to Defence; and
6. Conducting the Estate Appraisal program that shall include assessment against BMP standards for fire management infrastructure, asset protection and other standards.

6.26 Range control staff shall maintain familiarity with their site BMPs and ensure that Range Standing Orders are updated and authorised by the relevant Training Area Operational Authority to reflect BMP recommendations regarding activity restrictions and mitigations. Range control should inform their chains of command, regional environmental staff and DEEESD if elements of the BMP are not delivered on time or to a standard required to support Defence training requirements.

6.27 The roles and responsibilities of the First Assistant Secretary Infrastructure (FASI) and Infrastructure Division are:

a. FASI has executive responsibility for development of Defence bushfire policy, ensuring new infrastructure projects are designed to mitigate bushfire risk and that environmentally sustainable Bushfire Management practices are adopted;

b. Assistant Secretary Environment and Engineering (ASEE), through the directorate of Environment and Heritage Policy Development (DEHPD), will
ensure Defence bushfire policy is current, and that appropriate guidance is available to persons implementing the policy and reviewing BMPs;

c. DEHPD is responsible for assessing and registering Overall Site Bushfire Risk for Defence sites and determining the requirement for Bushfire Management Plans;

d. ASEE, through the Directorate of Environmental Protection and Assessments, will provide technical assessment of environmental impact assessments associated with BMPs and if required provide the Defence lead and point of contact if a referral to the Minister for Environment under the EPBC Act is required; and

e. Assistant Secretary Property Management has responsibility for ensuring that all leases involving bushfire prone properties identify the requirement to implement this policy.

6.28 Senior Australian Defence Force Officers (SADFOs) share site emergency management and personnel safety responsibilities with BSMs and assume command of bases during emergencies. SADFOs shall ensure they are familiar with any bushfire specific emergency management procedures for a base, and should take an active role in delivery of Prepare, Act, Survive materials in their areas of responsibility.

BUSHFIRE MANAGEMENT PLANS

6.29 BMPs shall include all properties described in 6.13b and 6.13c, and for each property covered by the plan:

a. As a part of a Bushfire Risk Management Plan:

(1) document the extent and type of bushfire hazard(s);

(2) identify and remedy issues arising from implementation of the previous BMP;

(3) document fire history since the last BMP was prepared;

(4) document site-specific roles and responsibilities;

(5) document and assess the risks associated with bushfire hazard(s);

(6) identify and document the risk owner for each risk;

(7) nominate performance standards for mitigations works required to treat risks;

(8) identify and document the response owner for each risk treatment;

(9) document a proposed five-year mitigation works program to implement risk treatments;
(10) for training areas, prepare a Bushfire Prevention Plan that details specific procedural and other mitigations to minimise the risk of Defence activities igniting a fire and impacting identified assets and values at risk;

b. develop Prepare, Act, Survive Materials;

c. provide, as relevant to each property, a map depicting required Bushfire Mitigation Works;

d. provide, as relevant to each property, a map depicting infrastructure and hazards, including Unexploded Ordnance (UXO) risk, relevant to conducting Bushfire Operations; and

e. create, update and maintain GEMS bushfire environmental factor records, associated monitoring requirements and risk records:

(1) Land Management Zone – environmental;

(2) Land Management Zone – Operational;

(3) Strategic fire advantage zone;

(4) Asset protection zone;

(5) Fire Sensitive Asset;

(6) Fire Trail;

(7) Water Point;

(8) Fire Break;

(9) Refuge of last resort; and

(10) Fire Escape Route.

6.30 BMPs shall be prepared by a bushfire expert or team with equivalent collective experience.

6.31 BMPs shall be prepared in accordance with the templates and processes described in the Guidelines.

6.32 All mapping symbology shall comply with the Emergency Management All Hazards Symbology Set promulgated by the Emergency Management Spatial Information Network Australia.

6.33 Elements of Bushfire Management overlap with, or form part of other Defence business. These include site evacuation and emergency management procedures, Range Standing Orders, and services provided by Base Service Contractors. The purpose of the BMP is not to re-write or duplicate process. Where a product, service or procedure exists that fulfils the BMP requirement, that procedure
or service definition can be cited in the BMP or appended to it and its role clearly identified.

6.34 The development of a site BMP shall include consultation with all relevant stakeholders, which may include:

a. the local civilian fire authority;
b. external Bushfire Management committee;
c. relevant Aboriginal and Torres Strait Islander groups;
d. RESO;
e. Assistant Directors Environment and Sustainability (ADES);
f. DEEESD;
g. EMOS contractor;
h. SADFO;
i. BSM;
j. Base Emergency Management Committee (or equivalent);
k. Range control staff;
l. key Defence user groups;
m. key adjoining landholders who might facilitate integrated Bushfire Management (state forests, national parks, councils, commercial enterprises); and
n. Property Management Branch for leased properties.

6.35 Where active for the site(s) under consideration, the Base Security and Emergency Management Committee (BSEMC) and Environmental Management Committees (or equivalent) shall be made aware of the development of the draft BMP by the person preparing the plan. The BSM and SADFO must be satisfied that any conflicts identified by these committees between BMP recommendations and existing site emergency response plans are resolved prior to finalisation of the BMP.

6.36 In order to support risk managed implementation of proposed works programs all works proposed in the BMP should detail (as relevant); any viable alternatives, the time since the works were last conducted, effectiveness in managing the risk being treated, fire fighting benefit, environmental impact and likely hazard reduction effect.

REVIEW OF BUSHFIRE MANAGEMENT PLANS

6.37 BMPs shall be reviewed every five years to identify components requiring update.
6.38 Notwithstanding 6.37, materials that form part of the BMP that contain site contact details and safety information such as the operations map and Prepare, Act, Survive materials shall be reviewed and re-distributed to user groups prior to the commencement of each fire danger period.

6.39 Notwithstanding 6.37, any risks assessed as carrying a High or Very High inherent risk shall be reviewed by the risk owner prior to the commencement of each fire danger period to assess whether treatments are in place and whether residual risk is acceptable, or as low as reasonably practical, given seasonal or other constraints.

6.40 If a BMP has not been updated within the five-year period prescribed in 6.37 the BSM can authorise a 12 month extension if they are satisfied that the BMP adequately reflects the current state of the sites covered by the plan. The BMP shall not be extended in this manner for more than a total of two 12 month periods.

AMENDMENTS TO THE BUSHFIRE MANAGEMENT PLAN

6.41 The BSM may approve the inclusion of new material as addenda to the BMP at any time.

6.42 Proposed new mitigation works must be accompanied by a formal risk assessment following the same process as the Bushfire Risk Management Plan. Any new works approved by the BSM must be included in the BMP as numbered addenda.

6.43 Following approval, all proponents of new works must provide the BSM with (as relevant):

a. evidence of upload of GEMS risks and risk response plans;

b. evidence of upload of any required GEMS EFRs (APZs, Fire Management Zones (FMZs) etc); and

c. evidence of creation of any relevant Estate Investment or Estate Appraisal Requests.

6.44 All new constructions in bushfire prone areas must provide the BSM with (as relevant):

a. risk response plans for new risks and treatments arising from the development, including demonstration of APZ maintenance requirement against building construction standard;

b. evidence of upload of GEMS risks and risk response plans;

c. evidence of upload of GEMS asset protection zone EFRs; and

d. evidence of creation of any relevant Estate Investment or Estate Appraisal requirement for new or upgraded works required to treat risks.
BUSHFIRE PREVENTION

6.45 The deliberate lighting of fires on the Defence estate is to follow the regulation of the State or Territory in which they lie. This includes the recognition of Total Fire Bans issued by State fire authorities.

6.46 Prescribed burns shall require State and Territory Fire Permits in accordance with local legislative requirements during the fire danger period unless alterative arrangements are in place under a Memorandum of Understanding (MOU) between Defence and the State or Territory, or the relevant authority declines to issue permits.

6.47 Chapter 7 of the DTAMM outlines the control of live-fire activities on Defence training areas and where necessary, processes for seeking a waiver for live-fire activities during a total fire ban.

6.48 Bushfire Risk Management Plans that include training areas shall include a property-specific Bushfire Prevention Plan for each training area as an annex to the main plan. Bushfire Prevention Plans shall be prepared in accordance with the Guidelines and provide risk assessments of any additional risks specifically associated with fires that start from Defence activities that are not adequately mitigated by treatments and controls in the Bushfire Risk Management Plan.

6.49 To facilitate risk assessment of Defence activities by Range Control Staff and persons undertaking activities, fire spread calculations must be undertaken in accordance with the Guidelines. The likely rates of spread should be modelled for fires under very High and Severe fire danger ratings (FDRs) for fixed firing ranges and High, Very High and Severe FDR for field firing locations. Rates of spread are to be represented as Fire Spread Templates that represent the 360° boundary of the forward rate of spread at 30 minutes, one hour, two hours and three hours post ignition. Point sources of ignitions are to be modelled for key areas known to be historical sources of ignition on site, as well as indicative templates representing broader field firing areas with representative ignition points. Modelling of spread shall take into account accepted untreated vegetation fuel loads and topography. The Bushfire Prevention Plan should clearly delineate where each template is applicable on the site.

6.50 The Bushfire Prevention Plan shall describe as far as practical any mitigations for activities at each FDR except Catastrophic and Code Red, when no live firing can occur. This includes both ADF and civilian activities.

6.51 The BMP author may recognise that some live-fire and other activities are incompatible with parts of a site under given conditions. The BMP can nominate appropriate restrictions on live-fire for those parts of the site. All such proposed changes should be workshopped with Range Control Staff to ascertain their practicality and applicability. Where agreement over practicality of proposed restrictions cannot be achieved, the matter must be resolved through documented agreement between training area management and the BSM to either accept or reject the restrictions. Documentation of this agreement must be included in the BMP where restrictions are rejected.
ENVIRONMENTAL IMPACT OF BUSHFIRE MANAGEMENT ACTIVITIES

6.52 Under the provisions of the EPBC Act 1999, Defence has a responsibility not to take an action that has, will have, or is likely to have, a significant impact on the environment without approval of the Commonwealth Environment Minister. All BMPs are to be developed and implemented in such a way that there will be no significant impact on the environment unless absolutely necessary, and approved by the Commonwealth Minister for the Environment.

6.53 Other matters protected under the EPBC Act may require approvals such as Threatened Species Permits. It is the role of the BMP author and RESO to determine any requirements for environmental approvals that would result from the proposed works program.

6.54 BMPs should carefully consider the need for new trails, APZs, firebreaks or other hazard reduction works, and their environmental impacts balanced against the priority requirements to protect life and property.

6.55 Any fire-sensitive species, communities or heritage values shall be identified as fire sensitive assets in GEMS to ensure mitigation or fire suppression activities do not unduly impact those values.

IDENTIFICATION OF FIRE MANAGEMENT ZONES AND LANDSCAPE FUEL REDUCTION STRATEGIES

6.56 Proposed fuel management strategies that form treatments for site-specific risks shall be described in the Bushfire Risk Management Plan to demonstrate how they will reduce risk and to what assets, values or training activities. A GEMS fire management zone record shall be prepared for each; asset protection zone, strategic fire advantage zone and Land Management Zone - operational or Land Management Zone - environmental. Performance standards for fuel levels and any proposed monitoring against those standards shall be prescribed to clearly indicate thresholds of acceptable performance that determine the effective management of site risks. Where relevant, these determinations shall be based on specific modelling of bushfire behaviour that demonstrates the effectiveness of proposed fuel management strategies.

6.57 BMPs shall not schedule broad scale hazard reduction burns. In particular:

a. South of the Tropic of Capricorn the timing and location of hazard reduction burns will be determined by Defence in discussion with surrounding landholders and Bushfire Management Committees. These decisions will be guided by fuel loadings and burn windows provided in the BMP as per 6.58.

b. North of the Tropic of Capricorn a reactive program will be applied that takes account of the annual fuel generation cycle and recent fire history.

6.58 BMPs south of the Tropic of Capricorn shall identify the current fuel loads of vegetation across each property based on fuel accumulation rates and fire history. Accepted burn intervals for each vegetation community should also be identified and those communities or units that are within burn interval during the next seven years should be highlighted in the BMP. Fire intervals and fuel accumulation curves for
each vegetation community should be based on accepted thresholds from government or scientific sources relating to the specific community or analogous community.

6.59 BMPs north of the Tropic of Capricorn shall provide burn strategies for each property to allow annual fuel reduction planning by Defence land managers. Wet season and early dry season burning shall be adopted as the default approach for northern Australian sites. At a minimum, the BMP shall describe:

a. desired minimum time since last burn for identified vegetation units;

b. desired maximum area of the property to be burnt each year;

c. any specific departures from an early dry season burning strategy;

d. fire sensitive areas and protective measures;

e. long-term goals for (e.g.) area burnt, late dry season fire frequency and other metrics that indicate whether the defined strategy is achieving its aims consistent with 6.10 and any site-specific considerations; and

f. *Fire Trail* network.

**BUSHFIRE PRONE AREAS AND CONSTRUCTION STANDARDS**

6.60 Chapter 12 details Defence requirements for all new construction, alterations and change in use in bushfire prone areas.

6.61 All assets with a contribution factor of 1 or 2, or other assets of key value as determined by Defence stakeholders, shall have bushfire attack reduced through provision of an *APZ* or building hardening such that construction standards under AS 3959 (2009) are met.

6.62 Asset *protection zone* prescriptions shall be consistent with the local jurisdiction’s standards.

**IMPLEMENTATION, MONITORING, REPORTING AND REVIEW**

6.63 Annual BMP implementation checklists of management and mitigation works shall be completed in *GEMS* for all bushfire prone sites. Persons completing checklist items shall have first-hand knowledge of the state of the included matters. The report shall be accepted by a suitable person (usually the BSM) by the commencement of the local *fire danger period* each year, or soon after if prevailing conditions have prevented preparatory works being completed.

6.64 All *bushfires* on the Defence estate south of the Tropic of Capricorn shall be reported as estate incidents using the *GEMS* estate incident report form.

6.65 All *bushfires* started by Defence activities north of the Tropic of Capricorn shall be reported as estate incidents using the *GEMS* estate incident report form. Any other *bushfires* north of the Tropic of Capricorn that cause material harm to a Defence asset, fire-sensitive environmental value, cause injury or death, require
second response or that spread through Defence land and affect neighbouring assets shall be reported as estate incidents using the GEMS estate incident report form.

6.66 GEMS Fire Event Records shall be created for each fire reported as an incident in accordance with 6.64–6.65. Situation reports, debrief outcomes and other materials related to each fire event should be lodged as documents attached to the GEMS Fire Event Record.

6.67 All planned fires on the Defence estate shall be recorded as GEMS Fire Event Records. Burn plans, situation reports, debrief outcomes and other materials related to each fire event should be lodged as documents attached to the GEMS fire event record.

6.68 A joint debrief shall be organised with external fire authorities following any bushfire requiring a second response, and an internal Defence debrief should be convened for any fire requiring a first response. Matters to be considered at the debrief include but are not limited to:

a. Ignition source;

b. Adequacy of mitigations. Why did the fire take hold? Mitigations to be considered include user mitigation response and Defence first response on the day and any hazard reduction works conducted under the BMP works program;

c. Detection. How soon was the fire observed and by what means;

d. Response. Communication, response time, effectiveness, command and control, interoperability with external agencies, site familiarity, secondary impacts on environment or infrastructure caused by response activities;

e. Current site safety;

f. Post-fire monitoring and recovery. Likely repairs, remediation, environmental monitoring; and

g. BMP. Has the risk profile of the site been sufficiently altered that a new BMP is required.

PREPARE, ACT, SURVIVE PLANNING

6.69 Consistent with the nationally adopted ‘Prepare, Act, Survive’ bushfire survival planning framework, all BMPs shall contain bushfire preparedness, response and survival actions for site users and key site contacts. These shall be documented in Prepare, Act, Survive pamphlets and posters prepared using the Guidelines template.

6.70 The BMP shall specifically identify actions to be taken should the property be subject to a bushfire Threat. Triggers for site evacuation shall be identified in terms of FDR and Bushfire Warning level. Where necessary, non-attendance on a site based on forecast Catastrophic conditions shall be recommended. Procedures for personnel remaining on site shall be identified, including preparedness actions and decision triggers for any defensive actions while sheltering on site.
6.71 The BMP shall identify the locations and capacity of bushfire emergency refuges of last resort and record these as GEMS Refuge of Last Resort records. Criteria for selecting refuges of last resort are identified in the Guidelines and should be further assessed against the relevant state guidelines for neighbourhood safer places. Any inconsistency between the Defence refuge of last resort and the state guidelines for neighbourhood safer places should be documented in the BMP, and also reported separately to the SADFO and BSM so they can assess the requirement for any works to improve the safety of the site.

6.72 Refuges of last resort are only for use in the contingency that inadequate bushfire warning is received and safe evacuation of personnel from the site is not possible. The purpose and location of refuges of last resort shall be highlighted in Prepare, Act, Survive materials such that site users know where they are and how best to reach them during a bushfire emergency.
CHAPTER 7
MAINTENANCE

SCOPE

7.1 This chapter specifies Defence requirements for the maintenance of fire safety measures in all Defence owned and occupied buildings.

AIM

7.2 The aim of this chapter is to detail the minimum maintenance requirements of building active and passive fire safety measures.

REFERENCES

7.3 Reference is necessary to the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. National Fire Protection Association (NFPA) 11—Standard for low-, medium-, and high-expansion Foam;

c. Relevant State / Territory building legislation related to building fire safety system maintenance;

d. Australian Standard (AS) 1851—Routine service of fire protection systems and equipment;

e. AS 2293.2—Maintenance and testing of emergency evacuation lighting in buildings;

f. AS 2304—Water storage tanks for fire protection systems;

g. Guidelines for testing fixed aqueous film forming fire suppression systems – refer to the Fire Engineering and Safety page of DEQMS; and


REQUIREMENTS

7.4 A building’s active and passive fire safety measures must perform to a standard not less than they were originally required to achieve.

7.5 Maintenance must be undertaken in accordance with the applicable legislation, standards and codes in paragraph 7.3.
7.6 Defence buildings are to be maintained in accordance with the requirements of AS 1851-2012 unless otherwise agreed by Defence Estate Engineering Policy (DEEP) in writing.

Note

- Should the 2012 edition of AS 1851 be superseded, then adoption of the new version of this standard may be required.

7.7 Fire safety measures within an approved *performance solution* or *dispensation* must be maintained in accordance with the requirements specified therein and with the fire safety measures schedule required under Chapter 3.

7.8 The maintenance of the fire safety measures in any Defence occupied building or part of a building not on Crown land must comply with the applicable State or Territory legislation.

7.9 Fire safety measures installed to comply with the MFPE in any Defence occupied building or part must be maintained in accordance with the applicable design and maintenance standard. For example, specialist foam Installations in aircraft *hangars* shall be maintained/tested in accordance with the standards referenced in AS 2304 and NFPA 11.

7.10 Maintenance of foam fire suppression systems shall be in accordance with NFPA 11—Standard for low-, medium-, and high-expansion Foam. ‘Guidelines for Testing Fixed Aqueous Film Forming Fire Protection System’ are located at the Fire Engineering and Fire Safety page of DEQMS.

7.11 Maintenance of emergency evacuation lighting in buildings shall be in accordance with AS 2293.2.

EXIT DOORS AND DOORS IN PATHS OF TRAVEL TO EXITS

7.12 All required exits and doors in the path of travel to a required exit shall be inspected at least annually to ensure that the door opens and closes freely and that the door hardware complies with Chapter 4. This includes, but is not limited to a functional test of any electronic or mechanical hardware and the operation of any door latching hardware. Any deficiencies shall be rectified.

SOLID CORE DOORS IN LIVING-IN-ACCOMMODATION

7.13 All solid core doors bounding public corridors or other units – required by the BCA or other building legislation – shall be inspected at least annually to ensure that the door opens and closes freely. This includes, but is not limited to a functional test of the mechanical hardware, self-closers and the operation of any door latching hardware. The doors are to come to the fully closed and latched position after each manual opening. Any deficiencies shall be rectified.
EMERGENCY PLANNING

CHAPTER 8
FIRE SAFETY SURVEYS

SCOPE
8.1 This chapter details the requirements for completing a Fire Safety Survey (FSS). A FSS assesses the ongoing effectiveness of a building's specific fire safety measures.

8.2 A FSS is not intended to be a full fire safety compliance audit. Guidance for conducting a fire safety audit can be found in Australian Standard (AS) 4655–Fire safety audits.

AIM
8.3 The aim of this chapter is to detail the technical and administrative requirements for conducting a FSS of Defence owned, leased or occupied buildings including Public Private Partnership (PPP) arrangements.

REFERENCES
8.4 Reference is necessary to the following documents:
   a. National Construction Code – Building Code of Australia (BCA);
   b. AS 1851—Routine service of fire protection systems and equipment;
   c. AS 2293.2—Maintenance and testing of emergency evacuation lighting in buildings;
   d. AS 4655–Fire safety audits; and

Note
- Guidance documents for fire safety surveys and program procedures are located at the Fire Engineering & Fire Safety page of DEQMS.

BACKGROUND
8.5 Fire safety is an important contributor to occupant life safety and asset protection in buildings. Defence undertakes a program of FSSs to ensure that an adequate level of fire safety and asset protection is maintained in buildings which also assists in meeting wider duty of care obligations.

8.6 A FSS indicates the level of compliance with the MFPE and specific Fire Safety Provisions of the BCA and aids in the identification of maintenance issues and programming of fire safety works across the Defence estate.
FIRE SAFETY SURVEY REQUIREMENTS

8.7 The requirement for Defence management of FSS applies to all Defence owned, leased or occupied buildings including PPP arrangements.

8.8 A FSS reviews the adequacy and maintenance of a building’s fire safety measures and includes, but is not limited to:

a. visual inspection of specific fire safety measures to establish whether the building or the fire safety measures remain adequate and have not been altered, damaged or compromised in any way;

b. a check of nominated fire safety measures – refer to serials in the FSS at Annex 8A;

c. assessing compliance with fire safety maintenance legislation, standards and codes applicable to the building;

d. discussion with building occupants and the site Estate Maintenance and Operation Service (EMOS);

e. review of the fire safety systems maintenance activities and records;

f. status of fire safety works associated with previous FSS recommendations;

g. identification of any change to building structure, classification or use; and

h. identification of areas for potential improvement of the fire safety measures.

Notes

• A FSS is a walk-through visual inspection, however, access to roof and floor spaces may be required to determine compliance or otherwise of fire safety provisions as appropriate for the class of building being surveyed.

• Functional testing of fire systems and equipment is the responsibility of the EMOS contractor and is not part of a routine survey, however may be requested if considered necessary.

RESPONSIBILITIES FOR FIRE SAFETY SURVEYS

8.9 Estate Service Delivery Branch, within Service Delivery Division (SDD), is responsible for ensuring FSSs are programmed and undertaken in accordance with Defence policy and that the recommendations are actioned appropriately.

8.10 The Director Estate Works Program Office, within Estate Service Delivery Branch, is responsible for:

a. programming and delivery of FSSs through the National Program Services contractor in accordance with the FSS contract and the FSS procedures on DEQMS; and

b. FSSs are undertaken in accordance with the specified frequencies.
8.11 The Director Estate Planning and Upkeep (DEPU) is responsible for ensuring that:

a. the FSS data in the Defence Estate Information System (DEIS) is current;

b. the FSS recommendations are actioned appropriately by the EMOS contractor; and

c. actions taken by the EMOS contractor against recommendations are recorded in the DEIS.

8.12 DEPU is also responsible for providing a report summarising the outcome of the requirements specified at paragraphs 8.10a – 8.10b and 8.11a – 8.11c to the Director of Estate Engineering Policy (DEEP) prior to the end of June for the previous financial year’s activities.

AUTHORISED TO CONDUCT FIRE SAFETY SURVEYS

8.13 Only inspecting officers who satisfy the following accreditation requirements are authorised to undertake FSSs:

a. accredited / licenced as a building certifier or building surveyor in a State or Territory; or

b. accredited under an Australian building surveying accreditation scheme - eg the Australian Institute of Building Surveyors (AIBS).

Note

• Inspecting officers must only perform building assessments to the extent allowable by their accreditation / licence level.

CONFLICT OF INTEREST

8.14 EMOS contractors shall not be involved in the procurement and management of inspecting officers undertaking FSSs due to the potential conflict of interest in the survey of Defence buildings.

FIRE SAFETY SURVEY REPORT STRUCTURE AND GUIDANCE

8.15 The FSS assesses building life safety and asset protection using the serials in Annex 8A against the following criteria:

a. identification of any change to building structure, classification or use;

b. MFPE requirements for existing buildings where applicable;

c. BCA for serials in Annex 8A; and

d. maintenance adequacy.

8.16 It is not the intent of the FSS process to require existing buildings to be upgraded solely to comply with each new edition of the BCA and its related standards
and codes, however as the BCA sets the current community expectation, it is to be used as the benchmark for FSS reporting with regard to life safety.

8.17 The key elements of the BCA that require assessment in a FSS are at Annex 8A. These elements are the minimum requirements to provide for the safety of persons in a fire event by confirming the adequacy of:

a. fire compartmentation and separation;
b. egress provisions;
c. services and equipment; and
d. fire safety measures performance.

STATUS RATINGS

8.18 A status rating shall be assigned to each serial in the report checklist at Annex 8A.

8.19 Status ratings are:

- **S** Satisfactory – no issues identified and fit for purpose;
- **P1** A non-compliance that could result in serious injury or death or a loss of critical capability;
- **P2** Other non-compliances with recommended corrective actions;
- **P3** Recommended actions (not associated with a non-compliance) to ensure buildings remain safe and fit for purpose;
- **P4** Issues or non-compliances that are not recommended to be addressed unless the building has building works that trigger a substantial alteration;
- **M1** AS 1851 or AS/NZS 2293.2 maintenance related non-compliances that could result in serious injury or death or a loss of critical capability in a fire event;
- **M2** Other AS 1851 or AS/NZS 2293.2 maintenance related non-compliances with recommended corrective actions;
- **FA** Further assessment – used when further information is required to determine the status – eg input required from a fire safety engineer or structural engineer;
- **N** Inspecting officer’s notes – used to provide comments to enhance the report; or
- **NA** Not applicable.

8.20 The FSS report checklist at Annex 8A shall be used and shall not be altered. An Annex 8A template is located at the Fire Engineering & Fire Safety page of DEQMS.

FIRE SAFETY SURVEY RECOMMENDATIONS

8.21 Recommendations arising from FSSs include actions required to address safety, compliance, maintenance and management issues.

8.22 When a recommendation for further assessment is made, the inspecting officer should identify the discipline required – ie fire safety engineer / structural
engineer – as well as the scope and urgency (time-frame) of the assessment. The inspecting officer may consider recommending a MFPE / BCA audit owing to identification of significant compliance or certification issues.

WORK HEALTH SAFETY

8.23 When safety related deficiencies are identified through the FSS process, appropriate actions shall be undertaken to confirm that the building remains fit for continued occupation.

8.24 Where a safety hazard is identified, a WHS hazard and risk assessment is to be undertaken by the EMOS contractor in accordance with the Defence WHS manual. The actions arising from the WHS hazard and risk assessment are to be addressed by the EMOS contractor.

8.25 Where the safety hazard is considered as a P1 or M1 issue, the inspecting officer must initiate a response from the EMOS contractor by contacting the Base Services Support Centre (BSSC) – 1300 658 975 – initially and then inform the BSM and the Project Manager (PM). The inspecting officer is to remain on site until the issue is made safe or resolved.

FREQUENCY OF FIRE SAFETY SURVEYS

8.26 The frequency of FSSs shall be determined and recorded against the structure in the DEIS. Defence buildings subject to a fire safety survey requirement shall be inspected at least once in every three year period. The following inspection frequencies are required:

<table>
<thead>
<tr>
<th>Contribution Factor</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>a. CF1 buildings</td>
<td>Annually</td>
</tr>
<tr>
<td>b. CF2 buildings</td>
<td>Three yearly</td>
</tr>
<tr>
<td>c. CF3 buildings</td>
<td>Three yearly</td>
</tr>
<tr>
<td>d. CF4 buildings</td>
<td>Three yearly</td>
</tr>
<tr>
<td>e. CF5 buildings</td>
<td>Three yearly</td>
</tr>
</tbody>
</table>

Note

- CF5 buildings may be excluded from the requirements of this chapter.
- Inspections may be undertaken more frequently if warranted.

FILING OF FIRE SAFETY SURVEY REPORTS

8.27 All copies of FSS reports shall be saved in the relevant Estate Management folder in Objective by the Project Delivery Services contractor.

SECURITY OF INFORMATION

8.28 Security of information relating to Defence establishment facilities, equipment and functions must be considered by FSS contractors. Therefore, rather than giving a detailed description of a facility, the CF abbreviations – as noted in paragraph 8.26 – may be used to describe the contents.
Annex:

8A  Fire Safety Survey Report
# FIRE SAFETY SURVEY REPORT

## REPORT SUMMARY

### BUILDING ADDRESS AND DATE OF SURVEY

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>[Building/facility no]</td>
</tr>
<tr>
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<td>[Property name]</td>
</tr>
<tr>
<td>E&amp;IG Region</td>
<td>[Estate Services region]</td>
</tr>
<tr>
<td>Address</td>
<td>[If applicable]</td>
</tr>
<tr>
<td>Date of survey</td>
<td></td>
</tr>
<tr>
<td>Time survey commenced</td>
<td></td>
</tr>
<tr>
<td>Time survey completed</td>
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Table 1

### BUILDING POINT OF CONTACT

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<td>Phone</td>
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</tr>
<tr>
<td>Email</td>
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</tr>
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<td>Date POC contacted to make arrangements for survey</td>
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Table 2
### OCCUPANCY

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<td></td>
</tr>
<tr>
<td>Year of construction</td>
<td></td>
</tr>
<tr>
<td>Internal building floor area</td>
<td>m²</td>
</tr>
</tbody>
</table>

| Is the building connected to another building(s) such that it becomes a part of a united building as per BCA? If so list other building DEIS IDs | No / building numbers |
| Has occupancy classification or the usage of the building changed since the last survey | Yes/No/NA |
| If yes, has any change of occupancy/usage been approved by Base Support Manager | Yes/No/NA |
| If yes, has a certificate of occupancy or equivalent been provided | Yes/No/NA |
| Are there any available fire safety performance solutions / dispensations | Yes/No |
| If yes, survey to indicate assessment of maintenance requirements in ‘Report Checklist’ at page 8A-4 |  |
| Date of last survey | Month/Year or NA |
| Frequency of last survey | 12 / 36 months |

### BUILDING CODE OF AUSTRALIA CHARACTERISTIC

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
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<td>Use</td>
</tr>
<tr>
<td>Number of floors</td>
<td>Above ground</td>
</tr>
<tr>
<td>Below ground</td>
<td></td>
</tr>
<tr>
<td>Rise in storeys</td>
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</tr>
<tr>
<td>Effective height</td>
<td></td>
</tr>
<tr>
<td>Type of construction</td>
<td></td>
</tr>
<tr>
<td>Large-isolated building</td>
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</tr>
</tbody>
</table>

Table 3

Table 4
### CONTRIBUTION FACTOR

<table>
<thead>
<tr>
<th>Contribution Factor (CF)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF (entire building)</td>
<td></td>
</tr>
<tr>
<td>Building or part identified as having an intolerable loss in a fire event in the form at Annex 2A</td>
<td>Building or part</td>
</tr>
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</table>

Table 5

### AREAS NOT ABLE TO BE INSPECTED / ASSESSED

<table>
<thead>
<tr>
<th>Areas not able to be inspected / assessed</th>
<th>Reason</th>
</tr>
</thead>
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</table>

Table 6

### RECOMMENDATIONS FROM PREVIOUS SURVEY NOT FINALISED

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Reason as advised by EMOS</th>
</tr>
</thead>
<tbody>
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</table>

Table 7

### ESTATE MAINTENANCE AND OPERATIONAL SERVICES

<table>
<thead>
<tr>
<th>Contact</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Date EMOS contacted to make arrangements for review of maintenance records</td>
<td></td>
</tr>
<tr>
<td>Date maintenance records reviewed</td>
<td></td>
</tr>
</tbody>
</table>

Table 8
<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Company</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authorised to conduct fire safety surveys</th>
<th>Yes/No</th>
<th>Accreditation or Licence Number</th>
</tr>
</thead>
</table>

| Telephone |  |
| Email |  |

I have inspected the building and found it to be substantially in accordance with the findings noted in this fire safety survey report.

| Signature |  |
| Date |  |

Table 9
Notes

• The building address details date and time of survey are to be provided in Table 1.

• The details of the point of contact and date contacted for the fire safety survey are to be provided in Table 2.

• When the fire safety survey is outsourced, the information required to populate Table 3 is to be provided by Defence as part of the tender documentation.

• A description of the original use and certification of the building is to be given in Table 3. The reference to floor area in this table is to be the internal measurement available – in applicable estate management system – that includes all room floor areas within the building and excludes the building fabric. It is noted that this is not a BCA defined measurement of areas.

• The building characteristics are to be described in Table 4.

• The Contribution Factor of the building and whether any part has been identified as having an intolerable loss in a fire event is to be described in Table 5.

• The purpose of Table 6 is to list any areas of the building that were not able to be inspected / assessed during the fire safety survey. The reason that the area was unable to be included is to be provided.

• Recommendations from previous fire safety surveys that have not been finalised are to be listed in Table 7. The reason the recommendation has not been finalised – as advised by the EMOS – is to be included in the table. Note: This table does not apply to P4 recommendations.

• The details of the EMOS contact and date contacted for the review of maintenance records – and the date maintenance records were reviewed – are to be provided in Table 8.

• The details of the inspecting officer are to be provided in Table 9.
**REPORT CHECKLIST**

<table>
<thead>
<tr>
<th>Building name / DEIS ID</th>
<th>[add building name] [building / facility n° – XXXX / XXXX]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defence property</td>
<td>[Property name]</td>
</tr>
</tbody>
</table>

**Fire safety status:**

<table>
<thead>
<tr>
<th>S</th>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>M1</th>
<th>M2</th>
<th>FA</th>
<th>N</th>
<th>NA</th>
</tr>
</thead>
</table>

**Note:** Refer to paragraph 8.19 for status ratings

**FIRE RESISTANCE**

<table>
<thead>
<tr>
<th>01.</th>
<th>Fire rated elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.</td>
<td>Internal – floor / wall / ceiling linings</td>
</tr>
<tr>
<td>03.</td>
<td>External – wall cladding / construction</td>
</tr>
<tr>
<td>04.</td>
<td>Compartmentation / fire / smoke</td>
</tr>
<tr>
<td>05.</td>
<td>Bounding construction</td>
</tr>
<tr>
<td>06.</td>
<td>Essential service separation</td>
</tr>
<tr>
<td>07.</td>
<td>Protection of external openings</td>
</tr>
<tr>
<td>08.</td>
<td>Fire-rated door-sets</td>
</tr>
<tr>
<td>09.</td>
<td>Smoke-rated doors / solid core doors</td>
</tr>
<tr>
<td>10.</td>
<td>Access panels / service penetrations</td>
</tr>
</tbody>
</table>

**EGRESS**

<table>
<thead>
<tr>
<th>11.</th>
<th>Number of exits</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>Fire-isolation of exits</td>
</tr>
<tr>
<td>13.</td>
<td>Travel distances</td>
</tr>
<tr>
<td>14.</td>
<td>Egress paths</td>
</tr>
<tr>
<td>15.</td>
<td>Discharge of exits</td>
</tr>
<tr>
<td>16.</td>
<td>Door swing</td>
</tr>
<tr>
<td>17.</td>
<td>Door hardware</td>
</tr>
</tbody>
</table>

**FIRE SERVICES**

<table>
<thead>
<tr>
<th>18.</th>
<th>Fire hydrants</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.</td>
<td>Fire hose reels</td>
</tr>
<tr>
<td>21.</td>
<td>Foam attachments</td>
</tr>
<tr>
<td></td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>22</td>
<td>Fire sprinklers</td>
</tr>
<tr>
<td>23</td>
<td>Foam</td>
</tr>
<tr>
<td>24</td>
<td>Gas Inert / synthetic</td>
</tr>
<tr>
<td>25</td>
<td>Water mist / other</td>
</tr>
<tr>
<td>26</td>
<td>Portable extinguishers</td>
</tr>
<tr>
<td>27</td>
<td>Fire blankets</td>
</tr>
<tr>
<td>28</td>
<td>Fire detection control and indicating equipment (FDCIE)</td>
</tr>
<tr>
<td>29</td>
<td>Sub indicator panel / mimic panel</td>
</tr>
<tr>
<td>30</td>
<td>Manual call points</td>
</tr>
<tr>
<td>31</td>
<td>Smoke / thermal / flame</td>
</tr>
<tr>
<td>32</td>
<td>BOWS / SSISEP / EWIS</td>
</tr>
<tr>
<td>33</td>
<td>Fire and / or smoke dampers</td>
</tr>
<tr>
<td>34</td>
<td>Air-handling shutdown</td>
</tr>
<tr>
<td>35</td>
<td>Zone smoke or air pressurisation systems</td>
</tr>
<tr>
<td>36</td>
<td>Smoke exhaust / vents / clearance / make-up</td>
</tr>
<tr>
<td>37</td>
<td>Fire fan control panel</td>
</tr>
<tr>
<td>38</td>
<td>Emergency lighting</td>
</tr>
<tr>
<td>39</td>
<td>Exit and directional signals</td>
</tr>
<tr>
<td>40</td>
<td>Dangerous goods storage</td>
</tr>
<tr>
<td>41</td>
<td>Flammable goods storage</td>
</tr>
<tr>
<td>42</td>
<td>Gas isolation / storage</td>
</tr>
<tr>
<td>43</td>
<td>Hazardous area compliance</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td></td>
</tr>
<tr>
<td>44.</td>
<td><em>Performance solution report / dispensation</em></td>
</tr>
<tr>
<td>45.</td>
<td>Power supply – Essential services</td>
</tr>
<tr>
<td>46.</td>
<td>Fire vehicle access and response</td>
</tr>
<tr>
<td>47.</td>
<td>Housekeeping</td>
</tr>
<tr>
<td>48.</td>
<td>Other</td>
</tr>
<tr>
<td><strong>MAINTENANCE</strong></td>
<td></td>
</tr>
<tr>
<td>49.</td>
<td><em>Performance solution requirements</em></td>
</tr>
<tr>
<td>50.</td>
<td>Emergency lighting / exit signs</td>
</tr>
<tr>
<td>51.</td>
<td>Exit doors and doors in paths of travel</td>
</tr>
<tr>
<td>52.</td>
<td>Fire and smoke rated elements</td>
</tr>
<tr>
<td>53.</td>
<td>Fire and smoke dampers</td>
</tr>
<tr>
<td>54.</td>
<td>Fire detection and alarm system</td>
</tr>
<tr>
<td>55.</td>
<td>Fire doors / smoke doors / fire shutters</td>
</tr>
<tr>
<td>56.</td>
<td>Fire hydrants</td>
</tr>
<tr>
<td>57.</td>
<td>Fire suppression systems</td>
</tr>
<tr>
<td>58.</td>
<td>Fire pumps</td>
</tr>
<tr>
<td>59.</td>
<td>Fire resisting shaft openings</td>
</tr>
<tr>
<td>60.</td>
<td>Hose reel system / foam attachments</td>
</tr>
<tr>
<td>61.</td>
<td>Lay flat hose</td>
</tr>
<tr>
<td>62.</td>
<td>Mechanical smoke hazard management</td>
</tr>
<tr>
<td>63.</td>
<td>Portable fire extinguishers / fire blankets</td>
</tr>
<tr>
<td>64.</td>
<td>Smoke exhaust / vents / clearance / make-up</td>
</tr>
<tr>
<td>65.</td>
<td>Smoke seals to services in paths of travel</td>
</tr>
<tr>
<td>66.</td>
<td>Wall wetting sprinklers</td>
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<tr>
<td>67.</td>
<td>Other fire safety system</td>
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## REPORT RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Building name / DEIS ID</th>
<th>[add building name] [building / facility n° – XXXX / XXXX]</th>
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<tbody>
<tr>
<td>Defence property</td>
<td>[Property name]</td>
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### Recommendation status:

- S
- P1
- P2
- P3
- P4
- M1
- M2
- FA
- N
- NA

**Note:** Refer to paragraph 8.19 for status ratings

<table>
<thead>
<tr>
<th>Serial</th>
<th>Description of issue</th>
<th>Recommendation in detail</th>
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</tr>
</tbody>
</table>
CHAPTER 9
PORTABLE FIRE EXTINGUISHERS AND FIRE BLANKETS

SCOPE

9.1 This chapter applies to the selection and installation of portable fire extinguishers and fire blankets in all Defence buildings.

AIM

9.2 The aim of this chapter is to provide Defence specific requirements for the selection and location of portable fire extinguishers and fire blankets within Defence facilities. This guidance is used to provide appropriate extinguishing mediums for different fire risks, in order to assist in first-attack firefighting and to limit the impact of fire on Defence assets and personnel.

REFERENCES

9.3 Reference is necessary to current issues of the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. Australian Standard (AS) 1940—The storage and handling of flammable and combustible liquids;

c. AS 2444—Portable fire extinguishers and fire blankets—Selection and location; and

d. AS/NZS (New Zealand Standard) 2243.8—Safety in laboratories—Fume cupboards.

DISTRIBUTION

9.4 Portable fire extinguishers are required to be installed in all buildings in accordance with the requirements of the BCA. In addition, portable fire extinguishers shall be provided in the following specific locations:

a. class 1b buildings are to be provided with portable fire extinguishers as if they were class 2–9 buildings. The distribution shall be as per the requirements of table E1.6 of the BCA;

b. areas containing flammable or combustible liquids as required by AS 1940; and

c. areas containing fume cupboards as required by AS/NZS 2243.8.

LOCATION OF EXTINGUISHERS

9.5 General guidelines are:

a. if only one extinguisher is to be provided it should be on the inside wall adjacent to the normal access/egress door to the installation.
b. if more than one extinguisher is required they should be located, in order of preference:

(1) on an inside wall adjacent to normal access/egress door;

(2) on an inside wall adjacent to alternative access/exit doors;

(3) on inside walls to maintain the required travel distance; and

(4) on the wall outside the main entry door, where they should be suitably protected against weather, theft and vandalism.

FIRE BLANKETS

9.6 Fire blankets are to be provided in all class 1b and 2 to 9 buildings containing kitchens that use cooking oils and fats – except for within a sole-occupancy unit of a class 2 or 3 building or class 4 part. The installation and location is to be in accordance with the location requirements of AS 2444.
CHAPTER 10

ASSETS AND FUNCTIONS – INTOLEerable LOSS

SCOPE

10.1 This chapter details the Defence design requirements for passive and active fire safety measures for new construction, alterations, additions or change-in-use for the following buildings or parts which have been classified as having an intolerable loss in a fire event – regardless of Contribution Factor (CF) or Criticality Rating (CR) – in the Building Criticality Assessment Form at Annex 2A:

a. computing equipment;
b. electronic equipment;
c. data / document storage; and
d. sensitive compartmented information facilities (SCIF).

Notes

• The requirements of this chapter do not apply to the following buildings or parts of buildings:
  – Critical storage buildings and workshops not listed above;
  – Hangar aircraft areas; or
  – Explosive Ordnance buildings.

• Refer to Chapter 11, Chapter 13 and Chapter 14 for the respective requirements.

AIM

10.2 The aim of this chapter is to detail additional levels of fire protection for critical buildings to protect valuable Defence critical equipment, contents or function so that the impact of fire loss on Defence operational capability is minimised.

REFERENCES

10.3 Reference is necessary to the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);
b. Australian Standard (AS) 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire;
c. AS 1682.1—Fire, smoke and air dampers—Part 1: Specification;
d. AS 1682.2—Fire, smoke and air dampers—Part 2: Installation;
e. AS 2118—Automatic fire sprinkler systems;
f. AS 2419—Fire hydrant installations—System design, installation and commissioning;

g. AS 4118.1.1—Fire sprinkler systems—Part 1.1: Components—Sprinklers and sprayers;

h. AS 4587—Water mist fire protection systems – System design, installation and commissioning;

i. AS/NZS (New Zealand Standard) 1668.1—The use of ventilation and air-conditioning in buildings—Fire and smoke control in buildings; and

j. AS ISO 14520.1—Gaseous fire extinguishing systems—Physical properties and system design – General requirements.

GENERAL

10.4 This section details the Defence policy for passive and active fire safety measures for critical rooms, areas or functions located within buildings or parts of buildings.

10.5 The general principles applied to these types of facilities are to provide:

a. fire and smoke separation of primary and redundant elements or separate critical assets / functions from each other and from non-critical parts;

b. fire suppression to protect the buildings or parts identified as having an intolerable loss in fire to:
   (1) prevent exceeding the extent of acceptable loss;
   (2) protect primary and redundant elements from a single fire event (if essential to locate in the same fire compartment);
   (3) protect separate critical assets / functions from a single fire event;
   (4) minimise restoration times;

c. fire detection and alarm systems; and

d. smoke clearance where it will reduce smoke damage and restoration time.

NON-COMBUSTIBLE CONSTRUCTION

10.6 External walls and structural elements of the area classified as having an intolerable loss in a fire event must be of non-combustible construction. This requirement also applies to type C construction buildings. For the purpose of this requirement, non-combustible is as defined in the BCA.

FIRE AND SMOKE SEPARATION

10.7 Fire and smoke separation shall be provided between any ancillary or non-critical part and a critical asset / function.
10.8 Fire and smoke separation shall also be provided:
   a. between primary and redundant elements;
   b. between separate critical assets / functions within a building; and / or
   c. to minimise the extent of tolerable loss in a fire event.

10.9 Where fire and smoke separation is required it shall be constructed as follows:
   a. the fire separation requirements are to align with the BCA requirements for a
      fire wall in accordance with the relevant type of construction in specification
      C1.1 of the BCA;
   b. any doorway in that construction must be a self-closing fire door in
      accordance with part C3 of the BCA;
   c. any openings in external walls of fire separated areas must be separated and
      protected in accordance with clause C3.3 and C3.4 of the BCA;
   d. smoke separation in accordance with the method described in clause 2 of
      specification C2.5 and clause 3 of specification C3.4 of the BCA; and
   e. openings for services, penetrations, construction joints and the like protected
      in accordance with clauses C3.12, C3.13 (for type A construction), C3.15 and
      C3.16 of the BCA.

Notes
- Fire, smoke and air dampers shall be installed in accordance with AS 1682
  Parts 1 and 2, and AS/NZS 1668.1.
- Fire and smoke dampers shall be installed in the same manner for which the
  prototypes have been fire tested or assessed by a testing authority to be in
  accordance with AS 1682.1. It is important that verification confirm the
  installation has been in accordance with prototype testing or testing authority
  assessment as part of the building approval process.
- Current fire test certificates or testing authority assessment certificates shall
  be provided for all fire and smoke dampers installations as part of the
  building approval process.

FIRE SUPPRESSION

10.10 Entire buildings or fire compartments greater than 72m² shall be sprinkler
   protected throughout. Consideration shall be given to protecting any supporting
   services to maintain operations. Consideration is also required where a fire in a non-
   critical part would impact on the critical function.

10.11 Sprinkler systems should also be considered in other parts on a case by case
   basis when the addition of such a system would provide an asset protection benefit
and / or improved safety at reasonable cost. The consideration shall be documented in the project design report.

10.12 Where sprinkler protection is required by the MFPE or BCA, then the sprinkler system must incorporate fast response heads in accordance with AS 4118.1.1. Extended throw sprinkler heads are not permitted. The installation shall be in accordance with specification E1.5 of the BCA and AS 2118 as applicable.

10.13 Floor drainage and leak detection systems should be considered where sprinkler systems are installed. The consideration shall be documented in the project design report.

10.14 Where personnel are not available to respond to an early warning smoke alarm, a gas flooding system complying with AS ISO 14520.1 – or a water mist system complying with AS 4587 – shall be considered. When a gas flooding or water mist system is provided it shall be in addition to any required sprinkler system. The consideration shall be documented in the project design report.

10.15 Fire strategies proposing gaseous suppression or a water mist system shall be developed by the project team. Fire strategies outlining the design, operation and maintenance requirements are to be submitted via the delivery authority to DEEP for comment prior to commencing detailed design.

FIRE DETECTION

10.16 All critical areas within a building must be provided with an aspirating smoke detection (ASD) system complying with AS 1670.1. The designer shall develop a suitable warning and shut-down strategy in consultation with the users. This strategy shall form part of the building operating procedures.

10.17 For computing equipment / data storage, the ASD should initiate shut-down of electronic equipment in the early stages of a fire event. The designer should also arrange the ASD to shut-down the ancillary services as appropriate (eg – air-handling equipment) and ensure that the correct sequence and duration of shut-down occurs to prevent equipment damage.

10.18 Non-critical parts of the building that are separated from the critical parts must be provided with a smoke detection system in accordance with clause 4 of specification E2.2a of the BCA and AS 1670.1.

SMOKE CLEARANCE SYSTEM

10.19 The mechanical ventilation system serving the critical parts of the building must be designed to act as a smoke clearance system to assist the fire brigade operations. The mechanical ventilation system must:

a. be capable of providing a minimum of one air change per hour;

b. include a means of providing adequate make-up air;

c. fans with metal blades suitable for operation at normal temperature may be used;
d. the electrical power and control cabling need not be fire rated.

e. have manual controls for the fire brigade to control the smoke clearance fans. The controls must be located (adjacent to the fire indicator panel / inside the pump room) so that it can be readily located by fire-fighters on arrival to the site; and

f. appropriate signage must be provided to identify the purpose of the smoke clearance controls.
CHAPTER 11

STORAGE AND WORKSHOP BUILDINGS – INTOLERABLE LOSS

SCOPE

11.1 This chapter details the Defence design requirements for passive and active fire safety measures for new construction, alterations, additions or change-in-use to storage buildings and workshops which have been classified as having an intolerable loss in a fire event – regardless of Contribution Factor (CF) – in the Building Criticality Assessment Form at Annex 2A.

Notes

• The requirements of this chapter do not apply to the following buildings or parts of buildings:
  – computing equipment, electronic equipment, data / document storage; or
  – hangar aircraft areas;
  – Explosive Ordnance storage buildings.

Refer to Chapter 10, Chapter 13 and Chapter 14 for the respective requirements.

AIM

11.2 The aim of this chapter is to detail additional levels of fire protection for storage buildings and workshops identified as having an intolerable loss in a fire event. This is to protect valuable Defence assets and maintain Defence operational capability, by limiting the impact of fire damage to the building and its contents.

REFERENCES

11.3 Reference is necessary to current issues of the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. Australian Standard (AS) 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire;

c. AS 1682.1—Fire, smoke and air dampers—Part 1: Specification;

d. AS 1682.2—Fire, smoke and air dampers—Part 2: Installation;

e. AS 2118—Automatic fire sprinkler systems (suite of standards); and

f. AS/NZS (New Zealand Standard) 1668.1—The use of ventilation and air-conditioning in buildings—Fire and smoke control in buildings.
GENERAL

11.4 This section details the Defence policy for passive and active fire safety measures for nominated storage buildings and workshops located within buildings or parts of buildings.

11.5 The general principles applied to these types of facilities are to provide:

a. fire separation of critical assets / functions from each other and from non-critical parts;

b. fire suppression to protect the buildings or parts identified as having an intolerable loss in fire:
   (1) prevent exceeding the extent of loss;
   (2) protect separate critical assets / functions from a single fire event;
   (3) minimise restoration times;

c. fire detection and alarm systems; and

d. smoke management where it will reduce smoke damage and restoration time.

NON-COMBUSTIBLE CONSTRUCTION

11.6 External walls and structural elements of the area classified as having an intolerable loss in a fire event must be of non-combustible construction. This requirement also applies to type C construction buildings. For the purpose of this requirement, non-combustible is as defined in the BCA.

FIRE SEPARATION

11.7 Fire separation shall be provided between any ancillary or non-critical part and a critical asset / function.

11.8 Fire separation should also be provided:

a. between separate critical assets / functions within a building; or

b. to reduce the critical asset / function to a tolerable loss in a fire event.

Note

- Smoke separation is not specifically required for storage buildings and workshops, however where smoke separation may provide a benefit at reasonable cost it should be considered. This should be documented in the design brief and provided to the building certifier as part of the project requirement.

11.9 The intolerable loss shall be as determined by the Project Sponsor in the criticality assessment. The need for fire separation shall be provided by the Project
Sponsor, normally in the project brief and provided to the building certifier as part of the project requirement.

11.10 Where fire separation is required it shall be constructed as follows:

a. the fire separation requirements are to align with the BCA requirements for a fire wall in accordance with the relevant type of construction in specification C1.1 of the BCA;

b. any doorway in that construction must be a self-closing fire door in accordance with part C3 of the BCA;

c. any openings in external walls of fire separated areas must be separated and protected in accordance with clause C3.3 and C3.4 of the BCA; and

d. openings for services, penetrations, construction joints and the like protected in accordance with clauses C3.12, C3.13 (for type A construction), C3.15 and C3.16 of the BCA.

Notes

- Fire, smoke and air dampers shall be installed in accordance with AS 1682 Parts 1 and 2, and AS/NZS 1668.1.

- Fire and smoke dampers shall be installed in the same manner for which the prototypes have been fire tested or assessed by a testing authority to be in accordance with AS 1682.1. It is important that verification confirm the installation has been in accordance with prototype testing or testing authority assessment as part of the building approval process.

- Current fire test certificates or testing authority assessment certificates shall be provided for all fire and smoke dampers installations as part of the building approval process.

FIRE SUPPRESSION

11.11 Entire buildings or fire compartments greater than 72m² shall be sprinkler protected throughout. Consideration shall be given to protecting any supporting services to maintain operations. Consideration is also required where a fire in a non-critical part would impact on the critical function. The installation shall be in accordance with specification E1.5 of the BCA and AS 2118 as applicable.

11.12 Floor drainage and leak detection systems should be considered where sprinkler systems are installed. The consideration shall be documented in the project design report.

FIRE DETECTION

11.13 Storage buildings and workshops that do not have fire sprinklers installed must have a fire detection and alarm system complying with clause 4 of specification E2.2a of the BCA and AS 1670.1.
SMOKE EXHAUST

11.14 Smoke exhaust shall be provided to new storage buildings and workshops where the fire compartment exceeds 2,000m² or 12,000m³.

11.15 The installation of smoke exhaust systems required shall be in accordance with specification E2.2b of the BCA (including the requirements for draught curtains and inlet ventilation). Automatic operation of the smoke exhaust shall be initiated by the fire detection or suppression system.

Notes

- Preference shall be given to automatic smoke exhaust systems which can be configured for environmental / temperature control and smoke exhaust mode;
- Make-up air systems shall be separate from environmental / temperature control systems; and
- Mechanical services provided for environmental / temperature control shall be designed such that they do not unduly interfere with the operation of smoke exhaust systems.
CHAPTER 12
BUILDING CONSTRUCTION IN BUSHFIRE PRONE AREAS – INTOLERABLE LOSS

SCOPE

12.1 This chapter details the Defence design requirements for new construction, alterations, additions or change-in-use for buildings or parts located within or adjacent to designated bushfire prone areas.

12.2 The design requirements of paragraph 12.1 apply to:

a. class 1, 2 and 3 and associated class 10 occupancy classifications as nominated in the BCA; and

b. buildings or parts which have been classified as having an intolerable loss in a fire event – regardless of Contribution Factor (CF) – in the Building Criticality Assessment Form at Annex 2A.

AIM

12.3 The aim of this chapter is to define the minimum standards for bushfire protection for Defence buildings. This includes minimising the risk of impact of bushfire on life safety and strategic Defence assets as well as the damage caused by secondary fires after the passage of the main fire front.

REFERENCES

12.4 Reference is necessary to the following documents:

a. National Construction Code Volume One and Volume Two – BCA;

b. Australian Standard (AS) 3959—Construction of buildings in bushfire-prone areas;

c. AS/NZS (New Zealand Standard) 4200.1—Pliable building membranes and underlays – Materials;

d. Defence Guidelines for Determining bushfire attack Levels – available on DEQMS; and


OBJECTIVES

12.5 The objectives of protecting Defence buildings from bushfire are to:

a. protect human life (including firefighters); and

b. minimise the impact of bushfire on buildings, assets and functions.
COMPLIANCE REQUIREMENTS

12.6 When required by paragraph 12.1, BCA compliance is to be achieved for the following buildings located in a designated bushfire prone area:

a. a class 1 building, or a class 10a building or deck associated with a class 1 building; and

b. a class 2 or 3 building, or a class 10a building or deck associated with a class 2 or 3 building.

12.7 When required by paragraph 12.1, the MFPE construction and bushfire protection requirements are to be achieved for all classes of buildings identified as having an intolerable loss in a fire event that are located in designated bushfire prone areas. The design of these buildings shall comply with AS 3959 and the additional requirements specified herein.

12.8 Specialist facilities such as fuel installations and explosive ordnance buildings must adopt a fire strategy or performance based approach using this chapter, the BCA and AS 3959 to determine requirements necessary to mitigate the identified hazards. The assessment shall include but not be limited to:

a. hazards posed by the building;

b. bushfire attack level;

c. potential exposure to radiant heat, wind and ember attack; and

d. method to protect the facility and surrounding assets.

12.9 Fire Protection Association, Australia Bushfire Planning and Design (BPAD) accredited practitioners may undertake and / or review designs compliant with the BCA deemed to satisfy (DTS) provisions (DTS Solution) and / or designs compliant with this chapter.

Note

- A BPAD accredited practitioner can only perform building assessments to the extent allowable by their accreditation level and experience for the respective State / Territory where the work is being performed.

12.10 Any performance solution or dispensation must be produced or verified by a BPAD-Level 3 accredited practitioner.

DETERMINING BUSHFIRE PRONE AREAS AND BUSHFIRE ATTACK LEVELS

12.11 All building works must have regard to the Bushfire Management Plan (BMP) for the site.

12.12 Areas of the Defence Estate designated as bushfire prone in accordance with Chapter 6 are to be treated as ‘designated bushfire prone areas’ for the purposes of the BCA and AS 3959.
12.13 All buildings within 145 metres of classifiable vegetation are to be assessed for bushfire risk.

12.14 Bushfire attack Levels may be determined using the method set down in the Defence Guidelines for Determining Bush Fire Attack Levels, or they may be specifically calculated by a BPAD-Level 3 accredited practitioner.

12.15 No reduction in the calculated BAL from shielding by walls of the building is permitted.

BUILDING CONSTRUCTION (GENERAL PROVISIONS)

12.16 The construction requirements in the remainder of this chapter only apply to buildings referred to in paragraphs 12.6 to 12.8.

12.17 Unless higher levels are specified, all buildings within designated bushfire prone areas shall meet the prescriptive requirements for BAL12.5 under AS 3959.

12.18 For all buildings within a zone that is equal to or above BAL12.5 and below BAL 40 either the prescriptive requirements under AS 3959 or performance solutions of the BCA may be used. Where requirements for buildings identified as having an intolerable loss in fire are not specified in the BCA, the performance requirements associated with class 1 to 3 buildings, and associated class 10 buildings, shall be met.

12.19 Buildings should not to be sited within areas with a BAL rating of 40 and above unless there is no viable alternative. Where there are no viable alternative siting options, a performance solution shall be undertaken by a BPAD-Level 3 accredited practitioner. Where requirements for buildings or facilities are not specified in the BCA, the performance requirements associated with class 1 to 3 buildings shall be met.

12.20 Consultation with the relevant State or Territory Fire Service shall be undertaken for all Defence projects that are to be constructed on designated bushfire prone land. The consultation shall include, but not be limited to, the adequacy of bushfire design and fire service access requirements. Evidence of this consultation shall be documented in the project design report.

BUILDING CONSTRUCTION (SPECIAL PROVISIONS)

12.21 All roofs are to be fully sarked. Sarking material will comply with the following:

a. non-combustible material; or

b. breather-type sarking that complies with AS 4200.1 and with a flammability index of not more than 5, with sarking to be installed on the outside of the frame.

12.22 All elevated floors and subfloors within zones with a BAL 12.5 – BAL 29 are to meet the following requirements:

a. constructed entirely of non-combustible material;
b. constructed of *bushfire* resistant timbers (as per AS 3959-2009 Appendix H); or

c. a combination of the above.

12.23 Where decking material is to be sealed to restrict entry of embers into subfloor areas, this is to be accomplished through either:

a. ember mesh installed directly underneath the deck boards; or

b. silicon sealing of all gaps in the decking, with holes with a maximum aperture of 2mm drilled in the sealant to allow for drainage.

**ASSET PROTECTION ZONES**

12.24 *Bushfire attack level* and required construction standard can be reduced through provision of an *asset protection zone*.

12.25 *Asset protection zones* shall comply with the requirements of NSW Rural Fire Service the Planning for Bushfire Protection – 2006.

12.26 All data and other requirements of Chapter 6 shall be complied with to ensure that APZs are maintained for the life of the building through the site *bushfire* mitigation works schedule and the BMP.

**FIRE SERVICE ACCESS**

12.27 Where a *bushfire hazard* exists on or adjacent to the site, the access design criteria applied to the development shall meet responding fire service requirements, particularly in terms of road design standards for emergency vehicles and potential for alternative access paths. Also refer to paragraph 2.36.

**BUSHFIRE SPRINKLER SYSTEMS**

12.28 Where sprinkler systems are installed to provide additional *bushfire* protection the following must apply:

a. Sprinkler systems are not to substitute building design solutions under AS 3959 unless these are:

   (1) sprinkler systems designed as a comprehensive solution with regard to building coverage, water output, hydraulic loading, pump pressure and water supply;

   (2) pumps that are independently powered with no single point of failure, appropriately shielded from *bushfire attack* and activated from within the building (ie no need to leave the shelter to activate); and

   (3) sprinkler systems are to have a minimum water supply of four hours.

12.29 In the case of heritage buildings or other assets that cannot be readily modified, the risk of these buildings and potential options to mitigate these risks
should be assessed by a BPAD-Level 3 accredited practitioner with regard to their function and intended use.
CHAPTER 13

AIRCRAFT HANGARS

SCOPE

13.1 This chapter details the Defence design requirements for passive and active fire safety measures for new construction, alterations, additions or change-in-use to aircraft areas in hangars and deployable hangars. Parts of the building that do not contain aircraft must comply with the general requirements detailed in the BCA and the specific requirements in other chapters of the MFPE as applicable.

AIM

13.2 The overall aim of this chapter is to detail appropriate levels of fire protection for aircraft areas to protect aircraft from a fire event.

REFERENCES

13.3 Reference is necessary to the following documents:

a. National Construction Code Volume One – Building Code of Australia (BCA);

b. National Fire Protection Association (NFPA) 11—Standard for Low-, Medium-, and High-Expansion Foam;

c. NFPA 409—Standard on aircraft hangars;

d. Australia Standard (AS) 1319—Safety signs for the occupational environment;

e. AS 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire;

f. AS 1940—The storage and handling of flammable and combustible liquids;

g. AS 2118.1—Automatic fire sprinkler systems—General requirements;

h. AS 2118.3—Automatic fire sprinkler systems—Deluge systems;

i. AS 2419.1—Fire hydrant installations—System design, installation and Commissioning;

j. AS 2441—Installation of fire hose reels;

k. AS 2444—Portable fire extinguishers and fire blankets—Selection and location; and

l. AS 4806 suite of standards—Closed circuit television (CCTV).
13.4 The fire safety measures that are required in hangars / aircraft areas are dependent on the strategic value of the aircraft, the number of aircraft in the same fire compartment and whether the building contains fuelled or unfuelled aircraft. The protection requirements are increased in line with the level of importance according to the Contribution Factor (CF). A description of CF categories according to operational capability is provided in table 13-1 below:

**Table 13–1 Contribution Factor descriptions**

<table>
<thead>
<tr>
<th>Hangar / aircraft area criticality / Contribution Factor (CF)</th>
<th>Description</th>
<th>Fire protection level objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intolerable loss in a fire event</td>
<td>Where the loss or partial loss of aircraft in a fire event would be of high impact to Defence operational capability.</td>
<td>High</td>
</tr>
<tr>
<td>CF1 and CF2</td>
<td>Where the aircraft contribute towards Defence operational capability but the loss in a fire event is tolerable.</td>
<td>Moderate</td>
</tr>
<tr>
<td>CF3, CF4 and CF5</td>
<td>Where the loss or partial loss of aircraft in a fire event would be of minor or no impact to Defence operational capability.</td>
<td>Low</td>
</tr>
</tbody>
</table>

13.5 To facilitate the assessment process and to formally record its conclusions, the Building Criticality Assessment Form at Annex 2A and hangar Assessment Form at Annex 13A of this chapter shall be completed by the Project Sponsor. The delivery authority is responsible for ensuring this process is completed for all new building projects, refurbishments and alterations. The forms must be part of the design documentation for the hangar and should be finalised at the design briefing stage. The delivery authority is also responsible for ensuring the completed forms are attached to the structure in the Defence Estate Information System (DEIS) prior to building handover.

13.6 The assessment process described above is also required for existing hangars where the operational capability level of the aircraft is the subject of a change-in-use or where the assessment has not been done. Where this occurs, the Assistant Secretary Regional Services is to ensure that the Criticality Assessment Form and hangar Assessment Form is completed. The Assistant Secretary Regional Services must ensure that the form is saved in DEIS.

13.7 The fire safety requirements for each category are specified below.
DEPLOYABLE HANGAR

13.8 A special structure classification may be applied to deployable hangars. Refer to paragraphs 3.34 to 3.38 for these requirements. Refer to Annex 3A for exempt work concessions.

CONTRIBUTION FACTOR 3, CONTRIBUTION FACTOR 4 AND CONTRIBUTION FACTOR 5

13.9 Hangars / aircraft areas assigned a CF3, CF4 and CF5 are required to comply with the BCA and the additional MFPE requirements specified below.

SIGNAGE

13.10 Hangars that house only unfuelled aircraft shall have a regulatory sign in accordance with AS 1319 with appropriate symbol and the following wording ‘THIS AHANGAR SHALL HOUSE AUNFUELLED AIRCRAFT ONLY’. A minimum of two signs shall be located in clearly visible locations.

FLOOR DRAINAGE

13.11 Aircraft areas shall incorporate floor drainage systems. Floor drainage systems shall be of sufficient capacity to ensure capture of the peak potential fuel spill and the discharge of all fire protection systems and hose streams operating concurrently at their design rate. This is to prevent uncontrolled discharge to stormwater or sewerage systems. Testing of the system shall be in accordance with ‘Guidelines for Testing Fixed Aqueous Film Forming Fire Protection System’ located on the Fire Engineering & Fire Safety page of DEQMS.

13.12 A floor drainage system shall incorporate flame traps in the aircraft area and be designed such that the aircraft area door tracks and hangar walls remain clear of flammable liquids. The floor gradient shall be not less than 0.5 percent and shall drain away from the aircraft area.

13.13 Consideration should be given to incorporating hydrocarbon detection in the drainage system to provide early warning at a monitored location as required by the users. Any installed hydrocarbon detection system shall not to be connected to the Fire Detection Control and Indicating Equipment.

HANGAR FIRE COMPARTMENTATION

13.14 In addition to when required by the BCA, aircraft areas must be constructed as a separate fire compartment to any other part of the building. The fire compartmentation shall be in accordance with section C of the BCA for fire walls and the fire resistance levels applicable for the type of construction required for the building.

BCA REQUIRED FIRE SUPPRESSION SYSTEMS

13.15 Sprinklers are required where specified by the BCA and in Defence hangars detailed in paragraphs 13.23 and 13.34. The BCA deemed-to-satisfy (DTS) provisions for fire suppression in aircraft hangars are summarised in Annex 13B.
When a sprinkler system is required by the BCA, the DTS path is not permitted due to the risk of damage to aircraft. Instead a closed head sprinkler system designed to meet the hazard category provisions of AS 2118.1, and a low level foam system in accordance with paragraph 13.35, is the Defence policy requirement. Where a fire suppression system is provided, the following additional provisions must be met:

a. **For aircraft areas** with fire compartments greater than 2,000m² and 12,000m³, fire suppression is required by the BCA. In this instance:
   1. A **fire safety engineer** is required to develop a *performance solution* that addresses the departures to the DTS provisions of the BCA and demonstrates that the performance requirements of the BCA and the asset protection requirements of the MFPE are achieved.
   2. The development of the *performance solution* is to be in accordance with Chapter 3 using the compliance path in Annex 13B as the basis for determining departures to the DTS provisions of the BCA.

b. Where suppression is provided to **aircraft areas** with fire compartments less than 2,000m² and 12,000m³ – eg to meet intolerable loss requirements – the Defence requirement for a closed head water sprinkler system used in combination with low level foam suppression is to be adopted. In this case, no *performance solution* or dispensation is required.

13.16 If high expansion, deluge foam suppression, or monitors is specified in lieu of low level foam suppression, it must be demonstrated how the adverse effects of firefighting foam are prevented from affecting aircraft (avionics, airframe and components). Project Sponsor agreement is needed for any system using high expansion foam, foam deluge or foam monitors.

13.17 For all foam suppression, consideration of the following points must be demonstrated during the design development stages:

a. environmental protection measures;

b. the down time required for clean up after a discharge;

c. the increased water storage requirement;

d. the additional firefighting foam to be contained;

e. protection of controls and main valves from a fire within the **aircraft area** while at the same time maintaining ready access for operation;

f. The effectiveness of a sprinkler system must not be unduly affected by the operation of a supplementary low level foam system or vice versa;

g. disposal requirements after a discharge; and

h. whole of life costs.
CONTRIBUTION FACTOR 1 AND CONTRIBUTION FACTOR 2

13.18 *Hangars / aircraft areas* assigned a CF1 or CF2 identified as tolerable loss shall comply with the requirements of the BCA, incorporate all the requirements for CF3, CF4 and CF5 and the additional requirements specified below.

NON-COMBUSTIBLE CONSTRUCTION

13.19 External walls and structural elements of the *aircraft hangar* must be of non-combustible construction. This requirement also applies to type C construction buildings. For the purpose of this requirement, non-combustible is as defined in the BCA.

FIRE HYDRANTS

13.20 A hydrant system must be provided regardless of building area. The installation is to be in accordance with clause E1.3 of the BCA and AS 2419.1. Consideration shall be given to providing primary coverage via an external hydrant system that has direct access to the *aircraft area*.

FIRE HOSE REELS

13.21 Fire hose reels are to be provided regardless of fire compartment size. The installation is to comply with clause E1.4 of the BCA and AS 2441.

PORTABLE FOAM EQUIPMENT

13.22 *Hangars* that can house fuelled aircraft are to be provided with foam liquid proportioners and/or a foam making branch and foam shall be provided with all fire hose reels. The portable foam equipment must be capable of producing 27 litres/min of foam solution at a minimum of 220 kPa for a period of 30 minutes in accordance with AS 1940.

FIRE SUPPRESSION

13.23 In addition to meeting the performance requirements of the BCA, *aircraft areas* that contain CF1 or CF2 (loss tolerable) capability aircraft shall consider the installation of fire suppression systems on a case by case basis regardless of building or fire compartment floor area. The consideration must be documented in the project design reports. The Defence requirements for fire suppression systems are detailed in the 'Contribution Factor 3, Contribution Factor 4 and Contribution Factor 5' section above.

PORTABLE FIRE EXTINGUISHERS

13.24 Portable fire extinguishers with an ABE classification shall be provided. The fire extinguisher shall be co-located with the fire hose reel. The size, mounting and signage requirements are to comply with AS 2444.
SMOKE DETECTION

13.25 A smoke detection system shall be provided – regardless of fire compartment size. The installation is to be in accordance with clause 4 of specification E2.2a of the BCA and AS 1670.1. Aircraft areas with low level foam systems installed shall also be provided with a flame detection installed in accordance with AS 1670.1.

FIRE COMPARTMENTATION OF AIRCRAFT AREAS

13.26 Aircraft areas may be designed for individual or multiple aircraft per fire compartment.

13.27 Where the option to house each individual aircraft in separate fire compartments is chosen, then the fire compartmentation between each aircraft shall be in accordance with section C of the BCA for fire walls and the fire resistance levels applicable for the type of construction required for the building. This option allows deletion of the MFPE requirement for smoke exhaust if the compartment is specified below.

SMOKE EXHAUST

13.28 Smoke exhaust shall be provided in aircraft areas where there are multiple aircraft in the same fire compartment. The installation shall be in accordance with specification E2.2b of the BCA for smoke exhaust. Automatic operation of the smoke exhaust shall be initiated by the fire detection or suppression system.

Notes

- Preference shall be given to automatic smoke exhaust systems which can be configured for environmental / temperature control and smoke exhaust mode.

- Make-up air systems shall be separate from environmental / temperature control systems.

- Mechanical services provided for environmental / temperature control shall be designed such that they do not unduly interfere with the operation of smoke exhaust systems.

INTOLERABLE LOSS

13.29 Incorporate all the requirements for CF1 and CF2 (loss tolerable) hangars / aircraft areas and the additional requirements specified or varied below.

FIRE COMPARTMENTATION OF AIRCRAFT

13.30 Aircraft areas should be designed such that very high or high operational capability fuelled aircraft are housed individually either in separate hangars or in separate fire compartments in the same hangar. This is the Defence preferred option.

13.31 Where the option to house individual aircraft in separate fire compartments is chosen, then the fire compartmentation between each aircraft shall be in accordance with section C of the BCA for fire walls and the fire resistance levels applicable for the type of construction required for the building.
SMOKE EXHAUST

13.32 Smoke exhaust shall be provided. The installation shall be in accordance with the requirements specified in paragraph 13.28.

FIRE DETECTION

13.33 Aircraft areas shall be provided with a flame detection installed in accordance with AS 1670.1. Consideration shall also be given to provision of early warning smoke detection.

FIRE SUPPRESSION

13.34 Aircraft areas shall incorporate a closed head sprinkler system and a low level foam suppression system in accordance with the paragraphs below regardless of building or fire compartment floor area. The Defence requirements for fire suppression systems are detailed in the 'Contribution Factor 3, Contribution Factor 4 and Contribution Factor 5' section above.

13.35 The method of installation of foam suppression is to be in accordance with the requirements of NFPA 409 and NFPA 11.

13.36 Foam suppression systems shall be provided with a control station that has automatic and manual modes for control and suitable monitoring of the foam suppression system. The control station shall be installed at a suitable location in accordance with the user requirements. Manual actuators are to be located adjacent to the fire hose reels. The manual actuators shall be installed so that they are unobstructed, readily accessible, and located in the normal paths of exit from the area. The following specific requirements must be met:

a. in automatic mode, the foam system shall operate on activation from both the smoke and flame detection systems referred to in paragraphs 13.25 and 13.33, or on sprinkler activation. The operation of a single detection type shall not cause the activation of the foam suppression system;

b. the foam system shall operate on sprinkler system activation regardless of mode;

c. manual actuators shall be active in all circumstances;

d. when the aircraft area is occupied, it shall be possible to isolate the automatic operation of the foam suppression system from fire detection activation and select manual operation at the control station;

e. when unoccupied, the automatic mode must always be selected. This sequence, personnel training and the requirements for manual operation of the foam suppression system must be incorporated into the Standard Operating Procedures for the hangar;

f. the control station shall be located / arranged in such a manner that prevents interference or accidental operation; and
to assist the system from being inadvertently left isolated, the control station shall be provided with suitable indicator light installed in a prominent location to indicate when the system has been isolated.

WATER SUPPLY FOR LOW LEVEL FOAM SUPPRESSION SYSTEMS

13.37 The water supply for a foam suppression system identified as having an intolerable loss in a fire event shall be grade 1 in accordance with the requirements of AS 2118.1.

13.38 The water and foam supply shall be sufficient to operate the foam zone in alarm and all immediately adjacent foam zones for a minimum of 30 minutes. The water and foam must be available for the full 30 minutes at the pressure and flow to meet the requirements of the system design.

FIREFIGHTING FOAM

13.39 The type of firefighting foam to be used in Defence foam suppression systems shall be as follows:

a. Current Defence aqueous film-forming foam stocks can be used in existing suppression systems subject to compliance with ‘Guidelines for Testing Fixed Aqueous Film Forming Fire Protection System’ – refer to Fire Engineering & Fire Safety page of DEQMS.

b. The fire suppression foam purchased to operate existing Defence suppression systems shall not contain any PFOS or PFOA as active ingredients. Any new foam purchased shall be compatible with existing installations and shall not adversely affect or diminish the firefighting performance of existing suppression systems; and

c. New Defence suppression systems which are required to use firefighting foams shall be designed for foams that do not contain any PFOS or PFOA. Where possible the suppression systems shall be designed to deliver the required performance using a PFAS free foam.

Note: Details of environmental considerations for fire-fighting foam can be found in the Pollution Prevention Management Manual Annex C – Fire Fighting Foam Management.

COMMISSIONING AND MAINTENANCE REQUIREMENTS FOR LOW LEVEL FOAM SUPPRESSION SYSTEMS

13.40 The commissioning of low level foam suppression systems shall include the physical testing of all possible combinations of detection circuits (smoke and flame) to ensure that only the designed circuits (one smoke and one flame in foam zone of fire source) operate the automatic foam suppression sequence. Care must be taken to ensure that two or more smoke detection circuits or two or more flame detection circuits do not initiate a foam discharge. Detailed commissioning requirements and maintenance tests to confirm system design parameters are provided in Guidelines for Testing Fixed Aqueous Film Forming Fire Protection System and NFPA 11.
CLOSED-CIRCUIT TELEVISION SYSTEMS

13.41 A CCTV installation should be considered where the system would enhance a fire service response in *aircraft area*. The preferred option is for the system to be monitored by the responding Defence fire service. Sponsors will identify when CCTV systems are required. When provided the system shall comply with AS 4806. Consideration of this requirement must be documented during design development.

Annexes:
13A  Hangar Assessment Form
13B  Hangar Suppression Requirements
ANNEX 13A

HANGAR ASSESSMENT FORM

<table>
<thead>
<tr>
<th>E&amp;I Region:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment:</td>
<td></td>
</tr>
<tr>
<td>Building Name:</td>
<td>DEIS ID:</td>
</tr>
</tbody>
</table>

Specify maximum number of aircraft to be housed in the **hangar** Specify number

Is the loss of the aircraft (one or more) in a **hangar** fire event intolerable to Defence operational capability? YES / NO

If partial, specify extent of tolerable loss N/A, % OR QUANTITY

Will fuelled aircraft will be prohibited in the **aircraft area**? YES / NO

**Deployable hangar** YES / NO

Project sponsor / A S Estate planning comments

Project Sponsor

Name:  
Position:  
Signature:  
Date:  

AS Estate Planning

Name:  
Position/title:  
Signature:  
Date:  

Notes:

- The Building Criticality Assessment Form at Annex 2A shall be completed by the Project Sponsor.
ANNEX 13B

HANGAR SUPPRESSION REQUIREMENTS

13.42 The requirements of the Building Code of Australia (BCA) are met by demonstrating compliance with the performance requirements of the BCA. This is achieved by either developing a performance solution or by developing a Deemed-to-Satisfy (DTS) solution or a combination of both methods.

13.43 Figure 13B–1 summarises the path where a DTS solution is adopted for fire suppression in aircraft hangars.

Figure 13B–1 Flowchart of the BCA DTS aircraft hangar suppression requirements

<table>
<thead>
<tr>
<th>Table E1.5 of the BCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire compartment with excessive hazard (ie. aircraft hangar) with a floor area of more than 2,000m² or a volume of more than 12,000m³</td>
</tr>
<tr>
<td>Design to comply with specification E1.5 of the BCA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specification E1.5 of the BCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clause 2(a) of specification E1.5 requires the design to comply with AS 2118.1</td>
</tr>
<tr>
<td>BCA referenced version is AS 2118.1-1999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AS 2118.1-1999 (sprinkler systems)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A4.1 classifies aircraft hangars as a high hazard occupancy</td>
</tr>
<tr>
<td>Table 11.1.2 of section 11 for high hazard class systems specifies deluge zone protection for aircraft hangars</td>
</tr>
<tr>
<td>Clause 2.3.2.7 of AS 2118.1 requires deluge systems to comply with AS 2118.3</td>
</tr>
<tr>
<td>Clause A1.3 of the BCA notes that a reference to a document in specification A1.3 of the BCA that also references other secondary documents, then that secondary reference is to the document that existed at the time of publication of the primary document</td>
</tr>
<tr>
<td>The version of AS 2118.3 in force at the time of publication of AS 2118.1-1999 was the 1997 version. As such, this is the version that is used as the secondary reference</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AS 2118.3-1997 (deluge systems)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 2118.3-1997 requires compliance in part with NFPA 409. The NFPA 409 version that was in force when AS 2118.1-1999 was written is NFPA 409-1995</td>
</tr>
<tr>
<td>Clause 2.3.1 requires aircraft hangar deluge systems to conform to the area limitation requirements set out in NFPA 409</td>
</tr>
<tr>
<td>Note 4 of table 2.3.2 suggests the design density for deluge systems in hangars be varied in accordance with the requirements of NFPA 409 and when using foam concentrate</td>
</tr>
<tr>
<td>Section 3 of AS 2118.3 suggest for systems covering flammable liquids a foam concentrate additive (ie. foam deluge) could be advantageous</td>
</tr>
<tr>
<td>A foam deluge system in accordance with AS 2118.3 is required under the DTS provisions of the BCA for aircraft given the potential for flammable liquids. This is not the Defence preferred system. Refer to fire suppression sections in Chapter 13.</td>
</tr>
</tbody>
</table>
Notes

- The designers must consider the shielding effect of the aircraft / wings on a required suppression system and its effectiveness in protecting aircraft with large wingspans.

- Where current editions of standards and codes are not the BCA referenced edition, the designers must consider the current editions of relevant standards in order to demonstrate due diligence. This must be documented in the design reports.
CHAPTER 14
EXPLOSIVE ORDNANCE STORAGE BUILDINGS

SCOPE

14.1 This chapter details the Defence design requirements for passive and active fire safety measures for new construction, alterations, additions or change-in-use to explosive ordnance (EO) storage buildings.

AIM

14.2 The aim of this chapter is to detail appropriate levels of fire protection for Defence EO storage buildings.

REFERENCES

14.3 Reference is necessary to the following documents:

a. eDEOP 101 Defence Explosive Ordnance Publication
b. National Construction Code Volume One – Building Code of Australia (BCA);

c. Australian Standard (AS) 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire;

d. AS 1682.1—Fire, smoke and air dampers—Part 1: Specification;

e. AS 1682.2—Fire, smoke and air dampers—Part 2: Installation;

f. AS 2444—Portable fire extinguishers and fire blankets—Selection and location; and

g. AS/NZS (New Zealand Standard) 1668.1—The use of ventilation and air-conditioning in buildings—Fire and smoke control in buildings.

FIRE PROTECTION PRINCIPLES

14.4 The fire protection principle to be applied to EO buildings is to minimise the risk of fire initiation and also to limit the impact of fire spread to or from the explosives areas. This is to be achieved by a combination of fire safety measures including minimal use of combustible materials, fire separation and provision of appropriate active fire systems. The principle consideration for EO building design is to only provide essential fire systems and to limit non-required fire safety systems within explosive ordnance areas.

14.5 The fire safety measures specified herein are the minimum requirements. Additional fire safety measures must be incorporated as appropriate to address the specific facility risks – for example, where exposed explosive materials may be present.
14.6 Equipment and wiring may act as an ignition source. The principle regarding the installation of electrical and electronic equipment in EO areas is to minimise the electrical and electronic installations to essential only.

Note

- As an example, the BCA does not require any fire protection system to be provided in a single storey building with a floor area of less than 300m². However, this does not limit the designers’ obligation to consider situations where it may be appropriate to provide some form of detection or early warning system to facilitate evacuation of rooms adjacent to EO areas where a fire could occur undetected. An example could include a process building for EO preparation with multiple rooms.

PASSIVE FIRE PROTECTION

CONSTRUCTION AND SEPARATION

14.7 External walls and structural elements of EO buildings must be of non-combustible construction. For the purpose of this requirement, non-combustible is as defined in the BCA. Further requirements for critical buildings in bushfire prone areas are provided in Chapter 12. Additional fire safety measures must be incorporated as appropriate to address the specific facility risks when exposed explosive materials are present.

14.8 The following rooms / areas within EO buildings shall be fire and smoke separated from the remainder of the building in accordance with paragraph 14.9:

a. All EO from non-EO areas;

b. All Groups G and H – as defined in eDEOP 101;

c. a Small Quantity room – as defined in eDEOP 101; and

d. a plantroom containing an electrical supply switchboard and / or mechanical plant.

14.9 Where fire and smoke separation is required, it shall be constructed as follows:

a. internal fire walls providing fire separation shall be constructed of concrete or masonry, subject to compliance with eDEOP 101 explosion hazard design requirements.

b. the fire separation requirements are to align with the BCA requirements for a fire wall in accordance with the relevant type of construction in specification C1.1 of the BCA;

c. any doorway in that construction must be a self-closing fire door in accordance with part C3 of the BCA;

d. any openings in external walls of fire separated areas must be separated and protected in accordance with clause C3.3 and C3.4 of the BCA;
e. smoke separation in accordance with the method described in clause 2 of specification C2.5 and clause 3 of specification C3.4 of the BCA; and

f. openings for services, penetrations, construction joints and the like protected in accordance with clauses C3.12, C3.13 (for type A construction), C3.15 and C3.16 of the BCA.

Notes

• The design requirements of item c above are considered equivalent to the separation requirements in the BCA between an electrical supply and the remainder of the building. Whilst not a BCA defined fire wall, additional requirements have also been included in relation to protection of openings in external walls and smoke separation.

• Fire, smoke and air dampers shall be installed in accordance with AS 1682 Parts 1 and 2, and AS/NZS 1668.1.

• Operation or testing of fire and smoke dampers shall not cause any sparks. Where applicable, access panels associated with fire and smoke dampers shall be located outside the EO room.

• Fire and smoke dampers shall be installed in the same manner for which the prototypes have been fire tested or assessed by a testing authority to be in accordance with AS 1682.1. It is important that verification confirm the installation has been in accordance with prototype testing or testing authority assessment as part of the building approval process.

• Current fire test certificates or testing authority assessment certificates shall be provided for all fire and smoke dampers installations as part of the building approval process.

ACTIVE FIRE PROTECTION

FIRE DETECTION

14.10 Fire detection and alarm systems shall be provided when required by the BCA. Additionally, detection and alarm systems should be installed when appropriate to provide some form of detection or early warning system to facilitate evacuation of EO areas where the intrinsic cues of a fire may not be readily apparent – eg multiple rooms within the EO building. When required they shall be installed in accordance with clause 4 of specification E2.2a of the BCA and AS 1670.1.

14.11 An air-handling system which supplies air into an EO area through a fire and smoke barrier required under paragraph 14.8 shall:

a. incorporate smoke dampers where the air-handling ducts penetrate the fire walls; and

b. be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by:
(1) smoke detection on the non-EO side of the fire and smoke wall set out as per the occupied space requirements of clause 7.5 of AS 1670.1;

(2) non-latching smoke detectors complying with clause 7.7 of AS 1670.1.

14.12 Where a fire detection and alarm system is provided:

a. the Fire Detection Control and Indicating Equipment – including a manual call point – shall be located outside the building and be clearly visible and readily accessible adjacent to the designated building entry point or the fire control room as required by AS 1670.1; and

b. the installation within the EO area must be designed and installed in accordance with the requirements of eDEOP 101 Regulation 6.3.

FIRE EXTINGUISHERS

14.13 All EO areas within a building are to be considered as special hazards for the purposes of applying clauses E1.6 and E1.10 and table E1.6 of the BCA in relation to portable fire extinguishers.

FIRE HYDRANTS AND HOSE REELS

14.14 Firefighting generally presents an unacceptable risk to on-site personnel and firefighters and as such having fire hydrants and hose reels in close proximity to or within EO buildings may not be appropriate. Therefore, fire hydrant and hose reels shall not normally be installed in or near EO buildings unless absolutely necessary and required – refer to paragraph 2.36 for requirements regarding consultation with responding firefighting services. The principle is that EO buildings be designed so that hydrant and hose reel systems are not required by the deemed-to-satisfy provisions of the BCA – eg by limitation of building floor area. If proposed to be omitted when required by the BCA, then a performance solution as outlined in Chapter 3 is required.

EXPLOSIVE ORDNANCE GOODS CLEARANCE

14.15 All EO goods shall be located a minimum of 3m from any fire and smoke barrier required under paragraph 14.8.
CHAPTER 15
DEFENCE LIVING–IN ACCOMMODATION

SCOPE

15.1 This chapter is applicable to all new and existing Living-in Accommodation (LIA) buildings and new and existing areas in other buildings used for sleeping.

AIM

15.2 The aim of this chapter is to provide Defence specific requirements for fire protection in LIA buildings and areas in other buildings used for sleeping.

REFERENCES

15.3 Reference is necessary to the following documents:

a. National Construction Code Volumes One and Two – Building Code of Australia (BCA); and

b. Australian Standard (AS) 1670.1—Fire detection, warning, control and intercom systems—System design, installation and commissioning—Fire.

DESIGN REQUIREMENTS

15.4 LIA buildings shall be designed and constructed to meet the requirements of the BCA for class 1b, 2 and 3 occupancy classifications as appropriate for the type of accommodation.

15.5 Areas used for sleeping in class 5 to 9 buildings – not defined as a dwelling – are to include the fire safety provisions of Section C, Parts D1 and D2 and Section E of the BCA for class 4 parts.

Note

• This requirement is intended for duty rooms and the like where sleeping is permitted. Paragraph 15.5 does not apply if the area is defined as a dwelling such as a caretakers unit. In this instance all relevant BCA provisions apply.

15.6 The definition of a sole-occupancy unit (SOU) is as per the BCA on the basis of the following:

a. service personnel in permanent residential LIA are deemed to be related for the purpose of determining the requirements for SOUs; and

b. transient accommodation is designated at a site for temporary or ad-hoc accommodation and for the purposes of determining SOU requirement, the occupant of transient accommodation are not considered to be related.
FIRE DETECTION REQUIREMENTS

15.7 Automatic smoke detection and alarm systems shall be installed in all LIA buildings including class 1b and class 4 parts of buildings. The installation is to be in accordance with the requirements of clause 4 of specification E2.2a of the BCA and AS 1670.1.

15.8 All systems shall be monitored in accordance with paragraphs 2.44 and 2.45.

15.9 An Alarm Acknowledgement Facility (AAF) complying with the requirements of AS 1670.1 shall be provided in LIA buildings. For new installations the following applies:

a. an AAF shall be installed in all bedrooms within LIA buildings; and

b. the AAF shall be located as close as practical to the discharge door from the area served.

15.10 The use of multi-criteria detectors within SOUs is not permitted. Photoelectric fire detectors, rather than ionisation detectors, are required.
CHAPTER 16
BUILDINGS FOR DISPOSAL

SCOPE
16.1 This chapter sets minimum requirements for fire safety in Defence facilities that are listed for disposal.

AIM
16.2 The aim of this chapter is to detail minimum levels of fire protection and fire safety measures which must be maintained until disposal is completed.

REFERENCES
16.3 Reference is necessary to Chapter 8 – Maintenance.

BACKGROUND
16.4 The lack of personnel available to take immediate action when a fire occurs in a building awaiting disposal places additional emphasis on the requirement to maintain installed protection/detection systems, linked to the nearest fire service where appropriate.

16.5 Duty of care obligations requires Defence to take a responsible approach when preparing facilities for disposal, so as not to unduly endanger the occupants or property of neighbouring establishments, or to place firefighters who respond to fires on Defence property in unnecessary danger.

REQUIREMENTS
16.6 Any building that is identified for disposal, but is still in use must comply with all the requirements of the MFPE and relevant codes in force at the time of construction. Any building that has a change in use – i.e. to storage – must comply with the requirements for the new use as set out in Chapter 3.

16.7 Buildings identified for disposal that are vacated must as a minimum comply with the following:

a. where installed, retain and maintain fire hydrants, fire detection, sprinklers and emergency warning systems;

b. unauthorised access must be prevented; and

c. exit doors must be openable and exit paths must be kept clear.

Note
- Other fire safety measures or those that were installed solely to meet the MFPE requirements may be decommissioned if safe to do so.
GLOSSARY

Aircraft area

Any part of a hangar where aircraft may be parked and any internal adjacent area not divided from that area by fire walls or open space in which fuel vapours can dissipate.

Approval authority

For building works – building certifier.

Asset protection zone

An area between an asset and a bushfire hazard where bushfire fuel has been reduced significantly to protect the asset.

Australian Defence Force operational activity

For the purpose of this policy Australian Defence Force operational activity is defined as a military deployment, a military training exercise, or Defence Force Assistance to the Civil Community.

Building approval

This is the approval issued by the building certifier as the approval of proposed work before construction commences including all supporting documentation issued in accordance with the certification process detailed in Chapter 3 —‘Building Certification, performance solutions and dispensations’.

Building certifier

A person who meets the following criteria:

a. is a qualified and experienced Building Surveyor;

b. holds current accreditation / licence as a building certifier in the State or Territory where the work is being performed; and

c. maintains at least the minimum professional indemnity insurance cover as outlined by Defence.

Building work

Building work includes any of the following:

a. building, altering, underpinning – whether by vertical or lateral support, moving or demolishing a building or other structure or element of a building or structure; or

b. excavating or filling –

   (1) for, or incidental to, the activities mentioned in paragraph (a); or
(2) that may adversely affect the stability of a building or other structure, whether on the land on which the building or other structure is situated or on adjoining land; or

c. supporting, whether vertically or laterally, land for activities mentioned in paragraph (a); or

d. other work regulated under these provisions that effects compliance with either BCA or Defence policy requirements.

Example:

A change in building status under the MFPE such as change from Contribution Factor 4 asset to a Contribution Factor 1 asset as detailed in Chapter 2 of the MFPE.

Bushfire

An unplanned fire burning in forest scrub or grassland vegetation, also referred to as a wildfire.

Bushfire attack

Attack by burning debris, radiant heat or flame generated by a bushfire which might result in ignition and subsequent destruction of a building.

Bushfire expert

An individual who can demonstrate competency against the following criteria:

a. Experience preparing strategic and tactical fire risk management plans covering scales from landscape level to property level. Demonstrated experience preparing bushfire management plans that evaluate risk level, and prescribe appropriate mitigation measures to treat risks.

b. Understanding of fire behaviour – demonstrated use of fire behaviour models for the prediction of bushfire spread and behaviour. Demonstrated experience using fire behaviour modelling to determine what levels of suppression response capacity may be needed to contain bushfires at different fire danger ratings (FDRs);

c. Practical understanding and experience of how fires are suppressed – practical experience of bushfire suppression operations for the purpose of determining what levels of suppression response capacity may be needed to contain bushfires at different FDRs; and

d. Practical understanding of prescribed burn planning and implementation – Practical experience planning and conducting prescribed burns for the purpose of ensuring that prescribed burning works proposed in bushfire mitigation works schedules are actionable, ecologically appropriate, cost-efficient, and able to be safely conducted.
Bushfire hazard

A fuel complex, defined by volume, type condition, arrangement, and location, that determines the degree of ease of ignition and of resistance to control. Bushfire hazards are variable in their severity, with severity levels usually measured in terms of the fire intensity (kW/m) arising from the hazard.

Bushfire prone area

An area that can support a bushfire or is likely to be subject to bushfire attack. For Defence purposes, a bushfire prone area includes areas that meet definitions in the NSW Rural Fire Service Guide for Bush Fire Prone Land Mapping (2015). This includes areas of forest, woodland, grassland and scrubland as well as buffers of 30 or 100m. Isolated stands of vegetation may be considered bushfire prone if they fall within the 30 or 100m buffer of other such clumps of vegetation (see details within the NSW guidelines). bushfire prone areas do not include maintained lawns, parks or gardens, nature strips, plant nurseries, golf courses, vineyards, orchards or vegetation on land that is used for horticultural purposes.

Certificate of occupancy

Certificate issued indicating that a building is substantially complete and occupancy is permissible.

Change-in-use

A change in building occupancy classification as defined in part A3 of the BCA, or where there is an increase in Contribution Factor, tolerable loss or aircraft capability level.

Classifiable vegetation

Vegetation that can be classified as representing a hazard in accordance with Table 2.3 and Figure 2.3 of AS 3959-2009. Essentially the vegetation component of the bushfire prone area without the surrounding buffer.

Defence Estate Information System

The Defence Estate Information System (DEIS) includes, but may not be limited to Objective, the Interim Business Information System (IBIS) or the Garrison and Estate Management System (GEMS).

Delivery authority

The applicable Defence Directorate responsible for a building project or building works.

Demountable buildings

Buildings which are constructed in sections in a factory and the components are transported to a site where they are reassembled. Demountable buildings are usually installed on stumps.
Deployable hangar

A deployable structure for the protection of aircraft and personnel from the weather.

Dispensation

A variation to Defence specific MFPE policy requirements.

Drainage works

*Drainage works* means any sanitary drainage, liquid trade waste drainage or stormwater drainage system.

Environment

The term *environment* includes:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- heritage values of places; and
- the social, economic and cultural aspects of a thing mentioned in paragraph a, b or c.

Environmental factor record

A management item in *GEMS* linked to a specified location on the estate. *bushfire environmental factor record (EFR)* include fire event records, *bushfire* fighting infrastructure, fire management zones, fire prone areas, fire breaks, *Fire Trails*, *asset protection zones* and other management objects.

Exempt building work

*Exempt building work* is as identified as exempt at *Annex 3A*. Whilst *exempt building works* are not required to comply with the MFPE, all work must be completed in accordance with the applicable design standards and codes and the builder or installer provide certification or evidence of compliance as appropriate.

Fire danger

The difficulty in suppressing a fire, based on fuel hazard and weather variables.

Fire danger index

*Forest fire danger index (FFDI)* and *Grassland fire danger index (GFDI)*: numeric rating of likely *bushfire* behaviour based on forecast weather parameters and fuel characteristics.
Fire danger period

The “bushfire season”. A period of the year in which heightened bushfire risk leads to a declaration by the local authority requiring permits and other restrictions on lighting of fires. Fire danger ratings may only be issued during the fire danger period.

Fire danger rating

Categorical rating of likely bushfire behaviour based on ranges of FFDI or GFDI, and potentially availability of fire fighting assets or other relevant parameters contributing to the difficulty of controlling a fire.

Fire safety engineer

Person who is deemed as being competent in the specific area of practice of fire safety engineering / fire engineering. The alternate terms for fire engineers are used by different accrediting bodies, but have the same meaning. The registration of fire safety engineers in Australia varies from State to State and the following are appropriate accreditation for carrying out fire engineering work for Defence:

a. registered / accredited as a fire safety engineer / fire engineer by the applicable accreditation body in the State or Territory where the work is to be undertaken; or

b. in a State or Territory where registration / accreditation for the area of practice of fire safety engineering is not available, persons shall be:

   (1) listed on the National Engineers Register (NER) – maintained by Engineers Australia – in the area of practice of fire safety engineering;

   (2) listed on the National Fire Engineers Register (NFER) – maintained by the Institution of Fire Engineers Australia – in the area of practice of fire engineering; or

   (3) hold appropriate registration/accreditation for the area of practice of fire safety engineering / fire engineering in another State or Territory.

Fire safety provisions of the Building Code of Australia

A reference to the Fire Safety Provisions of the BCA is a reference to sections A, C, D (parts D1, D2), E and parts G3, G5 and H1.

Fire trail or fire track

Roads, tracks and trails that serve an identified purpose for bushfire response. Some jurisdictions have specifically defined classes of trail or track. Local nomenclature should be used when preparing a Bushfire Management Plan (BMP), particularly those sections that relate to fire response.

First attack firefighting appliances

Fire hose reels, fire-extinguishers and fire blankets.
First response

Activities coordinated by an on-site authority to extinguish, contain or control a bushfire using site resources called to a fire incident that could not be extinguished by user mitigation response. Resources may be provided by Defence contractors or Defence.

Garrison and Estate Management System

A computer database and business management system that provides functionality to record bushfire events, planned works, bushfire management infrastructure and other matters relevant to bushfire management. Due for implementation in 2017.

Hangar

The whole complex including hangar aircraft area and hangar annex.

Hangar annex

Any part of a hangar that is attached to, but not part of a hangar aircraft area - eg areas including but not limited to servicing or repair facilities, building services, plant, fuel storage and working accommodation.

Land management zone (environmental and operational)

Prescribed areas with target fuel levels or burn frequency to facilitate ecological (environmental) or safety/training (operational) requirements.

Living-in Accommodation

A residential building as defined in the BCA, other than a class 1a building. This includes class 1b, 2 and 3 occupancy classifications. Defence has two categories of Living-in Accommodation (LIA) being permanent and transient. Transient accommodation is designated at a site for temporary or ad-hoc accommodation.

Local fire authority

State or Territory fire brigade or command with responsibility for bushfire response in the area that includes a Defence property.

New construction

All new building works, refurbishments, alterations and additions and work in relation to the erection, alteration or demolition of a building.

Note: This includes demountable and transportable buildings.

Occupancy classification

A building occupancy classification is as defined in part A3 of the BCA.
Performance solution

As defined in clause A0.3 of the National Construction Code - Building Code of Australia Volume One.

Plumbing works

*Plumbing work* includes any water plumbing, roof plumbing, sanitary plumbing system or heating, ventilation and air-conditioning plumbing.

Related persons

Defence considers that service personnel are related for the purpose of the determination of the requirements for BCA defined sole-occupancy units.

Recommended

Desirable but not required.

Second response

Activities coordinated by an external fire authority to extinguish, contain or control a *bushfire if first response* has proved inadequate to control a fire.

Special risk

*Special risks* are those where the processes within a facility involve the risk of explosion, the rapid propagation of fire or the generation of noxious gases which could pose a significant life risk to occupants and firefighters, or the risk of destruction of the asset before effective firefighting occurs. Examples of *special risk* service facilities are explosives stores, paint spraying booths, flammable liquids stores, engine hydraulic and high pressure fuel test stands and missile maintenance facilities.

Special structure

A Defence *special structure* classification may be applied to tents, membrane structures or *deployable hangars* (that are not exempt under Annex 3A) or buildings where full compliance with the BCA would be inappropriate due to the need for operational training realism. This classification is not to be used for general training but is limited to specialist buildings that require unique construction. The classification is not to be applied to structures such as outdoor training areas, obstacle courses or the like.

Storage building

BCA defined class 7b buildings and includes structures used primarily for storage.

Strategic fire advantage zone

*Strategic firefighting advantage zone* or *strategic bushfire mitigation zone*. A fuel reduced area located in the landscape or adjacent to an *asset protection zone*, *Fire Trail* or other specific fire protection/fighting zone with the specific purpose of
reducing fire intensity to facilitate fire response or other management activity, or reinforce the function of the adjacent measure.

Substantial alteration

An alteration or addition of a building is a substantial alteration if the total floor area of the proposed alteration or addition is more than 50% of the floor area of the original building in any three-year period prior to building approval. However, neither refitting a building nor replacing the internal elements of the building is an alteration of the building unless the layout and function of more than 50% the internal spaces of the building are changed.

Substantially complete

Building works are substantially completed when:

a. all fire safety installations are operational and installed as required under the building assessment provisions; and

b. means of access and egress have all been addressed as they apply to the building; and

c. wet areas are waterproof as required under the building assessment provisions; and

d. sanitary installations are installed as required under the building assessment provisions; and

e. all health and safety matters relating to the building comply with the building assessment provisions; and

f. reticulated water is connected; and

g. electricity supply is connected to the building and relevant aspects fitted off; and

h. all elements of additional aspects for consultation and approval by Defence have been addressed as required by any approval authority within Defence.

Transportable buildings

A small single storey building manufactured in a factory and transported to a site in one piece. Transportable buildings can be skid mounted or installed on stumps and are generally used to provide temporary accommodation of some kind.

Unfuelled aircraft

An aircraft whose fuel system has had flammable or combustible liquid removed such that no tank, cell, or piping contains more than 0.5 percent of its volumetric capacity.
User mitigation response

Immediate response actions taken by Defence personnel (including contractors) engaged in an activity that causes an ignition. These actions usually rely on hand-held equipment such as back-pack sprays, vehicle-mounted fire extinguishers and rake-hoes.

Workshop

BCA defined class 8 buildings and includes structures used primarily for engineering and workshop activities.
# ACRONYMS AND ABBREVIATIONS

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<tr>
<td>AAF</td>
<td>Alarm Acknowledgement Facility</td>
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<tr>
<td>A/DEEP–FS</td>
<td>Assistant Director Estate Engineering Policy—Fire Safety</td>
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<td>ADF</td>
<td>Australian Defence Force</td>
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<td>ADO</td>
<td>Australian Defence Organisation</td>
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<td>AFFF</td>
<td>Aqueous Film Forming Foam</td>
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<td>AS</td>
<td>Australian Standard</td>
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<td>ASEE</td>
<td>Assistant Secretary Environment and Engineering</td>
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<td>BAL</td>
<td>Bushfire attack Level</td>
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<td>BCA</td>
<td>National Construction Code – Building Code of Australia Volume One and Volume Two</td>
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<td>BOWS</td>
<td>Building Occupant Warning System</td>
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<td>BPAD</td>
<td>Bushfire Planning and Design</td>
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<td>CDF</td>
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<td>Designated Building Entry Point</td>
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<td>Director Estate Engineering Policy</td>
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<td>DEQMS</td>
<td>Defence Estate Quality Management System</td>
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<tr>
<td>DEWHA</td>
<td>Department of Environment, Water, Heritage and the Arts</td>
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<td>DSO</td>
<td>Defence Support Operations</td>
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<td>DTS</td>
<td>Deemed-to-Satisfy</td>
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<td>E&amp;IG</td>
<td>Estate and Infrastructure Group</td>
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<td>ECO</td>
<td>Emergency Control Organisation</td>
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<td>FDCIE</td>
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<td>FRL</td>
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FSO  Fire Safety Officer
ID   Infrastructure Division
ISO  International Standards Organisation
MFPE Manual of Fire Protection Engineering
NER  National Engineers Register
NFPA National Fire Protection Association (USA)
NPS  National Program Services
NZS  New Zealand Standard
PCA  National Construction Code – Plumbing Code of Australia Volume Three
PDS  Project Delivery Services
PFOS Perfluorooctanyl sulfonate
PPP  Public Private Partnership
PSM  Products and Services Manager
REO  Regional Environment Officer
SCEC Security Construction Equipment Committee
SSISEP Sound Systems and Intercom Systems for Emergency Purposes
WHS  Work Health and Safety